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THE

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ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.

NOTICE!—COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M.; Scientific at 1 P.M.; General Meeting, for the Election of Fellows, &c., at 3 P.M. on TUESDAY NEXT, July 10. Fifth Promenade Show and Band, from 4 o'Clock. Admission 1s., which includes entrance to the Fisheries Exhibition.

LEE, BLACKHEATH, and LEWISHAM HORTICULTURAL SOCIETY.

The ANNUAL EXHIBITION, will, by kind permission, be held in the grounds of Mrs. Peon, The Cedars, Lee, on JULY 11 and 12. All particulars may be obtained of

5, Boones Road, Lee, S.E. Mr. C. HELMER, Sec.

HULL BOTANIC GARDENS' HORTICULTURAL EXHIBITION, on WEDNESDAY, THURSDAY, and FRIDAY, July 11, 12, and 13. For Schedules and particulars apply to

PHILIP MacMAHON, Curator and Secretary.
Botanic Gardens, Hull.

ROYAL MANCHESTER and NORTHERN COUNTIES BOTANICAL and HORTICULTURAL SOCIETY.—A GRAND ROSE and STRAWBERRY SHOW will be held io the Gardens, Old Trafford, on SATURDAY, July 21. For Schedules apply to the undersigned,

BRUCE FINDLAY, Royal Botanic Gardens, Manchester.

Business Notice.

I, ROBERT TAIT, sole surviving Partner of the firm of Dickson, Brown & Tait, Seed Merchants, 43 and 45, Corporation Street, Manchester, have this day TAKEN INTO PARTNERSHIP, Mr. ARTHUR TESTER (who has been employed with the firm over 22 years), and Mr. DAVID FLEMING (who has been employed with the firm 10 years); and the said business will in future, as heretofore, be conducted under the old designatioo of DICKSON, BROWN AND TAIT.—July 2, 1883.

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VANDA CATHCARTII.
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Dark mahogany, margined white	36	3 0	White, violet eyes	34	3 0
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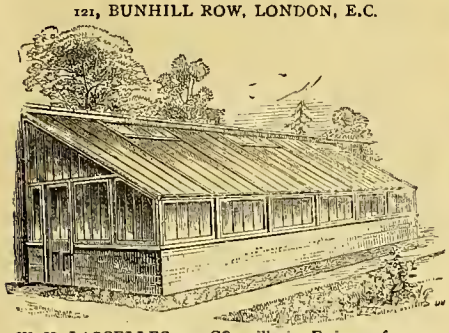

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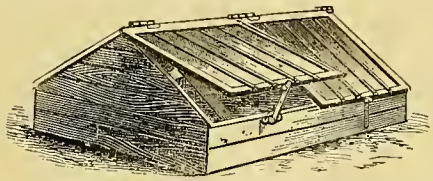

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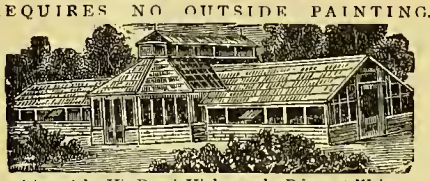

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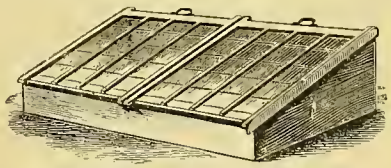

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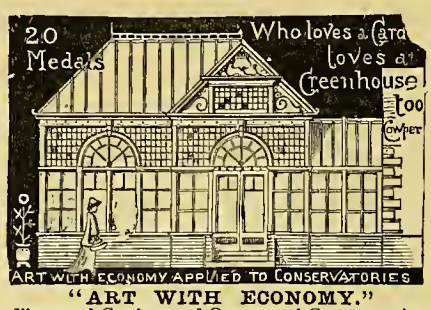

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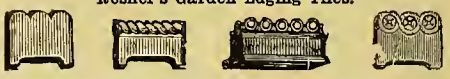

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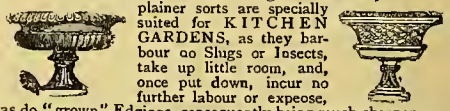

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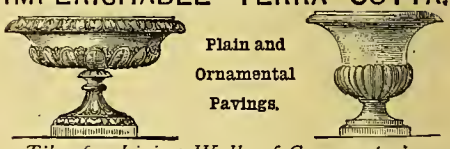

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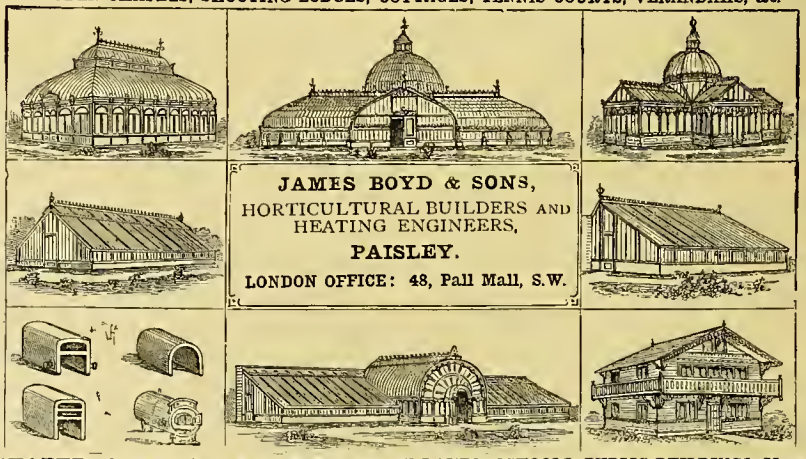

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THE

Gardeners' Chronicle.

SATURDAY, JULY 7, 1883.

PLANTS OF SHAKESPEARE.

IT seems but the other day that we had occasion to note the publication of Canon Ellacombe's admirable *Plant Lore and Garden Craft of Shakespeare*, and now we are called on by the receipt of Mr. Grindon's *Shakespere Flora** to advert once again to the subject. The difference in the titles of the two books, and in the mode of spelling of the dramatist's name—matters comparatively trifling in themselves, are nevertheless indicative of the varied manner in which the authors have worked. Dealing with the same material, necessarily somewhat closely restricted as to scope, it is, indeed, interesting to note the characteristically different manner in which the two authors have gone to work. We shall not advert in detail to the several points of difference—that would spoil the reader's pleasure and hardly be fair to either author; suffice it to say, that while Canon Ellacombe arranges his matter alphabetically according to the name of the particular plant, and gives us an exhaustive account of all that is to be said from the point of view of a botanist and a gardener, Mr. Grindon disposes of what he has to say under the following headings:—"In the wood, the wild flowers, the garden flowers, the cultivated fruits, vegetables, and medicinal herbs; the farm, the wilderness and the wayside, the market place and the shops; and, lastly, book and hearsay names."

An index places Mr. Grindon's book, in so far, on an equality with that of his predecessor, and with that remark we set aside all further comparison of the two, and confine ourselves to the consideration of the newcomer. The great charm in Shakespeare's allusions to plants is their perfect fitness to the matter in hand. They are not intended to teach us botany. They are not lugged in as rhetorical ornament, but they grow naturally out of the subject-matter. They are not the product of affectation or display, but genuine expressions of the idea intended to be conveyed. Whether it be Ophelia piteously holding her handful of "weedy trophies," or Perdita distributing "those flowers," the plants selected by the dramatist for his purpose are as fit as the language he employs is touching and beautiful. It must be noted, however, that this remark only applies to such plants and flowers as Shakespeare had seen from childhood in that pleasant midland county—the heart of England—as Shakespeare himself is the heart of modern English literature. Shakespeare was no traveller, and when he takes us from the familiar Warwickshire meadows and gardens he loses that power of truthful delineation which goes straight to the heart of his readers. For instance, when he speaks of "tufts of Olives" or of a sheep-cote fenced about with Olive trees, he conveys a wrong impression, as false to Nature as the

> "Willow ascaunt the brook
> That shows his hoar leaves in the glassy stream"

is true.

Shakespeare had gathered wild flowers,

* *The Shakespere Flora; a Guide to all the Principal Passages in which Mention is made of Trees, Plants, Flowers, and Vegetable Productions, &c.* By Leo H. Grindon. (Manchester: Palmer & Howe.)

"Nettles, Daisies, and long Purples;" he had felt the joy that makes one dash into a wood full of Primroses and Bluebells, to secure the "trophies"—trophies, indeed. But see how observant is the poet—"weedy trophies," he calls them. And what are wild flowers when gathered but weedy trophies? How limp they become in a short time, as if they pined for their native woods. But the appropriateness of their employment, and the exquisite felicity of the language made use of, are not the only things for which botanists and gardeners have to thank Shakespeare. Mr. Grindon points out two instances in which, such has been the influence of the poet, that names previously "*varium et mutabile semper*" have become fixed, and a Primrose will remain a Primrose, a Violet by no other name be called so long as literature endures. Before Shakespeare's time the Violet might be one of a dozen different things; the fanciful Greeks did not fix upon any one plant to bear the name; the practical Romans gave no heed to the matter. Our forefathers of the Middle Ages called Snowdrops, and "Honesty," and "Canterbury Bells," and a dozen other things, all by the name of Violet; but Shakespeare's Violet is as definite and unmistakable as Linnæus' Viola odorata. Could all English names be crystallised as Shakespeare's Violet is, there would not be much dispute in future as to the propriety of employing vernacular names. And so with the case of the Primrose—it was a Daisy, a Cowslip, the common Privet, and other things; but, from and after Shakespeare's time, the word Primrose has been more unvarying in its application than has the Latin designation of the same plant. How far Shakespeare himself is responsible for this we do not know. Mr. Grindon might tell us perhaps what share his contemporaries had in the matter. Ophelia's flowers, as we have seen, are wildings, but Perdita's flowers were culled from the garden—

> "Bold Oxlips and
> The Crown Imperial; Lilies of all kinds,
> The Flower de Luce being one."

Besides these are Carnations and streaked Gillyflowers, and

> "The Marigold that goes to bed with the sun,
> And with him rises, weeping."

In alluding to garden flowers, we must remember that Shakespeare and Gerard were contemporaries, that the *Catalogus* and the *Herbal* of the latter were both published in Shakespeare's time. The help thus afforded to the critical commentator is, therefore, great, and the interest to the gardener is enhanced by the knowledge thus obtained, that Shakespeare could have had no personal knowledge of a tithe of the beautiful and useful plants now at his disposal.

Shakespeare, for instance, only knew the Cedar from the allusion to it in Scripture. Potatos were unknown to him, for when the word is used by him it applies to the Batatas (Convolvulus), not to the Solanaceous tuber which Shakespeare's contemporary, Raleigh, is credited with introducing, and which Gerard grew. Tobacco—also an introduction of Raleigh's—is not mentioned by the poet. That Shakespeare must have seen an English vineyard seems evident from this passage in *Measure for Measure*:—

> "He hath a vineyard, circummured with brick,
> Whose western side is with a vineyard backed;
> And to that vineyard is a planched gate
> That makes the opening with this bigger key:
> The other doth command a little door
> Which from the vineyard to the garden leads."

One would almost fancy that Shakespeare must have seen the vineyard at Hatfield, so closely does the description fit. While alluding thus to plants that Shakespeare must have known, and to those of which he could have had no cognisance, we may call attention to an oversight on p. 17, where the Birch is mentioned as introduced after Shakespeare's time. There is, so far as we know, no reason for doubting that the Birch is a genuine native, and indeed elsewhere Mr. Grindon treats it as such.

It is not only the gardener and the botanist that will turn to Mr. Grindon's pages, the critic and the philologist will find it no less their interest to do so, for in his endeavour to elucidate the plant-names made use of by the dramatist Mr. Grindon has naturally been led to compare the statements made in the authorised version of the Bible, the works of Bacon, and of contemporary dramatists and writers generally. By this means Mr. Grindon has solved the question as to the nature of the "juice of cursed hebenon," which Hamlet's uncle poured into the porches of the ears of the prince's father. Mr. Grindon identifies it with the "hebon" mentioned by Marlowe and Spenser, and shows that "hebon" or "hebenon" are forms of the word by which the Yew is known in many Continental languages.

We have not cared to follow Mr. Grindon's steps very exactly—to do so would be to spoil the charm of the book. We recommend the reader to take it up at odd times, to read a few pages and give himself up to the delight of following up the varied train of thoughts and recollections that this confessedly desultory plan of reading will most assuredly beget. As a solace and recreation for the wearied mind, no more delightful book than this of Mr. Grindon's could be taken. In saying so much we must disclaim any intention of wishing the reader to infer that it is not worthy of more serious study. We only cite our own experience with the book in hand, and the thermometer nearer 90° than 80°. The book is handsomely got up, but the illustrations are scarcely commensurate with the printer's art.

BOTANICAL MEETINGS.

Your interesting notice of the Harpenden meeting (xix., p. 820) induces me to send you an account of a most pleasant and instructive botanical party which was brought together at the Manchester Free Reference Library last Sunday afternoon, by the invitation of Mr. Councillor Charles Rowley, a member of the Library Committee, and under the presidency of Sir Thomas Baker, its Chairman.

For fifty years or more we have had amongst us in Lancashire an association of botanists, who meet together on Sunday afternoons once a fortnight, when plants are produced, and a pleasant time is passed in the examination and naming of them. They are mostly working men; the President, Mr. Percival, is a tanner; the Secretary, Mr. Rogers, a pawnbroker; and the members are scattered in the neighbourhood, many being gardeners. There are a few gentlemen associated with them.

These Sunday afternoon meetings are held in various localities in Lancashire, and have been the means of fostering a love of botany, and from the ranks of our working men have thus arisen many skilled naturalists whose names are famous in Lancashire—Crozier, Crowther, Mellor, of Royton; Caley, who accompanied Sir Joseph Banks as botanist to the South Seas; Hobson, the great biologist; John Horsfield, the raiser of the well known bicolor Daffodil; Stansfield of Todmorden, the great authority on Ferns; and, though last not least, James Percival, the present President of the Society. These, and many more of almost equal note, have been active members of the Botanists' Association, who have done much to promote their favourite science. It was therefore a happy thought of Mr. Rowley's to invite the members of the Botanists' Association to meet with a few friends at the Reference Library, and a most successful meeting was the result. The party assembled at 3 o'clock, and a couple of hours were profitably occupied in examining the rich collection of botanical works which are in the library, and more especially those which had been acquired during the past year. The herbarium of the late John Windsor, which belongs to the library, was also placed upon the table for inspection, as also was an interesting collection of dried mosses. At five o'clock the party had tea in one of the committee rooms, and at six the chair was taken by Sir Thomas Baker, and the more important business commenced. A table, some 20 feet long, was completely covered with flowers, of which almost every member brought his share, and large contributions had been sent from some of the noted gardens in the neighbourhood, so that a most complete collection of the plants then in flower was before us. Reference was first made to the treat which had been afforded in the inspection of the treasures of botanical literature which had been opened before us in the library, and especially the work on the Amaryllidaceæ by Dean Herbert, which had been recently acquired at the suggestion of one of our number. The Hon. and Rev. W. Herbert was the last warden and the first Dean of Manchester. His work on the Amaryllidaceæ was published in 1837, and he came to Manchester in 1840, and remained until his death in 1847. He would, no doubt, soon become acquainted with Mr. Leeds, of Longford Bridge, near Manchester, whose garden was then the most interesting one in the neighbourhood, and in this way it is more than probable that Mr. Leeds was led into his train of experiments in hybridisation which led to the production of his beautiful hybrid Narcissi, so well known as the Leedsi varieties, and which were raised from 1845 to 1850. Dean Herbert's work contains a most interesting chapter on hybridisation, and plates 38, 39, and 40 contain details of all the generative organs of the Narcissi, and of their variability from the type. Mr. Leeds would thus be led into his successful train of experiments, and it is interesting to note that the first-fruits of Dean Herbert's work were produced in this neighbourhood.

Mr. Percival, the President of the Society, was then called upon to name and describe the plants upon the table. This he did in a masterly manner, giving the Latin and the common name, and adding a few particulars, frequently anecdotal, and always humorous. The most interesting plant was the rare Cypripedium calceolus, which he had found the week previously in a deep crevice in the limestone pavement on Clapham Moor in the Craven district. "I do not know that ever I felt such a happy man in my life as I did when I found that flower." It had not been found in this district for forty years. The rare Fern, Cystopteris montana, was the subject of a very interesting narrative of its finding on the Breadalbane Mountains. About 126 flowers and Ferns were thus accurately named and described by Mr. Percival—an extraordinary performance; and it was understood that there were others of the members present who could have undertaken it. Sir Thomas Baker, in concluding the business of the meeting, declared that he should always look back to the occasion as one of the golden days of his life, and I am sure that every one present profited by it. There is room for such botanical associations, and for such social gatherings in many districts; and I hope the example, as well as that of the Harpenden school class, may be widely followed. Objection may be taken to the holding of such meetings on the Sunday, but I think on reflection it will be seen that it is not easy for working people to assemble at any other time, and I see no breach of the Sabbath in such a laudable pursuit. *W. Brockbank, Brockhurst, Didsbury, June* 30.

APPLES.

The suggestion made by "Philanthes" that our early blooming fruits should be operated upon by the hybridist for the purpose of endeavouring to secure later and, therefore, safer blooming kinds, comes late this year, but probably would not have been made but for the unfortunate fact that, except Apples, we have this year such poor crops on other standard or tree fruits. The chief deterrent to any such application of industry on the part of any pomologist is found in the fact that few men of mature years may hope to live to see the reward of their labours, even assuming that the object in view—very questionable, by-the-bye—was in any degree obtained. But is it the case that later blooming kinds of particular fruits are this year or in any other year the most productive? "Philanthes" mentions the Victoria Plum as a general cropper, but although such is fairly the case, yet there is no proof that it is later to bloom than the general ruck of Plums, all of which carry but little fruit. Lemon

Pippin Apple is mentioned as a general cropper, but with me it is very sparse in all seasons, and this year amidst many kinds. In relation to the later blooming Apple the query may well be put, How is it, if later bloom is safer bloom, that whilst some kinds have set an abundant crop, other trees blooming freely also at the same time have not set half a dozen fruit? Does not this point to the conclusion that some other causes besides the operation of the weather upon the flowers must be charged with the general absence of hardy tree fruits this summer? I have here a long row of Apple trees some fourteen years planted, all vigorous and in good cropping condition. The row includes some forty kinds, and, of course, varying in habit and character. Almost invariably the strongest or most robust growers have the smallest crops, but that is a common association. But many of these bloomed most profusely, however, and should in the ordinary course of things have fruited, yet they have not done so. And why? I conclude that the late summer and autumn of last year failed to mature the buds on all those strong-growing trees sufficiently to render them fertile, and though there was no lack of flowers they proved fruitless.

On the other hand the less robust growers, developing less wood, and thus being enabled to create well-matured fruit-buds, have produced an ample crop of fruit; so that the production of an Apple crop is less due to a favourable spring than to certain characteristics of the trees which produce it; hence, if we labour at all in the direction of seeking for kinds that will prove constant croppers, we must rather regard those qualities than their periods of blooming. After all, how much of the collapse of the Pear bloom, and the falling of immature Plums and Cherries, may not be due to the non-maturing of the bloom-buds last autumn? Perhaps we have laid more blame on the spring weather, bad as it certainly was, than it merits.

Assuming that there may be something in the position I have taken—and it certainly all reads very much like a truism—we may well desire that the wider promotion of hardy tree fruits that, irrespective of time of blooming, do without doubt ripen their fruit-buds early, should be largely undertaken; indeed, those who strive to live by fruit growing for market have a far better and more pressing case to present to the Government than the agriculturists have, supposing it were in the power of the Government, in the shape of assisting or promoting the production of constant cropping kinds of fruits, to give useful relief. But those who would do something must help themselves, and as hybridisation in any form cannot now be undertaken this year, it may not be waste of time if opportunity be taken of the present comparatively good Apple season to get a census of kinds that are fruiting well, and thus afford some reliable information as to the sorts that may be, as far as Apples only are concerned, likely to prove suitable parents.

I last year alluded to a variety, name not known, of which I have here one large tree that always bears. Last year it bore a good crop, this year it has half a crop of what will be a finer sample. Then Cockle Pippin is, as it almost always is, full of fruit; and another kind, too little known and grown, Norfolk Bearer, rarely is without a crop, and now has a good one. Of course Lord Suffield, Manx and Keswick Codlins, Early Julian, and Warner's King are all fruiting freely, for none of these are rank growers. Specially productive, however, is Harvey Codlin, a kind that should be universally cultivated for market but is little known. This is never without a crop, greater or less. Cox's Orange Pippin, King of the Pippins, Cellini Pippin, Cockle Pippin, Sturmer Pippin, Downton Pippin, and Court of Wick, an allied kind, are all fruiting heavily, thus showing the Pippins to be a productive family. The fine old Winter Pearmain is carrying a very fair crop, so also is Royal Pearmain, and that fine Apple, Flower of Kent. I have also good crops on Wellington, Kentish Fillbasket, and Golden Noble. Still, taking all the trees, the crop is not more than half a one, although the result is far better in the market orchards, simply because many of the kinds in commerce, such as I have, would never be planted by a market grower. If he cannot get crops from Manx Codlin, Lord Suffield, Early Julian, King of the Pippins, Cox's Orange Pippin, Wellington, and a few others, he regards a crop from other kinds as out of the question; and although he is not absolutely right, he is nearly so.

If, therefore, the information afforded by the present Apple season is to be utilised, we ought to have for guidance, both for the hybridist and the planter, the fullest possible information as to the sorts that in many localities are now fruiting well, and fruit more or less in all seasons. Information of this kind might well be given presently, with the annual fruit returns, especially as this year little can be said about Pears, Plums, and Cherries. It would be specially interesting to learn what kinds are fruiting best in widely distributed localities, and whether the trees are old, or whether young, and how grown. As the nation has to rely for its Apple supply chiefly upon orchard trees, of course most interest will attach to reports respecting their produce, not the less that whilst their culture is comparatively common and natural, that of small garden trees is usually uncommon and artificial. *A. D.* [An opportunity such as our correspondent desires will shortly be given, as we hope to publish our annual census on August 4. Ed.]

HARDY FLOWERS AT GRASMERE.

A visit to Mr. Joseph Stevens' well kept hardy plant garden at Byfleet, at this season of the year would make a convert of the most determined opponent of the beautiful subjects therein cultivated; indeed, it would be difficult to imagine within the limits of a garden anything more beautiful or more varied than the wealth of bloom which abounds throughout the whole place, in rock garden, border, shrubbery, wild garden, and Fern rockery, gratifying to a high degree alike to the sense of sight and smell. Roses—not the certified best kinds for exhibition, but the old varieties, many of which have even outlived their names—must claim first place. Roses trailing and scrambling over neighbouring bushes and fences, glad of the borrowed strength to aid them in bearing the weight of their blooms; Roses, single and double, sometimes even on the same bush, not the least beautiful of them being the old Manetti, which is so largely used as a stock, and the lovely old double white Sweet Brier. Rivalling the Roses in beauty, showiness, and perfume, are the Pæonies, with their large heads of bloom varying in all the intermediate shades between white and crimson, many of them being of a very lovely primrose hue — singles, semi-doubles, and doubles—so double that the petals seem to be pushing each other out, and so making the flowers just untidy enough to save them from being too perfect (from a florist's point of view) and formal in shape. Contributing to the show at present, and destined soon to take the first place, are the Delphiniums. These at Grasmere grow into large clumps from 7 to 10 feet in height, each of them an object to pause before and admire. Here it is that varieties which are not easily distinguished under ordinary cultivation are so easy to determine, by reason of the distinguishing features of each being fully brought out. The finest varieties are D. Barlowii superba, with large double dark blue flowers on long foot-stalks; D. Argus, a very fine pale blue; D. Humboldtii, an immense single dark variety, and D. Eugène Verdier, a fine bright blue with white eye. Next in importance come the Irises, which present fine clumps at the edges of the shrubberies and in the borders. The varieties of the I. germanica are perhaps the most showy on the plants, but the slender stemmed and quaintly tinted I. hispanica and the showy varieties of I. anglica are equally acceptable, and their flowers last much longer when cut than those of I. germanica. There is also a large collection of species of Iris which are not yet in bloom. After the Irises come the large bushes of Philadelphus (Mock Orange), of which fourteen very distinct varieties are now in bloom at Grasmere; all are white, but the difference in the colour of the anthers, some being white and some yellow—the difference in the size of the blooms and the manner in which they are arranged on the flower-stalks—render the differences, both specific and varietal, very easy to distinguish in such well grown specimens. The best and most distinct appear to be P. grandiflorus, P. latifolius, P. coronarius deutziæflorus plenus (double), P. californicus (very large), P. cordatus, and P. Gordonianus. Harmonising with the Philadelphuses are a great number of varieties of Weigela, and an important collection of Spiræas, fine bushes, with their beautiful bosses of white, pink, or rose blooms, particularly noticeable being S. bella, S. macrantha, S. splendens, S. amœna (white, with rose eye), and S. trilobata fl.-pl. The above enumerated supply quite beauty enough without calling in the aid of the other 10,000 species and varieties which Mr. Joseph Stevens cultivates, and any garden may be made interesting and beautiful with such things, together with Phloxes, Pentstemons, Antirrhinums, Potentillas, Pyrethrums, Lilies, Foxgloves, and other well known things; and it will be well for the majority of the hardy plant growers to keep to them, as but few can give that business-like attention requisite to the keeping of a general collection in good order. Both the rockeries of Grasmere are made beautiful by huge natural tufts of Saxifrages, Sedums, Thymes, Acantholimums, &c., and the Fern nook is fresh and cool with the just perfected fronds of most of our best hardy Ferns, the perfect mass of Adiantum pedatum bearing witness that slugs and other plant destroyers are not plentiful at Grasmere. Among the foliage plants some startling specimens will be found, such as Polygonum cuspidatum, 9 feet high and 12 feet across; a fine collection of Funkias, many of them 4 to 5 feet across; huge Rheums, Heracleums, &c. The collection of hardy variegated plants is also very interesting and extensive. Among the great quantity of miscellaneous plants in bloom, conspicuous were Astilbe Aruncus, 7 feet across, with its long plumes of white flowers; Mertensia sibirica, Clematis erecta, Veronica rotundifolia, Isopyrum thalictrioides, Campanula, Trachelium album plenum, Geranium armenum, Myosotis palustris semperflorens, Rubus spectabilis, both the crimson and the yellow-fruited variety in flower and fruit; different varieties of Cistus, Helianthemum, Chrysobactron Hookeri, many bulbous plants, and other things lovely to look upon, but too numerous to particularize. A long hedge of Pyrus Maulei, with bushels of fruit on, however, must not be forgotten; neither must Mrs. Stevens' elegant arrangements of cut hardy flowers indoors—they are really artistic. *J. O'B.*

LILIUMS IN FLOWER.

L. Parryi, Watson.—A very handsome species, growing from 2—6 feet high, with from two to twelve flowers—rarely as many as twelve, but often with ten. I have one at present with that number in different stages. Perianth funnel-shaped, canary-yellow, sparingly dotted with purple, some flowers quite free of spots, segments 3—4 inches long, spreading on the tips, slightly reflexed. Leaves very irregularly disposed, sometimes in verticils, or variously alternated; the bulbs are rhizomatous and jointed, increasing rapidly especially in peaty soil, and may be divided without injury thereto. There is no doubt this Lily has a preference for peat, although amenable to culture in ordinary garden soil. I have several in various kinds of soil, also in pots of ordinary Lily compost, but none are so fine as one planted in a damp peat bed—this is just about 5 feet high, still growing very vigorous and floriferous. Under natural conditions we are informed this species affects damp boggy positions in the San Gorgonio Pass and San Bernandino county, South California. It is now flowering in many parts of this country, and although comparatively scarce it will ultimately become a general favourite, as it is by no means fastidious or miffy.

L. Leichtlini, Hook. fil.—A very lovely species from Japan, admirably represented in *Bot. Mag.*, t. 5673. Stem 1½—3 feet high, brownish, clothed with narrow lanceolate leaves, pointing upwards—racemose at the top. Flowers from 1—6 in number; perianth segments 3—4 inches long, clear lemon, copiously spotted with claret-coloured well defined spots, sharply reflexed, the flower almost assuming a globular form. The slender stems have a curious habit of running under the surface of the soil, and if you place a bulb in the centre of a pot it is quite likely to appear near the side. I find this species also delights in a mixture of peat and leaf soil, my finest specimen being in a damp bed planted in such a compost. It is flowering very freely this season, and the individual blooms are very fine. It is evidently very plentiful in Japan, as it can be secured in quantity large enough to make it much more plentiful than it is; of course the high figure which has up to the present been asked for it has deterred many from securing it.

L. longiflorum, Thunb., and its varieties.—The typical form is an excellent Lily, although some of its varietal forms are really superior to it for decorative purposes; those forms referred to have undoubtedly been brought into existence through the skilled horticulture of the Japanese, and it is very questionable how much their handiwork has been instrumental

in originating kinds which are regarded as natural species and varieties. Looking at different sections of Lilies, I am very doubtful respecting the position of many varieties. There is no doubt the hybridisation of Lilies in this country is in its infancy, and in a few years forms may evolve which will be simply astonishing in comparison with the present existing forms. L. longiflorum is well known as the common white Trumpet Lily, with stems from 1 to 3 feet high, with shiny narrow leaves and white funnel-shaped perianth; tube 3 to 4 inches long, widening towards the top, while the limb is much more dilated, with short reflexed segments. In noticing the varieties of this I will confine myself to the more pronounced of them. Eximium has a longer and narrower tube than the type, while the limb is also broader, with more sharply revolute segments, and I think of greater consistency and purer white. This variety is to my mind the finest of all. The form known as Takesima produces very broad-limbed flowers, with spreading, but not reflexed flowers, while the tube is not quite so long as that of eximium, and it really seems more floriferous and vigorous than either of these described. The new variety about which we have heard so much under the name of Harrisi is nothing more than a vigorous-growing form, with narrow-pointed leaves, and long-tubed flowers; the latter closely approach those of eximium, but as to its perpetual-flowering qualities, at present there is nothing in my bulbs to indicate anything more than the ordinary habits of longiflorum. Mr. Williams, I learn, insists that fresh stems are sent up immediately the preceding one has flowered, so as to produce a constant succession of flowers. It would be extremely interesting if cases where this has occurred were reported, the *bona fides* of which no one could doubt, as I, among many others, very much doubt if such a characteristic shows itself in any Lily, and did not for a moment expect to find it in this variety. *Lilium July 2.*

New Garden Plants.

EPIDENDRUM IONOCENTRUM, *n. sp.**

Much in the way of Epidendrum Brassavolæ, but larger. It has a shorter, broad bulb of a fine dark green colour, a raceme of 20—24 flowers, which are said to surpass those of the above-named species. The sepals and petals are lemon coloured, greenish-brown. The centre of the white lip is of the finest violet or purple. This curious and rare species was found by Messrs. Endres and Pfau.

WARSCEWICZELLA PICTA, *n. sp.*†

Much in the way of Warscewiczella discolor, but much rarer, and very curious. Its chief difference consists in the lip. The tablet-like greenish basilar callus has two teeth in front, and a few parallel ones on the sides. The rhomboid blunt acute much crisped lacinia of the lip is yellowish-white, with very numerous marginal deep purple broad lines, and a brownish border on each side of the base. Petals white. Sepals pale greenish, or yellowish-white. Column whitish, with some dark spots on the base, about the colour of which I have no memorandum. This very fine plant was discovered by late Endres, and lately found again by M. Pfau. *H. G. Rchb. f.*

ODONTOGLOSSUM RUCKERIANUM SPLENDENS, *n. var.*

This surpasses by far anything that I have seen, and I saw a glorious set of flowers. To begin with, the flowers are larger, the petals and sepals much broader, the blotches greater, and of warmest mauve; the places washed with lighter mauve are better painted, and the brown blotch on the disc of the lip is of the best colour. All the colours are as pure and limpid as possible. I had a branch of the inflorescence of this grand variety from Mr. F. Sander, yet I hear the plant is now the property of the Right Hon J. Chamberlain, M.P., Highbury, Edgbaston, Birmingham. *H. G. Rchb. f.*

HOYA LINEARIS (*Wall.*) VAR. SIKKIMENSIS, *Hk. f.* (figs. 1, 2).*

Of all the known species of Hoya this is decidedly one of the most distinct and most easily recognised, its weak pendulous stems and narrow leaves giving it a very different appearance from any other in cultivation. This plant, as its name implies, is a native of Sikkim, where it grows in the hot valleys at an elevation of from 4000—6000 feet, and from its habit it is probably epiphytical upon trees. Our illustrations are taken from a plant that flowered last autumn with Mr. Dunn, Dalkeith Palace Gardens, Dalkeith; from which also the drawing in the *Botanical Magazine* was made, and not, as is by some error stated, there to be from a plant flowered by Messrs. Veitch. The stems are slender, flaccid, terete, and pendulous, clothed with soft spreading hairs; the leaves are soft and fleshy, sub-terete from the very strongly revolute margins, clothed with fine soft hairs, more appressed than those on the stem; the leaves from their flaccid nature hang rather close to the stem except those just above the inflorescence, which are more spreading; the umbels are terminal and 10—13 flowered, the pedicels are slender and hairy like the stem, the corolla is nearly ½ inch in diameter, pentagonally 5-lobed, more or less reflexed, and of a waxy white colour, the corona consists of five stellately radiating lobes of a yellowish colour.

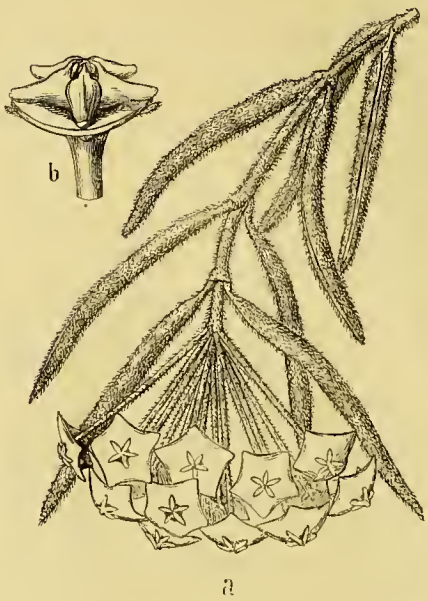

Fig. 1.—HOYA LINEARIS, VAR SIKKIMENSIS: NAT. SIZE, CORONA MAGN.

This Hoya will make a novel and handsome basket plant, and can no doubt be easily propagated from cuttings. *N. E. Brown.*

CYPRIPEDIUM CURTISII, *n. sp.*†

It is very interesting to see how apparently distinct types blend by intermediate things. This Cypripedium Curtisii, of Sondaic origin, was discovered by the collector of Messrs. Veitch, Mr. Curtis, who has found so many good things, and whom we like much to compliment thankfully. It comes very near Cypripedium ciliolare, and near superbiens (Veitchianum). The leading feature, that strikes you first, consists in its gorgeous lip of quite unusual dimensions, with sharp, acute side angles. One of the modern philosophers might teach us for what purposes this unusual sac is intended. All the hairs around the petals and the sepal are much shorter, thinner, and more distant than in Cypripedium ciliolare. The petals would appear to be much narrower, of course, descending, as in the other species of the group. The spots are generally much smaller than in Cypripedium ciliolare, where bigger ones are spread over the whole lamina, whereas such ones are only here on the margin. They appear, however, not to be found at all at the top of the petals in ciliolare, whereas they are very numerous in that spot in our species. My materials of Cypripedium ciliolare are, however, not rich. Two fresh plants were sent me kindly by Mr. F. Sander to judge the difference in the leaves. If these plants are quite normal, then the leaves of both species are very distinct. They are far broader, far more acute in our novelty, and washed with much darker hieroglyphic marks on a darker ground. We are becoming very rich in Cypripedia. *H. G. Rchb. f.*

ONCIDIUM NIGRATUM.

Among the many new and rare Orchids now in bloom at Messrs. James Veitch & Son's, King's Road, Chelsea, is the curious and beautiful Oncidium nigratum described at p. 790, vol. xix. It is surprising how so small a plant could send out such a heavy spray of these beautiful starry flowers, like those of Odontoglossum nævium, but smaller.

A BUCKINGHAMSHIRE GARDEN.—IX.

June 6.—It is difficult to know what to say about the garden in June! There is so much to say I can hardly tell how to begin. The leafy month earns well its title, so grandly full-leaved are the trees; in finer leaf, I think, than they have been for many a year. The Elms stand out against the sky in rounded blocks of green, and in the Lime avenue the broad leaves meeting overhead are round and pure in outline, untouched as yet by destroying worms, untorn by tempests. The young Chestnuts along the little watercourse are nearly twice the size they were last summer, when cruel winds had left them only a few ragged discoloured leaves. The flower-spikes of one Chestnut within the garden measure near a foot in length. The great red Horse Chestnut is red all over; it is a mass of blossom, almost from the ground, upwards to the very top. The tree is a fine sight, and if it were not so common one scarcely could tire of admiring it. The season makes a great difference in the colouring of the blossoms. Sometimes they come out almost yellow from too little sun and too much rain; but in the rich *floraison* of to-day their colour is almost crimson. Then the Thorns are, or have been, in great perfection; the branches of double pink May can be compared to nothing but bars of pink velvet. The double scarlet varieties are finer than usual, and under the hot sun their vivid colour is quite dazzling. We find them capricious, however; some years there is more green than red, and when the trees were younger the red was finer. A little single Thorn draped itself down to the very grass in scarlet bloom; but it lasts so brief a time, every petal now has fallen. It is a picturesque delightful tendency in all trees to bend and stretch out to meet each other; their branches love to touch and interlace. So, at this time, across many of our green garden walks, the flowering May makes beautiful red-garlanded arches. Pink May and Laburnum interweave their branches, and in another place a Cherry and a Thorn have succeeded in meeting. A little further on an Apple reaches out long arms above the turf, to touch a copper Beech. Here, in this corner, there is also Laurel; and Brake Fern, springing of itself, will soon be tall enough to reach almost the Apple branches. The Beech on either side the *allée verte* embower the walk, while along the outmost line their slender drooping shoots stretch themselves to meet and embrace more staid and slow young Elm branchlets, spreading from the great old trees. The nightingales' old White Thorn shone white like a great snow mountain for about ten days, surpassing all the rest in beauty; and not far from it, deep in a thorny thicket of Blackberry mixed with Ivy and Nettles, we found the nightingale's nest. I often visited her, and she would lie close, with head laid back, and bright black, watchful eye fixed full upon me; but I never saw her strange smoked eggs, because she would never stir from the nest. Massive gleams—if such an anomaly can be said—of yellow, Spanish and

* *Epidendrum ionocentrum*, n. sp.—Affine Epidendro Brassavolæ: pseudobulbo brevi (15″); pedunculo multifloro (ad 24); sepalis tepalisque lanceis acuminatis; labello basi utrinque minute obtuse auriculato, callis ligulatis geminis obtusis interpositis, lamina triangula caudata basi ad isthmum brevissimum rotundata; androclinii ligula postica denticulata, alis lateralibus rhombeis. *H. G Rchb. f.*

† *Warscewiczella picta*, n. sp.—Aff. W. discolori: labello rhombeo obtuso undulato; callo baseos forcipato lateribus denticulis nonnullis parvis. (Zygopetalum pictum, Rchb. f.; *Sert. Endr*, tab. 9) *H. G Rchb. f.*

* *Hoya linearis* (Wall) var. *sikkimensis*, Hk. f., in *Botanical Magazine*, t. 6682.

† *Cypripedium Curtisii*, n. sp.—Aff. C. superbienti et ciliolari: sepalo impari elliptico acuto; tepalis angustis acutis brevioribus magis distanter ciliatis; labelli ungue facie æquali, angulis parvis lateralibus optime acutis, facie maximo obtuse conico; staminodio transverso altiusculo lato, dente introrso utrinque extus, apiculo mediano. In ins. Sondaic det. cl. Curtis cel. merc. J. Veitch & Son, viatori. *H. G. Rchb. f.*

English Broom, shining between green trees in contrast with paler gold of overhanging Laburnum. I wonder, by the way, if the Rivieira Broom would live in this climate?—I mean the Broom that grows something like a Rush, with the flowers set all down the polished stem. [Yes, if, as we suppose, Spartium junceum is meant. ED.] In the orchard border an immense luxuriantly rounded bush of Weigela replaces the Pyrus of last month, the lovely pink of its blossom set off by the tender green around it. These are all beautiful bits of colour, and yet they are only samples, as it were, of what I should wish, and may partly hope for some day; for a Laburnum colonnade is in contemplation, and lilac closes, and golden cloisters of Genista, some day, there must be! Something also should be made of the pale hanging clusters of Wistaria—a *pergola*, roofed in with its lilac pendents, or small bushes standing alone, in some grassy place. Our Rhododendrons and Azaleas are in great beauty, and since last year are much grown and filled out; the season seems in some way to have pleased them well. We do not attempt fine sorts, though there is just a sprinkling of crimson and white, and a few others amongst the showy old pinkish-lilac sort. The broad border on the opposite side of the walk along the Holly hedge is filled with Rhododendrons and Azaleas; as yet only the common—yet always beautiful—yellow and creamy-white Azalea, filling all the air with its peculiar scent. The success of this border is particularly pleasant, for the young Americans made one rather nervous at times during the early spring—on days when the weather did not exactly suit them they would look so pitiable and dejected, with their leaves hanging straight down. Into this border were moved most of the aged drawn-up Rhododendrons that used to crowd the shrubberies. Here, with more room, they have begun to bush out healthily. Yet there is at present no peat or made-up bed, and the ground is flooded every winter. We think of giving them a few cartloads of peat next autumn just by way of encouragement. In another year this walk will deserve to be called "the Rhododendron walk." At the back of the border two double scarlet May trees are now radiant with blossom. About three years ago they were removed here out of the garden, where for some reason they had become sickly, and had ceased to bear. Change of air and scene has worked wonders; they have increased greatly in size, and the move is apparently forgotten. Beyond these is the new orchard, deep in growing grass, and then the Larch walk; and—and then—palings, if the truth must out. Beyond the Holly hedge, in the border, wherein we stuff everything that has nowhere else to go, there is at this moment a white glory of snow-balled Gueldres Rose. In my ideal garden there shall be large single trees of Gueldres Rose standing alone; not, as they generally are grown, "smoored up" in a shrubbery.

But we have wandered far away from the beloved garden. Swallows are building in the garden porch. Over this porch is the Lady's Bower—so-called in old English houses—with Vine-wreathed windows. It is the chimney swallow, with the red throat. Their confidence and utter tameness, the perpetual darting in and out of blue-black wings (like tenderly domesticated trout! as Mr. Ruskin says), and the conversational cheery twitter that goes on all day long, are a continual feast. South, north, and east are the three porches of the house, and swallows in all three. At the north entrance they are more bold, but somehow less familiar. Darting shoals of swallows dash in and out, even through the open doors into the house, and two nests are nearly built. The family motto, "God's Providence is my inheritance," written round the porch walls, suits well such a place of birds; while the footless martin, borne on the stone shield over the door among the Roses and Ivy—the swallows may also feel, not wholly inappropriate. Under the east garden porch, which is now green with Virginian Creeper and Vine—and will be in its season purple with Clematis, a pair of swallows are also arranging a settlement. Here, also, though not quite so welcome, no one dreams of denying them. After the sun has turned the corner of the house this porch is cool and shady. On the threshold is set the legend, *Nos et meditamur in Horto*, taken from a sundial in a nun's garden somewhere. The invitation, I think, is generally disregarded. Many cross that threshold to walk in the garden and admire the flowers, or to cross the lawn for the tennis-court, or perhaps—to smoke. But I do not think people often meditate much in the garden in these days. Dogs do sometimes as they sit in the sun. But I wonder how it is done!

From the south front a lot of Everlasting Pea has

FIG 2—HOVA LINEARIS: TO SHOW THE HABIT.

wound itself round between the walls and the Yew buttress, taking up fully one half of the porch. It is well named Everlasting! One has nothing to do but to dig it up, and cut and hack it away, and the next year it will appear strong and hearty, and in double quantity. It takes no hint that there may be too much of a good thing! And yet, when it looks so fresh and handsome, with its large bright flowers, it would be cruel to wish it away. So let it be, to teach its lesson and to smother as it will. The white Irises are nearly over, and wood Strawberries are beginning to redden, under the windows. An old Maiden's Blush Rose, covered with buds, begins to peep in at the dining-room window on one side, and on the other is the lovely pink of a most perfect Moss Rose. The parterr in front of the window is bedded out, of course. I know that it soon will be a blaze of well chosen colour; but excepting the golden mount of Stonecrop in the centre, I do not take any great personal interest in its summer phase. It is fortunate for the garden's character, that this should be so; for as the invention of new combinations of plants and colours would be to me impossible, this is left always in our gardeners' hands, with full confidence that the result will be as perfect as such things can be. From the dining-room window, we can also see, between the Sumac and a Box-tree, near where a Pæony showers crimson on the Daisies, a tiny mound of turf. It has been there since the end of last month; and under it lies the dear little favourite of nine summers—the little black Skye terrier. We can now almost walk all round the garden in deep cool shade; such growth the trees have made! The broad walk must always be exposed to the sun; but from the west of it, across the lawn where the old bowling green once was, the distance from shade to shade lessens year by year, as the trees grow on. There is a charming well-shaded welt along the grass, of purple Pansies and white Pinks, in two thick lines; and on the other side a very bright dash of Limnanthes Douglasii has made a self-sown edging. As if it enjoyed the pleasant coolness of a north-west border, one lovely double Narcissus beside the walk still lingers on in her early freshness. When hot sunbeams pierce the shade, every day I think must be her last. The Spurge Laurel has relapsed into the plain dulness of its summer state, but the Iris bank upon which it grows is as lovely as heart can desire. Cedar and Copper Beech, and one or two Firs, cast light shadows upon the company of Irises, and help them not to wither up too quick. The prevailing hue is lilac, with stronger tones and yellows intermixed. Each one in turn seems loveliest, but one chief beauty, has broad petals of soft grey, most delicately flushed, as it were, with pink. Then there are Lilacs marked with deeper lines—white with Lilac edges, and white, finely pencilled mauve; Enchantress, and several yellow variegatas, with lines of red or brown; pale yellow, with the three outer petals intense velvety-purple; and one, pale bluish, with deep blue-purple velvet outside, and bright yellow brush, well marked. These two are much better than Darius, or the handsome sullen Versailles. The sober old Marquise, too—who is, however, more like Mrs. Delany in dove-coloured mode silk hood!—after long delay, is there amongst the best. Does any plant exist who loves not a corner or an edge?—I I think not one; so a little corner here, where a narrow grass path crosses the Iris bank into the Beech close, is made especially lovely by the undesigned grouping of three Irises, enriched by a background of green Ferns and Beech. The centre of the group is a deep red-purple Iris (from Vesuvius I believe), a finely-coloured yellow and purple, and between them a pure white. These grow tall and stately from out their straight, stiff leaves, while a little Welsh Poppy, established there by chance, brings in its crumpled lemon-gold below with the happiest effect. Colour effects, wherever they appear in our garden, are seldom planned. Somehow it does not come naturally to think, "Here there shall be blue Larkspur and white Lilies," or there red Poppies and something else. But it is quite an exquisite delight to find the most beautiful accidents of colour, in unexpected places, all about the garden. Then these chances may give hints, which we can take or not. At a corner behind the dovecote there is a grand crimson Pæony, mixed up with brilliant orange Marigolds, some of them black-eyed;—red and yellow are splendid, if well used. Against the brown dark of a Cryptomeria elegans stands a tall Tulip like white china, painted and streaked blood-red; at least it is over now, but I see it all the same. This happened in the "Fantaisie." Then there is a patch of Welsh Poppy, growing just as one

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finds a patch of Gentian, or white Crocus, on the Alps, and with it London Pride, a mass of feathery red, growing in the same way. Under the trees, one meets a pallid Columbine looking like a ghost, and just by chance, in the lilac Iris bed, occurs one rich carmine Rose. I do not even think the delicately refined colour combination of dwarf growing Gloire de Dijon Roses and bronze Heartsease was quite intentional; they mix however, strangely well. And the next bed of pink Roses, Prevost and Jules Margottin,—and Mrs. Sinkins, white Pink, promises to be an equal success.

One would fain stay for awhile the steps of the summer flowers in the garden; but these bright daughters of the year, in long processioo, flit by more swiftly as each new day arises. They are in such a hurry now to come and to be gone, alas! Even at this very moment there are signs of the quick approach of some of our latest loves. For in the east border, among crimson Pæonies and liogering purple Iris, appears already a single Dahlia! In such a multitude one hardly knows which flowers to note, they are all so fair. But in the "Fantaisie," I think I could almost let the Roses go, which are bursting into bloom as bushes and as pillar Roses,—just to keep it a little longer as it is now.

Double white Rockets, and coloured, single yellow Day Lily, and puce-purple Columbines, and Irises and white stars of Nicotiana, rising over an edging of pink and white Phlox Nelsoni,—on the shady side of the border, now succeeding to the other—all these, and many more, set off by Cupressus and Fir, interspersed amoog the flowers beyond; and flaring across the grass walk, a great fiery scarlet oriental Poppy. With the morning shioing through it, the flower seems made up of fire from the sun itself—the very purest possible essence of scarlet. Several of these magnificent Poppies light up the garden at different points. Their scarlet is a fast colour, neither wiod nor sun will scorch or change it in the least, and in this quality it is superior to so many flowers, whose colours fly directly—some much easier than others. The brown Heartsease cannot stand the sun, while the large purple one is scarcely moved. The crimson of the Pæony flies; and the rose-red double Marguerite scorches quickly. Lilac (except in Wistaria) seems one of the fastest colours in the garden (raindrops standing all night in a half faded lilac Iris become a beautiful colour!) Altogether it seems that scarlet yellows, and colours in which blue is mixed, stand best. Besides the great scarlet Poppies, the Himalayans are coming on in all their varied pinks and reds and whites; their large crumpled petals have the shape and all the transparent delicacy of rare sea shells. There is also a charming uncertainty as to the particular colours, or amount of doubleness to be expected. Amongst the best are bright reds, with a clear white eye, and pink-hemmed whites; and whenever aoything approaching a common field Poppy makes its appearance amongst them—as often happens—it has to be pulled up immediately. Our Columbines are not so fine as they were last summer; their flowers are not so large or so free in form. The Californian, scarlet and yellow, is quite a miniature of itself. There is, however, one fine plant with flowers pale violet and primrose, aod the various tints of "crushed strawberry" are very lovely, especially in the double Columbines.

15th.—Here is the middle of the month, and the garden is more bewildering than ever! For Rosebuds in countless multitudes are blooming everywhere in every part. And as the fashion is to call her so, we must allow the Rose to be queeo of flowers, and since it is most true that Roses are

"Not royal in their smells alone, but in their hue,"

so, though my beloved Iris has not yet faded from the garden, the Rose now must be worshipped. One by one we have already greeted many of our old best favourites. Amongst them Boursault came first, climbing the south gables of the house; then Souvenir d'un Ami, large and full-flushed, at the very top of the long bare stem of a climber, any age; then Gloire de Dijon, which though even more profuse in its bloom than usual, has a something not quite right about it this year—a sort of old expression, in the flower. After that, Maiden's Blush and Moss Rose; a great wild bush of Boursault grows at the north end of the garden — the flowers are lovely, recalling a little in their colour and irregular shape what I remember as "the Musk Rose," in the gardens of former days. Coupe d'Hébé, on the wall of the gardener's cottage, is perfect in scent, and shape, and real rose-colour. The yellow Brier is finer than usual, and Damask Roses are opening fast. La France, too—the Rose whose scent is made of the finest attar—has delighted us with half a dozen beautiful blooms; Blairi No. 2, begins to crest the wire arches (one never hears of No. 1!) But among the Rose joys which abound already, or that we still expect in endless succession, none are so dear to me as one little ragged bush covered now with small white Scotch Roses of exquisite perfume. This little Rose bush is forty-eight years old to my certain knowledge. It was planted by my father in 1835, and may possibly then have been some years old. Since 1846 it has been mine. Last year it showed some sign of feebleness, so we moved it from the over-crowded place where it had been for eleven years into a newly made bed with a south aspect. There, with a companion of the same kind, it promises to take a new lease of life. Strange that such a little Rose should thus live on well-nigh half a century, calmly putting forth its leaf and bloom summer after summer, whilst so many of the men and women who knew it once have passed away. It somehow makes one think of the old monk pointing to the frescoes on his convent walls and saying, "These are the realities, we are the shadows."

One last word must be said for the blue and green of Anchusa italica at the southern end of the broad walk, and the beds of white Pinks (these must be the old-fashioned "maiden pinks of odour faint") mixing their perfume deliciously with Musk. The beds and large patches of that beautiful white Pink, Mrs. Sinkins, are very good this season. They are, as Bacon would say, "fast flowers of their smell," in flavour like Clove Carnations. *E. V. B.*

MESSRS. PAUL & SON'S HARDY PLANT NURSERY.

If anything more were wanted to show the great demand for hardy herbaceous, alpine, and other plants of this class, it would be found in the fact that the great Rose firm of the "Old Nurseries," Cheshunt, Herts, have found it necessary to form a nursery of 6 acres at Broxbourne, especially for their culture. The ground has been in the hands of Messrs. Paul for nineteen months only, but in that time all the preliminary work of trenching, digging, forming paths, &c., has been completed. A house specially adapted for storing hardy bulbs has been constructed on the system of the Dutch growers in Holland. Hedges and other screens adapted for sheltering seedlings, cuttings, &c., have been prepared and planted, and a new rockery is in the course of formation, which will, as it ought to, be a pattern for others contemplating the formation of rockeries for hardy plants. It is on a scale of sufficient magnitude to provide space for thousands of choice alpines, and the stones have been arranged so that easy access can be obtained to all parts of it; and, what is also of the greatest importance. sufficient depth of soil has been provided for the plants that send their roots to the greatest depth. Two classes of stone have already been used, viz., Kentish Rag from Maidstone, which is brought up in barge loads of 70 tons each; but for many plants Mr. Paul stated that he preferred a softer stone which crumbles a little at first, although it hardens after; this is brought from Norfolk by rail, and is termed Norfolk Carr-stone.

Adjoining the rock garden there is to be a space provided for bog plants, and this bog garden will have a background of heavy granite blocks which will be partially covered with suitable plants. Although the rock garden is not yet finished it has been planted to a considerable extent with plants that are doing remarkably well. Many are at present in flower, and show by their free and healthy growth how well they are adapted for the positions provided for them. It is needless to say that rocks should be arranged on the natural system, to show the way in which they crop out from the side of the hill or mountain. This is one thing, but the most important arrangement is that which admits of the plants taking firm hold of the soil; the rocks are necessary to shelter them, and to provide material for them to cling to.

The Dianthus family make the best of rock plants, and Messrs. Paul's collection contains many rare and beautiful species. The rather miffy D. neglectus was growing and flowering freely, at least freely for it. The flowers are large for such a dwarf, tufty plant, of a vivid rose colour: it likes the crumbly soft rock to grow in, and a porous soil. It died outright in heavy soil. D. deltoides albus, of much freer growth, was producing a mass of flowers, pure white with a bright red ring round the eye. It is a lovely little plant, and being of such free growth would do well in the front row of the herbaceous border. D. monspessulanus was producing perfect masses of rosy-blush flowers, borne on slender stems a foot high; it favours good deep loam of a sandy nature, and would also make a good border plant. D. atrorubens, another dwarf species, with richly coloured rosy-red flowers. D. cruentus is one of the most striking of the whole species in the collection. Its heads of rich crimson coloured flowers are borne on upright stems, 2 feet high, and from its free growth would adapt itself to any soil or garden. D. hybridus abbotsfordiensis has very sweet-scented double purplish-coloured flowers; an excellent garden variety. D. Mari Pari—under this name is a garden hybrid with pure white double flowers, which would be charming to cut for small bouquets.

Primulas are being planted to a large extent, and Mr. Paul has acted wisely in giving them a north aspect. P. Auricula marginata is the prettiest form of the species that has been found in a wild state; its slightly farinose leaves have a narrow white margin. P. capitata was also doing well; this is one of the most distinct and beautiful of the whole genus. It throws up trusses of dark rich maroon-purple flowers during the months of June and July when most of the others are over. P. luteola flowers with it; its soft yellow flowers and bold Apple-scented leaves constitute this a distinct and desirable plant. P. Munroi was also growing freely, and is an excellent late-flowering species, which increases more rapidly than any other. P. Wulfeniana, P. spectabilis and P. suffruticosa were also doing well; and noticeable in a snug nook was a healthy tuft of that little gem from the Austrian mountains—P. minima. This species does not flower freely, but its isolated rosy flowers, an inch across on such a tiny plant, are very charming. P. suffruticosa is establishing itself well. Does any one know whether this species has flowered in Britain?

Some of the species of Heron's Bill are admirably adapted for the rock garden. Erodium macradenium is a dwarf, very pretty species; the flowers are pale rose, with darker veins; it likes the sunny side of the rockwork—a south or west exposure. A rare and pretty dwarf species, also in flower, is E. cheilanthifolium; the flowers of this are pale rose with delicate red veins. E. Reichardi, very pretty indeed; the orbicular leaves cushion the ground, above which its pretty white flowers are very pleasing. Amongst the genus Catchfly, the prettiest little plant in the collection is Silene alpestris; it spreads freely into a good mass, and produces its pure white flowers very freely indeed. A distinct species. S. Reginæ is very showy at a distance, owing to its striking scarlet flowers. A form of the Creeping Bugle, Ajuga reptans or alpina, raised by Mr. Brockbank and named Brockbankii, is extremely pretty, and succeeds in dry soil as well almost as it does in a moist place. Lychnis viscaria splendens plena is the best form of this species; it is not very particular as to soil or position. A species of Phyteuma, P. Charmelii, was growing and producing its flowers freely on stems a foot high; the heads of bloom are pale in colour. One would like to see the rather singular looking P. comosum grow so freely as this. Mr. Paul lately saw the last-named growing freely at Zurich in the chinks of the rockwork.

Oxalis enneaphylla, the nine-leaved Oxalis, is a very distinct looking plant; it was growing freely and showing flower. Campanula Waldsteiniana, a small growing, rather rare species, was doing well. It forms a mass of bloom.

Edraianthus dalmaticus, showing flower, was doing well on a south and west aspect protected by rock.

Sedum Ewersii forms a pretty contrast against masses of the Norfolk Carr-stone. Lithospermum petræum, a very pretty species, with pale blue flowers, which show two shades, like the common Lungwort, L. graminifolium, was doing well; it is a rare species, not yet in flower. Acantholimon venustum, a rare species, showing flower: it succeeds on dry banks. Saxifraga retusa is very attractive. Arenaria balearica, clinging to the rocks and showing its small white flowers, is very pretty. Opuntias, such as O. Rafinesquiana, O. arborescens, and O. Camanchica, seem to do well.

Leaving the rockwork reluctantly, and rambling

amongst beds, borders, and pot plants, many plants well adapted to adorn the flower garden are met with. Here is the pretty single Rose, Rosa berberifolia. A boxful of Anthericum liliago, producing its slender spikes of pure white flowers very freely. Mertensia maritima (the Oyster plant), producing freely its deep blue flowers in pots. Agave utensis, a distinct little plant and quite hardy. A distinct and good Composite flower for the border is Hieracium aurantiacum; the flowers, freely produced, are reddish-orange. Narcissus montanus, said by some not to produce seeds, had two seed-pods formed, and which seemed to be well filled.

Houstonia serpyllifolia is well worth notice; the pale blue flowers on small dwarf plants with round leaves are distinct and pretty. The dwarf Cistus florentinus produces freely its pretty white flowers on dwarf plants. Omphalodes Luciliæ, in a well sheltered corner, is doing fairly well, and is in flower. Amongst strong growing border plants Erodium Manescavi is very showy; its umbels of rosy-purple flowers, of large size, are very handsome. Anchusa italica, in large masses of deep blue flowers, is conspicuous, also the variety azurea, with paler flowers. Phlox ovata, with stems 1 foot high, clothed to the base almost with rosy-red flowers, is a splendid border plant. Agrostemma coronaria and A. Flos Jovis may well find a place in every large border: they are very showy. Tradescantia virginica alba is a very large flowered form with very pure white flowers. Geum miniatum, a very pretty form with orange-red flowers, is a hybrid between coccineum and aureum. Aquilegia chrysantha is flowering in the borders in very large masses. These are a few, a very few, of the hardy plants in good form, and one may safely predict that this will in a year or two be one of the most interesting nurseries in the neighbourhood of London.

GRAPE CULTIVATION IN JERSEY.

There are two or three objects of agri-horticultural interest in Jersey which invariably rivet the attention of strangers upon their first coming to the island. The profusion, rich tints, high perfume, and above all the early blooming of its flowers, is one of these attractions; the universal extent to which the Potato is raised for the first of spring markets is another; and the third shows itself in the large degree of cultivation the Grape enjoys in the fertile and picturesque little land, where, putting aside those who are gowers by professional calling, there is scarce a gardener or petty farmer who won't point out to you, in some nook or corner of his grounds, a vinery more or less large, more or less good, under the "crystal canopy" of which he is producing black and white Grapes for pleasure or for profit. Moreover, "whene'er you take your walks abroad," whether in town or country, you will rarely—perhaps we may even say never—come upon either a pretentious mansion, ornamented villa, or even "a cottage of gentility," where the desideratum of a "glass house" for the fruit of the Vine exists not—*Hic et ubique* is Vitis vinifera's motto here, and, indeed, in the Channel Islands generally.

But need it be said that, as there are growers and growers galore in Jersey, so also there are Grapes and Grapes there—fruit in some cases poor in appearance, inferior in gustatory character; fruit obtained one can hardly say how, but certainly by rule of thumb treatment, and without the faintest knowledge of the habits and idiosyncracies of its mother plant, and, *per contra*, fruit which, brought to the *acmé* of perfection by all the aids of science and art, holds its head high, and rivals—if, indeed, it cannot excel—the very best produce of the very best Grape-growing localities. The London or provincial dealer will not hesitate in saying that, barring a very few exceptional and highly favoured vineries, he would rather deal with the Channel Islands hothouse Grape than with any other of, so to speak, our home growths, and that for delicacy, fleshiness, juiciness, flavour, size and earliness, it ranks A 1 in his own and his customers' estimation.

How long has the Jerseyman taken to become the extensive Grape grower we at present recognise his being? That he has had the Vine located in his habitat for many and many a century may be put down as certain; for as we know that it flourished to a small extent in Normandy at and prior to the Conquest of England, so we may fairly assume that it was transported from that duchy to the Channel Islands, to give it the opportunity of prospering yet more in their more genial and suitable climates. But, putting aside the time that Jersey may or may not have possessed the plant, and leaving out of the question speculations as to any manner of way in which its husbandmen may have dealt with its cultivation, we come to this fact, that not two decades have passed away since they devoted their energies to the industry with such zeal as resulted in the exportation last year for the London and provincial markets of a quantity of Grapes exceeding 100 tons, the great bulk of which was the Black Hamburgh, with, however, a mixture besides of Muscats, Gros Colmar, Alicante, and, sparsely, one or two other varieties. The Black Hamburgh and the Muscat are the Grapes upon which the ordinary Channel Islands grower pins his faith; few other kinds receive from him the slightest attention.

We have just written "ordinary grower," and have done so advisedly, because we purpose briefly and roughly to divide the Jersey Grape cultivators into two broad classes, and to show how they both manage to output from their vineries across "La Manche," exclusive of that for home consumption, the number of tons of fruit mentioned—100 to wit. Several growers we have in our mind's eye will pardon our styling them the Inapts; a few more we elect to call the Experts.

To begin with the former. They have sited their glasshouses anywhere, in any handy nook or corner of their grounds. They have contented themselves with the ordinary soil for their borders; taken no note of its component character, whether that salt was in excess, this in deficiency; they have certainly gone to the manure-heap for their fertiliser, but that is all. Up to a certain point they have pruned their Vines, thinned their fruit, watered and ventilated; and they have obtained crops, sometimes heavy and of good quality, but more often poor and inferior. Their Vines—it is a tolerant and enduring sufferer is Vitis vinifera—have flourished up to a given point, but then, feeling the want of their natural sustenance, have fallen away, pined, and ceased from bearing good fruit; although we admit that harsh, acrid, dry bunches of berries will for many years be found upon them, for the longevity and fructification of the Vine is proverbial.

The Expert—we have two or three in view, though for description's sake we select one—has taken care to give such an aspect to his vineries that his Vines shall enjoy all the advantages of sunshine and heat together with the genial influences of the temperate atmosphere of the island. The manure-pit which the Inapt, as before said, depends upon is quite a secondary consideration with him we are noting. Once in five years he gives a dressing of a mixture of poultry and good stable-manure to his borders; another year he uses therein slaked or sulphate of lime, and in the intervals between the animal and alkaline donations he employs a fertiliser of phosphates and nitrogenous salts—a composition of his own. As to his resorting to deer parks, or to old pastures, for the material for his borders, as recommended by so many authorities, without for one moment deprecating the method, the gentleman in question might just as easily go to Jerusalem for the soil of Palestine. They have no existence in Jersey. But this is how he sets to work:—

He first carefully analyses that portion of Mother Earth whereon he has built, or is about to build, his vinery; and, thus cognisant of what its components are, and what they should be for furnishing to the Vine and its fruit their natural principles, he adds to the soil such salts and other material as he sees it deficient in; and, as a general rule, he finds here in Jersey that lime and phosphoric acid are what it materially needs. He then equalises the soil of the borders, taking especial care that there is no difference in any spot throughout where earthy components preponderate or are decreased, but that there is the proper proportion everywhere. So much for that part of his work.

The Vines having been started in pots from eyes of well-ripened wood, he usually plants in the border when about 1 foot high, and trains up to the height of the roof of the vinery that same season, and the following, lest by any overstrain they should be the least weakened, allows but one bunch of Grapes to grow and ripen upon each stem. It is then his practice to cut back a certain portion of the Vine every year for six or seven years—until, in truth, it has attained its full vigour, and is bearing to the entire extent of the roof, by which time the Grapes are equal in size and in quality from the top to the bottom of the stem. While the growth is going on the "fertiliser" we have hinted at before has been applied every three or four weeks for stimulation, and water, which the plant so loves, has been given *pleno rivo*. Under this scientific treatment the annual product of this Expert, already very considerable, will yield 25 tons at least of first quality Grapes every year.

A rude outline sketch of this gentleman's property may not be inappropriate here. It covers 14 acres, and has close upon a mile of glass devoted to Grape culture. One house alone, span-roof, is nearly 900 feet long by 132 feet wide, and is planted with Gros Colmar Vines just producing fruit. Another of the same size is now in course of construction, to be devoted solely to Muscats; and a "lean-to," 600 feet in length, for Black Hamburghs, to be in the market early in April, is the finest he possesses out of ten other noble ones. We saw the crop of this vinery in bearing this year. There were hundreds of bunches of 2 lb., 3 lb., and some up to 4 lb. in weight, and "the purple clusters blushing through the green" in all their wealth of bloom and richness, were as pleasing a picture to the eye as a tempting *bonne bouche* to the palate.

There are other Grape growers in Jersey, Experts in character, whose vineries, although not so extensive, come close to our acquaintance in the quality of their fruit, but space prevents our dwelling upon them. Enough has been said to substantiate the fact of the large share in the Grape trade the wee islet occupies. *H. L. C.*

THE SPECIES OF TULIPA.—V.

(*Continued from p.* 788, *vol.* xix.)

Sub-genus Tulipa proper.—Stigma sessile.

Section 3. *Gesnerianæ*.—Filaments without a tuft of hairs at the base. Bulb-coats glabrous or furnished with a few adpressed hairs inside. Perianth campanulate, usually typically bright red. Leaves usually broad.

Sub-section 3.—Peduncle glabrous. Perianth-segments all six broadly rounded at the apex, with a small cusp in the centre.

21. *T. Gesneriana*, Linn.—This is evidently the original stock of most of the late-flowering garden forms. It is marked by its large bulb, with the outer coats with a few adpressed hairs inside, robust habit, 3—4 broad leaves, glabrous erect peduncle, large campanulate flower with all the six segments broadly rounded at the apex, when bright red with only an obscure basal blotch, and by its very large crisped stigmas, which are half an inch in diameter. There are wild specimens in the Kew herbarium from Sarepta, Prescott; Odessa, Besser; the Crimea, Steven; the Caucasus, Hohenacker; the mountains of Armenia, where it ascends to 6000 or 7000 feet, Zohrab and Huet du Parillon; Kurdistan, Captain Garden; and Songaria, Schrenk. Here no doubt belong T. Schrenki, Regel, figured *Bot. Mag.*, t. 6439, which represents the original wild stock of the species with flowers not more than 1—1½ inch long, Boissier's T. armena, the Florentine T. spathulata of Bertoloni, figured *Bot. Reg.*, vol. xxiv., t. 36, often called T. Gesneriana var. Strangwaisii in gardens, T. fulgens, Hort., with bright scarlet flowers with a yellow eye and yellow stamens, and the variable race of Parrot Tulips, T. Gesneriana var. Dracontia, of which there are figures in Redouté's *Liliacea*, tab. 478, and in *Flore des Serres*, tab. 2211, under the name of T. turcica.

22. *T. macrospeila*, Baker.—Bulb, stature and leaves of T. Gesneriana. Peduncle glabrous. Perianth campanulate, bright crimson, 2½—3 inches long, all the six segments decidedly obtuse, 1¼—1½ inch broad, with a large, distinct, nearly black, cuneate blotch, with a broad yellowish-white border, filling up the whole claw. Stamens black, one-third as long as the perianth, the lanceolate filament as long as the anther. Stigmas ½ inch in diameter, much crisped. Flowers late in May. Differs from T. maculata by its large stigma and glabrous peduncle. Doubtless it is a hybrid between T. Gesneriana and some other species. It was shown by Mr. Loder lately at South Kensington under the name of "T. Gesneriana," and I have just received a boxful of it from Messrs. E. H. Krelage & Son, of Haarlem, who have no name for it and do not know its origin.

23. *T. platystigma*, Jord., *Ic.*, tab. 16.—Stature of T. Gesneriana, with four broad undulated leaves, a glabrous peduncle, a campanulate magenta-red flower 2½—3 inches long, with obovate-oblong segments, with a blue-tinted claw with a yellow spot in the middle, and a very large stigma. Supposed to be a native of Dauphiné, but I cannot distinguish it clearly from some of the garden forms of Gesneriana.

24. *T. Korolkowi*, Regel. — A Central Asian species, known to us in England only from the description and figure in the *Turkestan Flora*, p. 136, tab. 22, figs. 6 and 7. Outer bulb-tunics lined with adpressed hairs. Stem in the wild plant 6—9 inches long, bearing 2—3 short lanceolate falcate leaves, with a crisped margin. Peduncle short, erect, glabrous. Perianth red, campanulate, the segments furnished with a distinct black blotch at the base, the inner oblong subobtuse, the outer obovate, broadly rounded at the tip. Filament lanceolate, glabrous, equalling the linear-oblong anther. Stigma small.

25. *T. Borszczowi*, Regel. — Another Central Asian species, closely allied to the last, of which we have good dried specimens in the Kew herbarium, and which has been figured in the *Turkestan Flora*, tab. 21, and *Botanical Magazine*, tab. 6635. Dwarfer than Gesneriana, the outer tunics of the bulb densely clothed with adpressed, straight, pale-brown hairs inside. Leaves four, with a distinct cartilaginous very crisped border, the lower one lanceolate. Peduncle glabrous. Perianth bright red in the type, 1—1½ inch long in the wild specimens, all the segments obovate-oblong, obtuse with a cusp at the tip, and furnished with a large brown-black Oculus-solis-like basal blotch, margined with yellow. In the form figured in the *Botanical Magazine* the flowers are yellow, without any basal blotch. Lanceolate glabrous filament as long as the yellow linear oblong anther. Stigma large. This and the last seem very near to one another, and to differ from Gesneriana mainly by the distinct blotch at the base of the perianth segments.

26. *T. Boissieri*, Regel.—Bulb not seen. Stem slender, about a foot long. Leaves two, linear, grass-like, a foot long, not more than ¼—⅓ inch broad, quite glabrous, not at all crisped, tapering to the point. Peduncle slender, glabrous, erect, ½ foot long. Perianth deep red, 1½ inch long, all the segments obtuse, not distinctly blotched at the base. Linear glabrous filaments ⅓ inch long, equalling the linear-oblong anthers. Stigma very small. This I know only from a single dried specimen collected near Ramleh in Palestine by Dr. Roth. It is referred by Boissier, in *Flora Orientalis*, to T. montana, but the leaf is totally different.

27. *T. tetraphylla*, Regel, *Fl. Turkest.*, p. 141, tab. 21, figs. 8, 9, 10.—Known to us in England only from the figure in the *Turkestan Flora*. Very dwarf, with four curved linear leaves near the base of the glabrous peduncle, which is not more than 1—1½ inch long, and a yellow flower ½ inch long, with six uniform, narrow, obovate, obtuse segments. Anther linear-oblong, equalling the dilated glabrous filaments. Habit of T. Biebersteiniana and triphylla. The reference in Regel's conspectus to a figure in the *Gartenflora* is a mistake. The plant figured at the plate cited is T. triphylla.

28. *T. Behmiana*, Regel, *Descr.*, fasc. vii., p. 219.—Known to us in England only from the description cited. A dwarf yellow-flowered species with bulb-coats pilose inside, four leaves with crisped margins, the lower lanceolate, the upper linear, a glabrous peduncle, a small yellow perianth, with all the six segments obovate-cuspidate, and linear glabrous filaments. Gathered by Dr. A. Regel on the banks of the river Ili in Central Asia near Iliisk. *J. G. Baker.*

(*To be continued.*)

The Herbaceous Border.

Bloomeria aurea and Brodiæa ixioides.—The latter will, perhaps, be better known by the name which is usually given it, viz., Calliprora lutea, but it belongs to a section of the genus Brodiæa. The present remarks have been drawn forth owing to what I consider the general confusion respecting these plants. During several years' observations and dealings with bulbous plants I have frequently known Brodiæa ixioides substituted for Bloomeria aurea, and rarely *vice versâ*, as the latter is much the rarer of the two, and not easily obtained in quantity. Last autumn I received—rather thought I had—Bloomeria aurea from three dealers—two American and one Continental—the result being that the bulbs obtained from the latter are all B. ixioides, while one of the American lots are the same, and the other the correct thing—and many previous consignments have turned out in the same fashion, which is of course vexing. But such errors are without doubt unintentional, especially on the part of the American dealers, whose collectors might easily make a mistake; but the case is different with our Continental growers, who are supposed at least to grow bulbs previous to despatching them. And, to bring the matter nearer home, it is a pity that this same error should be affected by our British dealers in bulbs—I do not write without actual knowledge of its occurrence; to the purchaser it is very unfair, as the price quoted for the Bloomeria is usually double that of the Brodiæa ixioides. The plants, although both yellow-flowered, and with umbellate inflorescences, are nevertheless distinct, as shown by the accompanying sketches. Structurally they are decidedly distinct: in Bloomeria the segments of the perianth are divided to the base, and the stamens in one row at the base, while in Brodiæa the perianth segments are only divided about half way down—rather more in this species—while the stamens are at the top of the tube, or upon its inner wall: a distinction clear enough for everybody. I may mention that the name of Bloomeria aurea was given by Kellogg, and the same plant is figured in the *Botanical Magazine*, t. 5896, under the name of Nothoscordum aureum, native of Southern California. Brodiæa ixioides is known under the various *aliases* of Calliprora lutea (fig. *Botanical Magazine*, t. 3588); Milla ixioides, Baker; Ornithogalum ixioides, Ait. f., *Hort. Kew*, 2, 257. They are both well worth growing, the latter being undoubtedly the prettiest and more hardy of the two—excellent plants for pots or borders, being so very distinct and pretty. *T.*

Herbaceous Plants at the Chad Vale Nursery, Birmingham.—Amongst those who in recent years have shaped their course to meet the revived demand for herbaceous and alpine plants, Mr. Vertegans stands conspicuous, the soil and climate at the Chad Vale grounds being alike of a nature to suit them. From the limited opportunity which a hurried visit admitted, the collection appears to be of a select character, which is as it should be; no conceivable good can come of cultivating unlimited collections of these plants got together without judgment or discrimination as to their merits, as where worthless, rubbishy kinds are brought under the notice of those who have yet to make acquaintance with herbaceous plants, such are not likely to increase the liking for them. Amongst those largely grown are Anthericums, including the beautiful A. liliastrum, Phloxes, Pyrethrums, Rockets, Campanulas, Potentillas, Carnations, Pinks, bedding Pansies, and Violas, with a host of others of a like handsome, free-flowering character, indispensable in every garden where something more is required than the ordinary summer bedding plants, which are well enough in their way, but not enough to give that variety and seasonable succession which constitutes the charm of a garden. Ixias and Sparaxis do finely, and are largely grown. Amongst Violas, Queen of Spring as here seen was a mass of pure yellow, the flowers literally touching each other.

Arnica montana. — Will "Daf" oblige me by sending a flower and root-leaf of his Arnica montana to me or to the Editor of the *Gardeners' Chronicle* for verification? For, if it is true, I should like to enter into negotiations with him for a supply. I find Arnica montana a very difficult plant to obtain, and still more difficult to keep alive, common as it is in some parts of the Alps; in fact, I have only once kept it alive through winter. I have a plant of it now in flower bearing ten blooms on one stalk, but the flowers are small, and I know that it will die after flowering. I have lately seen Senecio doronicum, a very different plant both in habit and ease of cultivation, sent out by a London firm as Arnica montana. It is true that the two plants bear a strong external resemblance; but Arnica montana, if it would flower as it does in its native haunts—from which I have seen only dried specimens—is infinitely finer than the Senecio, which increases here quite like a weed. I find Arnica montana, both flower and leaf, accurately figured in Curtis' *Botanical Magazine*, vol. 42, No. 1749. The plant there figured was obtained from the Chelsea Botanic Garden in the days of Salisbury. *C. W. Dod, June* 18. [The plants sent with this were Arnica montana var. angustifolia, and Senecio doronicum. Ed.]

FLOWERS IN SEASON.

From Messrs. Rodger McClelland & Co., of Newry, come:—

Spiræa splendens, a charming half-shrubby form, growing to a height of about 9—12 inches, and well suited for the rockwork. The whole plant is smooth; stems flexuose, reddish; leaves about 1½ inch long by 1 inch in breadth, oblong obtuse, coarsely toothed; flowers in dense terminal clusters, deep reddish-pink.

Hypericum sinense.—A good greenhouse plant of middle size, with sessile glabrous oblong lanceolate leaves in pairs, each about 2½ inches long by ½ inch broad. The flowers are in loose terminal clusters, each with a long reddish stalk. The five sepals are ovate oblong, spreading, destitute of marginal glands, and much shorter than the deep yellow globose corolla.

Campanula bononiensis.—A dwarf species, with small stalked ovate acute, slightly-toothed, deep green hairy leaves, and solitary bell-shaped corollas, each about 1¼ inch long, deep violet, and encircled by a much shorter calyx, the five lobes of which are linear.

Calceolaria Kellyana, said to be quite hardy at Newry. A small species, the flower-stalks covered with viscid hairs, each flower nearly an inch long, with a short hood-like upper lip ending in a point, and a much longer bag-shaped lower lip, orange-yellow with reddish-brown spots.

Jurinea alata, a Centaurea-like plant, 2—3 feet high, with bold lyrate leaves tapering to a stalk, dark green above, snowy-white beneath. The upper leaves on the stem are much smaller and "decurrent," that is, the base of the leaf is attached to the sides of the stem, causing the latter to appear winged. The flower-heads are numerous, borne at the ends of long, wiry, erect, leafless or nearly leafless stalks. Each head is nearly globular, 1½ inch across, with very numerous tubular five-parted pale violet florets, surrounded by an involucre of very numerous small linear bracts in many rows, the outer greenish and bent downwards, the inner rather longer, purplish, and erect.

Salvia candelabrum.—A very handsome species, with purplish stem; flowers loosely arranged in erect clusters. Each flower is supported by an erect or ascending stalk with a tubular cup-shaped calyx with five ovate lobes, and studded with glandular hairs. The corollas are 1¼ inch in length, with a whitish tube and a two-lipped limb; the upper lip is much the shortest, hooded, pale violet; the lower lip has two small side lobes, and one central one much larger, rich violet, with a central white blotch.

Sidalcea malviflora is a tall-growing Mallow-like plant, with deeply palmately divided leaves, the segments of which are lanceolate. The flowers are numerous, in dense erect clusters, rosy-lilac in the type, white in the variety candida.

Serapias cordigera.—A terrestrial Orchid, with purplish stems 12—15 inches high; leaves lanceolate, flowers in terminal erect clusters, each supported by a lanceolate bract, deep reddish-purple, with a glaucous bloom. The sepals form a hood, beyond which projects the relatively large trowel-shaped lip, of a wine-purple colour, thinly beset with whitish hairs, which serve to entangle aphides and other undesirable visitors.

HYBRIDS.

There really is no telling what surprises the hybridist may have in store for us. Till Mr. Culverwell, the other day, showed us a hybrid between the Black Currant and the Gooseberry (see p. 635, vol. xix.), we should have doubted, not the possibility but certainly the probability of such a cross, and still more should we have doubted the probability of crossing the Stawberry and the Raspberry. Nevertheless, we believe Mr. Culverwell has effected that cross, although at present he has not succeeded in producing Strawberries on Raspberry canes. With the specimen before us, however, we can have no doubt that a commingling of the two plants has been obtained, and in future we may look for the fruit. The specimen before us has the stem of the Raspberry but without its prickles. The shape of the leaves, as will be seen from our illustration (fig. 3), is more like that of the Strawberry than that of the Raspberry, the three leaflets being closely approximate, instead of the central leaflet being raised on a

long stalk, separating it from the lower ones, as in the Raspberry. The pubescence on the upper surface is like that of the Strawberry, but the under surface has the hoary appearance of the Raspberry. The stipules at the base of the leaf are more like those of the Raspberry than those of the Strawberry. It is a curious circumstance, that in many hybrids the intermixture is manifest in the vegetative organs—stems, leaves, &c., while the flowers are either not developed, fail to come to maturity, or show little or no sign of the cross. Thus has it been with the attempts at crossing Geraniums and Pelargoniums, Abutilons and Hibiscus. Still by artificial fertilisation, or by recrossing the flowers, no doubt a change might also be brought about in the flowers as well as in the other organs. In the present case, Mr. Culverwell tells us the cross flowered profusely, like the hybrid Gooseberry-Currant, which he sent us some time since, but none of the flowers set. We should have liked to have seen some of the flowers, as Mr. Culverwell does not tell us whether they most resembled those of the Raspberry or of the Strawberry. The botanical differences are considerable, and every one knows that the edible part of the Strawberry corresponds to the dry core of the Raspberry, while the succulent pips of the latter are the representatives of the dry nutlet of the Strawberry. A botanist would be somewhat excited at a cross between the two, while the more practical public would hail with delight the production of Strawberries on Raspberry canes. Perhaps the slugs might take an opposite view. At any rate, they are safe at present, for Mr. Culverwell has not yet effected this marvel, but with the evidence before us, which we may say was much more obvious to the eye in the fresh specimen than in the illustration, we at least cannot say it is not possible.

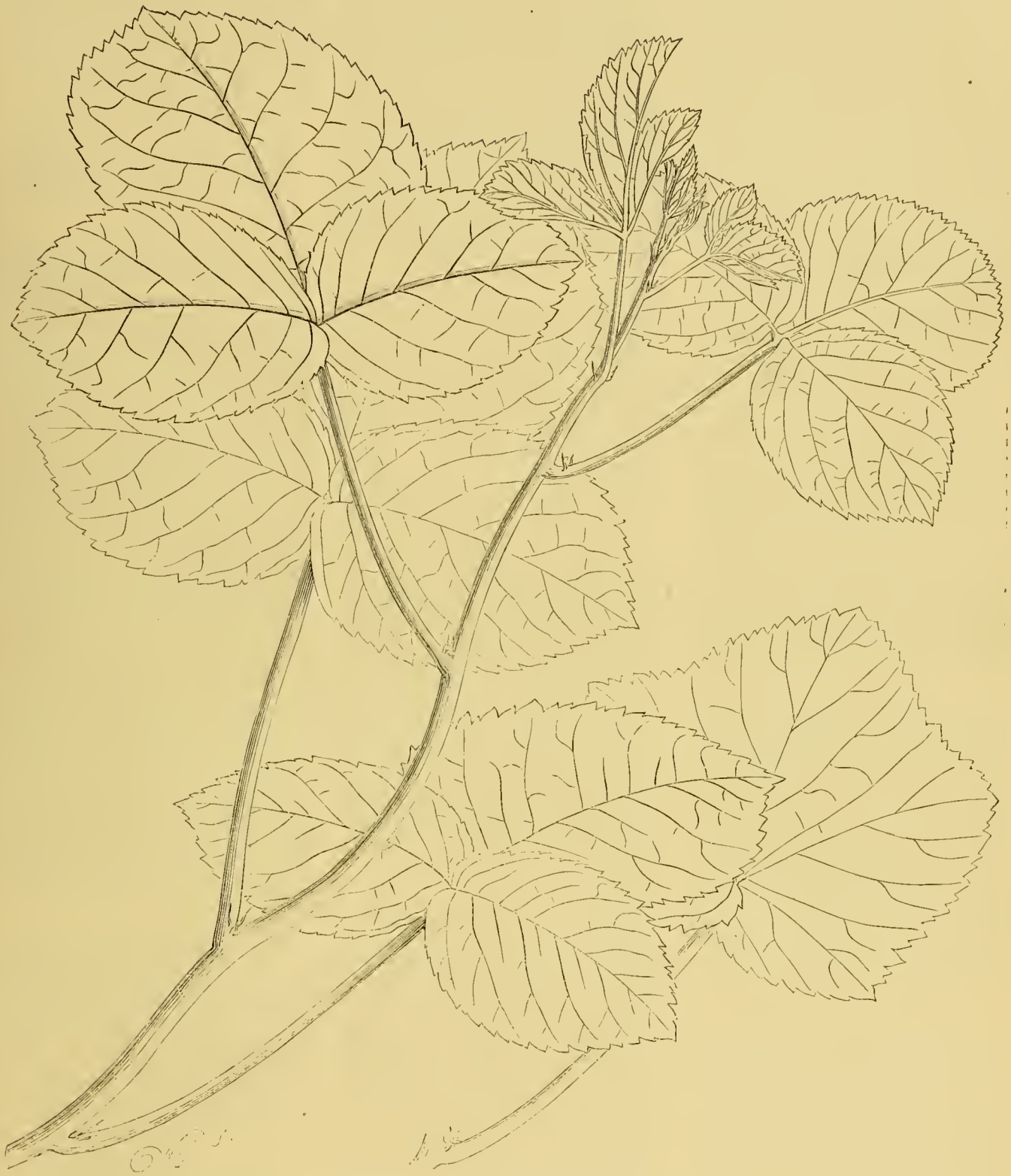

Fig. 3.—A hybrid raspberry. (see p. 12.)

Orchid Notes and Gleanings.

Odontoglossums and Masdevallias at Mr. Winn's, Birmingham.—There are few Orchids that make such a gorgeous display as Odontoglossum vexillarium, when existent in such numbers and vigorous condition as the grand collection at Uplands has attained. Promising as this species was when it first flowered, few were prepared for the sight which it presented when massed together in quantity, as recently to be seen at the above-named place; the various shades, from deep pink to white, which the different forms afford, give a combination of colour such as to be found in few plants. Amongst them were some of the finest forms existing, alike remarkable for size of flower and depth of colour; one plant bore thirty spikes, forming a mass of bloom which all but hid the leaves and bulbs. The large and well grown collection of cool species of the family fill a house 90 feet long, and are in equally fine condition. In the O. crispums are quantities of the finest large-flowered broad petalled varieties; in all the varied forms of shading and spotting which this sportive species exhibits a considerable number were still in bloom. Masdevallias thrive most luxuriantly, attaining size and substance of leaf such as gives proof of the treatment they receive being right; amongst them are all the favourite varieties, including the best forms of M. Harryana, M. Lindeni, and M. Veitchii, with M. bella, M. trochilus, M. macrura, M. Winnii, M. radiosa, M. chimæra Wallisii, and other varieties. In the large general assemblage of well managed Orchids here, Cattleyas and Lælias are deserving of especial notice, for their strong thick bulbs and stout leaves, flowering as these fine germs invariably do, where treated so as to exhibit their natural vigour. In them may be mentioned C. gigas, C. labiata, C. Mendeli, C. Warneri, C. Trianæ, C. speciosissima, C. exoniensis; Lælia purpurata, L. Turneri, L. elegans; with a host of others in a condition that gives promise of their continuing to increase in size and healthy vigour—a consummation of which there is little doubt, from the good light houses the collection are grown in, and the rational treatment they are subjected to, by the admission of enough air, plenty of light, and an absence of more heat than requisite.

Mr. Chamberlain's Orchids at Highbury, Birmingham.—Amongst the collection of Orchids that have been formed in recent years this is the most extensive, all the different sections of cool, intermediate, and hot species, are alike well represented, filling several good-sized houses. In getting the collection together, the sensible course of obtaining imported plants in stout pieces has, we understand, been mainly followed. There is much of the interest inseparable from uncertainty attached to this mode of forming a collection of these variable plants, not alone in the observance of the progress they make in regaining strength after the trying ordeal they pass through, by being stripped from the trees where established, huddled together in close packages during their long transit, subjected as they are to almost every condition opposed to that which their nature requires; but, added to this, there is the chance of there being prizes or blanks in the good or inferior varieties they prove to be, when the flowers open, which collectively has all the charm attached to the hybridising and raising of seedling flowers. In the warm division Vandas, Aërides, Dendrobiums, and others of a like character that require most heat are extensively represented and are thriving well. Phalænopsis, of which there are a large number, occupying one side of a house, look well and are doing satisfactorily. The principal block of houses, some thirteen in number, with a large conservatory and a Fern-house—the latter arranged in the natural style—are span-roofed, standing ends north and south. To the whole of these houses there is access, without passing out-of-doors, from a long roomy corridor to which they adjoin; at the northern end, to the back of this corridor, facing north, is the cool Orchid-house, hip-roofed, wherein are grown the Odontoglossums and Masdevallias, along with such species as Epidendrum vitellinum, Sophronites grandiflora, and other cool kinds, which look well, and from the character and position of the house can scarcely fail to continue to do so; the cream of the favourite varieties of the different species are here located, flowering in a way that gives evidence of their well doing. The intermediate division contains a quantity of Odontoglossum vexillarium, blooming freely; amongst them are some fine forms with large highly-coloured flowers, and others almost pure white. Most of the leading kinds of Lælias and Cattleyas are present, many of them in large numbers. C. exoniensis with four leads; the C. Trianæs are very strong, filling one side of a house; a magoificent example of C. gigas was conspicuous alike for its strength, as well as the size and colour of its flowers; C. Warneri equally fine; of C. Mossiæ and C. Mendeli several remarkable forms were blooming, with large finely-marked flowers, varying from those with almost pure white sepals and petals, relieved by the deepest ruby-purple lips, to others less decided in contrast of colour. There was here a plant with very distinct looking flowers, intermediate in character between C. intermedia and C. Mossiæ, considerably smaller than the latter species, ground colour of the sepals and petals similar, with a very pale lip, which is small; it looks like a flower of C. Mossiæ with the fringe cut away. To all appearance it is a natural hybrid between the above-named species. Amongst Lælias, L. purpurata was unusually strong and full of flower.

Vanda teres.—Just a word in reply to Mr. Douglas' remarks at p. 818, vol. xix. I have yet to learn that truth unvarnished should be misleading, and I simply related a fact as I found it, and this should not drive any one to extremes. I remember that some three or four years ago Mr. Druce's little plant was only a few inches in length: it had been dried nearly to death. I was asked what was the best thing to do with it, and I gave my advice thereon. Having seen it year by year since then growing into such a sturdy little plant, and then this year to send out three spikes with twenty-one fine flowers of such size and substance as perhaps was never before seen in this country, the question naturally arose, what has brought about such results?—and in my humble opinion it is the absence of severe drying, which too many subject their plants to. Those that know the flat that runs through West Dulwich, and the fogs that frequently last days, and sometimes a week and more at a time in winter, will also know that in a moist stove, the entire centre of which is an open water tank, that Vanda teres in its resting season could never dry in the sense that I have often seen it dried—that is, the extreme which I was aiming to correct. I have seen it growing in many parts of the country in the very best collections, and have often listened to some special treatment of the plant to make it flower, but have seldom seen plants that have been in some instances six times as large as the Dulwich plant, with more than two spikes of perhaps three or four flowers. I should have been very pleased to have seen the plant at South Kensington, or at least every lover of Orchids to have seen it in its beauty, and I am sure they would never have forgotten Vanda teres. *H. James, Castle Nursery, Lower Norwood, S.E.*

Mexican Orchids.—For the cultivation of these plants M. Kienast, who not only collected them in their native spot, but also grew them successfully, recommends in the *Orchidophile* the following system of treatment. Abundance of light, abundance of moisture, free ventilation, especially at night, so that during the growing period—March to November—the growth may never be checked for one instant. In the resting season abundance of light—all that can be obtained, in fact—and absolute drought from November to March. The temperature should never exceed at this time 10° Reaumur (55° Fahr.) by means of fires, which are injurious to Odontoglossums and Masdevallias. Maritime species and alpine species are, of course, exceptional. The latter are soaked in summer by daily torrents of rain, and in winter by dense cold fogs. To this latter group belong Epidendrum vitellinum, Odontoglossum cordatum, O. nebulosum, Arpophyllum spicatum, Sobralia macrantha, Odontoglossum Rossii and its varieties, O. Cervantesi, &c. As to soil, it should be well drained, and consist of fibrous peat mixed with pieces of charcoal and sphagnum.

Hybrid Orchids.—In the collection of Baron N. de Rothschild, near Vienna, M. Roezl, who ought to know, states in the *Orchidophile* that he has seen hybrids raised from the seed of Schomburgkia tibicinis fertilised with the pollen of Lælia purpurata, and Sobralia macrantha fertilised by Cattleya Mossiæ. We simply tell the tale as it is reported, and await the flowering of these marvellous crosses with interest.

Dendrobium Dearei.—The *Bulletino della Societa Toscana de Orticultura* for May corrects an error into which we had fallen when we stated that this plant was flowered first in Europe by Sir Trevor Lawrence, and exhibited by him on May 22 at the Royal Horticultural Society. It now appears that on the 17th of the same month, Mr. Ross, of Florence, exhibited the plant in flower at the Tuscan Horticultural Society, and received an award.

The Flower Garden.

The gardener's difficulties and anxieties in respect to this department are now beginning to abate—at least for a season. Having completed his more laborious work he can now watch with interest and pleasure the growth and development of the various plants, simply making at intervals a few careful notes of the worst and best results for his future guidance and advantage. His principal object now should be to endeavour, by good cultivation, not only to secure quick growth, so that with suitable training the desired effect may be obtained in the shortest possible time, but also by neat and cleanly cultivation to cause the garden to present at all times a bright and pleasing appearance. Nothing conduces so much to this end, supposing the arrangement of the beds to be satisfactory, as does strict and scrupulous cleanliness in everything connected with the garden and its surroundings, as well as due and persistent attention to the numerous but necessary details of pegging, tying, and training into their proper and required shapes and positions. Every gardener is, or should be, the best judge of the most suitable method of treatment required in the garden of which he has charge, not only in respect to soil, but also in respect to the climate and other local and active influences by which he is surrounded. The liberal treatment adopted by some, with good results, would be found quite disastrous if followed by others, differently situated. As a rule, however, it is undoubtedly true that the occupants of the flower garden do not receive that judicious care and liberal treatment by the timely application of stimulating top-dressings and occasional waterings with liquid manure which they demand and require to enable them to produce and maintain for a lengthened period that gorgeous display which is expected from them. This should be done not so much at the end as at the commencement and early part of their growth. With good foliage and good roots abundant and massive flowers are the certain result, unless the season prove exceptionally unfavourable.

Roses now require frequent, almost daily, attention, so as to secure large and perfectly-developed blossoms. A sharp eye should be constantly on the look-out for insects, mildew, and other injurious antagonists. This season mildew appears to be unusually prevalent, owing, I suppose, to the sudden and extreme climatic changes, both in respect of temperature and dryness, which we experienced during the month of June. The best antidote is undoubtedly sulphur, and although it cannot be used with such good results out-of-doors as it can under glass, still if two or three fine dry sunny days occur after its application to the affected parts, it will most assuredly check its progress, if it does not effectually destroy it. The same remark also applies to the disease known as red-rust, but this pest requires even stronger measures to be used, and I have this year found the application of Keele & Hawes' insecticide most effectual in checking the growth of this insidious pest, simply mixing one part to eight of soft water and syringing it overhead. The Rose weevil is also a most troublesome and destructive insect, and often does immense mischief to the foliage and young buds before its presence is even suspected; the best, and the only sure remedy is to daily examine the foliage and pick out the grubs. In dry, hot seasons red-spider will attack the foliage and seriously impair the health of the

plants unless checked by timely and forcible syringing overhead. Every day the old blossoms should be removed and the defective and superfluous buds be picked off, so as to ensure finer and more perfect blooms and and a longer succession of them. Tying, pegging, the judicious thinning of buds should receive due and constant attention, so as to secure them from injury by storms, and also to ensure large and perfectly developed blooms. Should gross shoots appear they should be pinched when they have made a reasonable growth, so as to prevent them monopolising too much sap, to the detriment of the other parts of the plant.

Shrubberies should now receive attention by careful pruning of all superfluous growths, in doing which special care should be exercised to prune in such a manner that no sign of the operation shall be visible, while every plant or tree should afterwards present its natural and peculiar shape. Evergreen hedges should now be clipped, otherwise they exhibit a negligent appearance, which at this season of the year ill accords with the neat and trim appearance of a well-kept garden. *T. S. C.*

The Kitchen Garden.

The glorious weather which has burst upon us will prove most beneficial to the majority of crops, but the gardener must betimes anticipate the result of crops becoming dry at the roots, and at once mulch such as Scarlet Runners and Peas. Where the climate and soil are favourable a sowing may be made of some early kind of the latter, which will be the last of the season. A third plantation of Celery ought now to be made of some hardy kind to stand the winter, and, as previously stated, the red kinds are best for that purpose. Another point not to be lost sight of is to plant shallow—6 inches will be quite deep enough—and it will be found to keep far better than if planted deeper. This is the month in which the year's supply of Cabbage is sown. At once sow the second lot of Coleworts, and after the middle of the month sow the early Cabbage, and the later kinds at the end of the month. We have tried a good many kinds of Cabbage, but prefer Ellam's Dwarf Early, Hill's Incomparable, Atkins' Matchless, and Wheeler's Imperial. These four are excellent kinds, and they are arranged in their order of merit. Large kinds, such as Enfield Market, are better adapted for market than for a gentleman's garden. Another and the last sowing of Endive must now be made. The Hardy Green, and Fraser's Improved Broad-leaved, we have found best for standing the winter. The early Potatos are now ready on south borders; and as fast as they are dug the ground should be planted with early Coleworts, or early Endive. The early Peas on south borders will be over. Clear the borders at once, and plant Snow's or Backhouse's Broccoli. The ground need not be dug, but simply hoed over and planted. If the border is stiff, or hard, an iron crowbar will make the holes, and the plants will be found to do better in many soils than if dug, especially if it is light. Make another plantation of Veitch's Autumn Giant Cauliflower; it will be found invaluable in October and November. Make a sowing of Early Nantes Horn Carrot for drawing young, and thin out Chicory to 9 inches apart. The French Dandelion may be left twice as thick. If flowering shoots appear on Rhubarb and Seakale remove them at once, as tending to weaken the plants. See that Vegetable Marrows do not become dry, and daily sprinkle Mushroom beds. Tomatos which are planted out under glass will require water once a week, and as often remove superfluous shoots, but save all the blossom possible, and if the crop is heavy give liquid manure. Where new Potatos are required at Christmas now is the time to plant them in a frame or pit. Dig deep; plant some old seed of kidney kinds; give a thorough soaking of water, put on the lights, and tilt them up back and front. Let them remain so, and disease rarely, if ever, comes under these conditions. *J. Rust, Eridge Castle, Sussex.*

Melons and Cucumbers.

Melons.—Those planted out some time since will now require the addition of a little soil to the hillocks, and it should be pressed firmly down. Should any of the plants indicate signs of canker in the stems—which, it is almost needless to say, is the result of too much moisture settling on or about the stems—rub a mixture of dry soot and lime, in equal quantities, into the affected parts, which will, other points being duly attended to, arrest any further progress of the disease. Slugs are sometimes very troublesome and destructive in this department. They are not only partial to the Melon while in a young growing state, but also to the fruits as they approach maturity, when they invariably, if not well looked after, attack the sunny side of them, and thereby render them unfit for the table. This undesirable state of things, as most of your practical readers are aware, can in most cases be easily avoided by placing a plentiful supply of young Cabbage or Lettuce leaves in their haunts. Of these it will be found, on examining the leaves next morning, that they have partaken freely, whilst under those not so eaten they may be found comfortably digesting their salad feast, when, as a matter of course, they should be destroyed forthwith. *H. W. Ward.*

Cucumbers.—Frames from which Melons have been cut can now be planted with Cucumbers, which will make a good succession to those now in full bearing. From frames of this description about being planted Cucumbers may be cut until Christmas by attending well to the linings and external protection from inclement weather. Should woodlice be troublesome, which is very likely, pour boiling water over their haunts. Previous to doing this, the sides and ends of the bed should be trodden down, to prevent the hot-water passing away too quickly, thereby losing part of the effect for which it was applied, and which will speedily reduce their numbers. As, to use a homely phrase, "prevention is better than cure," repeat the dose a couple of times a week. If mildew or red-spider should put in an appearance, apply the usual remedies—a dusting of flowers of sulphur to the former, when the leaves are damp, in the afternoon, and sponge the leaves with soft-soapy water for the latter. *H. W. Ward, Longford Castle.*

Plants and their Culture.

Greenhouse Hard-wooded Plants.—The floral beauty of many of these will now be past their best. Of the Cape Heaths, such as have faded blossoms should be seen to, removing them carefully. Hold the shoot in one hand whilst picking off the flowers with the other, so as not to bring away any young growth. It is not necessary to strip off the entire bloom at once; by taking away the worst of the flowers the plant will have a fresher appearance, and last on in tolerably good condition a while longer. Those that have been lightly shaded to prolong their bloom, should have the shading withdrawn to prevent the young growths from starting away weakly. If repotting in any case is contemplated, it should be performed as soon as the last of the flowers are picked off, the energies of the plant will then be entirely thrown into a fresh growth if the plant is in a healthy state. The roots will then quickly lay hold of the new soil, which is essential with such delicate rootlets as these plants possess. Do not let any fresh potted stock be exposed to heavy rains, it will be better to keep them under glass protection for a few weeks at least. With specimens see that the old ball is not in the least on the dry side, neither should it be too much saturated, but in such a condition as that the plant can be safely watered a day or two after repotting. Choose peat of the very best description, such as the common Heather delights in. Avoid such as the Bracken (Pteris aquilina) thrives in, this being of too spongy a nature to suit Heaths and other hard-wooded plants. If any fear is apprehended of the peat being of too retentive a character, some pieces of broken crocks (small) and knobs of charcoal may be worked up with the peat; the best silver sand should also be added in a liberal manner. In potting use every precaution to ram the new soil as firm as possible around the old ball; with specimens this is a great point in their future wellbeing. See also that the collar or stem of the plant is not dropped too low down into the new pot; leave what is sufficient room for watering purposes, and a very slight sprinkle of silver sand and the finer peat. Do not give what may be termed a top-dressing; this we do not think advisable with any hard-wooded, fibrous rooting subjects (Azaleas alone excepted). Heaths are not what might be termed surface-rooting plants; a close observer will find most of the roots towards the bottom of the ball, and in repotting that is where a goodly amount of the fresh soil should be concentrated, keeping the ball sufficiently high to secure this end, pressing the surface down quite firm after having removed most of the sticks, or sufficient of them to work the fingers over the same. During damp or showery weather keep a sharp watch on any inroad of mildew. E. Cavendishiana, E. affinis, and the tricolor sections are the most liable to be attacked; dusting with sulphur is the best remedy. In the case of large, dense specimens the sulphur should be thoroughly mixed with water and forced well into the central part of the plant. Late blooming kinds of Heaths, such as E. Fairrieana, Marnockiana, retorta major, and others should be exposed to the full sunshine to heighten the colours of their blossoms; take care, however, not to expose them to heavy rains when once the flower-trusses are developed. Pimeleas will now be starting into new growth; any remaining flower-trusses should be removed, and stray shoots shortened back to keep the plants shapely; during hot weather slight syringing in the afternoon will be beneficial, and also prove a check to red spider, which will at times attack them. We have found a slight amount of good yellow loam to suit them, in addition to peat when any repotting has been performed. The Aphelexis will now be past their best; the flowers, if taken before much faded, come in useful in the winter with other everlastings. A frequent mistake is made in cutting these off with a knife, instead of which they ought to be broken out close home to where the shoot for the following season is being pushed forth; any portion that is left with the object of another growth being formed will be found to be in vain, besides making the plant look scrubby. Dracophyllum gracile should be gone over in like manner, taking off the old spike just above the young growth; a pair of Vine scissors would do for this work. Be very cautious not to over-water this subject at this season; during the flowering period a greater amount will have been required, but no such demand exists aftewards. Treat them like a hard-wooded Heath in this respect. The Dracophyllum is more liable to die off just after flowering than at any other time, caused, no doubt, by the extraordinary freedom with which it flowers, and the consequently greater strain on the plant.

Of Boronias, two comparatively newly introduced species—B. megastigma, valuable for the delicate perfume of its flowers, and B. elatior for its colour—are both thoroughly deserving of cultivation in the most limited collections. These species will bear slightly cutting over to keep them within bounds. The compact growing B. serrulata does not need this, but beware of white-scale on this latter kind. Give the two first-named shifts where necessary, using soil as advised for Heaths. Chorozemas that are needing attention at the root should be looked to now they have well broken into new growth. Darwinia (Hedaroma) tulipifera, if it has carried a good crop of bloom this summer (which it does not generally do two seasons in succession), may be more advantageously repotted than if left to another year, provided the indications point to this end. If left to another season, perhaps the growth made would be too vigorous to produce flower, thereby missing (partially) the second year. Keep young growing stock of Pleroma elegans pinched to produce a good bottom, and give a shift if pot-bound. Flowering plants of this old but valuable Melastomad will now be showing for bloom, the protection of a greenhouse should be accorded them and a slight dewing in the afterooon will be beneficial. The more robust growing greenhouse Rhododendrons, if requiring a shift, may be seen to as soon as the flower-buds are formed, if done earlier a too vigorous growth might be the result, with no blossom the following season. *James Hudson, Gunnersbury House Gardens, Acton, W., July 3.*

Peaches and Nectarines.

As the trees in the second house become cleared of fruit, treat them according to the directions given in my last Calendar. The trees in the third house should now be swelling off and ripening their fruit, and should be assisted in doing so by a liberal supply of tepid manure-water. Trees in succession-houses may also be assisted in the same manner, and should now have the young shoots tied in close and straight, stopping any laterals or strong shoots, and getting the fruit well up above the foliage before they commence colouring, by means already given in former Calendars. Very little fire-heat will now be required, if we have a continuation of the nice warm weather we are now having. Any houses that require pushing on to have them ripe by a given time may be shut up early, allowing the temperature to run up to 90° with sun-heat, having every available surface well saturated with moisture; this will bring them on better than using much fire-heat. Carry out directions already given as to late houses, keeping them as cool as possible during hot weather. *J. Wallis, Keele Gardens, July 3.*

APPOINTMENTS FOR THE ENSUING WEEK.

Tuesday,	July 10	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M. Rose Shows at Hereford, Oxford, Ipswich, and Liverpool. Sale of the late Mr. G. Wright's Orchids, at Stevens' Rooms. Sale of Imported Orchids, at Protheroe & Morris' Rooms.
Wednesday,	July 11	Royal Caledonian Horticultural Society's Show. Ealing Flower Show. Lee and Blackheath Flower Show, at The Cedars, Lee. Flower Show in the Hull Botanic Garden (three days). Sale of Imported Orchids, at Stevens' Rooms.
Thursday,	July 12	National Rose Society's Show, at Sheffield.
Friday,	July 13	Ludlow Rose Show. Sale of Imported Orchids, at Protheroe & Morris' Rooms.
Saturday,	July 14	Weston-super-Mare Flower Show.

BY the time this number reaches many of our readers the annual exhibition of the Chiswick, Turnham Green and District Horticultural Society will be taking place in the time-honoured CHISWICK GARDENS of the Royal Horticultural Society, and in this way some of the glory which gathered about the gardens in the old Chiswick days will be shed upon them again, and memories that still cluster about them will live again in not a few hearts. As men grow old their lives appear to become much more closely related to the past than to the immediate present, and remembrances of the time when society shed such a fashionable lustre upon Chiswick will be quickened, though the gathering expected to-day will be under new conditions and different circumstances. But as far as practical work is concerned Chiswick in the present day is perhaps as dear to horticulturists as it ever was; the work now being done there is worthy of the Society, and as well done under the circumstances as it is comprehensive in character.

Visitors to Chiswick at the present time will find the gardens in excellent condition, with aspects of interest multiplying daily. The fruit crops here—as in the large fruit gardens which clothe the environs of Chiswick—are somewhat variable. The Apple crop is very heavy, and some of the young bush trees are absolutely laden with fruit, particularly such varieties as Small's Admirable, Cellini Pippin, Cox's Orange Pippin, Lord Suffield, Stirling Castle, Duchess of Oldenburg, &c. The Pear crop is probably less than it was last year; and of Plums there are scarcely any. But who ever saw Pear and Plum trees looking better than they do at the present time, making a generous growth, and looking in the perfection of health? The Apple trees generally, elsewhere as at Chiswick, have been much infested with caterpillar, but the heavy thunderstorms with rain have had a beneficial effect. On the walls there is a good crop of Peaches and Nectarines, and a moderate crop of Cherries. Strawberries are a fairly good crop; the dry weather at the time of flowering appears to have affected many of the blossoms, and they became infertile. Sir J. Paxton, which is being grown in much larger quantities than before at Chiswick, is first-rate; and President very good indeed.

In the large vinery the thinning out process is nearly finished—an almost stupendous work—and there is a very good promise of fruit. In the long vinery, formerly the cordon Peach and Nectarine house, the fine young Vines have flourished so grandly that there is a superb promise; the Vines now completely cover the inside of the house, and very fine bunches hang thickly from strong wood. By-and-bye, when the fruit is ripe the vinery will be worth going miles to see.

In the old Fig-house can be seen a very extensive and interesting trial of Tomatos in 16-inch pots. There are something like sixty sorts in very strong plants fast coming into bloom—all very clean and healthy. In one of the curvilinear houses there are also some Tomatos trained to the roof in fine fruit; among them Trentham Early Fillbasket is very promising, being early and a prolific bearer.

In the vegetable garden there is among other trials one of 102 varieties of Peas, all very promising, and much benefited by the recent rains. Among the early varieties that are rapidly advancing towards maturity may be mentioned Chieftain, 2 feet, very promising; Harbinger, 3 feet, very early, and a great cropper; Earliest of All, very good; and Extra Early White, also very early and fine in the pod. All the foregoing are decidedly in advance of William I.

Of Potatos there are some hundred sorts sent for inspection by the Fruit Committee of the Society, and some forty in competition for the prizes offered by the Committee of the International Potato Exhibition. All are looking very well, without any sign of "curl" or indication of the on-coming of disease. There is, in addition, a trial of early Cauliflowers, but one unfortunately likely to be abortive, because of the drought causing them to button-in prematurely. There is also a remarkable trial of Lettuces, amounting to something like a hundred samples, that will in all probability be at their best in about a week.

In the plant-houses there is much of great interest to challenge attention. The collection of tuberous-rooted Begonias is now in the best condition, and will well repay inspection. There are, as usual, Pelargoniums in great variety, and the group of Ivy-leaved varieties is a remarkably good as well as comprehensive collection. There is a charming lot of Gloxinias, especially of the erect flowering types, mostly named and selected seedling varieties, with others coming on to succeed them. Indeed. the objects of interest in the various plant-houses are much too numerous to particularise.

Of trials of flowers in the open air there is one of Sweet Peas, that cannot fail to be as instructive as it is satisfactory. It was a trial much needed just now, when Mr. HENRY ECKFORD and others are busily engaged in the production of new forms.

Many bedding plants will be very attractive during the summer, and they include, as is usual, a great deal of novelty.

A collection of Pæonies now in flower amply repays inspection, and among the hardy plants in bloom, Pink Mrs. Sinkin is a pure white variety of great value, being large, sweetly fragrant, and freely produced.

There is also a good collection of seedling and named single Dahlias. One gets a much better idea of the value of these when they can be seen growing in the open air, and can draw correct conclusions as to habit of growth and freedom of flowering.

This is but an imperfect sketch of the various aspects of practical gardening Mr. BARRON is this season carrying out at Chiswick. Visitors to the exhibition to-day will find the gardens in excellent condition, showing the care and attention continually bestowed upon them; and it is to be hoped that the weather will be fine, that the treasures of Chiswick may be enjoyed to the utmost.

—— THE PALM FOREST AT ELCHE.—Dr. HENRY BENNET, in his work entitled *Winter and Spring on the Shores of the Mediterranean* has given a description of the Palm forest at Elche, in Spain (see fig. 4), in the vicinity of Murcia, which it would be difficult to improve, so we here transcribe it (p. 258):—

"After a progress of some 20 miles from Orihuela, through this cultivated wilderness, we came to another valley, and then bursts on our astonished eyes an oasis of the African desert, such as we had wished to see in Africa, but had not seen—a forest of tropical Date Palms, extending over a vast region, many miles in circumference, and surrounding the famed village or town of Elche. The river bed was crossed by a good bridge, but in it there was no river. It had been taken up bodily by the inhabitants, and distributed in canals to their friends and bread givers—the Palms. I remained here several hours and walked miles in the Palm forest, the like of which an Indian companion had never seen in the Tropics. There were canals full of water flowing rapidly in every direction and the ground was everywhere prepared for irrigation, in trenches, in squares, in parallelograms, banked up by the earth walls, 1 or 2 feet high. Water was constantly let into these trenches and squares and allowed slowly to soak in, so as to moisten the ground thoroughly, wherever there were roots. Thus again was I reminded of the Arab saying that 'the Palm must have his roots in the water and his head in the fire.' There were Palms of all sizes from 20 to 80 feet high, of every shape and direction. Some erect, like the Trajan Column at Rome, others gracefully twisted or inclined. Sometimes they were growing capriciously, sometimes in rows or in squares, methodically planted. The Date forest was evidently a valuable property, and the boundary of each proprietor's grounds was protected by walls, with doors here and there admitting of easy ingress and egress. The Dates were being gathered from some of the trees, whilst other trees, sometimes the same one, were in full flower. In some regions of the forest, where the Palms were not so close together, there were vegetables, Peas, Beans, growing underneath them, but this was the exception. Evidently the Dates were too valuable a crop, like Lemons at Mentone, for everything else not to give way to them wherever they could be cultivated, *alias* irrigated. The land appeared to be a calcareous loam, but on examining the empty river bed I found it to be a mass of siliceous sand, so that no doubt the soil in the district is impregnated with silex. The Dates are gathered by boys, who swarm up the trees—an operation that was easily performed by a small boy for our edification. Like those at Murcia and Orihuela, they are of the solid farinaceous variety. The soft saccharine Saharian Dates which are imported into Europe, I did not see in Spain. In the Algierine desert and in Egypt this variety of the Date is more valued and more expensive, because it is the one chosen for exportation. But the solid farinaceous variety is preferred for food, as in Spain."

—— PODOPHYLLUM IN FORMOSA.—Dr. HANCE records in the *Journal of Botany* the existence of a species of this genus in the island of Formosa. Previously botanists only knew of the common North American species and of the Himalayan one, P. Emodi (see *Gardeners' Chronicle*, p. 241, vol. xviii.), which has also lately been discovered in the province of Kansu. The discovery of a new species in Formosa (P. pleianthum) might have been anticipated.

—— EXHIBITION AT GHENT.—Visitors to the Ghent Quinquennial Exhibition in April last will retain a vivid recollection of the splendid display made by the Compagnie Continentale. We now learn that the Company propose to inaugurate a similar exhibition from July 8 to July 10, from 8 A.M. to 8 P.M., on the occasion of the Kermesse and races. A small charge will be made for admission, the receipts to be devoted to the retiring and benevolent funds of the *employés* of the establishment. Here is a hint for our nurserymen, who migl t organise something of the same kind for the benefit of the Gardeners' Benevolent Institution.

—— PHYLLOXERA.—Just as we had expressed an opinion that this plague was lessening in this country we hear of its appearance in an aggravated form at Accrington. So far we have seen the roots affected much more often than the leaves.

—— CHINESE GESNERADS. — Dr. HANCE decribes, in the current number of the *Journal of Botany*, a number of new Gesnerads belonging to the Cyrtandrous division. Some are of purely botanical interest, but others, such as Chirita eburnea, C. Juliæ, Bœa dictyoneura, and Primulina tabacum, are worth the attention of importers of new plants. The last named plant closely resembles a Primrose in habit.

—— FRENCH FLORAL GUM. — Messrs. HAWES & CRISP have furnished us with samples of their gum, which we have tested on the flowers of the wild Rose, which, we may add, in the neighbourhood of London are unusually abundant and fine this season, but the petals of which are particularly fugacious, and with excellent results, the petals being fixed without discoloration.

—— POTATO CULTURE.—At the half-yearly meeting of the Highland and Agricultural Society, held on June 20, Mr. DUDGEON, Dalmeny, reported that the directors had appointed a special committee to carry out the resolution of the last general meeting, and that

FIG. 4.—A PLANTATION OF DATE PALMS AT ELCHE. (SEE P. 16.)

on their recommendation the board resolved to offer £50 as a prize or prizes for the best variety of disease-resisting Potatos which had never been sold or offered for sale, such variety being a seedling of not less than five years' growth. Each competitor was required to send not less than one stone of such variety to the Society, under whose superintendence they were to be tested as to their disease-resisting properties for one year, at the expiration of which time the prizes are to be awarded. The produce of the Potatos is to belong to the owners; but no prize will be awarded to any variety showing any symptom of disease. In accordance with these regulations five competitors lodged samples, which have been planted on ground on the farm of East Barns, near Dunbar, kindly granted for the purpose by Mr. Hope.

—— Orobus lathyroides.—One of the most beautiful of the Leguminosæ now flowering in the herbaceous collection at Kew is the subject of this note. It is a handsome species, about 2 feet in height, with bold foliage, and numerous densely-flowered racemes of deep blue flowers. It is a native of Siberia, and has long been known in English gardens, having been cultivated by Philip Miller in 1758.

—— St. Bruno's Lily.—In Messrs. Paul & Son's Broxbourne nursery the giant variety of the St. Bruno's Lily (Anthericum liliastrum) is very beautiful on the rockwork, but it is a charming plant for the herbaceous border, to be planted in good clumps. It is a useful pot-plant when well managed, but plants of this description are apt to be neglected when grown in pots, and generally the border plants are the soundest at the end of the season. It likes good deep loam and a little fibrous peat. The dense spikes of pure white flowers are very lovely.

—— A Discerning Public.—There seems to be no inconsiderable difference of opinion as to the discernment of the public, and especially the metropolitan public, in the matter of taste in fruits and vegetables. Not one, but two at least, eminent gardeners, though both perhaps a little acidulated in temperament, have declared that, in the matter of fruit, "Any rubbish will do for market purposes if it looks well and keeps well. . . . As for the ordinary public who buy their fruit, few of them are judges of quality." So much for the London purchasers of fruit, who, according to a veracious Sheffield blade, prefer rubbish, and even hard, poisonous Peaches, to quality and ripeness. Not even this audacious writer believed this when he penned it, and we dare to say it is incorrect. But when we come to the subject of Asparagus we find other gardening writers holding a very diverse view; indeed, the public is then praised as a "discerning" one, and it is this same London public, too; and whilst we may differ from these conclusions as to the merits of big or little, long or short, blanched or unblanched Asparagus, we entirely agree that the public which purchases these things is not wanting in discernment, although it often has to pay through the nose for what it gets. But by parity of reasoning, if the Grapes are sour and green, and the Peaches hard and poisonous, so is the Asparagus, blanched to the texture of rope, and is as indigestible and flavourless. That view, however, the latter writers will not accept, and therefore it remains to let the gentlemen fight the disputed point out. Our inference is that, somewhere or other, there is just a little inconsistency.

—— Cherries at Richmond.—If it be the lot of Cherries to offer to the human eye the most tempting association that can attach to fruits it surely must be conceded that the Cherries grown at Sawbridgeworth excel all others in appetising influences, for finer and more richly coloured examples of several kinds rarely have been seen than were those sent to the Richmond show by Messrs. T. Rivers & Son, and which held around them during the day crowds of admirers. Of course these grand samples were grown under glass. There was as much finish and perfection about them as was seen in Mr. Hudson's grandly coloured dish of Lord Napier Nectarines, big as Peaches and red as Victoria Plums—or in that same gardener's superb Madresfield Court Grapes, with berries as big as Plums, The collection included thirteen dishes, and of Peaches the Early Rivers was a grand sample, big, black, and glossy, and rich in flavour as in colour; Bedford Prolific, reddish-black, a superb sample; Black Hawk, a beautiful kind, but, curiously enough, not found in Mr. Rivers' list; Bigarreau de Schrekan, very fine indeed, and Guigne Amonay, fruit smaller, heart-shaped, but deep coloured. The old May Duke enjoyed alone an intermediate position as a rich red kind; and there were the old Bigarreau, the huge rich coloured Monstreuse de Mesel, Bigarreau Gros Cœuret, Bigarreau Napoleon, Ludwig's Bigarreau, and Early Red Guigne. Such richness and beauty as these Cherries presented might well tempt many to embark in the culture of such delicious fruits, for that they were as delicious as beautiful there could be little doubt. Messrs. Rivers also had good examples of the fine Princess of Wales Peach, though unripe, and good fruits also of Pine-apple, Stanwick's Elruge, and Rivers' Orange Nectarines—all fine kinds and of rich flavour. Such collections as these, publicly displayed, teach those ignorant of the merits of indoor culture how possible it is with the aid of glass to defy bad seasons.

—— Freaks of Variegation.—Variegation is so much a plant disease, if it be a disease, that scarcely anything green seems exempt from it. It was thought the height of absurdity when variegated Cabbages, Rhubarb, Potatos, Lettuces, and similar useful and edible plants, became common, and recently we have seen a plant of Telegraph Pea and a Scarlet Runner with golden and creamy leafage such as would, in the earlier days of the epidemic, have created a sensation. But when Plantains, Dandelions, Groundsel, Chickweed, and even the pretty blue-flowered Veronica chamædrys became freely variegated also, it seemed as if garden plant coloration had become burlesqued, and the whole thing was being made fun of by Dame Nature. The other day, at the Richmond Show, the well known firm of Messrs. C. Lee & Sons, of Hammersmith, arranged a big group of their wondrously coloured hardy trees and shrubs, and in this direction it was shown that variegation was perhaps displayed with more of charm and beauty than in any other class of plants. Some of these shrubs were actually devoid of green coloration, being all creamy white, just as others, like the purple Peach for instance, were all copper colour. Golden Elders matched Horse Chestnuts in the size and beauty of leafage, and there seemed to be hardly a green leaved tree or shrub of any popularity that had not its duplicate in a variegated form. The Oak, perhaps, shows golden or creamy tints less than most trees, but in other respects it produces such various formed and noble leafage, and in the autumn such gloriously rich tints, that absence of golden and silver leafage would prove no loss. Students of vegetable physiology might linger for hours over Messrs. Lee's collection with interest and profit.

—— Mr. Hans Niemand's Nursery, Birmingham.—The ever increasing demand for cut flowers and plants for household decoration, especially in the neighbourhood of large towns and the centres of trade and manufacture, has had the effect of changing the aspect of many nurseries so far as the plants grown under glass are concerned, where in place of the thousand-and-one species or kinds that used to be grown, the stock is now confined to fewer things, with greatly increased numbers of each, to which may be added better cultivation generally. This nursery, under Mr. Spinks' management, has kept pace with the times, as evident by the condition the large quantities of plants of the description above indicated are in. The new Balsam, Impatiens Sultani, is largely grown here, and better done in small pots than we have before seen it. It is moved from a warm house to an ordinary greenhouse as soon as the weather is warm enough, and in this way is much shorter and stouter than when kept longer in heat; the flowers are still further improved, assuming the most vivid magenta shade of colour. The twining, small-leaved Smilax, so extensively used in America for mixing with cut flowers in every way where elegant drooping foliage is admissible, is grown in quantity in small pots; the shoots run round thin strings and are kept trained so as to prevent their getting tangled—when wanted they are cut and the threads drawn out. Dipladenia boliviensis, planted out, covers half the roof of a house, and has attained size and strength such as few people would think it capable of, yielding in quantity a long succession of its beautiful pure white, yellow-throated flowers, which are second to few for bouquets. It is about the only Dipladenia that can be better grown planted out than in a pot, and as such deserves to be cultivated by all who have a warm tove. This, with a large specimen of Stephanotis, gives a supply of flowers for nearly on six months in succession. The ever-blooming Bouvardias—indispensable where cut flowers are in demand and of equal merit for decorative purposes — are grown in quantity and well managed; the double varieties, Alfred Neuner and President Garfield, with elegans and Vreelandi, are the sorts best liked. Double Primulas are a speciality, and deserve the attention here given them; a long span-roofed house is filled with the white and pink kinds. Origanum dictamnus is largely grown as a pot plant, its pink flowers having a pretty effect. Gladiolus Colvillei is grown in thousands for forcing, and a collection of different varieties of G. gandavensis are being grown, with a view to find coloured kinds to grow with G. Colvillei. Lilium monstrosum album, a longiflorum-looking plant, with persistently fasciated stems that produce a quantity of flowers, is found very useful for cutting. Abutilon Boule de Neige, planted out and covering the back wall of a lean-to house, gives a supply all the year round. Hydrangea paniculata grandiflora is largely forced. A good part of a house is filled with Acer Negundo variegatum in pots—selected plants, which afford a nice contrast to the green-foliaged things, of which quantities are grown at this nursery for furnishing and ordinary decorative use. Ferns are extensively cultivated, such kinds as are best for cutting or use in a small state. Amongst these a variety of Nephrodium, with distinct habit, like a miniature Sadleria cyatheoides, is an excellent sort for using in this way; as also is Adiantum Lathomi, a drooping habited A. scutum, and a very effective Fern. There is here a market variety of Pelargonium named Edward Perkins, raised by Messrs. E. & J. Perkins, of Leamington, bright scarlet, with black feather in top petals, that is well worth the attention of those that require decorative kinds of these favourite flowers, as for habit of growth and profusion of bloom it stands in the first rank. Small Palms are well grown, a large house is well filled with Areca lutescens, A. sapida, and similar kinds that will bear hard usage.

—— The Fruits of all Countries.—Mr. Mott, of Leicester, has published a "preliminary" list of the fruits (using the term in its popular and utilitarian sense) of all countries. The fruits are arranged under their natural orders, with their technical and vernacular names, their native country, the habit of the plant, and the edible portion, be it "seed, aril, central pulp, pericarp, or receptacle," and its quality. More than 500 species are enumerated, but we have no doubt the list could be extended by research in herbaria, botanical monographs, and the notes and records of travellers; for instance, only two or three Tacsonias are mentioned. So far as we have seen the list has been carefully compiled, but it contains many fruits which are only valuable *faute de mieux*. Monstera deliciosa, with which the list terminates, is hardly to be called a herb. Under Solanaceæ we miss the fruit of Cyphomandra betacea—sometimes met with in Covent Garden under the false name of Granadilla.

—— Mr. A. E. Ratcliff's Nepenthes.—It is no unusual thing to meet with an enthusiastic amateur who makes a hobby of and attends to his plants himself, and who succeeds when the kinds undertaken happen to be such as are more or less easy to manage. But it is far from a common occurrence to see favourable results when the things attempted belong to a group that is proverbially difficult to deal with. We have seen and spoken of Mr. Ratcliff's collection of these singular plants before, and it is with pleasure we had again recently an opportunity of noting the progress it has made. Those who have had much to do with Nepenthes know that early in June is not so good a time as the latter part of summer to see them at their best, as then they have had all the growing season wherein to form their pitchers, which afterwards go off more or less during the winter. Nevertheless, the collection was in good condition, growing and pitchering freely. Amongst them is probably the finest example in the country of N. lanata, bearing some thirty pitchers; this is one of the scarcest and most difficult to manage of all the kinds, but with Mr. Ratcliff it is unusually strong and vigorous. In this very complete collection the following are likewise deserving of mention:—N. Rafflesiana, N. bicalcarata, N. Hookeri, N. Northiana, N. Williamsi, N. Morganiæ, N. albo-marginata, N. ampullacea,

N. Mastersii, and N. Rajah, which here, as with most growers, has not yet been found so easy to manage; but when its particular requirements have been hit upon, like other things that require something out of the ordinary run to bring them up to the mark, it will, no doubt, produce its gigantic pitchers in their true character. The plants collectively are hung up near the roof—a position which they require to be in, otherwise they lack the stout short-jointed condition and high colour in the pitchers which adds so much to their appearance. In another house Dionæa Muscipula, Darlingtonia californica, and Cephalotus follicularis are doing equally well—an extremely singular and interesting trio, that any one having an ordinary greenhouse need not hesitate to try.

—— Double Primroses.—All the varieties of double Primroses succeed well in the deep clayey loam of Messrs. Paul's hardy plant nursery at Broxbourne. Even the rather miffy double crimson is doing well, but it is thought best to shelter this with glass lights. They are now being divided and planted out. To give some idea of the extent of the collection, it is sufficient to say that of the fine purple variety, Primula Crousii fl.-pl., there are upwards of 2000 strong plants.

—— The New Rockery at Kew.—In this the second season of its existence, or, as it might more fairly be called, the first, the value and beauty of this adjunct may be thoroughly realised, and we are glad to see the interest taken in it by the general public. Experience shows that the bog beds are either too small, or that plants of too rampant growth have been placed in them. This sort of experience has to be gained by all rockwork makers.

—— The Corn Exchange Rose Show, which came off on Wednesday last in the new Corn Exchange Hotel, Mark Lane, was considered by those best qualified to give an opinion on the subject to be one of the best that has been held in the same place, and we trust was the means of adding a substantial sum to the funds of the Corn Exchange Benevolent Society, in aid of which a similar exhibition has been held for several years past. A noteworthy feature of the exhibition is the fact that the only competitors are gentlemen actually engaged in business on the corn and seed markets; and another point of interest is the regulation which claims all the blooms for the benefit of the Society, and which are sold by auction after 4 P.M. Of course, in an affair of this kind much depends upon the amount of enthusiasm engendered by the Secretary, and it is due to Mr. Henry Robbins that we should say his labours appear to have borne good fruit, for not only was there a fairly good competition in most of the nine classes, but an even greater display of baskets of Roses shown, not for competition, but to pass under the hammer of the auctioneer. Besides the amateurs' Roses, some splendid blooms came from the nursery of Mr. Rumsey, Waltham Cross; Messrs. Paul & Son, Cheshunt; and Mr. B. R. Cant, of Colchester; and of these no doubt Mr. Auctioneer had something complimentary to say. Mr. John Wakeley secured the prize for the best twenty-four single trusses, and in another class for the same number of blooms, but grown within 20 miles of the General Post-office, Mr. W. H. Wakeley was the successful competitor. In two other classes for twelve varieties, with the same geographical qualification, Mr. H. Robbins was well 1st, Mr. W. Webster, Jun., being 2d in one instance and Mr. R. J. Webster in the other. The best single bloom, a very grand one of Charles Lefebvre, came from Mr. John Wakeley; and the "consolation prize," competed for by those who have not previously taken a prize, was won by Mr. F. E. Haslam; and Mr. D. G. Clapham showed the best half dozen Teas. It is proposed to hold a show of Chrysanthemums in their season, and we hope it may prove as successful as this year's display of the queen of (summer) flowers.

—— Hemerocallis fulva.—The double form of this, now in flower in the greenhouse at Kew, is remarkable for the circumstance that, while the stamens remain normal, the pistil is replaced by a prolonged axis, bearing small petals.

—— Linnæa borealis.—This pretty little prostrate alpine plant may now be seen in large sheets in the York Nursery: it is growing in light, elastic, sandy peat in a slightly shaded position. It blossoms, however, far more profusely when fully exposed to sunlight.

—— Gardeners' Royal Benevolent Institution.—The many friends and supporters of this Institution who could not be present at the celebration of the fortieth anniversary festival on Wednesday evening, will, we are sure, be gratified to know that from a financial point of view the Institution has made a "best on record," the total amount of the subscriptions and donations being £723. That socially, the festival was a success goes without saying—about 130 gentlemen sat down, and with such a thoroughly genial and practical Chairman as Mr. Alderman Cotton, M.P., it is almost needless to state that the proceedings were conducted with unflagging interest to the end. The large room at the "Albion" was florally furnished by Mr. B. S. Williams, and the decorations of the tables as carried out by Miss Williams well deserved the eulogiums so happily expressed by the Chairman; when, the usual loyal and patriotic toasts having been duly honoured, he came to the toast of the evening—"Success to the Gardeners' Royal Benevolent Institution," and in eloquently pleading the cause of poor, distressed, and worn-out members of our profession, remarked upon the joy and pleasure the results of their toil and skill afforded to high and low, rich and poor alike. On almost every table where there is anything like comfort there would be found flowers or fruits, or both; and he hoped those present would think of the men who produced them, and give largely of their means to an Institution that was doing so much good. Sir Trevor Lawrence, who gave "The Health of the Chairman" as the next toast, remarked that Mr. Alderman Cotton had, in his able appeal on behalf of the Institution, hardly laid sufficient weight upon the great benefits humanity had received from the labours of practical gardeners, there being hardly a popular flower, fruit or vegetable that had not been immensely improved in quality by the skill of practical gardeners. To Mr. Shirley Hibberd was entrusted the duty of proposing "The Health of the Treasurer," a toast which suggested serious thoughts, inasmuch that last year Mr. Wrench was with them. Now they had to welcome their new Treasurer; and Mr. Tidswell, in acknowledging the compliment, expressed himself as being most anxious to do his duty in the onerous position in which by their favour he been placed. The toast of "The Botanical and Horticultural Societies" was responded to by Mr. G. F. Wilson and Mr. Bruce Findlay, and the latter gentleman expressed his determination to raise £200 in aid of the Augmentation Fund, by getting some of his friends to throw open their gardens at a small charge, and he hoped the example thus set would be extensively followed by others. Mr. Cutler, whose health was drank with great heartiness, announced that the result of the collection was £633, the Chairman's list being £143, and the Treasurer's £115; whereupon the Chairman remarked that he would be much gratified if the list could be made up to £700, and in a short time about that amount was raised. Mr. Meston, Jun., having responded for "The Ladies," and Mr. B. S. Williams for "The Stewards," a very agreeable evening was brought to a close.

—— Anthurium Veitchii.—A plant of this species has made wonderful progress under Mr. Ballantine's care at The Dell, Egham. We saw it two years ago, when it had only three or four leaves about 1½ foot each in length; it has now over two dozen, and most of them measure 50 inches in length. The plant is a fine decorative object for a stove where there is plenty of room and no crowding is allowed. This one is growing in a wooden tub about a foot deep by 18 inches wide, which contains but little more than the drainage, the roots being chiefly in the mound of living sphagnum and peat above the rim.

—— The Fruit Packing Competition.—There were four lots of packed fruit sent to South Kensington on Tuesday, in competition for the excellent prizes offered by Messrs. Webber & Co., fruit salesmen, of Covent Garden, for the best packed boxes or baskets of Grapes, 14 lb.; Peaches, not less than 24 lb.; and Strawberries, not less than 2 lb. In each case the latter fruits were equally well packed in a shallow boxes with leaves, but the fruits varied in quality. Mr. Coleman, Eastnor Castle, is an old competitor in this work, and always does it well. He got the 1st place with a lot of Grapes packed in deal box thickly lined with soft moss, and faced with soft tissue paper; and Peaches also packed in moss—a material which Mr. Webber much prefers to wadding as being cooler and less absorbent of the juices and flavour of the fruits. The packing was not only perfect, but the boxes might have been turned into any position without the fruit being injured. Very near indeed in good packing came Mr. Allan, of Gunton Park Gardens, whose Grapes and Peaches were also in tissue paper and moss, as Mr. Coleman's were, but his Grapes lacked colour. In other respects there was little to choose between them. The 3d prize lot came from Mr. Grindrod, Whitfield, Hereford; his Grapes, half black and half Muscats, and remarkably good ones too, were dropped into peck cross-handle wicker baskets, which, having a little moss in the bottom, were then doubly lined with soft paper only. The stems were partly tied to the sides of the baskets, and beyond some stout paper tied over the top had no other protection. The Peaches were in wadding, but the Strawberries were all right. One competitor spoiled his prospects by putting his Grapes into a shallow wicker basket without even paper, and in consequence they were much rubbed.

—— Messrs. Foster & Pearson.—On June 30 Mr. Foster retired from this firm, after being engaged for forty-two years as a greenhouse builder. The business will in future be carried on by Mr. Pearson, a son of our late friend Mr. J. R. Pearson, of Chilwell; and, being a young man of known ability and high character, we wish him every success.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending July 2, issued by the Meteorological Office, London:—The weather has been generally cloudy or dull at the western stations, but in most of the southern and eastern districts frequent intervals of clear sky have been experienced. Thunderstorms, accompanied by very heavy rains, have occurred in nearly all places, those over central and south-eastern England being exceptionally severe. Temperature has continued below the mean over Ireland and the south-west of England, but elsewhere has been considerably higher than of late; in the major part of Great Britain it has varied from 2° to 3° above the mean for the season. The thermometer was highest either on June 29 or July 2, when maxima as high as 84° in "England, S.," 83° in "England, E.," and between 72° and 81° in most other districts, were registered. The minima, which were generally recorded on the 27th, varied from 42° in the "Midland Counties," and 43° in "Ireland, S.," to 49° in "England, S." At our central and south-eastern stations during the latter part of the period the minima were very high, the thermometer during some nights not sinking below 60°. Rainfall has been about equal to the mean in "Scotland, E.," and "England, E.," but more in all other districts. In north-eastern and central England the excess was considerable. Bright sunshine has been more prevalent than during last week in the "Wheat-producing Districts," but less so in most of the "Grazing Districts." The percentages of possible duration varied from 15 in "Ireland, N.," and 28 in "England, N.E.," to 48 in "England, S.," and 57 in "England, E." Depressions observed:—Barometrical readings have been highest and comparatively steady in the southern and eastern parts of our area, while over our islands and the North of France pressure has been rather low and unsteady, owing to the presence of several "thunderstorm" depressions. The most important of these disturbances was traversing our islands in a north-north-westerly direction at the commencement of the period, and finally disappeared to the north-westward of the Hebrides. The winds, with the exception of a few local variations, have been S.W., S., or S.E., and have been generally light in force, but at our western and north-western stations have occasionally increased to a fresh or strong breeze.

—— Gardening Appointments.—Mr. A. W. Porteus, as successor to Mr. Berry, Gardener to James McGregor, Esq., Aldenham Abbey, Watford, Herts.—Mr. T. Wilkins, late Gardener to the Marchioness of Westminster at Motcombe, as Gardener to T. M. Guest, Esq., Inwood House, Blandford.—Mr. Dennis, late Gardener to Sir H. Hoare, Bart., Stourhead, succeeds Mr. Wilkins at Motcombe.—Mr. William Boreham, for five and a half years Assistant-Foreman in the frame ground at Kensington Gardens, as Nursery Foreman to Mr. Marshall, Barnham Nurseries, Sussex.

Home Correspondence.

On Double Wild Flowers.—I have recently seen it stated in an interesting volume that all double flowers are "monstrosities," due only to artificial selection, and that as they produce no seed they could never be perpetuated in a state of Nature. I cannot follow the author into his argument that double flowers are unattractive, for that, of course, is a matter of taste; still less can I enter into the view that there is something, it would seem, almost morally wrong in endeavouring to produce a double flower. At present my only inquiry is whether Nature does not sometimes produce a double flower, which may vie with the best efforts of the gardener. I am absolutely without any theory on the matter, and I am really anxious to be set right as to my facts, if, as is very possible, they are in any respect deficient. Before entering on my evidence I think I am correct in saying that Darwin has himself admitted that double, or at least semi-double flowers, do exist in a wild state [Certainly. Ed.]. Having spent two winters on the Riviera I was struck with the beauty of a particular Anemone, which is known as A. pavonina. The country people call it Le Soleil, and certainly nothing can be more brilliant than its blossoms of scarlet or crimson, for there is a slight variation in the colouring. It is perfectly double, but has one or two remarkable peculiarities. The petals do not look like petals. They are thin and elongated, more like flattened stamens than petals, and they are very abundant. It would take four or five of them to make the petal of an ordinary single Anemone. In short, they are to the normal petal pretty much what the supposed petals of a green Rose are to the true petals of the single Rose of our hedges. And then this Anemone has a second peculiarity. It is almost entirely green in the bud and when it first opens, and it is only as it ripens (so to speak), and by degrees, that it acquires its bright colouring. It is, I believe, absolutely seedless, and can only spread by its tubers. That it is double there is no doubt. And now comes the further question—Is it wild? This is a matter of more difficulty, or, at least, of some dispute. No one supposes that the selection of gardeners has had anything to do with the doubleness, but it is argued that this Anemone has been subject to extra cultivation, and that, therefore, it has developed a double blossom. I am inclined to think that no other species of Riviera Anemone has become double, though under precisely the same influences; and if, as seems certain, this Anemone has grown double of its own accord, and without any intention on the part of any cultivator, may it not be fairly considered as a wild flower, and thus a product of Nature? It is, I believe, found in various places on the Riviera. I have twice seen it in great profusion, once among some Orange trees up the Gorbio Valley, at Mentone, and once partly under Olives at Campo Rosso, not far from Bordighera. In the former place—but I think not in the latter—there were also to be found a few specimens of the single red Anemone (possibly Anemone fulgens), and very rarely one of these single Anemones showed signs of doubling by smaller red petals next to the large outside ones; but I myself saw no further development of the doubling process, and I cannot say whether, supposing a Soleil Anemone does develope from a single red, it is a matter of many years, or only of a season or two. There is no doubt that extra manure is given to the Orange tree, and also to the Olive, but whether such "cultivation" would be enough to account for this singular change in colour, in structure, and the number of petals, I cannot say. I have, however, a strong suspicion that, were I to plant single Anemones in my own garden, and feed them to any extent, I should fail in producing this double variety. I should also add that many of these Anemones at Campo Rosso were not directly under Olive trees, and had apparently no chance of getting extra manure; as, however, the roots may have spread, I cannot rest much on that. It is, however, very probable that these Anemones grow on hill-sides and banks, whither no cultivation of any kind could have affected them; but I have no proof of this. I only know that the florists at Cannes consider them as of hardly any value, as being merely *sauvages*, and very common. I should be glad if one of your more learned readers could throw fresh light on this, as I think, very curious subject. *H.*

Thinning Onions. — "M." asks gardeners (p. 824, vol. xix.) why they thin out the Onion crop. He might as well have asked why they thin out the Turnip, Parsnip, or Carrot crops. Surely gardeners, as well as cooks, know perfectly well that large, well-grown Onions possess superior flavour to small ones grown in the crowded manner recommended by "M.," a system pretty well known to gardeners when they want to grow small Onions for special purposes, such as pickling, &c. "M." would have gardeners believe that Onions ripen best when they are grown thick on the ground: my own experience is that large, well-grown Onions are better ripened and keep quite as long as the small, as I have had good samples of James' Keeping and Strasburg or Deptford keep till the autumn-sown ones come in. To those who are fond of thinning and "throwing labour away in doing that which had better not be done at all," there is one consolation from "M."—they may thin out those grown to be exhibited for prizes. But to many it will be news to be told that exhibitors are encouraged to bring out qualities in the vegetables they grow for prizes which are detrimental in the use of them. I have never yet known a cook to find fault with Onions for being large, nor with Leeks either, and I have had to deal with a good many in my time. *H. Henderson.*

Spiræa palmata.—Few things in the herbaceous way are finer than this exquisitely beautiful Spiræa, which just now is crowded with its great panicles of lovely rose and violet tinted blossoms, set off by the delicate greenery of its palmate leaves, with which the flower-stems are so well clothed. Like all the Spiræas, S. palmata delights in deep loose soil, where it can drive its roots well down and find plenty of moisture; and when so favoured it grows very strong, without being distressed at this season. Not only is S. palmata one of the best and most showy subjects one can have in borders, but it is also most valuable for forcing, as crowns may be taken up and potted, when, by the help of very gentle heat the plants soon come into bloom and last long in perfection. *J. Sheppard.*

Peloria of Tetramicra bicolor (Leptotes bicolor, Lindl., *Bot. Reg.*, xix., t. 1625).—Two plants of this charming little Orchid have recently flowered at Kew, one flower produced being a remarkable peloria, of which the accompanying figure (fig. 5) is a representation. In the normal flower the sepals and petals are pure white and similar in appearance, the lip is broader and lance-shaped, the colour pale purple with numerous darker veins and a narrow white margin, and two pale green wing-like appendages at the base. In the pelorioid flower the sepals are quite normal, as well as the lip (which is erect as figured by Lindley as above, not pendulous as in *Bot. Mag.*, t. 3734), but the petals are completely changed, one into a perfect lip exactly similar both in form and colour, the other showing the transition from petal to lip; the form is almost unaltered except that at the base there is a small trace of the pale green appendage on one side, but the purple veining is present, as shown in the figure. The column is very short and partially suppressed, the anthers entirely so, and the viscid stigmatic disc, though present, is much deformed. The raceme—normally 2 or 3-flowered—is reduced to a single flower. Thus we have an irregular peloria formed by the increased number of the irregular parts of the flower—a condition accompanied with increased vigour in those parts at the expense of the column, and the suppression of the second and third flower of the raceme. The specimen is preserved at Kew. *R. A. Rolfe.*

Fig. 5.—Peloria of Tetramicra bicolor.

Camellia (late flowering).—We have a plant in the grounds here under the name of Floydi—a pink variety—which is now in full flower. I cut several yesterday quite perfect in shape, and not at all injured by the excessive rains we have had this past fortnight. It has flowered in June every season since it has been planted out. Our earliest—the old red and white blotched variety—flowers in October indoors, and we can most seasons cut a Camellia bloom from that month to the end of June or the beginning of July, indoors or without. Camellias seem to do well under large trees, both as to growth and flowering. Flowers seem to take as long if not longer to expand at this season as in the winter months, perhaps owing to the plant making growth at the same time. *Henry Mills, Enys, Penrhyn.*

Abies (Picea) nigra.—The Black American Spruce is growing well in exposed positions—800 feet above sea-level—where common Spruce and Silver Firs and Laurels and Holly refuse to grow. It thus grows on dry soil—a made-up bank—and on soil with clay in it. But I am informed it "does not grow very large, nor live very long." Can any of your readers speak for or against its more extensive use? *Laurencekirk, N.B.*

Early Peas.—There has been a good deal said and written recently about late Peas, but up to the present early sorts appear to have escaped notice, which is, I think, to be regretted, as it is always profitable to take notes and discuss things as they come on in season. As usual with us, Kentish Invicta was the first fit to gather, beating William I. by nearly a week, although sown on the same day side by side in the same border; and as the quality is about equal, Invicta is the most profitable and valuable Pea of the two. Following close on the heels of these comes Day's Sunrise, which is a very free podding variety, its only fault being that the pods are generally gappy, which tells against it in shelling. Being a Marrow it is very good in flavour, but I do not consider it equal to Advancer, which, though a few days later, has the advantage of setting better, as it is seldom one finds any gaps in the pods. Advancer is therefore likely to hold its own for some time to come, for besides being a heavy cropper, it is tender and delicious when cooked, and quite spoils one's palate for the dry mealy sorts that precede it. American Wonder I have grown for the first and last time, its only merit being its dwarfness, which makes it useful perhaps for pot culture or frames, but outdoors, where there is room, Advancer is by far preferable. Telephone might almost be classed among the first earlies, as it is but little later than some now in the list, for from rows sown the last week in January full pods were gathered on June 15. Looking at its precocious character of turning in, it is to be hoped we shall soon get others even more early from it, and of a dwarf character; indeed, the latter has appeared already, as I have selected from among Stratagem a white Pea which has the large pods and all the appearance of Telephone, except in the length of the haulms. Grand as Telephone is, it is useless as a late summer Pea or to pick after June—at least, that is my experience of it, as it is so subject to thrips and mildew, which cripple its growth and stop it from bearing. Ours are already infested with the pernicious insect named, and it was the case last year, as soon as the weather set in warm and dry, when those earlier and in pod became smothered with mildew. This I found to be the case in other places, as a friend of mind, who had them growing alongside of Ne Plus Ultra, complained to me of the same thing. This liability to the attack of such parasites is no doubt owing to the soft, tender state of the leaves and points of the shoots, which are stout and easy of penetration to the one, and favourable to the spread of the other. *J. Sheppard.*

Rhododendron punctatum. — Your paragraph upon Rhododendron punctatum in the *Gardeners' Chronicle* for June 9, in which the species is mentioned as "a compact grower, of dwarf habit, producing an abundance of pink funnel-shaped flowers," and suggesting that it would be worth while for hybridists to turn their attention to it, leads me to ask whether hybridists may not already have taken it in hand. I would inquire whether there may not still linger some tradition relative to such crossing. The following are the reasons for the inquiry. Rhododendron punctatum in its native habitat (in the mountains of Carolina and Georgia, and descending along some of the rivers into the middle country) is not a dwarf species, being commonly 4 to 6 feet high, and is the opposite of "a compact grower;" it forms a spreading bush, and has slender, lithe, diffuse or recurving branches, especially when grown in open ground; on the rocky banks which it naturally affects it has a straggling habit. The flower, indeed, may be called "funnel-shaped," but with a widely open limb, not so open as in the figure in *Bot. Reg.*, t. 37, which I suspect belongs to R. catawbiense, but nearly as in the earliest figure and description of the species, in Andrews' *Bot. Rep.*, t. 36 ("corolla rotato-infundibuliformis, blossom of a rounded funnel shape"), at least as much so as in the next earliest figure, in Ventenat, *Hort. Cels.*, t. 15. The figure in *Bot. Mag.*, t. 2285, has a widely open corolla. The only other figure that I know of is a poor one in Watson's *Dendrologia*, t. 162, and this evidently represents the plant now cultivated in England as R. punctatum, and to which your remarks refer. This erect shrub, of compact habit and narrowly funnel-form corollas, we have from Watson under this name, also a paler flowered and in other respects slightly

different form of it as R. ovatum. It hardly exceeds 2 feet in height, has leaves only half as large as those of the true R. punctatum, more rigid and more lepidote, and the corolla-lobes are only about half the length of the narrow tube, which is also more lepidote. I suppose that your R. punctatum is a hybrid of that species with the alpine R. ferrugineum, and that the crossing may have given the complete hardiness in England which the original was said to lack; yet the latter is fairly hardy here. There is one reason for distrusting my theory—that your Rhododendron is a hybrid—which is, that my R. Chapmani, from sandy Pine-barrens near the coast of Western Florida, has a corolla of similar shape, and an equally upright habit of growth. But, besides some other differences, this has larger flowers and exserted stamens and style. In conclusion, let me recommend the re-introduction of the original R. punctatum into English cultivation, as a contrast to the one you possess, and to all our other species, on account of its open, light, and graceful habit. *Asa Gray, Cambridge, Mass.*

Mimulus radicans.—A short time since Messrs. Veitch showed a pan of this very pretty little bog plant, and subsequently gave us the opportunity of figuring it (fig. 6). It is a native of New Zealand, and has a creeping stem with short leafy branches. The leaves are densely packed, each from ¼—1 inch in length, very shortly stalked, obovate obtuse, entire, pilose or glabrous. The flower-stalks are erect, about the length of the leaves, and the corollas, which measure from ½—¾ inch across, are white, with a violet blotch. The plant was described by Sir Joseph Hooker in the *Flora Zeylanica*, and also in the *Handbook of the New Zealand Flora*, and as shown is one of the most charming little plants of its kind. We presume it is hardy. It would form a fit companion for the Pratia angulata recently alluded to. It is a near ally of M. repens, also an Australian and New Zealand species.

Fig. 6.—Mimulus radicans.

Dictamnus Fraxinella.—I was glad to see this fine old herbaceous plant noticed so favourably as being one of the best things among the exhibits at the great show the other day, as it has long since been a special favourite of mine, and stands out most conspicuously just now in one of our borders, where a plant of it is carrying twenty-three spikes of flowers, and forms quite a bush. Besides being remarkable for its shapely habit and character, and its curiously formed and marked blossoms, it exhales a very strong and agreeable perfume, which quite pervades the air some distance around. Dictamnus Fraxinella alba is not so strong as the coloured kind, but is very desirable as a companion plant on account of its distinctness of shade. Both sorts seed freely, and may be raised readily by sowing the seed under handlights when ripe, or placing it in heat in the spring. Plants may also be divided and propagated by splitting them through the crowns; but the less disturbance they get the finer and better they grow. *J. Sheppard.*

Alströmerias.—No one seeing these now can fail to be struck with their beauty, especially when growing in masses of mixed sorts, as we have them here, in which way they show off their beauties to the greatest advantage. The only drawback with Alströmerias is that they will only succeed in warm and favourable situations, the best place for them being a raised border under a wall or fence facing south, where they get the protection they need in spring, as they start into growth early and are rather tender when making their young shoots, and unless the plants are in a moderately dry bed their tubers are apt to rot in the winter. This being so, it is always advisable to drain the bed by digging out the soil and putting in a layer of broken bricks, which should be a yard below the surface, as Alströmerias are very deep rooting. There are two ways of getting them established, the one by sowing the seed, and the other by planting; but when this latter plan is decided on it is always advisable to have the plants in pots and to start with them about April, when they should be planted at least 6 inches deep, so as to keep their tubers well out of reach of sharp frosts. If seed be sown time is saved by putting it in small pots and rearing the plants in heat, when, if nursed on under glass till May, and then turned out, they will become sufficiently strong to flower the following season. The best sorts to grow are A. aurea, which has large heads of golden-yellow spotted Lily-like blooms, and A. pelegrina rosea and alba, the first-named of which is beautifully marked, and A. psittacina is also a very desirable kind. Besides being exceedingly showy in beds and borders these Alströmerias are of great value for cutting, as not only do they dress well in vases, but they last in perfection a long time in water, which they take up so freely in their cylindrical stems. Like all herbaceous plants, Alströmerias should be allowed to retain their tops till they ripen and die away naturally, but it is a great help to them if their seed-heads are removed, as they bear many pods, and the swelling and maturing of seed in such quantity is very exhausting. *J. S.*

The Gardeners' Royal Benevolent Institution.—It seems rather remarkable that no effort has yet been made to utilise flower shows as a means of obtaining additions to the income of this horticultural institution. Of course, I cannot say how far the idea may be accepted by committees of local horticultural societies if their consent to its practical adoption were asked, but what I would propose is that, with a view to secure some help from the garden loving public as well as from gardeners, the committees of those local and provincial societies should be asked to permit collecting boxes, inscribed with the title of the Benevolent Institution and its objects, to be placed securely in a prominent place at all flower shows, of which there are perhaps some 500 or more throughout the kingdom annually. If even but 20*s.* were collected at each show that would give a good round sum to the funds, and the provision of the boxes would prove a good investment. Apart from the public, there are hundreds of gardeners now who hardly know of the existence of the Institution; or, if they do, care little for it, as its objects are not brought home to their minds. Through the medium of dinners and other costly methods there has been in the past too much running after the guineas of the rich, and although the garden collections have been a step towards obtaining the lowly shilling, there are places in which, unhappily, these collections have come to be regarded as a species of black mail by the under-gardeners, many of whom are too poor to give, and yet are afraid to refuse. On the other hand, such collections as I suggest would, firstly, enable the public to contribute; secondly, it would admit of hundreds of the poorer and young gardeners contributing their shillings without the least appearance of pressure; and third, and not least, it would appeal to numerous gardeners—and head ones especially—to be liberally disposed at a moment when, having won good prizes, they may be induced to make from their winnings some liberal donations. *A. B. C.* [The suggestion has often been made—would that it were put into practice. Ed.]

The Fruit Crops.—There is an old saying, that no one should prophecy till they know; and it is a pretty safe prediction to make now that we shall have a very fruitful season, and especially as regards Apples and Pears, which everywhere appear to be quite a full crop. At one time the trees were badly infested with maggot, but the glorious rains which have been so general have washed these troublesome insects off, and left the trees smiling through their clean foliage in a way most pleasant to see. Besides being abundant, there is every prospect that the fruit will be fine, as the swelling lately has been most rapid, and there is a shining, healthy look about it, showing plainly that the tender cuticle has not been injured in the way too common by late frosts in the spring. It is to be hoped, therefore, that there will be little or no cracking among Pears, the splitting of which is invariably caused by the hardened state of the skin, brought on by the action of cold when the small fruits are just set and in a tender condition. Plums, both on walls and standards, are very thin, but Peaches and Nectarines have better crops on them than they have had for years past, and the trees are making splendid growth, happily free from green-fly and red-spider, so prevalent in seasons less genial. Apricots with us, and in all other gardens where I have been, are nearly a failure, the cold, sharp nights during March when they were in bloom having proved too much for them; but though bare of fruit, it is cheering to find that there is little canker or dying off of the branches, and to see the trees in good health. Figs are very promising, and the quantity of fruit on them now may, I think, be pronounced safe, as it is not likely to turn yellow, and be cast off after this. Dessert Cherries are irregular, some trees on east aspects being very full, while others on west or north-west walls are less so; but all the fruit is remarkably fine, and only wants sun now to give it good flavour. Morellos are laden, they having been favoured with better weather at the time of flowering, and escaped frost-bite, which was the cause of so many stoning so badly, and falling off from the others. Bush fruits of all kinds have excellent crops, Raspberries and Black Currants more particularly, bushes of the latter being so crowded as to be quite borne down by their load. Strawberries, too, are thickly studded, and the rain has been of great service in assisting the plants to swell the fruit up to its fullest size, and the late sorts will therefore be fine. *J. Sheppard, Suffolk.*

COLONIAL NOTES.

Hong Kong.—The botanical origin of the Star Anise of commerce not having yet been verified, beyond the fact that it is a species of Illicium, probably near to the Japanese I. anisatum, a good deal of interest has been excited in the subject, and H. Kopsch, Esq., Commissioner of Chinese Imperial Maritime Customs at Pakhoi, being situated at the part at which large quantities of Star Anise are received from the interior for export, has taken great interest in the subject, and he has made repeated exertions to procure seeds or plants of the tree. Mr. Kopsch very kindly sent me seeds on two or three occasions, but they did not germinate. However, Mr. Kopsch eventually succeeded in obtaining a few very small seedlings, which he forwarded to me; they have had the greatest care bestowed on them, and I am glad to say that six are now thriving perfectly, and I hope that ultimately we shall succeed in getting them to flower, and that then the plant can be examined and the species satisfactorily ascertained, if before then we do not succeed in procuring good dried botanical specimens of the plant from the districts where it grows. I hope that I may have the opportunity of visiting the districts to the north-west of Pakhoi, where it grows. The districts could only be reached by a considerable amount of troublesome overland travelling, but I think the journey is practicable. If this journey could sometime be made, the whole question of the botanical origin and cultivation of the Star Anise could probably be settled, as was done with the Cassia lignea by my expedition to the West River last year.

The usual annual flower show was held by the Exhibition Society in the gardens in February. These shows have been held uninterruptedly for ten years, and they have fulfilled the chief purpose for which they were organised, viz., to improve the cultivation and supply for market purposes of the kinds of vegetables usually grown in Europe, as well as Chinese kinds. The cultivation of pot plants in general, except by a few energetic exhibitors, has not made the advance which was anticipated.

In the month of May last, with the consent of this Government, and with the approval of Lord Kimberley, at the instance of Sir Joseph Hooker, I was permitted to make the first of what is intended to be a series of expeditions in the Chinese Empire, for the purpose of obtaining more knowledge of its little known vegetable productions. I proceeded to the Cassia lignea districts on the West River, for the purpose of clearing up the uncertainty respecting the botanical origin of Cassia bark, and for the acquirement of information on the collection of the bark and cultivation of the plant, so that the information which had been so long wanted might be made available for scientific and economic purposes. Dried specimens of the plant were brought back and forwarded to Sir Joseph D. Hooker at Kew, where they were identified without doubt as Cinnamomum Cassia, Bl. Subsequently living plants, which I had also brought back with me, were distributed from this garden to various botanic gardens.

There is still some doubt as to where Cinnamomum Cassia exists in a wild state. It may be of some interest to state that in recently looking over the travels of Marco Polo I noticed that he says, in reference to the province of Thibet:—"Cinnamon and coral occur" (p. 137): and again:—"It yields ginger, cinnamon, and other spices." Alluding to a river which he calls Brius he says:—"On its banks is found abundance of Cinnamon" (p. 140). It may be that these districts in Thibet are the home of the Cassia in a wild state.

The operations of the year were of much greater extent than those of any previous year. The total number of trees planted—that is, including the number of patches of seeds sown *in situ*—was 1,096,230. Of this number 266,440 were planted, the remainder—829,790 patches—were of sowings *in situ*. The total of this year's work is thus 318,316 more than the total of last year's work.

Seeds and tender seedlings have much more to contend with on the hills, where, after once put out, they are to a great extent out of the reach of further protection, than in nurseries, where, for a year, they can have their requirements attended to and receive protection from the various and manifold influences which threaten their existence. The cost of sowing *in situ* is only about one-fifth of that of using nursery trees, and as the losses sustained from the various causes attendant on the system are not more than one-third of the whole number, there is reason for pursuing that plan in places which are suitable for its successful accomplishment.

Through the kind assistance of my friends the Rev. B. C. Henry and Mr. Moh Sih Chui, of Canton, in procuring seeds from localities on the North and West Rivers, I was enabled to introduce the Chinese Varnish tree (Aleurites vernicia), and we now have three plantations of this, containing 26,000 healthy seedlings about a foot high. Judging of what I saw of this tree, and the situations in which it flourished when I was up the West River, there seems great promise of its succeeding in Hong Kong, and being, when old enough, of considerable economic importance.

Of the Mahogany tree (Swietenia Mahogani), 322 were planted, and they have made very good progress, a well sheltered ravine with fairly good soil having been selected for them. From reports of the Indian Forest Department I notice that the Mahogany trees in India are much subject to the attacks of boring insects, which destroy the ends of the young branches. The same thing has occurred here with our older trees, but those planted last year have not shown any signs of attack. For the seeds from which these trees were obtained we were indebted to Mr. H. Prestoe, the Superintendent of the Trinidad Botanic Gardens.

Eucalyptus citriodora, the lemon-scented Gum tree, planted in 1880, is succeeding fairly well where it was planted—amongst Pine trees which had attained sufficient height to protect the young Gum trees. Of five trees measured the mean height was 18 feet, and the mean circumference at 1 foot from the ground was 10 inches. Of this and other kinds of Gum trees planted experimentally on hills where there were no other trees to nurse them, the trees have failed. From this we may learn that, with the Pine as a nurse tree, other exotic trees of certain kinds can be successfully reared.

From the one small tree of Persea nanmuh, the celebrated Chinese Coffin-wood tree, which was introduced from Yun-nan, with the kind assistance of Mr. Watters, in 1880, we propagated sixty-four by layering; eleven of these were planted out in permanent positions.

Seeds of the Toon tree (Cedrela Toona) were received from the Indian Forest Department, but I regret to say we could not get any of them to germinate.

The first revenue derived from tree planting was obtained from thinnings of one of the plantations made in 1875. The plantations having arrived at that condition when thinnings are required, there will be a portion coming in with each succeeding year that should be attended to, and as the plantings were gradually increased in area with each year the number of trees to be felled will also be larger each succeeding year. The number of trees felled this year was 1460, for which we obtained 48 dols., or about 3⅓ cents for each tree. The whole cost of planting the trees was 3 cents each. Those which we felled being the weakly ones, and those which are left being at least half as big again as those taken out, we may calculate the value of the standing trees at about 5 cents each, which is an increase in value in eight years of about 66 per cent., which, from a financial point of view, might be looked upon as a satisfactory investment of Government money, in addition to the advantages of tree planting, which cannot be represented in figures. The trees here alluded to are growing on one of the most favourable positions; therefore, taking an average of the whole results of tree planting on bad soils and otherwise unfavourable places, as well as on those situations where trees grow rapidly, the financial results would probably be brought down to par for the first eight years; however, after that the trees which would be left standing would increase more rapidly in value, and if cut down and sold would render a profitable return for the outlay. Although in Hong Kong the money value of tree planting is not the object in view, yet if it can be shown that there is a prospect of a return of the sums laid out in addition to the accomplishment of well wooded hills, the result is all the more satisfactory.

The protective work of afforestation has been energetically attended to. The forest guards generally have done what they could to stop tree cutting and grass cutting on prohibited lands. The measures adopted to confine the grazing of goats to certain localities which have been reserved for that purpose have worked very well on the whole, and considering the number of goats in the colony there has been very little trouble with them.

The planting operations of the year are shown in the following table:—

Pinus sinensis	202,475
,, ,, sown *in situ* (patches)	790,050
Curcas Jatropha	32,397
Aleurites vernicia	26,374
Quercus bambusæfolia, *in situ* (patches)	17,440
Rhus succedanea	9,000
Stillingia sebifera	4,950
Melia Azederach	4,350
Casuarina equisetifolia	3,000
Bischoffia javanica	1,770
Melia Azederach	1,000
Aleurites triloba, *in situ* (patches)	1,000
Persea sp.	857
Livistona sinensis	435
Swietenia Mahogani	322
Grevillea robusta	316
Camellia hongkongensis	125
Ficus retusa	63
Cunninghamia sinensis	40
Miscellaneous	246
Total	1,096,230

Charles Ford, Superintendent, Botanic and Afforestation Department, Hong Kong.

WHY FIGS CAST THEIR FRUIT.

The abstract of Count Solms-Laubach's essay on the Fig tree that I contributed to these columns (pp. 529 and 572 of the last volume), has aroused the interest of several of my gardening friends, one of whom, Mr. G. Stanton, followed me with an article on the same subject (see vol. xix., p. 636). This has led me into further researches, the results of which, though they are by no means conclusive, it may be worth while putting on record. I do not now propose entering into the question of the utility of caprification so far as the Fig is concerned as an edible fruit, because we have abundant evidence that the fruit ripens quite independently of that operation; and there are many other instances of seedless varieties of edible fruits doing the same thing. I may, however, refer the reader to Gasparrini's memoir, a translation of which will be found in the *Journal of the Horticultural Society of London* (iii., 1848, pp. 185—216). The utility, or rather the necessity, of the insect that passes the greater part of its life within the receptacles of the Caprifig visiting the domestic Fig to effect fertilisation by the conveyance of pollen, seems to have been established almost beyond doubt. That the cultivated Fig is the female, and the Caprifig the male of one and the same species is not so certain. Perhaps this sounds somewhat paradoxical; but it should be remembered, that in all cases where the two sexes have been observed in the same receptacle, there was proterogynous dichogamy, in other words, the functional activity of the two sexes was not contemporaneous, and the females developed before the males—at least, that was what Count Solms and others found. Payer (*Traité d'Organogénie Comparée*, p. 285, t. 61) confirms this from a study of the development of the receptacles from their inception. The bottom of the receptacle is the oldest part, and represents the summit of the axis; and, generally speaking, the nearer the base the older the flowers, though, as the whole inflorescence is cymose, and not an inverted spike, a cluster of flowers taken from any part of the receptacle will consist of flowers of different ages. But the question I have been pursuing is the presence of male flowers in the cultivated Fig. The literature of the subject abounds in apparent contradictions, and a short summary of it may serve to elucidate matters. As Mr. Stanton points out, in nearly all our text-books on botany we are taught that the inflorescence of the Fig—which, in this country at least, we can only understand as the cultivated Fig—contains both male and female flowers. Though this is wrong as to the general condition of things in the Fig, it does not follow that the cultivated Fig was intended in all cases. Possibly an author who had the Caprifig under consideration has been followed by many subsequent writers. Possibly, too, some of the writers may have encountered the apparently exceptional condition of the cultivated Fig described in some of the extracts below; still it cannot be denied that there is strong presumptive evidence of botanists having copied each other, in the belief that the cultivated Fig contained both male and female flowers functionally active at the same time. The most perplexing of all the figures of the inflorescence of the Fig is that in Dr. Asa Gray's new *Botanical Text-Book*, 1879 (p. 302, fig. 659), which represents a slice of the receptacle bearing male and female flowers intermixed, and of the same stage of development, and not in the least crowded. That such a condition of things ever exists in the cultivated Fig is problematical; yet freaks of this nature will appear more probable after reading what follows. Solms attributes to Colin Milne, 1770 (*Botanical Dictionary*, under the article Caprification), the merit of having first recorded the fact that the cultivated Fig contains no male flowers. The author in question says—"The flowers in the cultivated Fig tree are female only, but of the wild Figs some have male flowers, others have both male and female flowers. This being premised, two questions naturally occur—1. In what manner are the flowers of the cultivated Fig tree fecundated? 2. How happens it that the fruit of our Fig trees ripen if the flowers are of one sex only, and have no assistance from the male? For it is not pretended that there are any male Fig trees in this country." He answers the first question by describing caprification, which he already regarded as essential to fertilisation; and he goes on—"Fig trees, then, in this country, ripen their fruit, but not their seed; and can therefore be propagated only by layers, suckers, or cuttings." It may be mentioned here, that I have searched in vain for any record of a seedling Fig having been raised in this country, though in a list of cultivated varieties (*Transactions of the Horticultural Society of London*, v., p. 347) there is the name "Ford's Seedling," leading to the inference that such a thing has occurred, if the name was honestly given. So far I have not met with evidence of a single variety having originated in England.

To return to our author, it is very probable that Milne got his information respecting the absence of males in the Fig from Pontedera (1720), though he of course may have verified it; for he specially refers to this author and Tournefort. Solms seems to have overlooked the fact that Pontedera expressly states that the domestic fig is destitute of stamens.

The Erinosyce.—Besides the Fig and Caprifig, Pontedera distinguished a third form or race, which

bore two crops of fruit, an early and a late; the early crop resembling the fruit of the Caprifig, and the late crop resembling the fruit of the cultivated Fig, among other things in being destitute of male flowers. Pontedera's words are—"His paucis de Caprifico expositis, ad tertiam Ficus differentiam venio, id est ad Erinosycen. Hæc autem semper bifera est, cujus præcocia poma grossi sunt, apicibus staminibusque referta, et sine maturitate decidua; serotina vero stamina apicesque nequaquam producunt, unguibus tantum squamosis, ut in sativis ficubus, ornata. Hæc suam habent perfectionem, et edulia sunt. Est igitur Erinosyce inter sativam Ficum et Caprificum media; nam pomis præcocibus ad Caprificum spectat, serotinis autem ad sativam Ficum."

Respecting the Erinosyce, Solms remarks that it awaits further research; possibly it may have some relationship to the variety of cultivated Fig he met with at Croisic, at the mouth of the Loire, on the coast of Brittany. This variety has perfect male flowers, but they are much behind the females in their development, and the upper part of the Fig, which contains them ripens much less perfectly, so that it is customary to throw it away in eating. As stated in the abstract of Solm's essay, with the exception of this variety, he found perfect male flowers in none of the numerous fruits of the cultivated Fig examined by him. Occasionally there are malformed or monstrous stamens destitute of pollen.

A Variety of the Cutivated Fig with Male Flowers in England.—In searching the *Transactions of the Horticultural Society of London* for information on this subject, and especially for possible records of the raising of seedling Figs in England, I came upon an interesting article (v., p. 163), entitled "Observations on the Fruit of Fig Trees," by Sir Charles Miles Lambert Monck. Then as now, Fig growers were sometimes disappointed by the fruit falling off when immature, and the investigations of the author of the article in question were conducted with a view to discovering the cause of the fruit failing to ripen. He says:—"When the failure of fruit in the conservatory as certainly as on the garden wall made me sure that the defect of warmth was not the cause, I was led to suspect, from the constant advance of the Figs to the same state, and as constant failure when they came to it, that it was defect of setting. I am no botanist, but I know the stigmas and stamens with their anthers, and the offices of each. This spring, when the Figs on that Fig tree in the conservatory which casts its fruit were half grown, I cut one open, and with the assistance of a microscope found that it contained next the eye many florets having full-sized anthers; the remaining part of the Fig was occupied by florets each containing one stigma. These last florets were small in proportion to the other kind, though much more numerous. The whole fruit was squat-shaped, anther-bearing florets being in the upper part, and the bottom being occupied by heavy stigma-bearing florets, amongst which here and there a half perfect anther-bearing floret occasionally exists. Many of these Figs dropped when half grown, others at different increased sizes. Those which remained on latest seemed to make an ineffectual effort to ripen; they swelled suddenly but only a little, and acquired somewhat of the complexion of a ripe Fig, but when cut open showed the anthers grown much larger, though dead and dry, the stigmas no further advanced than in a half-grown Fig, and the part at the root of these last which ought to be the pulp was become a little moist, and had acquired a very slight smell of the ripe fruit, but was not sweet or even eatable. I opened every spring Figs that fell from this tree, and found them all as I have described. When the summer crop came I found some variation. A few dropped at half size, the others stayed on and made the ineffectual attempt to swell. I observed upon opening them that those which stayed longest swelled most, acquired most of the complexion of a ripe Fig, had their anther-bearing florets small and least numerous, their stigma-bearing florets much further advanced in size and perfection than any which were contained in the spring crop—they even appeared to contain very small seeds. For the benefit of comparison I cut open half-grown spring Figs of the White Marseilles tree in the conservatory, and of the Howick Fig tree against the garden wall. These displayed arrangements of their insides similar to each other, but quite different from those of the other Fig; their anther-bearing florets were small and imperfect, occupying a very small space round the eye. Their stigma-bearing florets were like velvet, lining the lower part of the Fig, and so short as not to meet, but to leave a vacant space in the middle of the Fig. The White Marseilles and Howick Figs were not squat-shaped, but long, like a Pear, with anther-bearing florets, few and puny; the stigma-bearing florets numerous and large, filling the whole Fig so as to leave scarcely any vacant space in the middle. The anther-bearing florets always grow next to the eye of a Fig. If they are to take the lead in a Fig, the part from which they grow will naturally be large, and the part where puny stigma-bearing florets grow will be small: hence arises the squat shape. If the stigma-bearing florets are to take the lead, the part from which they grow, which is next the stalk, will be large, and that next the eye, where the puny anther-bearing florets grow, small: hence arises the Pear shape. This observation will enable us to pronounce the internal arrangement of a Fig for fructification from a view of its external shape, and if observations of further varieties of Figs should accord with these which I have made, we may tell by the shape of the Figs which a tree puts forth whether it will bear eatable Figs or not. My experiments and observations . . . . have also led me to conjecture:—

"1. That Fig trees never bear Figs which contain both kinds of florets in an efficient state.

"2. That Figs in which the anther-bearing florets only are perfect never come to be eatable fruit.

"3. That you may pronounce from the external shape of a Fig which kind of floret prevails.

"4. That Fig trees which put forth crops of Figs and cast them, most probably do so from defect of setting."

The worthy author of the foregoing observations seems to have been quite capable of understanding what he saw, though some of his inferences and deductions are not sound. From actual observation I am able to say that shape, in so far as the Fig is spherical or Pear-shaped, has no relation to the preponderance or greater development of one or the other of the sexes.

Turning to T. F. L. Nees, who was a careful observer, we find (*Genera Floræ Germanicæ*, iv., t. 33) that he figures both Fig and Caprifig; and he has the following note:—"In *Fico Carica sativa* flosculi masculi desiderantur." Of the Caprifig, Miquel (*Annales Musei Botanici Lugduno*, Batavi, iii.) says, "Videtur bona species, sed characteres ad huc incerti." Hayne (*Gewächse*, ix., t. 13) places the Fig in the Linnean Polygamia Dioecia. Schkuhr (*Botanische Handbuch*, iv., p. 356, t. 258) places the Fig in "Trioecia," though he states that in all the cultivated Figs he had examined there were only female flowers. I might go on with these references, but I think I have given sufficient for the purpose. Not one writer among the numerous writers whose works I have consulted has actually figured from his own observations male flowers from a cultivated Fig. On the other hand, several authors of repute assert that perfect seeds are sometimes formed in the cultivated Fig in spite of the absence of male flowers; and some of these writers, at all events, refer to the Fig of Central Europe, where the Caprifig does not exist. Dr. Brandis (*Forest Flora of North-west and Central India*, p. 418) says of Ficus Carica, "The receptacles which appear first, in the lower axils, are androgynous (that is, contain both male and female flowers), containing a few male with numerous female flowers; those which appear later in the year, in the upper axils, only produce female flowers." The author, who is now in England, informs me that he is unable to say whether that statement was made from his own observation, or from an oral communication, or from a published record.

In bringing this to a close, I may add that Dr. Brandis and I have had an opportunity of examining nearly ripe Figs of three cultivated varieties, namely, Brown Turkey, Ischia, and one unknown variety, obligingly placed at our disposal by Mr. Woodbridge, of Syon House gardens; and we found no trace of male flowers, neither did we find any embryo, though the crustaceous pericarp or testa of the seed was fully developed.

The conclusions that the foregoing data suggest are that the Fig is practically dioecious, with a tendency to revert to a polygamously dioecious condition; and that the cultivated Fig has, like many other plants, the power of producing apogamous or adventitious embryos, not perhaps constantly, but occasionally. Further, I am inclined to believe that Sir Charles Monck was nearly right in his surmise as to the cause of Figs failing to set, though not quite. In my opinion there is an occasional reversion of the sexes as it is known to happen in other plants. The Fig tree then produces a crop of fruit in which the flowers are functionally male, and as soon as these have attained their full development the Figs shrivel and fall. Of course, the fruit may fall from a variety of causes, but it seems that it is certain to fall if it contain male instead of female flowers. Gardeners may easily solve this problem, which is much easier of solution than the reason why there is a reversion of the sexes. *W. H. Hemsley.*

NOTES AROUND GLASGOW.

The Botanical Gardens are looking remarkably well just now. The new range (see p. 221, vol. xvii.) is undoubtedly one of the finest in the United Kingdom, and is well stocked with a choice and varied collection of plants, with which Mr. Bullen, the energetic Curator, has done wonders since he has been in possession of the much-needed new houses. The splendid winter garden, known also as the Kibble Conservatory, is also a source of great attraction, and contains some grand specimens of Palms and Ferns—of the latter, one of the finest and healthiest groups I have seen.

Ardgowan, the lovely seat of Sir M. Shaw Stuart, M.P., is also always worthy a visit. I can fully endorse all that was lately said in your columns by a visitor, for a cleaner and better kept place I have never seen. The plant-houses contain in their various departments very fine examples of successful cultivation, and the vineries, Peach-houses, and Fig-house, which were recently described, contain as fine and well-grown crops as any one could desire. The grounds and kitchen gardens are admirably kept, and should any one visit this princely seat they will find in Mr. Lunt a most genial man, and a thorough practical gardener.

Eastwood Park, the seat of David Todd, Esq., is another lovely spot. The houses here contain a good collection of Orchids, and Odontoglossums and Masdevallias are grown to perfection. The collection includes some wonderfully fine varieties, such as Odontoglossum vexillarium. In the vinery and Peach-house there are also fine crops. Mr. Ewart, the gardener, is to be congratulated on his success in the various departments.

Garscube, Lady Campbell's residence, is situated in a beautiful spot, a few miles from the city. The grounds are tastefully laid out, and contain one of the finest collections of Rhododendrons in Scotland. The fruit-houses contain grand crops, and plants are well done all round. The great improvement manifest in the various departments reflects great credit upon Mr. Flemming, the gardener, whose heart and soul is in his work.

Eglinton Castle, the lovely demesne of the Earl of Eglinton, is well worth a visit at any time. It is a charming estate, well wooded, and the grounds are well laid out. The various departments never looked better; indeed, the Eglinton of to-day bears no comparison with the Eglinton of eight years ago, so great is the improvement that has been made. In the well ordered kitchen garden I was astonished to find a long bed containing 1500 plants of the true double old Scotch Rocket, each 2 feet high, as much through, some spikes branched and over 9 inches long, with as many as seven and eight branches. What a valuable plant for cutting from! Then again there are two long borders of Foxgloves, such a show as I never expected to see; and of Violas Mr. Gray has been fortunate in raising some splendid varieties which have been sent out, and are much appreciated by the public. Mr. Gray and Lady Diana are grown here with numerous others, and are now in perfection, making as grand a display as it is possible to conceive. Herbaceous and alpine plants receive here all the attention they deserve; and what can be more useful than such a collection as the Eglinton garden contains? Too much credit cannot be bestowed upon Mr. Gray for the great improvements he has made here.

There are several other fine places in the neighbourhood, of which I must send you notes at some future time. Of course the grand collection of plants formerly known as the Meadowbank collection, and the late Mr. A. B. Stewart's, are broken up, but it is gratifying to find that other gentlemen are taking an interest in horticultural matters, and it is to be hoped that Glasgow will not fall behind other cities and towns in the kingdom. *A. O.*

COMPARETTIA FALCATA.

Remarks on the Geographical Distribution of Comparettia falcata (Pöpp., Endl.), and its Occurrence in the Natural Habitat. — The main inducement to communicate the following notes on the above subject is an intimation, made some time back in the *Gardeners' Chronicle*, that Comparettia falcata grows amongst Fragarias in its natural habitat. How far this is the case, or not, the geographical distribution as far as discovered up to this date, the influence of orographical and climatical conditions, &c., I propose to discuss in the present article. One or the other item may prove useful to some of the readers of this paper.

Geographical Distribution.—In latitude Comparettia falcata occurs from 2° S. lat. to 16° N. lat.—that is, from Central Ecuador to Northern Guatemala. The longitudinal extension is from 76° to 95° W. long., Gr.; but this is of little signification, as the plant might make its *debût* in any longitude if the climatical and other conditions were suitable. The region inhabited by Comparettia falcata is somewhat smaller than the general average region of most other Orchids, which is from 800 to 1000 metres under the Equator. It is likewise lower and smaller in Guatemala and other Central American places, higher and larger in Columbia and Ecuador. The inferior limit above the sea-level is 1000 metres in Guatemala, growing gradually to 1200 metres towards the Equator. The superior limit is 1400 and 1800 metres respectively. Illustrated the region of C. falcata would exhibit the half-moon form; and this is, indeed, the shape of the region that most Orchids, and other plants growing near or under the Equator, affect. Compared with Humboldt's regional divisions, it would *par excellence* fall in his region of the Myrtles and Laurels, especially under the Equator. In Guatemala it occurs in the beginning of his region of evergreen Oak woods.

Climatical Conditions. — The climate, the most important factor on which the appearance and organic development of epiphytal Orchids depends, is at the same time a problem very difficult to be solved —at least by the traveller, who can only carry on his meteorological observations (and these to a very limited extent) during short periods of time in one locality. Notwithstanding this I possess observations of the atmospheric pressure, the temperature of the air and of the soil at different depths, psychrometer (wet and dry bulb thermometers) readings, &c., of almost all regions from Guatemala to Northern Peru; and although they are chiefly for but short spaces of time—indeed often only of few days' duration—they have been made at all seasons of the year, and thus will allow a reliable conclusion (of course, not absolute data, but by no means mere guesses, like those of some veteran plant collectors who never carried any physical or mechanical instrument, except, perhaps, a questionable thermometer) of the periodic courses of the above-specified items, which at different seasons follow with much regularity in equinoctial districts. I mentioned two items of my observations especially, viz., the observation of the temperature of the soil at different depths, and the psychrometer (hydrometer) readings. Both factors appear to me of the highest importance for artificial plant culture. The former is, moreover, a fairly reliable method of securing the annual mean temperature of a certain locality, provided one does not content himself with the depth specified by M. Boussingault, who made the assertion that there is no variation of temperature beyond 30 cm. of depth in equinoctial districts. This latter assertion is just as hypothetical as several others of the great scientist, but to criticise them is neither in place here nor is it my object. With respect to the temperature of the soil, I have observed that in some localities— for instance, about Purificacion and Neiva, in the Upper Magdalena Valley—there is still a notable change of temperature at the depth of 80 cm. to be perceived. Of course those barren localities, with their unclouded sky for a considerable period of time, make an exception to the rule. What the temperature of the soil is to plant culture in general so is the degree of humidity of the atmosphere to Orchids in particular, or even more, as these plants and their development mostly depend upon that factor. Another matter of great importance with Orchids is the degree of clouding of the sky and its duration during the day. How great the latter really is I have practically observed by trial-culture of Orchids commenced some time since, at various places and elevations, the results of which shall be made known after returning from the Tropics.

These introductory remarks I have thought necessary to make in order to illustrate the extent and *modus* of my observations, and afford ample scope to critics.

The climate of the region outlined above is rather changeable, not only with respect to the temperature, but also with respect to the periodical rainfall and the quantity of water in the air. The mean temperature of the entire region is 18° C. (64° Fahr.), the same in Central America as in Columbia and Ecuador; but the difference between the annual maximum mean and annual minimum mean temperature of the warmest and coldest month of the year is very great in the various countries. It is only 1.5° C. to 2° C. in Columbia and Ecuador, but 6.5° C. to 7.5° C. in Guatemala. The quantity of water in the atmosphere varies somewhat, according to the seasons, but there is sufficient ground to conclude that during the wet season it will probably be of uniform proportions over the entire zone. From the small table, which I annex for a clearer illustration of the daily course of the temperature and the quantity of vapour of water in the atmosphere, it will be seen that there is, even during the dry season, a very high degree of saturation to be observed, especially during the early morning and later afternoon hours—indeed, as much as the air at the observed temperature can carry.

The seasons vary greatly in the countries cited above. In Guatemala there prevails only one dry and one wet season, the first commencing in December and ending in April. Thus a strongly pronounced rest in the entire vegetation. In Columbia there are two dry and two wet seasons. The first dry one commences in January and ends in March, the second commences in June and ends in September. The heaviest rains fall about the end of April and in November. There are often exceptions to this rule, and it is not uncommon that rain falls throughout the year. In consequence of this the vegetation there is scarcely ever at rest.

The anemological and nubiferous conditions (wind and cloud) of the region of Comparettia falcata follow somewhat regular courses. About the anemological conditions it suffices to be observed that there is never a perfect rest in the aërial circulation. There is always a gentle breeze to be noted. The greatest proportions, according to a decimal scale, hardly ever reaches 5. As to the cloud conditions of the region of Comparettia falcata, I have, of the numerous localities visited, never observed that the sky was perfectly free from clouds, nor, on the other hand, densely overcast with them. There is a constant change of light and shade. Until 9 A.M. a light fog usually covers the thinly set woods in which C. falcata grows. At that hour they then begin to rise and form foggy-looking cumulus, which during the dry season soon concentrates into grayish strata. During the wet season they begin to precipitate in heavy showers from about 2 P.M. The appearance of the sky at this season resembles much that which prevails at the end of April and beginning of May on the European continent.

Phenomena of Growth.—There are few Orchids which are so particular in this respect as Comparettias. The only ones which can be compared with them are the genera Burlingtonia, Trichocentrum, Ionopsis, Rodriguezia, and a few others. Comparettia falcata is, moreover, very particular as to the trees on which it grows; and this may be taken as the principal reason why they are so difficult to grow artificially. With but few exceptions on Oaks and Orange trees in Guatemala, and the Guava tree (Inga spec.), they scarcely ever frequent any other trees as the common Guayava (Psidium guayava), the Arrayan (Myrtus xylopioides), and the Mimosa trees. The woods in which it makes its *debût* are usually of a thinly-set copse-wood character. In some cases they are park-like savannah woods; in others the thinly-set outskirts of larger forests. Localities frequented by preference are the banks of rivers and mountain brooks, bordered with tabular Mimosa bushes.

From the foregoing notes it will clearly be seen that the statement as to C. falcata growing amongst Fragarias can hardly be true. This is, for two reasons, impossible; one is that C. falcata is an exclusive epiphyte; two, the inferior limit of Fragaria is 2000 metres above the sea in the equatorial Andes, while the superior limit of the region of C. falcata is only 1800 metres. I might warn all Orchid growers against plunging their Comparettias into any kind of soil, or even sphagnum. They will only thrive on blocks; perhaps Oak-wood ought to be employed.

Concluding Remarks.—Whether all the plants of Comparettia of the region outlined above are to be taken as typical falcata I will not decide here. I may take one or the other form, variety, or even subspecies, as nothing more than an abnormal development caused through different climatical conditions; but since I am anything but a modern form or variety maker, I must observe that I may overlook points which are sufficient to create a new species altogether. However, many years' observations in indisputably one of the richest fields of epiphytal Orchids on the globe have shown me that Orchids, growing in different localities, and under varying orographical and climatical conditions, are capable of great abnormal developments. I have, indeed, seen so much variation in Orchids that I have given up all talk about new varieties. To give an example, I may mention that during my last travels in the Magdalena basin—devoted exclusively to the study of the country—a locality was visited in which Cattleya Trianæ grew very abundantly. Of the many hundreds of plants which were seen in bloom I was unable to select two that had flowers of equal size and colour, so great was the variation. I think every English amateur of Orchids might have two special varieties from that spot without exhausting the number of them. Now, supposing all these varieties of Cattleya were described and named, what a catalogue! I think such plants might receive a local name—say, Mr. Gosling's dark-coloured variety, or Mr. Pfeifenhauer's extremely large lipped plant — as this is of considerable importance to the horticulturist; but as far as the botanist is concerned, these varieties can only be simply recorded, with the remark that such and such a species is capable of greatly varying developments.

Not at all less is the variation with Comparettia falcata. While the plants from Guatemala are very small, producing short wiry-looking scapes with but three to five small intensively coloured flowers, those from some parts (not from all !) of Columbia are three and fourfold the size, and produce strong many-branched panicles with from twenty-five to forty crimson-coloured large flowers. The plants from Ecuador are only of medium size.

As to the extinction of this Orchid in its natural habitat, there exists as little probability as with most other Orchid species. It has often been thought that by the irrational system of collecting such species as Odontoglossum crispum, Lindl., may sooner or later become an object of the past in the natural woods of Columbia. Indeed, this belief went so far that an old patriarch of Orchid importations considered it a fine "spec" to keep a collector constantly in the locality of that plant, while another company announced the complete extermination of Odontoglossum cirrosum, Lindl., in its natural habitat. There is no danger of such exterminations of species. Of course on the road from Guaduas to Tacatativá and Bogotá it might be considered a miracle *par excellence* if a specimen plant of Odontoglossum crispum was found; and many of our modern collectors—who sleep until 11 A.M., thus giving rise to discontent on the part of the hotel-keeper from taking their meals at unusual hours, and after this see how many plants their Indians have harvested—know very little more about the woods of Cundinamarca, and it is really no wonder if such tales of extermination are spread about. Since there are millions of acres of ground in all parts of Tropical America where no plant-collector has yet stamped his footmark, and wherein, owing to the sad political and economical circumstances with respect to communication in most of those South American Republics, for the next fifty years to come will not stamp it, there are still large tracts of woods in which those plants grow just as undisturbed as 400 years ago, when no European had seen America.

The only thing that can rationally be said with respect to Orchid collecting and extermination is, that the former becomes every day more difficult and costly as the woods near the towns and villages are

gradually destroyed and no efforts taken to restitute them; but, as far as extermination is concerned, actual observations in many parts have taught me that it hardly ever will take place with any species. *F. C. Lehmann.*

Guatemala, 1520 metres above the sea.				Columbia, 1740 metres above the sea.		
Month.	Hour.	Temp. in Fahr.	Absolute quantity of water in the air.	Mnth.	Temp. in Fahr.	Absolute quantity of water in the air.
		°	grammes.		°	grammes.
April.	6 A.M.	55	11.4	April.	58	13 0
,,	7 ,,	57	10.9	,,	59	13.0
,,	8 ,,	62	10.3	,,	60	12.3
,,	9 ,,	66	10.0	,,	63	12 2
,,	10 ,,	70	9.2	,,	65	12.0
,,	11 ,,	73	9.0	,,	68	11.9
,,	12 M.	76	8.5	,,	70	11.9
,,	1 P.M.	78	8.5	,,	71	11.9
,,	2 ,,	78	9 3	,,	71	11.9
,,	3 ,,	77	10.0	,,	70	12 3
,,	4 ,,	75	10.2	,,	68	12 9
,,	5 ,,	72	10.5	,,	65	13.0
,,	6 ,,	68	11.0	,,	64	13.1
,,	7 ,,	65	11.2	,,	63	13.1
,,	8 ,,	63	11.6	,,	63	13.1
,,	9 ,,	62	11.6	,,	63	13.1

Notices of Books.

English Botany, or Coloured Figures of British Plants. Third edition, enlarged, rearranged according to the Natural Orders, and entirely revised. Edited by John T. Boswell, LL.D., F.L.S., &c. No. 84. (George Bell & Sons, York Street, Covent Garden, London.)

It is with very great satisfaction that we find the continuation of this, our standard work on British botany, has been resumed after an interval amounting to about eight years. The new part just published is the first number of the twelfth and concluding volume of the whole work, which will contain the flowerless plants of the British Isles and a complete index to the whole work. The part before us contains plates and descriptions of the following plants:—Pilularia globulifera, Isoetes lacustris and the variety Morei, I. echinospora, I. hystrix, Selaginella selaginoides, Lycopodium Selago, L. inundatum, L. annotinum, L. clavatum, L. alpinum, Ophioglossum vulgatum, O. lusitanicum, and Botrychium lunaria; in addition to which are plates of the following, unaccompanied by text (which will doubtless appear in the next number), viz., Osmunda regalis, Trichomanes radicans, Hymenophyllum tunbridgense, H. unilaterale, Polypodium vulgare, Gymnogramma leptophylla, Cryptogramme crispa, and Phegopteris dryopteris. Under the head of "Excluded Species," Selaginella helvetica and Lycopodium complanatum are briefly noticed. The plates representing the above species, as compared with those of former editions of this work, are mostly very much improved by having had many additions and some alterations made to them, and are fully equal in merit to those of the previous volumes of the present edition; nevertheless, it would have been better if the plate representing Osmunda regalis had been improved entirely away, and a better one substituted for it. On plate 1827 a curious typographical error occurs, the word Poetes being printed for Isoetes. In the text the plants are dealt with in the same thorough manner as in the preceding volumes.

It is to be hoped that the five succeeding parts which will compose the rest of this volume will be published as speedily as circumstances will permit, so that we may shortly have the satisfaction of seeing this useful work completed.

Hardy Perennials and Old-Fashioned Flowers. By J. Wood. (L. Upcott Gill, 170, Strand.)

An account, arranged alphabetically, of some of the principal herbaceous perennials which will be useful to those amateurs who do not care for more than a superficial knowledge of the plants they grow. However limited their requirements, the greatest care should be taken to ensure accuracy. We do not know on what principle the selection of plants is made, but it seems odd that Cypripedium calceolus should be inserted, while the much more beautiful C. spectabile is not mentioned. What can Mr. Wood mean when he says of Dianthus hybridus that "the specific name of this variety (*sic*) is not at all descriptive, and it may be better to at once give its common name of Mule Pink, of which there are various colours," &c.? Throughout the book the specific names are printed in capitals—a mere technical error, perhaps, but one very embarrassing to a student. A well-known Sunflower is mentioned as Helianthus Orygalis, the English translation of which is given as the "graceful Sunflower"—a statement which will produce even greater embarrassment. It is a pity that a book like this, containing so much that is practical and good, should not have been revised before publication by some competent botanist.

—— A third edition of the *Student's Guide to the Practice of Medicine*, by Dr. Charteris (Churchill), has been published, and may be recommended to students as affording indications of the points to which their attention should be directed, and it may also be useful as a remembrancer to the practitioner. By no means should such a book be read by an invalid or even by his friends! We find no mention of the manner of using either the laryngoscope or the ophthalmoscope, and few references to the information to be obtained by their use.

The Handbook Dictionary.—Mr. Murray has just published a valuable little dictionary, prepared by Mr. G. F. Chambers, and which is well suited for travellers and tourists. It comprises in parallel columns, in the English, French, and German languages respectively, a selection of all the words most likely to be useful to the tourist. By convenient typographical arrangements the gender of the nouns is indicated, and great care is used to give the correct synonymy and the appropriate signification of words and expressions having a double or multiple meaning. It is just the book for the tourist's knapsack, but would be improved in the next edition by the addition of the metric weights and measures and their English equivalents, and a table of foreign coinage.

FORESTRY.

FOREST WORK FOR JULY—BARKING.—The past month has been a very favourable one for the harvesting of bark, and every advantage should be taken of dry weather to complete work of this kind yet remaining unfinished. Where the peeling was commenced early, and advantage taken of the first chance of delivery, the bark has turned out well and of excellent quality, the result being satisfaction on all sides. As compared with last season prices are rather on the decline, the average this season being 80*s.* per ton. All Oak timber should be neatly dressed and at once removed from the ground, and either lotted for sale or disposed of otherwise. Where underwood or coppice is desired, great care is necessary to prevent damage to the young shoots, which will now be springing up freely around the stools. Those plantations in which barking operations have been going on should now get a thorough overhauling, by removing injured branches and rival leaders, repairing fences, and liberating such trees as are becoming overtopped by others, and that are intended for a permanent crop.

PLANTING.—Should it be found necessary to replant any of the ground from which large timber has been removed, the pits may now be opened of a large size, and all roots and remains of the former crop picked out, and either burned or removed from off the ground. Look over young plantations formed during the past two seasons, and remove rank herbage of all kinds that is likely to interfere with the health of the plants. Many young trees are either lost or rendered useless for timber purposes, by allowing the growth of Gorse, Briers, Ferns, rank grasses, &c., which entirely shut out the light and air—two essentials for the healthy development of the young plants. Grub out or cut close to the ground Ivy on plantation trees.

NURSERY.—In the nursery pay every attention to keeping down weeds, especially during warm, dry weather, thus not only checking the seeds but allowing a free circulation of air amongst the young plants. Ornamental budding is usually performed during this and the following month, as at that time the bark separates more freely from the wood and the young buds are fully formed; but whenever the two latter conditions can be satisfied the operation may take place equally well. Look over grafted plants and undo the ties where necessary, as when the scion has taken well the sooner it is untied the better. Remove all buds and twigs below the graft, as these tend only to divert the sap from the head of the stock. Elm seeds may now be collected from healthy, well grown trees, and either sown immediately or spread out to dry. Turn compost heaps of weeds and all vegetable refuse, at the same time adding a quantity of hot lime, which will not only help to hasten decomposition, but destroy the vitality of the seeds. If the weather remains dry, water regularly all seed-beds of Elm until they germinate; then shade from the scorching rays of the sun. Stir up hard ground between the rows of all nursery stock, which is not only highly beneficial for the plants but a means of killing and destroying weeds. A careful overlook of young Conifers in the nursery will at this season be advantageous, so as to regulate and check all rival leaders as well as strong side branches, thereby improving their general appearance and adding to their value as ornamental or timber trees.

HEDGING.—Trim ornamental hedges of all kinds, but especially those of Laurel, Yew, Box, and Privet. Be careful to burn or bury the Yew prunings, as they are deadly poison to cattle, more especially when in a half dead state. Clear all weeds and Ivy from the bottoms of hedgerows, at the same time loosening the soil by hoeing or a slight digging.

PRUNING.—Pay attention to trees and shrubs growing alongside drives and walks, and see that they are not encroaching too far on the roadway. Where such is the case they should be promptly pruned back, and never delayed until real necessity demands their removal. Use the pruning-knife judiciously on Laurels and beds of choice evergreen shrubs. These should be trimmed regularly at least once a year, for if left for any longer period the heavy pruning then found necessary has a very unsightly appearance, and should never be tolerated, at least within the policy grounds. Finish during the month all pruning and disbudding of forest trees, at the same time regulating the shoots and leaders of coniferous trees before the growth is completed. Wounds produced by amputation or disbudding soon heal over when the trees are in a growing state, especially where the operation has been carefully performed by a skilled workman.

FENCING.—Continue to erect continuous iron and wire fences, repair such as are in a dilapidated state, and pay strict attention to all tree guards and rabbit-proof wire fences. During dry hot weather proceed with the painting of gates and ornamental fences, and the tarring of iron wire and wooden fences. Plantation fences should now be frequently examined and kept in a thorough state of repair, as during hot weather cattle, to avoid being tormented with flies, naturally seek the denser shade of the woodland.

ROADS AND WALKS.—Keep all gravel walks and roads clear of weeds, and in a good sound passable condition, which will at all times be a pleasure to passengers and a credit to those in charge of the work. Material for repairing carriage drives and roads may now be got ready and carted to some convenient spot ready for use when wanted. Previous to shedding their seeds cut back all rank grasses and weeds from the margins of roads and along the outskirts of plantations. Within the policy grounds a strip of grass, 3 feet in width, is kept closely mown alongside the principal drives, thus not only giving to the roads a neat and tidy appearance, but also preventing the long grasses from hanging over and seeding on the margins.

GENERAL WORK.—Drain, fence, pit, and otherwise prepare ground intended for autumn planting. Clear branches from open drains, especially in recently thinned plantations, and have them thoroughly drained out, and put in a good state of repair. During warm weather begin operations on the banks of rivers and streams where the water has been encroaching, and remove accumulations of sand or other sediment which may interrupt their course. Repair woodland roads and drives, as nothing tends to enhance the value of timber as well as facilitate forest work gener-

ally, like well-kept roads. As recommended for last month, it may be well to examine plantations formed during the past season, and make firm any of the young plants that have become swayed with the wind. Large transplants should also be looked to during dry weather, and if necessary a copious supply of water should be given. Mulching the soil around large plants, as well as syringing overhead, is also highly beneficial, and may be the means of saving many that would otherwise succumb to the protracted drought and heat. *A. D. Webster, Penrhyn Castle, North Wales.*

Reports of Societies.

National Rose: *July* 3.—The excessively hot day on Monday—and it was one of the hottest we have had for several years—with a tremendous storm of thunder, lightning, and rain at night, boded ill for the success of the National Rose Society's metropolitan show; and, in truth, though equally as representative, it was not so fine in all-round quality as last year's display. Notwithstanding all that has been said to the contrary, Roses generally suffered much in the spring—the blooms coming now show it unmistakably; and what with poor substance and the great heat, the Rose season promises to be soon over; but there is this consolation—we can anticipate a good autumn display with some degree of confidence. Those who, like Mr. Turner, deferred their cutting till the morning of the show day, had to do it in a drenching rain, and suffered accordingly.

Nurserymen's Classes.—The first eight classes were confined to nurserymen, in two divisions, those showing in division A.—the first four classes—not being allowed to compete in division B. In what is usually regarded as the champion class—that for seventy-two single trusses, distinct—Mr. B. R. Cant, of Colchester, for the 3d year in succession took the 1st prize, and in his winning collection this time further distinguished himself by showing both the best hybrid perpetual and the best Tea Roses, single blooms, in the trade classes. These were H.P. Mons. Noman, a fine bloom certainly, but which many did not regard as a happy selection; and Tea Souvenir d'Elise, a magnificent flower, the superior claims of which left no room for cavil; and for both of these Mr. Cant received the Society's Silver Medal. Conspicuous for their fine quality among the Colchester blooms may also be noted examples of A. K. Williams, Françoise Michelon, Madame Charles Wood, Dupuy Jamain, Constantine Tretiakoff, Xavier Olibo, Duchess de Vallombrosa, Marie Van Houtte, Devoniensis, Violette Bowyer, Perle de Lyon, Sultan of Zanzibar, Souvenir de Mons. Boll, Baroness Rothschild, Madame Ducher, Antoine Ducher, Duchess of Bedford, Annie Laxton, Madame Willermoz, Maurice Baumann, Madame Marie Verdier, Madame Eugènie Verdier, Boildeau, Penelope Mayo, Madame Caroline Kuster, Duke of Teck, and Madame Vidot. Messrs. Paul & Son were 2d, with a collection somewhat wanting in size, though strong in substance and freshness. In this collection the most remarkable blooms were of Dr. Andry, Beauty of Waltham, Duchesse de Caylus, Edouard Morren, A. K. Williams, Star of Waltham, Madame Gabriel Luizet, Ulrich Brunner, Antoine Ducher, Comte Raimbaud, Duchess of Bedford, Horace Vernet, Souvenir de la Malmaison, Charles Lefebvre, Marie Rady, Madame Eugènie Verdier, Sultan of Zanzibar, Madame Charles Wood, Marie Van Houtte, Etienne Levet, Annie Laxton, and Captain Christy. Mr. Turner came in 3d, with a grand lot of blooms as regards size and substance, but showing signs of the weather; and Messrs. Keynes & Co., Salisbury, were a good 4th, while the Cranston Nursery Co., Hereford, were Highly Commended. In the class for thirty-six trebles, distinct, there was one entry less than in the preceding, and here the strength of Cheshunt was developed to the utmost, and the result was accomplished of turning the tables on the Colchester grower, Messrs. Paul & Son taking 1st honours. Very superior in this collection were their trios of Captain Christy, Beauty of Waltham, Charles Lefebvre, Marie Rady, George Moreau, Marie Baumann, Caroline Kuster, A. K. Williams, Comtesse d'Oxford, Etienne Levet, Dr. Andry, Duke of Edinburgh, Julie Touvais, Duke of Teck, Maréchal Niel, Comtesse de Ludine, Prince Arthur, and Madame Eugènie Verdier. Mr. B. R. Cant was strongest in light coloured varieties, having among others superior blooms of Baroness Rothschild, Etienne Levet, Souvenir d'Elise, Marie Baumann, Madame Eugènie Verdier, Merveille de Lyon, Rubens, Ed. Morren, Marguérite de St. Amand, Annie Laxton, Antoine Ducher, Madame Charles Wood, and A. K. Williams. Mr. Turner again came in 3d, and Messrs. Keynes & Co. 4th. With twenty-four trebles, Mr. Cant again came to the front, his nearest rival being Mr. G. Prince, of Oxford. The Colchester collection included very fine blooms of Rubens, Marie Rady, Star of Waltham, François Michelon, Mons. Noman, Annie Laxton, Souvenir de la Malmaison, Edouard Morren, Innocente Pirola, A. K. Williams, Mrs. Baker, Maurice Bernardin, Anna Olivier, and Madame Gabrielle Luizet. Jean Ducher, Ulrich Brunner, Rubens, Charles Lefebvre, Marquise de Castellane, Comtesse de Nadaillac, and Mons. E. Y. Teas were splendidly shown in Mr. Prince's boxes. Messrs. Paul & Son were 3d, and Mr. Turner 4th.

For eighteen single Teas or Noisettes Messrs. Paul & Son and Mr. Prince were declared equal in point of merit, and the prizes were awarded accordingly. Most prominent for their fine quality among the Cheshunt flowers were examples of Souvenir d'Elise Vardon, Rubens, Belle Lyonnaise, Madame Margottin, Perle des Jardins, Madame Cusin, Perle de Lyon, Souvenir d'un Ami, and Devoniensis; while Mr. Prince's strong points were centred in blooms of Jean Ducher, Catherine Mermet, Amazon, Anna Olivier, Marie Van Houtte, Comtesse Nadaillac, Souvenir de Madame Pernet, Souvenir d'Elise Vardon, and Souvenir de Paul Néron.

The first of the classes in division B., that for forty-eight singles, brought Messrs. Curtis, Sandford & Co., of Torquay, to the front in a strongly contested class. High-coloured flowers of substance and purity were the main feature in the Torquay collection, especially strong in these respects being blooms of Duke of Wellington, Antoine Ducher, Victor Verdier, Charles Lefebvre, Alfred Dumesnil, Madame Charles Wood, Duke of Edinburgh, Marie Baumann, Françoise Michelon, Etienne Levet, Barthélemy Joubert, La France, and Abel Grand. Mr. J. House, of Peterborough, was a good 2d. Mr. J. Walters, Mount Radford Nurseries, Exeter, 3d. Messrs. J. Jefferies & Son, Cirencester, were 3d in a class in which there were sixteen entries. For eighteen trebles Mr. F. Cant, of Colchester, came in 1st, his blooms for the most part being small, but very fresh and bright. Messrs. J. Jefferies & Son came in 2d; Messrs. Curtis, Sandford & Co., 3d; and Mr. Walters 4th—all showing well. With two dozen singles Mr. Walker, of Thame, came in 1st, with a fresh, even lot; Mr. John Mattock, New Headington, Oxford, being 2d; and Messrs. Kinmont & Kidd, of Canterbury, 3d. The Tea and Noisette class in this section brought out a stronger competition than in the first division, though not so good a one as might have been expected. The 1st prize was won by Messrs. Mitchell & Son, of Piltdown, Sussex, but not with such superb blooms as we have seen them exhibit. The leading varieties were Devoniensis, Souvenir d'Elise Vardon, Souvenir d'un Ami, Perle des Jardins, Jean Ducher, Madame Margottin, Catherine Mermet, Comtesse Nadaillac, Madame Villermoz, Jean Pernet, Souvenir de Paul Néron, and Maréchal Niel. Messrs. G. Bunyard & Co., Maidstone, were 2d; and Mr. John Mattock, 3d.

Amateurs' Classes.—In the class for thirty-six single trusses, Alfred Slaughter, Esq., Jarvis Villa, Steyning, Sussex, was 1st, with an excellent sample, among which were Camille Bernardin, Dr. Andry, Star of Waltham, Egerie, Marie Baumann, Devienne Lamy, John Bright, Fisher Holmes, Le Havre, Etienne Levet, Beauty of Waltham, Souvenir d'un Ami. The blooms in this stand were fresh, regular as to size, and well chosen for contrast. No 2d prize was awarded, but Mr. T. W. Girdlestone, of Sunningdale, was awarded the 3d prize for a good stand, and R. N. G. Baker, Esq., Heavitree, Devon, the 4th, Mr. William Harrington, Corbets Tey, Rainham, being Highly Commended. In the competition for twenty-four single trusses, A. J. Waterlow, Esq., Great Doods, Reigate, obtained the 1st prize. This box contained, amongst other well known kinds, La France, Henri Ledechaux, Charles Lefebvre, Marie Rady, Victor Verdier, Countess of Oxford, Maréchal Vaillant, Charles Rouillard, Mrs. Laxton, Jules Finger, Mons. E. Y. Teas, Etienne Levet: these were the cream of the lot, although all of the blooms were very superior. The Rev. Hugh S. Berners, Harkstead Rectory, was awarded the 2d prize for an excellent collection, amongst which the following were the most noteworthy:—Marie Rady, Mons. Noman, Françoise Michelon, Madame Gabrielle Luizet, La France, Souvenir d'Elise, and Duke of Connaught. The 3d prize was taken by Alfred Slaughter, Esq., with an interesting stand, including Auguste Rigotard, Duchesse de Vallombrosa, and Dr. Andry—the Rev. W. H. Jackson, Stagsden Vicarage, Bedford, securing the 4th award in this class. In the competition for twelve distinct sorts, shown in trusses of three each, the 1st prize was awarded to Thomas B. Heywood, Esq., Woodhatch Lodge, Reigate (gr., Mr. J. Ridout), whose handsome box contained beautiful examples in the best condition of Le Havre, the general favourite Madame Gabrielle Luizet, Madame Lacharme, a sort not frequently seen in any of the collections; Countess of Oxford, Marquise de Castellane, Françoise Michelon, Baronne de Rothschild, Captain Christy, and Edouard Morren. The 2d prize was awarded to William Harrington, Esq., who had excellent blooms of the following favourite sorts:—Camille Bernardin, Duke of Edinburgh, Madame Sertot, Beauty of Waltham, and Maréchal Niel. Mr. R. N. G. Baker, Heavitree, took the 3d prize; and Mr. Girdlestone, Sunningdale, also staged a nice lot of twelve.

The class for twelve Teas or Noisettes was abundantly represented, and the blooms staged by the various competitors were exquisite, rendering the task of selection a difficult one. Mr. Alfred Slaughter was again 1st prize man with Jean Ducher, Niphetos, Anne Olivier, Rubens, Marie Van Houtte, one of the very best of the Teas out-of-doors; Catherine Mermet, Souvenir d'Elise, Belle Lyonnaise, Madame Lambard, and the yellow-veined Amazone. The 2d prize in this class was secured by A. J. Waterlow, Esq., in whose box were capital blooms of Bouquet d'Or, Souvenir d'Elise Vardon, Jean Ducher, and the comparatively new yellow Etoile de Lyon. Charles Davis, Esq., Grammar School, Aynhoe, Banbury, was awarded the 3d prize; and George Hawtrey, Esq., Slough, the 4th. In the competition for twenty-four single trusses the 1st prize was obtained, against strong competition, by John Sargant, Esq., Reigate, whose collection, in every way excellent, contained notably the rosy-lilac Françoise Michelon, Baroness Rothschild, Madame Victor Verdier, Marie Verdier, Horace Vernet, Duke of Teck, Duchesse de Morny, Marie Baumann, Emily Laxton, Marie Rady, Belle Lyonnaise, Duchess of Bedford, very good for this kind; and the popular A. K. Williams, always bright and taking. The 2d prize was taken by G. Baker, Esq., Reigate; in this box were good examples of Pride of Waltham, Edward Morren, Star of Waltham, Captain Christy, and Annie Laxton. The Rev. J. H. Pemberton, Round House, Havering-atte-Bower, Essex, was 3d. In this collection were good flowers of Horace Vernet, Hippolyte Jamain, Prince Arthur, A. K. Williams, Countess of Rosebery. Mr. H. Wakeley, Rainham, was awarded the 4th prize, Mr. Grant, Hope End, Ledbury, being Commended. In the class for six Roses, distinct, three trusses of each, the 1st prize was taken by the Rev. John H. Pemberton, whose collection consisted of Countess of Oxford, Maréchal Niel, A. K. Williams, Horace Vernet, La France, and Marquise de Castellane. The 2d prize was secured by W. H. Wakeley, Esq., Marklands, Rainham, in whose lot were good samples of John Bright, Captain Christy, and Mons. Noman. Miss W. Taylor, Manor House, Headingly, obtained the 4th prize, no 3d being awarded. In the competition for twelve distinct single trusses, Miss W. Taylor was placed 1st with a nice lot, including, amongst other well-known sorts, Marie Cointet, Duchesse de Caylus, Maréchal Niel, Madame G. Luizet, L. Havre, Thérèse Levet, Sultan of Zanzibar, and A. K. Williams. The 2d prize was awarded to G. Mount, Esq., Harbledown, Canterbury, who showed a good Eugene Fürst, Alfred Colomb, and the pretty Baronne de Rothschild. Julius Sladden, Esq., Badsey, Evesham, took the 3d prize, showing Duchesse de Caylus, A. K. Williams, and the less known Rosy Morn, in faultless condition. The 4th prize was awarded to A. Evans, Esq., Marston, Oxon, for some very nice blooms. In this class the exhibitor, Rev. J. H. Pemberton, and Earnest Wilkins, Esq., Sutton, also staged some very meritorious blooms, but were unrewarded. In the class for twelve Teas, or Noisettes, distinct, single trusses, the 1st prize was taken by the Rev. A. K. Foster Helliard, Foslock Rectory, Bury St. Edmunds, whose stand consisted of Souvenir d'Elise, Devoniensis, Maréchal Niel, Madame Margottin, Madame Bravay, Souvenir d'un Ami, Marie Van Houtte, Niphetos, Moire, Catherine Mermet, Innocente Pirola, and Caroline Kuster. An equal 1st prize was awarded to the Rev. T. Page Roberts, Rectory, Scoli, Norfolk, for a stand containing, amongst others, good examples of La Boule d'Or, Marie Guillot, Anna Olivier, Jean Ducher, Alba Rosea, Comtesse de Nadaillac, Catherine Mermet, and Hippolyte Jamain. Miss W. Taylor was 3d, and C. Mount, Esq., 4th. Julius Sladden, Esq., W. H. Wakeley, Esq., and the Rev. John H. Pemberton contributed capital stands in this class. For twelve distinct single trusses the 1st prize was awarded to the Rev. Alan Cheales, Brockham Vicarage, Surrey. The choicest flowers in this lot consisted of Marie Baumann, Baronne de Rothschild, Alfred Colomb, Madame Lacharme, Etienne Levet, Star of Waltham, Françoise Michelon, Penelope Mayo, and Charles Lefebvre. The 2d prize was taken by T. F. Burnaby Atkins, Esq., Halstead Place, Sevenoaks, who had Le Havre, Camille Bernardin, Ferdinand de Lesseps, Marie Rady, &c. The 3d prize was awarded to J. Burton, Esq., for a good lot, consisting, amongst others, of Paul Neron, Reynolds Hole, Pierre Notting, and a beautiful Etienne Levet; and the 4th prize to Alfred Tate, Esq., Roseleigh, Woolton, who had good specimens of Countess of Rosebery and Charles Lefebvre. In this class Mrs. Lawson, Manor House, Luton, and J. T. Strange, Esq., Aldermaston House, Reading, had very good stands of fresh-looking blooms. For nine distinct single trusses the 1st prize was taken by E. Mawley, Esq., Addiscombe, Croydon, with well-grown, fresh blooms of Alfred Colomb, Etienne Levet, Star of Waltham, Dr. Andry, Baronne de Rothschild, Françoise Michelon, Marie Baumann, A. K. Williams, and La France; and the 2d prize by the Rev. Cecil Fellowes, Brighton Rectory, Acle, Norwich, who had good blooms of Marie Louise Pernet, Abel Carrière, and Marie Rady. J. Tranter, Esq., Upper Assenden, Henley, was accorded the 3d prize; and E. Horne, Esq., Park House, Reigate, the 4th. In the class for six distinct, single trusses, F. Burnside, Esq., Farningham, Kent, took the 1st prize with moderately good examples of Fisher Holmes, La France, Catherine Mermet, Maréchal Niel, Mons. Noman, Jules Finger. The Rev. W. Wicks, Vicarage, Croydon, was 2d, with fairly good specimens, including Xavier Olibo, Mr. Laxton, Marquise de Castellane. Miss Alice M. Lucas, Wratton Hitchin, was adjudged the 3d prize, and the 4th prize was taken by Mr. John E. Coleby, Rosenheim, Worple Road, Wimbledon. For the competition for six Teas or Noisettes the 1st prize was awarded to F. Burnside, Esq., whose Catherine Mermet, Comtesse de Nadaillac, Madame Margottin, Souvenir de Paul Néron, Jules Finger, and Maréchal Niel were very choice blooms, fresh and even in size. E. M. Bethune, Esq., Denne Park, Horsham, was the winner of the 2d prize. He had good blooms of Jean Ducher and Souvenir de Paul Néron. The 3d prize was awarded to E. Mawley, Esq, and the 4th to E. Horne, Esq., Reigate.

In the competition for the prizes in the extra classes, open to amateurs, in that of baskets of Tea, Hybrid Tea, or Noisette, the exhibits were rather numerous, but the selection was not a matter of difficulty, the gracefulness of the arrangements being very decidedly visible in the winning baskets, although good blooms were conspicuous in all of the lots. The 1st prize was taken by Mr. Harrowby, Headington Quarry, Oxford; this was a very prettily arranged basket of really good flowers; the 2d prize went to Miss A. T. Pemberton for a basket of quite another style of setting up, one variety only being used, viz., Caroline Kuster. The 3d prize was taken by Thomas B. Hall, Esq., Larch Wood, Rock Ferry, Cheshire.

In the class for suburban grown Roses, in the competition for six distinct, single trusses, John E. Coleby, the winner in this class in three consecutive years, was again awarded the 1st prize. The Countess of Leven and Melville, Roehampton House, and Mr. J. Bateman, 72, Twisden Road, N.W., were placed equal 2d, and the winner of the 4th prize was E. M. Nelson, Esq., Hanger Hill House, Ealing. In the class for six distinct, single trusses, open only to those who have never won a prize at any exhibition of the National Rose Society, the Rev. W. H. Jackson, Stagsden Vicarage, Bedford, was awarded the 1st prize; W. E. Hall, Esq., High Betington, Birkenhead, and Rev. Cecil Fellowes, were equal 2d; the 4th prize going to H. H. French, Esq., Sutton. In the class for six single trusses of any Rose, some really good things were staged, G. Hawtrey, Esq., Slough, winning the 1st prize with fine blooms of Maréchal Niel; Charles E. Cuttel, Chapel Croft, West Humble, Dorking, taking the 2d prize with a good lot of Madame Gabrielle Luizet—the Rev. J. H. Pemberton securing the 3d prize with Marquise Castellane, and E. Horne, Esq., the 4th prize with La France.

OPEN CLASSES.—The Gold Medal for the best three trusses of any new Rose, or distinct sport, not yet in commerce or announced, was won by Mr. Henry Bennett, of Shepperton, with his seedling Pedigree Rose, Her Majesty, of which he exhibited numerous other fine samples besides the Gold Medal blooms, and a couple of plants to show its freedom of growth, which though only six months old, were straight stems over 8 feet high, grown in 32-sized pots, with the aid of Clay's Fertiliser; and which unmistakably illustrated the value of that plant stimulant. Her Majesty is in the style of Baroness Rothschild, pale pink, but much superior to any other variety of the same colour, and although deficient in scent, must prove one of the grandest show Roses of the day.

The class for twelve new Roses, not in commerce previous to 1880, was not a good one, bringing out no blooms of striking merit. Messrs. Paul & Son took the 1st prize with Satiana Oregina, Merveille de Lyon, Ulrich Brunner, Archduchess Elizabeth, Madame Cusin, George Moreau, Mary Paul, Pride of Waltham, Comtesse H. Coomber, Violette Bowyer, Etoile de Lyon, and Madame Isaac Perrière. Messrs. Curtis, Sandford & Co., were 2d, and The Cranston Nursery Co., 3d.

For twelve single trusses of any yellow Rose, Mr. B. R. Cant was 1st, with Madame Caroline Kuster; Mr. Turner, 2d, with Madame Margottin; The Cranston Nursery Co. 3d, with Marie Van Houtte; and Messrs. Paul & Son 4th, with Perle des Jardins.

In a corresponding class for any white Rose, Messrs. Paul & Son took the lead with Niphetos; Messrs. Mitchell & Son coming in 2d with Devoniensis; and Messrs. Curtis, Sandford & Co. 3d, with Duchesse de Vallombrosa. For twelve single trusses of any crimson Rose, Mr. J. Walters was awarded the 1st prize for a box of A. R. Williams, while a much better stand of the same variety, shown by Mr. Prince, was for some unapparent reason unnoticed. The 2d prize went to a stand of Duke of Edinburgh, shown by some one whose exhibiting card was missing; and the 3d to R. N. G. Baker, Esq., Heavitree (a former amateur champion grower, who seems to be resting on his laurels), with Duke of Wellington.

In the "any Rose" competition—and a very good one it was—Mr. H. Bennett came in 1st, with Her Majesty, in fine form; Mr. B. R. Cant 2d, with a grand box of Marie Cointet; and Mr. G. W. Piper 3d, with Souvenir d'Elise Vardon; Messrs. Paul & Son with La France being Highly Commended.

Mr. T. S. Ware staged a magnificient group of cut herbaceous plants, that greatly pleased many of the visitors, and which deserved a more extended notice than the limit on our space allows us to give this week.

VEGETABLES, ETC.—The special prizes offered for vegetables and fruits a this show by various trade firms brought capital competition. In the class for ten kinds of vegetables, the prizes offered by Messrs. Sutton & Sons, Reading, including six collections, the 1st place was worthily taken by Mr. Haines, Coleshill Gardens, Highworth, with generally capital samples, including fine Stratagem Peas, Early London Cauliflowers, All the Year Round Cabbage, and Hicks' Hardy Cos Lettuces, handsome Early Nantes Carrots, good Woodstock Kidney Potatos, Purple-top Turnips, Tender and True Cucumbers, and a moderate dish of Canadian Wonder Beans. Mr. G. T. Miles, of Wycombe Abbey Gardens, ran a close race for 1st place with a capital collection, though one or two dishes were a trifle weak. His Red Italian Tripoli Onions, Nantes Carrots, Lady Paget Potatos, Telephone Peas, and Canadian Wonder Beans were excellent. Mr. W. Meads, of Shrivenham Park Gardens, was put 3d, with a collection of fair quality, including good Superb White Cos and All the Year Round Lettuces, Improved Telegraph Cucumbers, and Snowball Turnips. Mr. H. W. Ward, Longford Castle Gardens, came 4th, having a fine sample of Culverwell's Giant Marrow Peas, Woodstock Kidney Potatos, &c.

There was a capital competition for Messrs. James Carter & Co.'s prizes for the best dishes of their Peas—Pride of the Market, Stratagem, Telephone, and Telegraph—thirteen lots being sent; but one, very fine samples too, having been foolishly labelled as "Fruit, for Competition," was kept for the packing prizes, and thus did not get into the competition. The finest lot of pods, truly grand samples, came from Mr. Richardson, Boston, all of even size and good colour. Mr. H. W. Ward was 2d, with also superb samples. Mr. E. Beckett, Sandown House Gardens, Esher, was a wonderfully close 3d; and Mr. H. Marriott, of Boston, came 4th, with huge samples that, being spotted by the hail marks, were put back a few points by the judges. Finally Mr. Miles secured the 5th place.

A dozen Melons were put in competition for the Messrs. Sutton's valuable prizes for the best single fruit; one exhibitor, however, put up three of these, all remarkably handsome in appearance, but totally devoid of flavour. In this latter and most important quality the best fruit was found in a green-flesh kind, named Chalfont Favourite, a round and good netted fruit, shown by Mr. C. Herrin, of The Gardens, Chalfont Park, Bucks; Mr. J. C. Mundell, Moor Park Gardens, coming 2d, with a scarlet-flesh Best of All—a foolishly pretentious designation; and the 3d prize fruit, also a scarlet-flesh, unnamed, came all the way from Ireland, being sent by Mr. C. Tyler, Shelton Abbey, Arklow. Generally the fruits were utterly wanting in flavour, and soft, melting quality of flesh. Mr. G. T. Miles put up a really superb lot of Pines—six handsome selected fruits, weighing 30½ lb., and six others of the weight of 26¼ lb., or a total of 56½ lb. of beautiful fruit.

Messrs. Carter & Co. sent a very interesting lot of Cabbage Lettuces in flats, comprising such kinds as Grand Admiral, very old, and one of the best; Perpignan, Victoria, Paris Market, &c., smooth-leaved kinds; and Californian Curled, American Gathering, Ne Plus Ultra, and other curled sorts—all excellent fresh samples. The same firm sent an interesting collection of early Peas. sown on March 21, the plants pulled, and showing their habits and average cropping qualities.

Richmond Horticultural.—Held in the Old Deer Park, on the 28th ult., under fairly good weather influences, the ninth exhibition of this Society was remarkably strong in the plant classes, indeed the big tent, always one of the finest of its kind in the kingdom, was a grand show in itself, and there was a wondrous display of cut Roses and other flowers, so that the large company which attended had plenty to see, although Royalty failed to put in appearance on this occasion, and the Richmond folks, who dearly love a prince, were so far disappointed. In all other respects the show, admirably arranged by Mr. Eyles, the honorary secretary, was a great success. As usual, the trade groups were a noticeable feature. That sent by Messrs. C. Lee & Sons is elsewhere referred to, but the superb group of pot Roses, comprising some 120 plants, backed by Japanese Maples and faced by the variegated Eurya latifolia, was of first-rate order, and well worthy the eminent firm of Messrs Veitch & Sons, from whom it came. Curiously contrasting with the massive hybrid perpetuals was a number of plants in bloom of the small white Rosa polyantha Paquerette, a lovely little kind for bunching. Messrs. Jackson & Sons, of Kingston, staged a fine group of plants, in which Heaths were prominent, medium sized plants, finely flowered; many good Orchids, the charming Impatiens Sultani, so well done by this firm; and other good things in exceeding variety. This latter firm had the best lot of stove and greenhouse plants, such old friends as Ericas ventricosa, Bothwelliana, Denisoniana, and ferruginea major; Darwinia tulipifera, Clerodendron Balfourianum, Allamanda cathartica, with the very effective Franciscea calycina major, being fine and superbly flowered. Mr. J. Child, gr. to W. J. Bell, Esq., Garbrand Hall, Ewell, was 2d with some good plants, specially fine being Bougainvillea glabra and Aphelexis macrantha purpurea. Fine-foliage plants were well shown by Mr. Monro, gr. to Lady John Chichester, Twickenham, who had a splendidly coloured Dracæna Youngii, good Crotons majesticus and Regina, with Palms, &c.; and Mr. T. Gregory, gr. to J. F. Weymouth, Esq., Teddington, who had in his collection some grandly done Caladiums. Mr. Child was a good 1st, with a gigantic Kentia Forsythia, finely coloured, as a specimen foliage plant; and amongst those shown Mr. Gregory had a splendidly leaved and coloured Caladium Belleymei.

Ferns were largely shown, but at the best make a monotonous class, that the brilliant bank of colour obtained from the large flowered and fancy Pelargoniums shown by Mr. Turner, of Slough, and Mr. Wiggins, gr. to H. Little, Esq., greatly helped to enliven, These plants have already been noticed, and it is enough to say that Mr. Turner worthily won the honours.

Rarely has there been put up at Richmond or elsewhere nine finer or better flowered pyramid Fuchsias than were staged by Mr. J. Bond, gr. to Mrs. Evans, New Hampton, whose examples of Mrs. Marshall, Lord Beaconsfield, Gazelle, Wave of Life, Marginata, and Rose of Castile, with others, were worthy of all praise. This same exhibitor was 1st with six capitally grown and flowered zonal Pelargoniums—plants about 30 inches through, and loaded with bloom; these comprised Madame Crousse, single and double; M. Gelem Lomage, scarlet; Lucie Lemoine, flesh; Madame Raoul Guerin, rosy-pink; Madame Machette, pink; and Madame Amélie Baltet, white.

Orchids were shown ingreat force, and the first six plants, shown by Mr. J. Child, were worthy a place in any exhibition; these included huge pieces of Aërides Lobbi and odorata major, Vanda suavis, and a grand Cypripedium Stonei. Mr. H. James, of Castle Nursery, Norwood, was a good 2d, with Cattleya Mossiæ, C. Mendeli, and C. gigas; a Masdevallia Harryana carrying over thirty spathes, and other good plants. Mr. Wiggins' group included the lovely white Dendrobium Dearei, to which a Special Certificate also was awarded; and Messrs. Jackson & Son had with their collection a huge Cypripedium barbatum grandiflorum, and a beautiful piece of Odontoglossum vexillarium.

The decorative groups are always a prominent feature at this show, and in this case the 1st place was well taken by Mr. Bruckhaus, manager to Messrs. Hooper & Co., Twickenham, whose arrangement, though massive, was very effective. Mr. H. James owed his position in the 2d place to the varied assortment of Orchids in his group, though too much overshadowed by a big Palm; but the prettiest base arrangement, without doubt, was that of Mr. W. Brown, of Richmond, in which Gloxinias, too, of first-class quality and set in a carpet of Selaginellas and Maidenhair Ferns, told with charming effect. Messrs. Fromow & Sons, Turnham Green, came 4th with a neat group. Begonias we have seen in much better form, but Achimenes in large pans were shown in fine character by Mr. J. Sallows, gr. to J. J. Flack, Esq., Twickenham, and Mr. E. Beckett, gr. to J. P. Currie, Esq., Esher. Mr. Attrell, gr. to Sir C. J. Freake, Ham, had six remarkable Hydrangeas in small pots, the stems carrying heads about 13 inches in diameter.

Roses were the chief feature of the cut flower classes, and in the thirty-six trebles Mr. Turner was 1st, and Messrs. Paul & Sons 2d, their position being reversed with twenty-four kinds. Remembering the great Rose symposium, reported elsewhere, it is not worth while to fill this report with the names of those shown in this case. Messrs. Veitch & Sons, and Messrs. C. Lee & Son, and Mr. Rumsey, of Waltham Cross, put up large collections; and Mr. H. Bennett, of Shepperton, had boxes of his superb Earl of Pembroke, the lovely Heinrich Schultheis, Lady Mary Fitzwilliam, and the rosy-flesh Mrs. G. Dickson. Messrs. Hooper & Co. had the best twelve bunches of flowers, the chief portion being hardy but admirably set up. This firm also showed a capital collection of hardy flowers, inclusive of Pinks, Pæonies, Pyrethrums, and many other things.

Table decorations were hardly so good as usual, but the three stands dressed with fruit and flowers by Mr. Chard, of Clapham, were very pleasing. Mr. Hudson, gr. to H. J. Atkinson, Esq., Gunnersbury House, had the best collection of fruit, including some superbly coloured Lord Napier Nectarines; and he also was an easy 1st in black Grapes with splendid Madresfield Court. In the vegetable class Mr. E. Beckett was 1st for twelve kinds with a really first-class lot. Many capital exhibits are of necessity left unnoticed.

The Apiary.

THE RIGHT OF PROPERTY IN A ROVING SWARM OF BEES.—As your article on a right to a disputed swarm of bees is one of such general interest, I trust I may be excused writing to you on it. In the first place I think that the question before the magistrates was one of right, that is, the ownership of the swarm; and that, therefore, there was no case for them to adjudicate on. On the face of the case, as detailed by you, there was no pretext for an accusation of larceny; in the next place, since the introduction of Ligurian and other foreign bees, a further question might be raised as to whether bees are now *feræ naturæ*. A high authority on bees states that it is almost impossible to find a hive of pure black English bees, and it would be a case of very great nicety to say whether bees are not now so cultivated as to be taken out of the class of wild animals—*feræ naturæ*—and transferred to the class which is generally seen tame, and called *domitæ naturæ*. As it may interest your readers I extract *in extenso* the remarks in Stephen's *Commentaries* (Blackstone), and which I apprehend apply to the English black bee:—

"A qualified property may exist in animals *feræ naturæ* . . . and here I may remark that bees also are *feræ naturæ*, but when hived and reclaimed a man may have a qualified property in them by the law of Nature as well as by the civil law; and to the same purpose, not to say in the same words with the civil law, speaks Bracton.

"Occupation—that is, hiving or including them—gives the property in bees; for, though a swarm lights on my trees, I have no more property in them till I have hived them than I have in the birds which make their nests thereon, and therefore, if another hives them, he shall be their proprietor; but a swarm which fly from and out of my hive are mine as long as I can keep them in sight, and have power to pursue them, and in these circumstances no one else is entitled to take them. (See Hannam *versus* Mockett, 2 Baines & Cresswell, 914.) But it hath been also said that with us the only ownership in bees is *de ratione soli*, and the Charta de Foresta (9 Henry III., c. 13), which allows every freeman to be entitled to the honey found in his own woods, affords great countenance to this doctrine, that a qualified property may be had in bees in consideration of the property of the soil whereon they are found."

I think that the custom of beating pans, &c., has originated in the desire to prove that a swarm is still held in sight by the owner of the hive from which it issued, and he took this means of warning his neighbours and maintaining his rights. I would also say that it is probable that the owner of any land entered might recover the value of any actual damage done in housing a swarm. *D., Riding Mill on Tyne, July.*

STATE OF THE WEATHER AT BLACKHEATH, LONDON
For the Week enoing Wednesday, July 4, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
June	In.	In.	°	°	°	°	°	°	°		In.
28	29.80	—0.02	70.0	56.5	13.5	61.2	— 0.1	58.4	91	S.W.; S.S.W.	0.01
29	29.83	+0.01	84.0	56.0	28.0	68.5	+ 7.2	57.8	69	S.W.; S.S.W.	0.00
30	29.85	+0.03	80.0	58.0	22.0	66.8	+ 5.6	58.0	75	S.	0.23
July 1	29.92	+0.11	77.8	53.5	24.3	64.4	+ 3.2	53.1	66	S.W.; S.S.W.	0.00
2	29.86	+0.04	85.0	56.0	29.0	70.3	+ 9.2	53.3	54	S.E.	0.00
3	29.71	—0.10	75.5	62.0	13.5	67.0	+ 5.8	59.8	78	S.; S.S.W.	0.12
4	29.68	—0.14	76.0	55.0	21.0	62.0	+ 0.7	54.8	78	S.; S.S.W.	0.00
Mean	29.81	—0.01	78.3	56.7	21.6	65.8	+ 4.8	56.5	73	S.W.	0.36

June 28.—Fine day, occasional sunshine, slight rain at times. Fine clear night.
— 29.—Very fine hot day and night, lightning from 10 P.M.
— 30.—Thunderstorm in early morning. Fine and bright generally. Fine clear night. Thunder at 2.55 P.M.
July 1.—Fine clear day and night.
— 2.—Fine bright hot day and night. Lightning at night.
— 3.—Thunderstorm early morning. Fine bright hot day. Dark sky at night with lightning.
— 4.—Dull morning, fine and bright from 11 A.M. Fine clear night.

London: *Atmospheric Pressure.*—During the week ending June 30 the reading of the barometer at the level of the sea decreased from 30.02 inches at the beginning of the week to 29.77 inches by 9 A.M. on the 26th, increased to 29.94 inches by 9 A.M. on the 27th, decreased to 29.87 inches by midnight on the same day, increased to 30.08 inches by 9 A.M. on the 29th, decreased to 29.97 inches by midnight on the 29th, and was 30.09 inches by the end of the week.

The mean readiog for the week at the level of the sea was 29.93 inches, being 0.02 inch lower than last week, and 0.07 inch lower than the average of the week.

Temperature. — The highest temperature in the shade in the week was 84°, on the 29th; on the 26th the highest was 62°.2. The mean of the seven high day temperatures was 73°.

The lowest temperature in the shade in the week was 50°, on the 27th; on the 24th the lowest was 58°.5. The mean of the seven low night temperatures was 55°.4.

The greatest range of temperatures was 28°, on the 29th; the smallest was 9°.7, on the 26th. The mean of the seven daily ranges was 17°.6.

The mean temperatures were—on the 24th, 64°.3; on the 25th, 62°.5; on the 26th, 54°.5; on the 27th, 56°.1; on the 28th, 61°.2; on the 29th, 68°.5; and on the 30th, 66°.8; of these the 24th, 25th, 29th and 30th were above their averages by 3°.5, 1°.4, 7°.2, and 5°.6 respectively; the rest were below by 6°.7, 5°.2, and 0°.1 respectively.

The mean temperature was 62°, being 6° higher than last week, and 0°.8 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 145°, on the 29th. The mean of the seven readings was 132°.5.

The lowest reading of a minimum thermometer placed on grass, and fully exposed to the sky, was 43°.2, on the 27th. The mean of the seven low night temperatures was 49°.

Rain.—Rain fell on six days, to the amount of 0°.88 inch.

England: *Temperature.*—During the week ending June 30 the highest temperatures were 87°.7 at Nottingham, 85°.7 at Cambridge, and 84° at Blackheath; the highest, at Plymouth, was 67°.7, at Truro 68°, and at Bristol, 73°.8. The general mean was 76°.9.

The lowest temperatures in the week were 42°.7, at Wolverhampton, 45° at Nottingham, and 46°.1 at Bolton; the lowest temperature at Brighton was 52°, at Plymouth 51°.5, and at Liverpool 50°.3. The general mean was 48°.3.

The greatest ranges of temperature in the week were 42°.7 at Nottingham, 38°.9 at Cambridge, and 34° at Blackheath; the least ranges were 16°.2 at Plymouth, 18° at Truro, and 24°.6 at Bristol and Liverpool. The general mean was 28°.6.

The mean of the seven high day temperatures was highest at Cambridge, 76°.4, at Nottingham 75°.9, and at Leicester 73°.4; and was lowest at Plymouth, 61°.9, at Truro 65°.1, and at Liverpool 66°.3. The general mean was 69°.7.

The mean of the seven low night temperatures was highest at Leicester, 56°.6, at Leeds 56°.3, and at Brighton 55°.5; and was lowest at Wolverhampton and Bolton, 52°, and at Nottingham 53°.1. The general mean was 54°.4.

The mean daily range was greatest at Nottingham, 22°.8, at Cambridge 22°, and at Blackheath, 17°.6; and was least at Plymouth, 7°.2, at Truro 11°.8, and at Liverpool 11°.9. The general mean was 15°.3.

The mean temperature was highest at Cambridge, 63°.6, at Leicester 63°.2, and at Nottingham 62°.7; and was lowest at Plymouth, 56°.5, at Truro 57°.3, and at Bolton 57°.6. The general mean was 60°.2.

Rain.—The largest falls were 2.96 inches at Bolton, and 2.58 inches at Bradford and Leeds; the smallest falls were 0.40 inch at Brighton, 0.88 inch at Blackheath, and 1.15 inch at Truro and Bristol. The general mean fall was 1.74 inch.

Scotland: *Temperature.*—During the week ending June 30 the highest temperature was 72°, at Glasgow and Dundee; at Edinburgh the highest temperature was 66°.6. The general mean was 69°.9.

The lowest temperature in the week was 48°, at Dundee and Paisley; at Aberdeen the lowest temperature was 50°.6. The general mean was 48°.

The mean temperature was highest at Paisley, 58°.4; and lowest at Edinburgh and Greenock, 56°.8. The general mean was 57°.9.

Rain.—The largest fall was 3.08 inches, at Greenock; and the smallest was 0.63 inch at Aberdeen. The general mean fall was 1.78 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—Bacon.

Palumbina candida.—The Editor would feel obliged if any correspondent would kindly forward him a flower or two of this plant for examination.

Answers to Correspondents.

Asphalting Walks: *J. M.* The asphalte, if put down hot, and when the paths are perfectly dry, and if possible in warm weather, should stand quite well. See that the edges are made so that water cannot lodge underneath, or the frost will force it up, wherever it is found within a short distance of the surface. The cement will add to the cost; fine gravel and coarse sand mixed when dry with the asphalte in the boiler will give all necessary roughness and colour to the surface. The proportions of the former to asphalte can be easily found by mixing a small quantity, spreading it, and testing when cool.—The plants are, 1, the cut-leaved Alder; 2, Calcycanthus occidentalis, so far as we can tell from the leaves only.

Books: *G. G.* Mr. B. S. Williams' *Choice Stove and Greenhouse Plants.*—*A Constant Reader:* Thompson's *Gardeners' Assistant* not Gardeners' Dictionary; 2, Johnson's *Gardeners' Dictionary* (Bell & Sons).

Cucumbers: *Red Spider.* Your plants are no doubt suffering from the well-known Cucumber disease, for which no remedy that can be depended upon is at present known. Your only plan is to stamp it out by burning the plants, and to start again with a complete change of seed, soil, and manure.

Erratum.—At p. 816 of our last number, col. *b*, for "Euphorbia jacquiniflora," read "E. splendens."

Excrescences on Maple Leaves: *D. P.* The excrescences on different species of Acer are very common. They are recorded in Kaltenbach's *Pflanzen Feinde*, under the name of Volvulifex Aceris, vol. i., p. 92. They are very beautiful when produced on Acer Leopoldi. *M. J. B.*

Grapes: *T. W.* The berries show the effects of scalding, which is very prevalent this season. The very bright sunshine has caught them while they have had moisture upon them, the drops of water acting as lenses.

Lime Leaves: *D. P.* The tubercles on Lime leaves are produced by a four-legged mite, which is figured in *Ann. d. Sc. Naturelle*, ser. 2, vol. ii., tab. xi., A. *M. J. B.*

Names of Plants: *J. S. C.* Lilium umbellatum. — *Thatch House.* 2, Potamogeton densus; 3, P. crispus; 4, Callitriche aquatica; 5, we cannot undertake to name such things, which are of no horticultural interest. The slug you inquire about is Testacella Mangei.—*F. F.* 1, Festuca elatior; 2, Bromus asper; 3, Avena elatior (smut, not ergot). — *T. H. E.* 1, Lonicera japonica var. aureo-reticulata; 2, Tradescantia zebrina; 3, a Davallia, which we cannot name as it is not in fruit. — *W. B. R.* Zephyranthes carinata. — *H. Allen.* A species of Dodder (Cuscuta), which we cannot determine without flowers.—*Sir A. J.* Aërides odoratum, and Epidendrum phœniceum?—*Alpha.* 1, Cyperus—specimen insufficient; 2, Olearia Haastii; 3, Cistus ladaniferus; 4, send again when in flower; 5, Nephrodium filix-mas, crested form; 6, Hemerocallis fulva. — *A. O. Walker.* 1, Psoralea esculenta. — *John Grigor & Co.* Gladiolus ramosus var., and Aster alpinus. We do not recognise the Sweet Pea.—*T. Smith.* The Bee Orchis, Ophrys apifera.—*J. C. & Co.* Aërides affine, we think.

Oleander and Cryptomeria: *E. T. R.* Cut off the shabby-looking shoots of the Oleander by all means, but you should not cut off the top of the Cryptomeria till next spring.

Roses: *A Rose Grower.* The leaves are being converted into a skeleton network by the larvæ of a sawfly (Athalia rosæ). We can only advise you to search for the grubs and kill them; the lime-water will do no good.

Vines and Roses: *J. D. & S.* Only the man who had charge of the house can say on which the mildew appeared first. Under the same treatment as the Vines the Roses would be the most likely to have the mildew first, being the most susceptible to it. The management must have been greatly at fault in the matter of ventilation to have brought about such a bad case.

Wood Violets: *C. H.* If you mean Viola odorata, the answer, of course, is Yes. If you mean Viola canina, or V. hirta, then No.

*** All communications intended for publication should be addressed to the "*Editor*," and not to the Publisher or to any member of the staff personally. The Editor would also be obliged by such communications being *written on one side only of the paper* and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Intelligent Readers, please note: — *Letters relating to* Advertisements, *or to the supply of the Paper, should be addressed to the Publisher, and* NOT *to the Editor.*

☞ Foreign Subscribers sending Post-Office Orders are requested to send them to the Publisher of this journal, 41, Wellington Street, Covent Garden, and to make them payable to William Richards, at the post-office, Drury Lane, London, W.C.

Communications Received.—J. G. B.—A. R.—J. B.—R. Pf.—R. A. R.—A. O.—C. E. F.—J. B. M.—B. S. W.—A. H.—H. E. W.—T. D.—N. E. Br.—T. K. & Co.—T. S.—T. B.—H. L. C.—H. K.—A.—E. W. P.—J. T. R.—L. L.—Damann & Co.

Markets.

COVENT GARDEN, July 5.

[The subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. Ed.]

We are now getting good supplies of most classes of outdoor fruit, such as Strawberries, Cherries, and Raspberries; a few Currants have also made their appearance. Trade for hothouse goods falling off, and prices are generally easier. The past week has seen the heaviest supply of Strawberries that has ever reached our Market from the counties—Hampshire, Kent, Essex, and Middlesex contributing at the same time. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	2 6– 6 0	Gooseberries, ½-siv.	2 6– 3 3
Cherries, ½-sieve	6 0–20 0	Lemons, per case	15 0–20 0
Currants, Black, ½-sieve	8 0– 9 0	Melons, each	3 0– 7 0
— Red, ½-sieve	4 0– 4 6	Peaches, per doz.	6 0 12 0
Figs, per dozen	2 0– 3 0	Pine-apples, Eng., lb.	2 0– 4 0
Grapes, per lb.	1 0– 3 6	— St. Mich., each	3 6–10 0
		Strawberries, per lb.	0 3– 0 9

Vegetables—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 4 0	Horse Radish, per bundle	4 0– ..
— Jerusalem, bush.	3 0– ..	Lettuces, Cabbage, per dozen	1 0– 2 0
Asparagus (Sprue), per bundle	2 6– ..	— Cos, per dozen	1 6– 4 0
— English, bund.	3 6– 8 0	Mint, green, bunch	0 6– ..
— French, bund.	2 0– 3 6	Mushrooms, p. baskt.	1 0– 2 0
Beans, Fr. grown, lb.	1 0– ..	Onions, per bushel	4 0– ..
— Jersey, per lb.	1 0– ..	— Spring, per bun.	0 6– ..
Beet, per doz.	1 0– ..	Parsley, per bunch	0 4– ..
Cabbages, per doz.	1 0– 2 0	Peas, English, quart	1 0– ..
Carrots, new, p. bun.	1 0– ..	Radishes, per doz.	1 6– ..
Cauliflowers, English, dozen	3 0– 6 0	Rhubarb, per bundl.	0 6– ..
Celery, per bundle	1 6– ..	Small salading, pun.	0 4– ..
Cucumbers, each	0 6– 1 0	Spinach, per bushel	4 0– ..
Endive, French, per dozen	2 0– ..	Sweet Potatos, lb.	0 6– ..
Garlic, per lb.	1 0– ..	Tomatos, per lb.	1 0– ..
Herbs, per bunch	0 2– 0 4	Turnips, new, bun.	0 9– ..
		Vegt Marrows, each	0 6– 0 9

Potatos.—Jersey Kidneys, 9s. to 10s.; Rounds, 8s. to 10s. French do., 8s., per cwt.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	12 0–24 0	Foliage Plants, various, each	2 0–10 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Fuchsias, per dozen	6 0–12 6
— (common), dozen	6 0–12 0	Hydrangea, per. doz.	9 0–24 0
Begonias, per doz. ..	6 0–12 0	Lilium longiflorum, per dozen.. ..	18 0–42 0
Bouvardia, doz. ..	12 0–18 0	Liliums, various, per dozen	12 0–30 0
Calceolarias, dozen...	4 0– 9 0	Lobelias, per dozen	3 0– 6 0
Dracæna term. doz.	30 0–60 0	Marguerite Daisy, per dozen	12 0–24 0
—viridis, per doz...	12 0–24 0	Myrtles, per doz. ..	6 0–12 0
Erica, various, doz.	12 0–36 0	Palms in variety, each	2 6–21 0
Euonymus, various, per dozen	9 0–18 0	Pelargoniums, scarlet, per dozen ..	2 6– 9 0
Evergreens, in var., per dozen	6 0–24 0	— decorative, doz.	6 0–18 0
Ferns, in variety, per dozen	4 0–18 0	Spiræa, per dozen ..	8 0–18 0
Ficus elastica, each	1 6– 7 0		

CUT FLOWRRS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 0
Arum Lilies, per doz.	3 0– 6 0	Pelargoniums, 12 spr.	0 9– 1 0
Bouvardias, per bun.	1 0– 1 6	— zonal, 12 sprays	3 0– 6 0
Canterbury Bell, bun.	1 0– 2 0	Pinks, 12 bunches ..	2 0– 6 0
Carnations, 12 bun.	3 0– 6 0	Primula, double, bun.	1 0– 1 6
Cornflower, 12 bun..	1 6– 4 0	Pyrethrum, 12 bun..	3 0– 6 0
Delphinium, p. bun.	0 6– 1 0	Roses (indoor), doz.	2 0– 6 0
Eucharis, per doz. ..	4 0– 6 0	— (outdoor), 12 bun.	4 0– 9 0
Eschscholtzia, 12 bn.	2 0– 4 0	— coloured, doz. ..	3 0– 8 0
Gardenias, 12 blms..	1 6– 4 0	Spiræa, 12 bunches..	6 0–12 0
Heliotropes, 12 sp. ..	0 6– 1 0	Stephanotis, 12 spr.	1 6– 3 0
Lapageria, white, 12 blooms	3 0– 6 0	Stocks, 12 bunches..	4 0– 9 0
— red, 12 blooms..	1 0– 3 0	Sweet Peas, 12 bun.	3 0– 6 0
Lilac (French), bun.	4 6– 7 0	Sweet Sultan, 12 bun.	4 0– 9 0
Marguerites, 12 bun.	6 0– 9 0	Tropæolum, 12 bun.	1 0– 2 0
Mignonette, 12 bun.	6 0– 9 0	White Jasmine, bun.	1 0– 1 6

SEEDS.

LONDON: *July* 4.—Messrs. John Shaw & Sons, of 37, Mark Lane, report that the attendance of buyers on to-day's market was most meagre, and the amount of business doing altogether insignificant. New French Trifolium, although offered at low rates, fails at present to meet with any attention. For sowing Mustard and Rape seed there is a small sale. The bird-seed trade continues exceedingly quiet. Of blue Peas the available supplies are getting into narrow compass.

CORN.

At Mark Lane on Monday trade in Wheat was nearly at a standstill. Prices would have been lower to effect sales, but there was no current business to fix quotations, which were nominal and uncertain. Flour was equally dull and undecided in value. Barley was a slow sale without change in prices. Egyptian Beans were rather firmer, on account of possible interruption of supplies. Oats met a quiet sale, but finished rather firmer for Swedish. Maize was rather lower.—On Wednesday the Wheat trade continued stagnant, and the tendency weak. Flour was dull, and Barley, with moderate receipts, remained steady. Beans and Peas were firm. Maize proved weak, on the enlarged shipments from America. Oats were quiet but firm.—Average prices of corn for the week ending June 30:—Wheat, 42*s.* 3*d.*; Barley, 29*s.* 8*d.*; Oats, 23*s.* 5*d.* For the corresponding period last year:—Wheat, 46*s.* 11*d.*; Barley, 25*s.* 10*d.*; Oats, 23*s.* 11*d.*

CATTLE.

At Copenhagen Fields on Monday, although sales were slow, and prices in the carcase trade lower, prime cattle sold rather dearer than last reported, and sheep at full current value, lambs and calves bringing steady prices. Quotations:—Beasts, 4*s.* 4*d.* to 5*s.* 6*d.*, and 5*s.* 8*d.* to 6*s.*; calves, 5*s.* to 6*s.* 4*d.*; sheep, 5*s.* 4*d.* to 5*s.* 10*d.*, and 6*s.* to 6*s.* 6*d.*; lambs, 7*s.* 4*d.* to 8*s.* 4*d.*—Thursday's cattle trade, though quiet, was fairly steady for both beasts and sheep. Lambs met a brisk sale, and calves and pigs were quiet.

HAY.

Tuesday's Whitechapel Market report states that trade was quiet; supplies moderate, and prices as follows:—Prime Clover, 105*s.* to 118*s.*; inferior, 60*s.* to 70*s.*; prime meadow hay, 70*s.* to 88*s.*; inferior, 40*s.* to 50*s.*; and straw, 30*s.* to 40*s.* per load.—On Thursday there was a very short supply, and trade was rather quiet at prices dearer for best Clover.—Cumberland Market quotations:—Superior old meadow hay, 86*s.* to 98*s.*; inferior, 70*s.* to 76*s.*; new, 65*s.* to 80*s.*; superior old Clover, 110*s.* to 120*s.*; inferior, 75*s.* to 92*s.*; new, 70*s.* to 95*s.*; and straw, 40*s.* to 43*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that the supplies have been moderate, and the demand steady, at the following quotations:—Lisbon, 14*s.* to 15*s.*; Malta, 15*s.* to 16*s.*; Jersey kidney, 20*s.* to 22*s.*; ditto round, 18*s.* per cwt.—The imports into London last week were:—1110 packages from Valencia, 3310 Lisbon, 6523 Jersey, 2206 packages Guernsey, 6372 packages 147 bags and 208 casks Malta, 108 baskets Rotterdam, 962 St. Nazaire, 470 boxes 4200 cases Cherbourg, 435 Bordeaux, 604 bags Hamburgh, 461 boxes Barfleur, and 327 casks from St. Malo.

Government Stock.—Consols closed on Monday at 100⅛ to 100¼ for delivery, and 100½ to 100⅝ for the account. Tuesday's figures were 100⅛ to 100¼ for delivery, and 100 9/16 to 100⅝ for the account. Wednesday's closing figures were as on the two preceding days for delivery, and 100 7/16 to 100 9/16 for the account. Thursday's final quotations showed a fall of 1/16 for both delivery and account.

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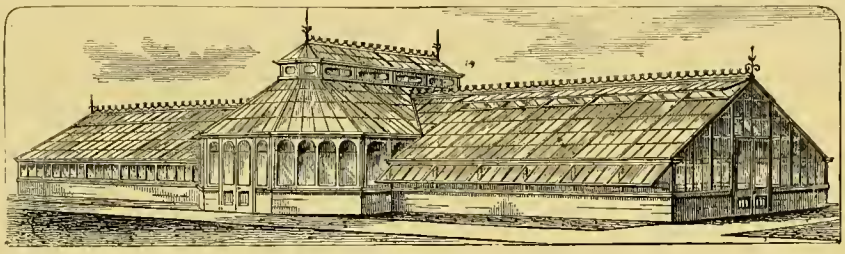
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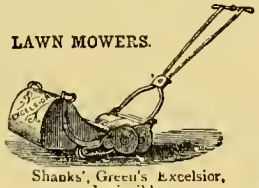
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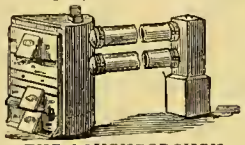
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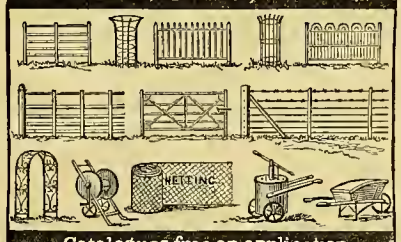

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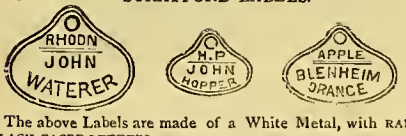

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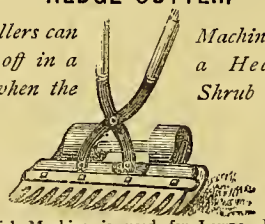

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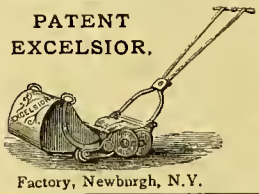

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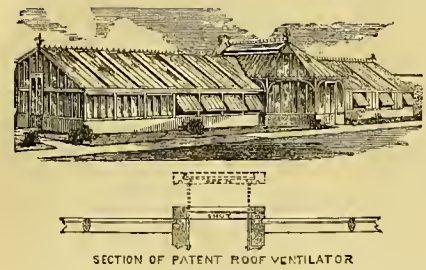

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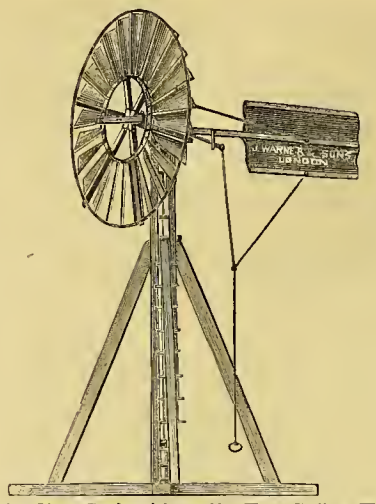

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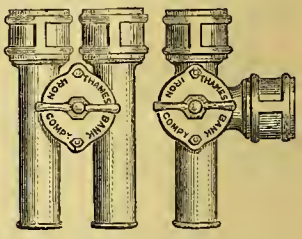

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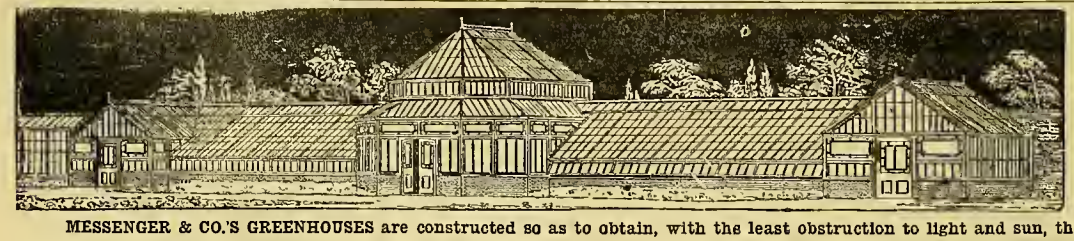

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THOMAS METHVEN and SONS beg to offer their choice strain of the above, in four colours, viz, Scarlet, Purple, White, and Crimson, at 1s., 2s. 6d., and 5s. each colour. Price to the Trade on application.
15, Princes Street, Edinburgh.

CATALOGUE, new and descriptive.—Alpines and Hardy Perennials, comprising 2000 species. Post-free on application.—STANSFIELD BROTHERS, Southport.

R. H. VERTEGANS' Descriptive Pocket CATALOGUE of Alpines and Hardy Perennials. Post-free on applications.
Chad Valley Nurseries, Edgbaston, Birmingham.

Hyacinths, Tulips, Narcissus, Lilies, &c.
BUDDENBORG BROS., BULB Growers, Hillegom, near Haarlem, Holland.
Wholesale CATALOGUE now ready, and will be sent post-free on application.

KELWAY and SON, Langport, Somerset, offer HERBACEOUS PLANTS, DAHLIAS, single and double; PYRETHRUMS, single and double; PHLOXES and TEA ROSES; CALCEOLARIA and CINERARIA SEED.
CATALOGUES gratis and post-free.

SEEDLING FOREST TREES, &c.—Nurserymen visiting the North are respectfully invited to call and inspect stock of above at the Monifieth Nurseries, near Dundee. W. P. LAIRD and SINCLAIR.

Now in Full Bloom.
JOHN LAING and CO.'S TUBEROUS BEGONIAS, Gold Medal Collection, are the grandest floral display in the kingdom. Show houses freely open to Visitors.
Railway Stations—Catford Bridge, 5 minutes' walk: Forest Hill, 15 minutes to Stanstead Park Nursery, Forest Hill.

AQUILEGIA GLANDULOSA (true).—Seed just collected, 2s. 6d. and 5s. per packet; 1-yr. Seedlings, now ready, 2s. 6d. per dozen. Usual discount to the Trade.
R. and A. MORRISON, The Nurseries, Elgin.

To the Trade.
BAUMFORTH'S SEEDLING RASPBERRY.
Special Prices for Orders before September 1 may be had on application.
EDMUND PHILIP DIXON, Hull.

To the Trade.
ROSES ON OWN ROOTS, GLOIRE DE DIJON, ISABELLA SPRUNT, RÊVE D'OR, &c.
£2 per 100 for cash, carefully packed, out of 4½-inch pots.
MAIRIS and CO., Weston-in-Gordano, Bristol.

TEA ROSES, fine plants, in 5-inch pots—Maréchal Niel, Gloire de Dijon, and others—50s. per 100.
BOUVARDIAS, nice bushy plants, in 48-inch pots, best kinds, including Alfred Neuner, price 40s. per 100.
W. JACKSON, Blakedown, near Kidderminster.

STRAWBERRY RUNNERS, from twenty choice varieties. Price LIST on application. Sample box of plants with fruit, 4d. "Manual on Strawberry Culture," 6d.
W. LOVEL and SON, Strawberry Growers, Driffield.

Rape Seed.—Mustard Seed.
CHARLES SHARPE and CO. have the above to offer. Samples and prices on application. Sleaford.—July, 1883.

SALES BY AUCTION.

Wednesday Next.

GREAT SALE of Established ODONTOGLOSSUM ALEXANDRÆ.

MR. J. C. STEVENS has received instructions from Mr. H. R. Wright, in consequence of the death of his brother Mr. G. Wright, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 18, at half-past 12 o'Clock precisely, the fourth portion of his valuable and extensive COLLECTION of ORCHIDS,

comprising many hundred fine plants of Odontoglossum Alexandræ, including many grand varieties from most of the leading importations, and several well-known private collections; Masdevallia Harryana and M. Lindeni, Trichopilia nobilis, Cœlogyne cristata (fine specimens), Cymbidium eburneum, Lycaste Skinneri, &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.

ARAUCARIA IMBRICATA SEED.

MR. J. C. STEVENS will include in his SALE by AUCTION, on WEDNESDAY NEXT, July 18, about 50 lb. of ARAUCARIA IMBRICATA SEED.

On view morning of Sale, and Catalogues had.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Wednesday Next.

ESTABLISHED ORCHIDS and STOVE PLANTS.

MR. J. C. STEVENS will include in his SALE by AUCTION, on WEDNESDAY NEXT, July 18, a small COLLECTION of ORCHIDS and STOVE PLANTS, the property of J. S. Hargrove, Esq., late of Westcombe Lodge, Wimbledon Common.

On view morning of Sale, and Catalogues had.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Wednesday Next.

ESTABLISHED ORCHIDS and STOVE PLANTS.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, July 18, the small collection of ORCHIDS formed by the late William Hall, Esq., of Faversham, including Cattleyas, Cymbidiums, Aërides, Cypripediums, Dendrobiums, Oncidiums, Vandas, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.

EXTRA RARE and FINE SPECIES.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, July 19, at half-past 12 o'Clock precisely, extra, rare, and fine species of ORCHIDS. The steamer bringing these Orchids arriving to-day, particulars cannot be given, but will be found in Catalogue which may be had on application.

On view morning of Sale, and Cataloges had.

Tuesday Next.

VANDA SANDERIANA.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, July 17, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., imported plants, in the finest condition, of VANDA SANDERIANA, CYPRIPEDIUM STONEI, C. LOWI, C. HOOKERII, C. JAVANICUM, ANÆCTOCHILUS LOWI, CATTLEYA GIGAS SANDERIANA, varieties; DENDROBIUM FORMOSUM GIGANTEUM, D. DAVI, D. VEITCHIANUM, AËRIDES QUINQUEVULNERUM, VANDA CŒRULEA, GALEANDRA DEVONIANA, PHALÆNOPSIS GRANDIFLORA, ODONTOGLOSSUM ALEXANDRÆ, fine selected pieces; SACCOLABIUM HARRISONIANUM, and many other choice ORCHIDS.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Tuesday Next.

ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will include in their SALE on TUESDAY NEXT, about 50 lots of ESTABLISHED ORCHIDS, from the Collection of a Private Gentleman; including a few fine specimens, together with a quantity of ORCHIDS IN FLOWER, and a few plants of PHALÆNOPSIS TETRASPIS.

On view morning of Sale, and Catalogues had.

Friday Next.

IMPORTED and ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Shuttleworth, Carder & Co., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, July 20, at half-past 12 o'Clock precisely, a very fine lot of IMPORTED and ESTABLISHED ORCHIDS, including Cattleya Dowiana, C. gigas, C. aurea, and C. Skinneri; Odontoglossum crispum, O. vexillarium, O. Pescatorei, O. Phalænopsis, O. hastilabium; Masdevallia Harryana, M. cucullata, M. macrura, M. trochilus, and other valuable species; together with a quantity of ORCHIDS IN FLOWER.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Enville Gardens, Stourbridge.

About 5 miles from the Stourbridge Stations

IMPORTANT SALE of CHOICE PLANTS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the Dowager Countess of Stamford to SELL by AUCTION, on the Premises, as above, on WEDNESDAY, August 1, at 2 o'Clock precisely, a large quantity of beautifully grown ORNAMENTAL FOLIAGE PLANTS for the Stove and Greenhouse, including handsome Tree Ferns, which embrace some of the finest examples of Dicksonia antarctica ever offered, several stately Palms, Ixoras, Crotons—many fit for exhibition, Anthuriums, well-grown Caladiums, fifty specimen Eucharis, splendidly furnished plants, in fine condition, &c.

On view the day prior to the Sale. Catalogues of Mr. GREEN, on the Premises; or, of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, London, E.C.

N.B.—A wagonette will meet certain trains on the day of Sale, to convey intending purchasers to the Gardens. (See Catalogue.)

Near Waltham Abbey, Essex.

TO POTTERS, FLORISTS, and OTHERS.

By order of Executors.

VALUABLE FREEHOLD ESTATE, known as the Wood Green Potteries, situate at Honey Lane, about two miles from the Market Town of Waltham Abbey, and twelve miles from London, comprising modern built Mill House, Engine house, Manufacturing and Drying Rooms, Circular Kiln, and all convenient buildings wherein a large business in the Manufacture of Flower Pots, Drain Pipes, Tiles, &c., has been successfully carried on for many years by the late proprietor, together with seven excellent Span-roof and other Greenhouses, or Forcing Houses, extensive Gardens, a comfortable eight-roomed Dwelling House, Cottage, Stabling, Cart Sheds, and other Out Offices, With possession upon completion.

MR. S. CHETWOOD will SELL the above by AUCTION, at the "Cock" Hotel, Epping, on FRIDAY, July 20, at four o'Clock, in one lot.

Particulars and Conditions of Sale may be obtained of Messrs. WINDUS AND TROTTER, Solicitors, Epping and Harlow; or of Mr. S. CHETWOOD, Surveyor and Auctioneer, Waltham Abbey, Essex.

Beckington, Somerset.

SALE of VALUABLE FREEHOLD LANDS, with Farm Buildings, and excellent Walled Garden.

MR. WALTER HARROLD has been favoured with instructions from the owner, Mr. D. B. Joyce, in consequence of his intention to leave the neighbourhood, to SELL by AUCTION, at the Mart, Frome, on WEDNESDAY, July 25, at six o'Clock in the evening, about 13 acres of rich PASTURE LAND, with conveniently arranged Farm Buildings and excellent Walled Garden, admirably situate in the centre of the picturesque village of Beckington, in the following or such other lots as shall be announced at the time of sale:—

Lot 1. All that very valuable close of rich PASTURE LAND, situate in the centre of the village of Beckington, with the most conveniently arranged Farm Buildings, adjoining thereto, the whole of which, together with Lot 3 below, is numbered 39 on the Tithe Commutation Map of the parish of Beckington, and contains 6 a. 1 r. 36 p. This lot is bounded by Mill Lane, and by lands belonging to the Rev. W. A. Duckworth, and W. Foster, Esq. The Farm Buildings are substantial and comprise Skilling, Piggeries, Boiling, Root, Chaff, and Grinding Houses.

Lot 2. All those two valuable closes of rich PASTURE LAND and GARDEN GROUND, situate adjoining the last lot, numbered 40 and 305 on the Tithe Map, and containing together 6 a. 1 r. 11 p. This lot is bounded by Lot 1, and by land belonging to the Rev. W. A. Duckworth, Mrs. Enderby, Mr. Bourne, and the estate of the late Mr. Hillman. N.B.—Both the foregoing lots command extensive and beautiful views; the soil is a rich sandy loam, easily worked, very productive, and containing valuable beds of building stone. They are admirably adapted for building sites or nursery gardens. The access to Lot 2 will be through Lot 1 by the roadway as at present used.

Lot 3. All that highly productive WALLED GARDEN, with frontages on the Bath Road and Mill Lane, containing by admeasurement 2 roods. This lot is well adapted for building purposes.

The whole of the lots are in the occupation of Mr. D. B. Joyce, who will upon application show the property. For further particulars, and a plan showing the division of the lots, apply to the Auctioneer, Frome; or to Messrs. CRUTWELL, DANIEL, AND CRUTWELLS, Solicitors, Frome.

WANTED, by Michaelmas, within 10 miles of London, about 40 acres of MARKET GARDEN. Send particulars in first instance to DENNANT AND PORTER, 63, Queen Victoria Street, E.C.

London.

FOR SALE, a FLORIST and NURSERY BUSINESS, with an extensive connection in Landscape Gardening and Jobbing. There are two Nurseries, held at the low rental together of £65, and well situate, in the midst of a fashionable Residential District, only 4 miles from the City and West End. Returns £4000 per annum. Books open for inspection. Owner retiring, and will sell the whole concern at a reasonable offer, about £2500, which includes Greenhouses, Lease, Goodwill, the immense and varied Stock in Trade, Horses, Carts, and everything complete.

Apply to Messrs. PROTHEROE AND MORRIS, 8, New Broad Street, London, E.C.

FOR SALE, SIDCUP HILL NURSERY, Foot's Cray, Kent. Established over fifty years, and widely famous for the culture of Ferns. In consequence of the death (without issue) of the late Mr. Robert Sim, the Stock, Leases, Business Structures, &c., of this Nursery are to be immediately disposed of.

For particulars apply to Miss SIM, at the above address.

The Nurseries, Woodhall, Spa, Lincolnshire.

FOR SALE, the Unexpired Term of a Ten Years' Lease, at a low rental, of 5 Acres of well stocked NURSERY GROUND, comprising a choice Collection of Fruit Trees, Roses, Evergreens, Shrubs, and Trees; four Greenhouses, well heated and stocked with Plants; with Pits and Frames. This Business, which is an old-established and lucrative one, is for disposal by valuation, or agreement, owing to the death of Mr. Edmund Blyton, the late proprietor. Easy terms of payment would be arranged for a suitable applicant.

Apply to W. T. PAGE, Jun., Solicitor, Lincoln.

FOR SALE, a FLORIST and FRUITERER'S BUSINESS. — Well fitted Shop in main thoroughfare. Doing first-class trade. Long lease. Established ten years.

A. C., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Investment.—Important to Orchid Growers.

15 miles from London.

FOR DISPOSAL, a small and easily worked HORTICULTURAL BUSINESS—proprietor wishing to devote his whole time to another Business in which he is engaged. Capital opening for Growing Orchids.

Apply to Messrs. PROTHEROE AND MORRIS, 8, New Broad Street, E.C.—(Folio 5865.)

BULB SEASON, 1883.

GENTLEMEN, GARDENERS, and Others, by ORDERING IMMEDIATELY, may obtain the FINEST BULBS at strictly WHOLESALE PRICES.

Write for PRICE LIST to THE CITY FLOWER, SEED, and BULB DEPOT, 162, Fenchurch Street, and 80, St. Paul's Churchyard, London, E.C.

To the Trade only.

E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, Holland. The Wholesale CATALOGUE (No. 365A) of Dutch Flower Roots and Miscellaneous Bulbous and Tuberous-rooted Plants for 1883-84 is now ready, and may be had free on prepaid application by Nurserymen, Florists, and Seedsmen.

Early White Roman Hyacinths.

HURST AND SON have just received their first consignment of the above Bulbs, which are very fine, and will be glad to quote price to the Trade on application.

152, Houndsditch, London, E.

PAUL AND SON'S ROSES.—These are now superbly in flower, finer than for many years, indeed equal to the finest years, 1876 to 1878. The blooming plants exceed 200,000, and form the finest display of Roses anywhere near London.

The Old Nurseries, Cheshunt, Herts.
One mile from Cheshunt Station, G.E.R.

CREEPERS for WALLS, TRELLISES, &c., in great variety. See Descriptive LIST. Most of these plants being in pots, may be moved now.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

FERNS A SPECIALITY.

EXOTIC and BRITISH FERNS and SELAGINELLAS,

Suitable for STOVE and GREENHOUSE Cultivation, for OUTDOOR FERNERIES, and other purposes, in immense number and variety. Our ILLUSTRATED CATALOGUE (price 6*d.*) contains much useful information as well as "Hints on Fern Culture." SPECIAL LISTS, issued at intervals during the year, giving extremely low quotations, may be had FREE on application.

W. & J. BIRKENHEAD,
FERN NURSERY, SALE, MANCHESTER.

We most respectfully invite all Lovers of Flowers to

Come and See.

OUR CARNATIONS, PICOTEES, PINKS, PELARGONIUMS, FUCHSIAS, ACHIMENES, BALSAMS, BEGONIAS, COLEUS, DAHLIAS, VERBENAS, and numerous NEW and RARE PLANTS, including all the Novelties collected from all parts of the World, which now form much the largest and most interesting Floral sight ever brought together. CATALOGUE post-free.

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THE HOME FOR FLOWERS, SWANLEY, KENT.

MUSHROOM SPAWN for SALE, 4*s.* per bushel, delivered free within 10 miles. The Trade supplied.

G. MITCHINSON, Burroughs, Hendon.

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COCOA-NUT FIBRE REFUSE.

4*d.* per bushel; 100 for 25*s*; truck (loose, about 2 tons), 40*s*; 4-bushel bags, 4*d.* each.

LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s*; sacks, 4*d.* each.

BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks 22*s.*; sacks, 4*d.* each.

COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* per half ton, 26*s.* per ton; in 2 bushel bags, 4*d.* each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1*s.* per bushel.

SPHAGNUM MOSS, 8*s.* 6*d.* per sack.

MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Free Price LIST.—**H. G. SMYTH**, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

COCOA NUT FIBRE REFUSE, 1*s.* per bag, including bag. Truck-load, 25*s.*, free on rail, Uxbridge, G.W.R. Order accompanied by remittance will insure prompt attention.

J. H. VAVASSEUR AND CO., Cocoa-Nut Fibre Mills, Uxbridge, Middlesex.

COCOA NUT FIBRE REFUSE, newly made, as supplied to the Royal Horticultural Society and principal Nurserymen in England, in sacks at 1*s.* 3*d.* each, or 15 sacks, 18*s.*; 30 sacks, £1 5*s.*, sacks included. Truck-load, loose, 35*s.*; fifteen bags or more and truck-load free on to rail. Post-office order or cheque with all orders will oblige. Established 1872.—J. STEVENS AND CO., "Greyhound" Yard, and 132, High Street, Battersea, S.W.

12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6*s.* per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15*s.* per ton per Truck. Sample Bag, 5*s*; 5 Bags, 21*s.* 6*d.*; 10 Bags, 45*s.* Bags included. Fresh SPHAGNUM, 10*s.* 6*d.* per Bag. SILVER SAND, Coarse or Fine, 52*s.* per Truck of 4 tons. Red Sandstone ROCKWORK, £5 per Truck of 4 tons. GRAVEL, good colour, 25*s.* per Truck of 6 tons.

WALKER AND CO., Farnborough Station, Hants.

Thomson's Vine and Plant Manure.

Manufactured by the

LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), LIMITED,

The Vineyard and Nurseries, Garston, near Liverpool,

and Sold by them and all Nurserymen and Seedsmen.

This is the Manure used to produce the splendid Grapes grown by Messrs. WM. THOMSON & SON, Clovenfords.

For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

Now Ready, the First Part of Volume XII.,

with 22 Coloured Plates, 5s.,

SOWERBY'S ENGLISH BOTANY.

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Part 84, containing Marsiliaceæ, Isoetaceæ, Selaginellaceæ, Lycopodiaceæ, Ophioglossaceæ.

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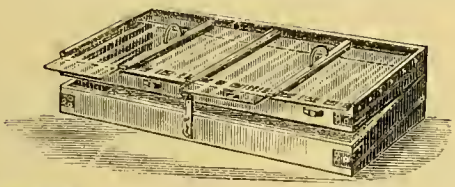

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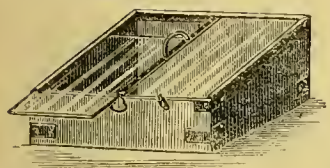

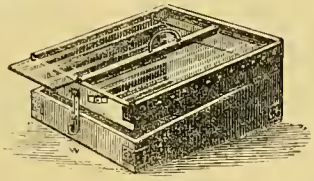

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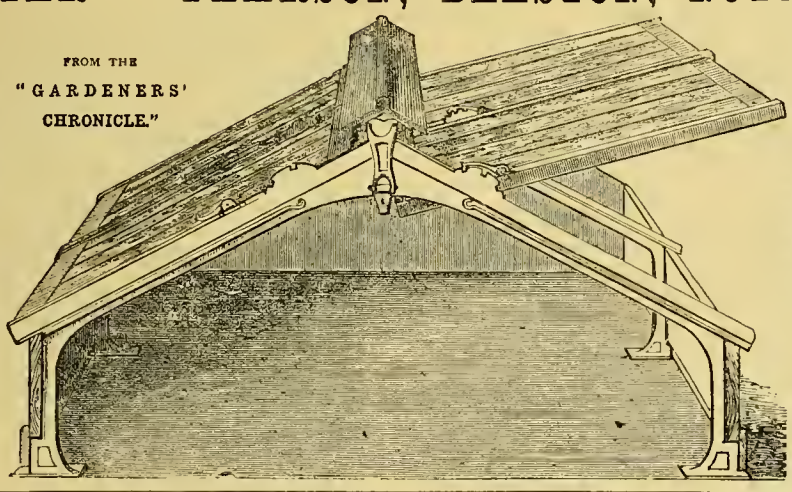

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Quality **equal to any** in the Market.
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PEAT, best brown fibrous	4s. 6d. per sack.
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Terms, strictly Cash with order.

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SILVER MEDAL-1881. BRONZE MEDAL-1881.

To Her Most Gracious Majesty Queen Victoria. To His Royal Highness the Prince of Wales.

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GUARANTEED ABSOLUTELY PURE. FREE FROM ANY FOREIGN INTERMIXTURE. Manufactured on the premises from the famous "Laguna" Cocoa-Nut Husks, and can only be obtained from us direct. This article is not to be confused with so-called Cocoa-Nut Fibre Refuse, sold by dealers and others at ridiculously low prices, and dear in the end. Amongst numerous Testimonials and extracts from scientific writers, to be seen at our works, we hold the following:—From Mr. CHARLES PENNY, Head Gardener to H.R.H. the Prince of Wales: "The Gardens, Sandringham, February 28, 1883.—I must say your Cocoa-Nut Fibre Refuse is far superior to any I have ever tried; in fact, it is simply perfection; and the use of your Fibre for so many purposes in Horticulture is a thorough boon. Make what use you like of this letter." Useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bulbs, Mushrooms, Bedding-out Plants, &c.

DESTROYS ALL SLUGS AND INSECTS.

An elegant Bordering to Flower Beds. Combines warmth and cleanliness with valuable antiseptic and deodorising properties.

MOISTENS IN HEAT. HOLDS HEAT IN COLD WEATHER.

Terms, strictly cash with order. Prices as follows:—Sacks, 1s. 6d. each; 10 sacks, 13s.; 15 sacks, 18s.; 20 sacks, 23s.; 30 sacks, 30s. (all sacks included). Truck-load, free on rail, £2. Limited quantities of P. M. SPECIAL QUALITY, Granulated, in sacks only, 2s. 6d. each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from the Manufacturers, **CHUBB, ROUND & CO.,**
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MYOCOM GUM.

1s. 1s.

A STRING, Straw, or Twig, slightly covered with this preparation (non-poisonous), and suspended from the ceiling, will keep any place entirely free from FLIES, WASPS, GNATS, &c. "It is most efficacious, and catches even wasps."—A. AINSLIE. "The most perfect Fly-catcher he has ever used."—Admiral SAUMAREZ. "The first tin caught over 500 flies in half-an-hour."—T. C. TAYLOR. Mrs. WALTON'S servants are delighted with it. *Gardeners supplied on Wholesale terms.* Of all Chemists, in **1s.** Tins, or by post for **1s. 2d.** from **T. CHRISTY & CO., 155, Fenchurch Street, E.C.**

Certain Sudden DEATH

to all Grubs, Aphis, Lice, Red Spider, Thrips, Mealy Bug, Caterpillars, &c.

Perfectly Harmless to the Hands and Skin, but will cure Ring-worm and all Diseases produced by Parasites.

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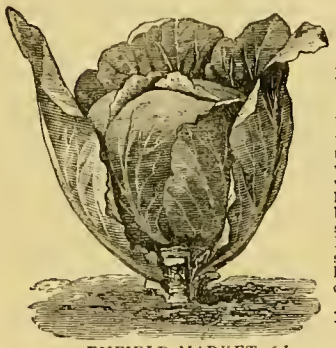

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THE
Gardeners' Chronicle.

SATURDAY, JULY 14, 1883.

TOMATOS.

THERE is no product of our gardens, grown for ordinary culinary purposes, which has of late years received more extensive and careful cultivation than has the Tomato or Love Apple, the Lycopersicum esculentum of botanists. Less than two decades have passed away since it was—amongst us English at least—a poor, miserable, unappreciated edible, thought worth only, with its sharp, thick sauce of Pickwickian notoriety, to flavour our mutton chops, or now and again to be added in "shreds and patches" to such of our dishes as needed a sub-acid seasoning. Gardeners twenty-five years back very rarely, perhaps never, grew the plant systematically under glass, but were contented, if they touched it at all, to put it anywhere, to treat it anyhow, for the small insignificant fruit which, under such haphazard, disadantageous circumstances, it was bound to produce. Its stems and side shoots were in those, its neglected ages, suffered to straggle along the ground, or at best were roughly nailed to a wall, or as roughly bound to a framework of stakes ; for in truth most of us had but scant gustatory inclination for the comestible, and valued it but little above the commonest of kitchen stuffs. But times change, and we change with them ; one has only to go into the greenhouses of the professed Tomato grower, when that expert is forcing the once despised fruit for the early market, and to notice what care and solicitude he is lavishing upon it. The plants we shall see are either springing singly from pots filled with suitable soil, each lovingly fastened to its own particular tall trim staff, or else they are flourishing together in the ground, against the back wall of the building, festooned and fastened to the brickwork, and in both cases every side shoot has been methodically pinched back so as to throw vigour into the fruit-bearing branches ; every superfluous leaflet and flower has been removed ; water, which the plant so loves, has been given literally and metaphorically *pleno rivo ;* and as the result of these and other skilled operations, handsome, large, sometimes even Brobdingnagian lobulated or globular Apple-like fruitage, "Ruddier than the Cherry," blaze in profusion amongst the dark green pinnated leaves. For the Tomato has, somewhat recently, acquired a highly popular, nay, fashionable reputation. Our palates have been tickled by it as they have been by many another once neglected article of food ; doctors have given it their countenance and approval—have assigned to its use not only nutritious but highly medicinal virtues ; epicures have fallen in with professional views ; and so it has come to pass that an immense spurt has been given to this garden industry ; and in our markets, where heretofore the fruits might have been counted by tens of bushels, if we take the trouble to stroll—say in a month or so—we may be able to reckon it up by thousands of these measures. When it is brought to light that one grower alone in Jersey exported

last year upwards of 5 tons of this now much-sought-for esculent—that he has at this very moment several thousand plants in bloom and berry, expecting to yield at least 10 tons—that even the aforesaid 5 tons of 1882 represent but about one-fifth of the whole quantity grown in the little land—Jersey and the other Channel Islands seem particularly suited to the habits and idiosyncracies of the Love Apple—it can well be realised how it has at last awoke to find itself famous amongst us.

It may fairly be said that it is our American cousins who, more than any other race of consumers, have indoctrinated us with the present predilection for the *bonne bouche* we are telling about, for although the French, Italian, Spanish, Portuguese, and even the German *chefs de cuisine* deal liberally with the material in the dainty dishes they set before their guests, they pale in extent of usage before the Yankee *cordon bleu*, for he knows that neither at a meal nor a "snack" will Brother Jonathan forego his much relished Toma-to. Any one who has been in the United States and dined at a *table d'hote* there, must have remarked with what a sort of *toujours perdrix* persistency this fruit or vegetable—accept which you please—enters into the daily *menu*, to wit, in *purées* and thinner soups; in *entrées;* with removes; baked, boiled, stewed, stuffed; in pies, patties, and pastries; in salads, with other herbs, or alone; in pickles and sauces; in conserves, "with sugar and spice and everything nice,"—in short, in all ways, suitable or unsuitable, into which the thing can be wriggled. And moreover he, the traveller, must have taken note, that the American diner never refuses to taste and try the welcome *plât* in all its multifarious shapes, his appetite for it apparently increasing by what it feeds on.

No longer therefore can the bright and attractive eatable be considered of unimportance in our better class of dietary, no longer need it hide its diminished head in Covent Garden, or in the windows of our best fruiterers, as if afraid to acknowledge itself as appertaining to the same family of big brothers of the Continent or across the Atlantic. The British grown fruit is now-a-days cheek by jowl in size and succulency with its foreign *confrère*, and certainly has no reason to be ashamed of its dwarfishness when it is known that the Jersey grower alluded to above has produced hundreds of single Tomatos each weighing over 1 lb., and last season showed a monster, which turned the scale at more than 28 oz.

With the outward and visible signs of the tiny Tomato bush, so to call it, and its fructification, we as gardeners are all familiar — a green, straggling, hairy annual, with a herbaceous stem of many branches, or rather offshoots; its leaves pinnate with irregularly serrated sides, its flowers small, and yellow in colour. The fruit is a fleshy berry, in shape either round or ovate, and mostly lobulated if of the latter form. Carpels constitute its anatomical construction, each compartment being filled with small flat fluffy seeds; and it is a curious fact, that the quicker and better the fruit is grown, the fewer the number of seeds the cells contain. Its original habitat is traced to Mexico and South America, but it has also been found wild in the East Indies, where tradition says the Spaniards took it. It has been pretty well acclimatised all over Europe; whole fields of it may be seen near Rome, and one would hardly err widely in dubbing it a weed in many parts of America. Prof. Lindley and other botanists place it in the natural order Solanaceæ, as every one is aware of, a division of the vegetable kingdom of far-spread location and diversified character, some being highly poisonous, some irritant, some stimulant, and some edible and nutritious the Potato, the Egg-plant (the Brinjal of Hindostan), the Peruvian winter Cherry, the Tomato, and others for instance. It is perhaps unknown to the general reader, that the Mandrake (Mandragora officinalis), the Dudaim of Hebrew holy writ, belongs to this order, and was once popularly known by the same name as the Tomato—"Love Apple," and why so? Because the juice of both entered into the love potions or philters of the witches of old.

Subjected to chemical analysis the Tomato has given forth tartaric acid, both free and in combination with potash; a volatile oil, a resinous extract, starch, sugar, mucilage, and other vegetable matter. The whole plant exhales a peculiar odour, highly disagreeable to some persons, and when burnt in the fire the noxious character of a Solanum crops up; for the vapour arising is so strong and narcotic that vertigo and syncope are often induced. The writer knows of a case where the burning of a heap of the fresh stems of the plant after fruiting brought on sickness and fainting in those within the range of the smoke.

It has been hinted at that medicinal properties are attributed to the Love Apple. "Parallax," in *Earth Life*, some seven or eight years back, ranked it above the old-fashioned, and in some places still accredited, virtues of Rue and Fennel in their benefits to human eyesight. Quoting from John of Milan's *Regimen Sanitatis Salerni*, a work so antediluvian that it was written for the behoof of no less important a personage than William the Conqueror, he, "Parallax," first dwells upon the therapeutical uses of Fennel and Rue:—

"Four virtues in the Fennel are allowed:
It quails the ague when it grows too proud;
Poison it soon expels, the stomach cleareth,
Sharpens the sight, and comfortably cheereth."

Then, anent Rue, says—

"Needs must we call Rue noble by the right,
Because it clears and perfecteth the sight;"

and adds to these two herbs what, in his opinion and experience, outvies them both, viz., the extractive principle of the Tomato, which he elects to name "Tomatine." He tells us how to make it, how to administer it; states that the crude fruit may be eaten *ad libitum*, and that upon all the powers immediately connected with the brain—*i.e.*, the sight, hearing, taste, and smell—its action is marked, uniform, and felicitous.

If this be the case here exists, then, another reason for the still further pushing the cultivation of the Lycopersicon esculentum, and for our rivalling the American in its consumption. *H. L. C.*

New Garden Plants.

MASDEVALLIA MARGINELLA, *n. sp.**

A Masdevallia of the "Coriaceæ" group, said to have been imported with Reichenbachiana and totally distinct from that aberrant Reichenbachiana (?) one of my most enthusiastic southern correspondents is now watching. It has a short-stalked broad spatulate leaf, and the peduncle is one or two-flowered. The cupula is very well developed, and its triangles and tails are bent outwards in a surprising manner. The odd triangle is shorter, and has its tail a little ascending. The tails are scarcely equal or superior to the length of the cupula and triangles. The whole body of the flower (viz., cupula and triangle) is white, and the three main ribs, which run out in the tails, are green, the tails themselves being green with orange border and orange inside. The petals are ligulate apiculate with antrorse angle, white. Lip pandurate, anterior part much smaller, nearly reniform, with very few very small teeth. All the lip is white, washed with ochre at base and with an orange spot at the top. Column white, with two upright small teeth at the apex. I had some peduncles and a leaf from Mr. F. Sander. *H. G. Rchb. f.*

PLAGIOLIRION HORSMANI, *genus novum* †

This is a new genus of bulbous Amaryllidaceæ, with monadelphous stamens, allied to Eucharis, Eucrosia and Callipsyche. It is about intermediate between the two first-named genera. It has the bulb, leaves and white flowers of Eucharis, but the flowers are much smaller, with narrower segments; the limb is oblique and ascending when fully expanded, and the assurgent filaments are crowded round the neck of a short staminal tube, with a small lanceolate tooth between each. It has just been flowered by Messrs. F. Horsman & Co., of Colchester, from bulbs imported from Columbia. It is very curious and interesting botanically; but the flowers are too small for it to rival the four species of Eucharis (grandiflora, candida, Sanderi, and subedentata) as a garden favourite.

Bulb ovoid, 1½ inch in diameter, with brown membranous tunics of firm texture, prolonged round the cylindrical neck for 2 inches, and a dense tuft at the base of fleshy root fibres. Leaves not produced till after the flowers, resembling those of Eucharis, two or three to a stem, with a petiole and a large oblong lamina, bright green on the upper surface, pale green beneath, with numerous distinct parallel veins striking off obliquely from the thick conspicuous midrib. Scape under ½ foot long in the specimen seen, rather compressed, solid. Flowers unscented, protandrous, ten or twelve in an umbel, bracteated by several linear or lanceolate spathe-valves, produced in June or July. Pedicels about ½ inch long. Ovary green, globose-trigonous, with two or three ovules at or near the base of each of the three cells. Perianth under 1 inch long, with a green cylindrical tube half as long as the six white lanceolate segments, which, in the fully expanded flower, four of them ascend and two spread nearly horizontally. Stamens declinate, inserted at the throat of the perianth-tube, not more than half as long as the limb, united at the base in a narrow tube, with a minute lanceolate tooth between each filament; anthers small, oblong, versatile, milk-white. Style assurgent, entire. *J. G. Baker.*

RODRIGUEZIA LEEANA, *n. sp.**

A mighty curious novelty, apparently the strongest of all the known species. Pseudobulbs ancipitous, ligulate, nearly 2 inches long by two-thirds wide. Leaf linear-ligulate, acute, of a foot's length. The raceme is no doubt pendulous, or, at least, porrect, and bears who knows how many flowers. I have the impression that my four-flowered peduncle is only the apex. Flowers as large as those of the best Rodriguezia candida. Stalked ovary, light mauve. Upper sepal ligulate, acute, white, yellowish on mid-line. Lateral sepals white, with yellow mid-line, quite connate, and totally sigmoid. Petals ligulate. Lip unguiculate, blade shouldered at the base, getting broader and broader up to the retuse apex. It is also white, and has two long linear yellow keels, every keel having four small lateral keels spreading outwards. The spur is solid, linear acute, and is half the length of the lateral sepals. This is one of the three fine characters of the flower, the others being the keels and the columnar appendages. Column white, with numerous mauve spots. Apiculi upright, dark purple. Arms linear, retuse.

Mr. Lee had this plant from Mr. J. Sander. It appears to be the first novelty flowered in the much bespoken and admired Cattleya hall, and thus it must bear its master's name. It had been called Burlingtonia, or Rodriguezia fragrans. That, however, is an obscure plant, apparently seen by no living man, only known by Mr. Descourtilz's sketch, immediately recognized by its larger and wider bulbs, shorter and broader leaves, a totally distinct system of calli, and distinct arms to the columns. Nothing is known about its spur. This Burlingtonia fragrans runs through the brains of those in the trade like a spectre, and I remember many instances of having had the name—name only—during the last thirty years. *H. G. Rchb. f.*

WEIGHT OF SEEDS OF CONIFEROUS TREES.—In the current number of *Forestry*, Mr. E. J. C. Preece gives an interesting and valuable table showing the average number of seed of each kind contained in one gramme's weight (15 grains). While the Stone Pine, Pinus Pinea, has only 1⅕ seed to the gramme, Abies Menziesii is credited with the vast number of 1000. Some of the figures are rather surprising.

* *Masdevallia* (*Coriaceæ*) *marginella*, n. sp.—Folio brevi petiolato cuneato obovato; pedunculo uno seu bifloro; bractea ovario pedicellato multo longiori, tubo ampliusculo triangulis caudisque cum tubo abrupte angulatis triangulo impari brevissimo in caudam rigidam extenso, triangulis inferioribus majoribus in caudas rigidas subdeflexas extensis; tepalis ligulatis apiculatis introrsum angulatis, labello basi rotundato subcordato amplo ligulato ante apicem constricto, parte antica subreniformi denticulato, hinc quasi pandurato; androclinio postice bidentato. Flores albi carinis nervorum principalium caudisque viridibus margine ac intus aurantiacis. Ac a cel. merc. Sander. *H. G. Rchb. f.*

† *Plagiolirion Horsmani*, genus novum.—Perianthii tubus brevis cylindricus, limbo obliquo tubo duplo longiori, segmentis 6 æqualibus lanceolatis, flore expanso falcatis ascendentibus. Stamina limbo duplo breviora ad tubi faucem inserta, filamentis basi monadelphis ascendentibus, dentibus interstamineis minutis lanceolatis, antheris parvis oblongis versatilibus. Ovarium globoso-trigonum triloculare, ovulis in loculo paucis; stylus filiformis ascendens, stigmate integro. Fructus adhuc ignotus verisimiliter capsularis. Herba acaulis Columbiana, habitu Eucharidis, bulbo magno globoso tunicato, collo elongato; foliis petiolatis oblongis post florationem productis; scapo solido compresso, umbellis 8—10 floris; spathæ valvis multis parvis lanceolatis membranaceis, flore parvo candido.

* *Rodriguezia Leeana*, n. sp.—Pseudobulbo ligulato bipollicari; folio lineari lanceolato acuminato, pedali; pedunculo plurifloro; sepalo impari ligulato acuto; sepalis lateralibus connatis sigmoideis flexis; tepalis oblongo-ligulatis acutis, labelli ungue lineari, lamina a basi abrupta dilatata retusa, carinis longitudinalibus geminis, utrique carinulis quaternis obliquis retrorsis; calcari solido lineari acuto maximo, dimidium sepalini corporis æquanti; columnæ apiculis apiculatis; bracteis linearibus retusis. Exc. Lee dicata.

BEGONIAS AT STANSTEAD PARK.

NOT even the most hopeful of those who saw with something like amazement the introduction of Begonia Veitchii, B. Sedeni, B. boliviensis, B. Pearcei, and the other varieties which soon followed, could have imagined to what extraordinarily beautiful things they were to lead, or that they would ever live to see such a show of flowering Begonias as that now to be seen at Messrs. Laing & Co.'s Nurseries, Forest Hill. Even those who now see at our exhibitions the fine things shown by this firm are not aware of the variety and perfection to which their Begonias have been brought, for the simple reason that many of the best are not yet exhibited, seeing that there is yet no prospect of stock sufficient to allow of their being sent out. Among these grand novelties may be mentioned varieties in which two or more colours are distinctly displayed in the same flower, varieties in which the petals of the usually small-flowered female flowers are enlarged until they equal in beauty the male flowers, and are even more perfect in form than they; and double varieties in which the enormous flowers are made up of a number of smaller ones, after the manner of the "Hen and Chickens" Daisy (see p. 262, of our vol. xviii. for 1882). These and other great strides in Begonia improvement, together with many other new features foreshadowed among Messrs. Laing's 200,000 or 300,000 seedlings, point to the fact that the days of the Begonia are young yet. It is well that it should be so, for any one can grow them—the possessor of a frame to start them in, and a place which keeps the frost out to store them, almost as well as he who has a number of glass structures at his command.

Years of careful hybridisation at the Stanstead Park Nurseries has almost put the Continental varieties out of the field by introducing a race superior in every way, but more particularly in substance and persistence of flower, the home-raised varieties being found to last much longer, and to bear removal from place to place much better than the Continental kinds; and this does away with the most often urged complaint against tuberous Begonias. Those who have seen the Messrs. Laing's varieties exhibited cannot fail to have noticed how well they travel. At Stanstead Park Nurseries the large span-house (100 feet by 20 feet) is filled with a grand display of plants, many of them measuring 5 feet across, their blooms being of all shades between white and maroon, the flowers of many of the varieties being 5 inches in diameter. When plants are covered with such blooms as these, it may be imagined how beautiful they are, but the magnificent display can never be fully realised without seeing them in their home. From the roof of the house depend baskets filled with such varieties as Dr. Masters (the old variety). And these serve to illustrate another great use for this class of Begonia. Perhaps no known greenhouse plant could give so much bloom throughout the summer with so little trouble.

Among the new varieties for 1883 the best six appear to be Golden Gem, a perfect yellow flower; Marchioness of Bute, an immense rosy-pink kind; Marquis of Bute, one of the largest, bright carmine; Dr. Masters (new variety), a dark red-crimson, and one of the best for exhibition; Lady Brooke, dark rose, shaded violet-magenta; and Snowflake, a grand pure white. Among doubles for this year, Formosa, rosy-carmine, with white centre, and having a bloom like a double Hibiscus, is very distinct; and Sir Garnet, dark orange-scarlet; Rosamond, fresh rose; Queen of Scots, pink; Mrs. Ludlow, white, tinted with pink; and Princess of Wales, are all of first merit. Prominent among the varieties in commerce on account of their large showy flowers and distinct colours are General Roberts, bright dark amaranth; Exoniensis, orange-scarlet; Arthur G. Soames, crimson-scarlet; Empress of India, pure yellow; Sulphur Queen, primrose; and Lady Trevor Lawrence: this last is one of the most beautiful and distinct Begonias in the whole house, its large orange-yellow flowers being tipped with Indian-red, and its foliage, of the Pearcei type, being very pretty. Two of the kinds certificated this year also are very fine, viz., Mrs. Anson, very large, rosy-salmon; and W. H. Walter, a grand vermilion-scarlet.

At the Stanstead Park Nurseries all forms of Begonia culture may be seen, some being grown in houses (one house containing 4000 doubles), some in frames, and over 100,000 are planted outdoors; all are in excellent health, the discovery of a mixture to destroy what is called Begonia disease by Mr. Laing's grower rendering them free on that score.

MUSHROOM GROWING.

So much has been written on this subject lately that it may seem superfluous to write another line about it. But successful practice is always worth recording. In some respects it may afford suggestions of value which may not have been made public by any one else. I have a friend, one of the most intelligent amateurs I know, and he has been so singularly successful in growing Mushrooms, sufficient for himself, and an abundant surplus for sale, under the stage of his greenhouse during the winter, and out-of-doors during the warmer months of the year, that I was led to ask him to describe his practice, which I have now much pleasure in submitting to my fellow amateurs. I subjoin his communication in full:—

"You ask me to write you a treatise on Mushroom growing; but the subject has already been so thoroughly discussed in many of our horticultural publications that I am afraid I can give you no fresh information, and for my pains shall only be accused of plagiarism. However, having been now for some years a tolerably successful grower, I have no right to keep the secret to myself, but will try and make the system as plain to you as it is easy to me. There used to be an old theory that horse-droppings were the only material of which a Mushroom bed could successfully be made, and for some years I laboured under the same delusion myself, until the difficulty of procuring such a material, pure and simple, drove me to the more primitive, and certainly more effective, practice of using stable manure, straw and all, just as it leaves the stable (the horses should be corn-fed, and the manure as fresh as possible). With such an appliance failure should be unknown. The art, if I may so term it, lies in the after-treatment. I am in the habit of leaving the manure when brought and roughly forked out of the waggon to ferment for two or three days, and then turning it some five or six times until the rank heat and smell have subsided. Each time it is turned, like good housewives, we turn 'sides into middles,' and as the turning proceeds shake in a little rubbish, such as weeds or long grass from the bottom of an untidy fence, together with a slight sprinkling of good rich loam. This tends much to sweeten the compost, which, after the turnings I have enumerated, will have become what gardeners term quite 'short.' It is then in a fit state to form a bed, and we proceed thus:—Mark out a space in a good open situation (by no means under trees) 4 feet wide, and in length according to the quantity of manure; we shake it thoroughly as we go on, so that the ingredients may be well incorporated, treading it firmly and beating it well with the back of the fork, so that it may be perfectly solid by the time it is finished. The best form for the bed is that of an equilateral triangle, for outdoor cultivation; and under cover I prefer a slight slope to a level surface. I then insert pointed sticks at intervals all over the bed, and leave it for three or four days, by which time the heat will probably be at its strongest. It is desirable that the manure during its preparation should not be exposed to much rain, as any excess of moisture is fatal to the spawn. After this we withdraw the sticks daily, to feel the temperature, and as soon as it begins to decline and becomes about equal to that of milk fresh from the cow, say 70° to 80° Fahr., we insert lumps of spawn about double the size of a Walnut, about 6 or 8 inches apart all over the bed, 'tucking' it in about 3 inches under the surface. The bed is then left for a few days, and if the heat still continues to decline gradually it may be moulded over with good loamy garden soil, free from stones, to the depth of some 3 or 4 inches, and the work is done.

"I need not tell you that the beds must be kept dark, or, in other words, covered with straw or dried bracken, which will protect them from cold winds and rain, as well as from being scorched by the sun, either of which would be prejudicial to success. Beds of this description may be made at any time of the year, but for a main crop and for length of bearing we find September one of the best months, and in ordinary seasons Mushrooms will appear about the beginning or middle of March following, continuing till the end of June or beginning of July. One word of caution about gathering the Mushrooms—I use the word advisedly—they should always be gathered (giving them a slight twist), but never on any account should they be cut; the old stems thus left in the bed only breed insects which prey upon the young Mushrooms, and will often destroy a whole crop. Care, too, should be taken in gathering the crop not to loosen or disturb adjacent ones, as they never take root again, and only wither away. I think if you follow these simple directions you may almost insure a crop, more or less; but some seasons are undoubtedly more favourable than others to the growth of all fungi. I have observed them closely now for some years, and not only are they influenced by the seasons, but you will invariably find that they grow quicker and more luxuriantly when the moon is increasing than when it is decreasing.

"I know that frequent complaints are made of failures in Mushroom growing, but these arise only from want of care in the preparation of the material, and when Mushrooms are once established, or rather when their cultivation is thoroughly understood, it is astonishing in what queer places they will make their appearance from time to time. I have not unfrequently had them push up in quite small flower-pots, when the soil in which the plants were potted had been mixed with the remnant of some old exhausted Mushroom-bed. Under cover—say under the stage of a greenhouse, which is a very useful place to turn to such account during the winter—the temperature should range between 50° and 55°; but never exceed the latter, or the produce will become weak and 'spindly,' and very soon cease altogether. Close covering with some loose material will, to a great extent, prevent evaporation; but should the surface of the beds become very dry, a slight syringing with salt and water is all that will be required."

While I am writing on this subject I may mention for the benefit of those who have pastures which yield Mushrooms, that the fertiliser called "Fungofime," recently advertised in these columns by a most respectable man, whom I know very well, has, in this neighbourhood, when applied to grass land, the reputation of encouraging the growth of this fungus in a most astonishing manner. *Philanthes.*

LILIUMS IN FLOWER.

L. HUMBOLDTI, Roezl and Leicht.—This elegant species is flowering very freely this year; the flowers are perhaps rather smaller than usual, but they are very numerous. The characteristics of this very distinct Lily are briefly summarised as follows:—Stem from 3—5 feet high, stout, green, with reddish spots, sometimes rather glaucous. Leaves usually in whorls of from 10—20 in number, regular, more or less lanceolate, undulate, somewhat scabrous, of a deep green colour. Flowers from 6—30, in large panicles with nodding pedicels. Perianth 3—4 inches long, segments sharply revolute, of a bright orange-red colour, thickly spotted with claret-coloured dots. Mr. Baker makes it a variety of canadense, *Gard. Chron.* 1871, 1165. It is also the L. canadense puberulum, Torr.; L. Bloomerianum, Kellogg. Native of California, abundant on the higher basal hills of the Sierra Nevada, found also along the coast ranges from Santa Barbara to San Diego. There is no difficulty attending its cultivation if the position it occupies is well drained. I have several bulbs, and they have been undisturbed in the same position for four years; the subsoil is very sandy, overlying a thick stratum of red sandstone, so they enjoy a thorough drainage: the result is, the bulbs have and are now rapidly increasing, and they flower freely every year. It does not like pot culture, but planted out is certainly one of the least troublesome Lilies. I may here say that I have known it to do well in stiff soil, with artificial drainage.

L. WASHINGTONIANUM, Kellogg, *Proc. Calif. Acad.*, ii., 13; Baker, *Gard. Chron.* 1871, 709, fig. 142.—Stems 3—5 feet high, terete, smooth. Leaves in several whorls, from 6—12 in each whorl, oblanceolate, smooth, 3—4 inches long. Flowers numerous, in a close or lengthened raceme, with ascending pedicels. Perianth more or less funnel-shaped, whitish, tinged, and changing to purplish-red, very fragrant; segments 3—4 inches long, ½—¾ inch broad, not reflexed. Native of California and Oregon. More or less plentiful on the western slopes of the Sierra Nevada and the Cuyumaca Mountains. Syn. L. Bartrami, Nuttall. There is a variety named by Dr. Masters purpureum, which is synonymous with L. rubescens, Watson, a much more slender and smaller plant. Flowers in umbels, when first expanded nearly white, but changing to a deep purple red, with revolute segments. This form occurs along the coast range from Marin to Humboldt Counties, and it is earlier flowering, and

certainly not so decorative a plant as the typical form. The latter, like the preceding species, must have a well drained position, and it enjoys rich soil; for example, some bulbs were planted in good fibrous loam, leaf soil, and well-decayed cow-manure and sand in about equal proportions, while other bulbs of the same batch were planted in the ordinary soil of the same bed by the side of their more highly-fed companions, the result being that the latter are very much finer in every respect. I have other bulbs which have been planted over four years in the same position; this season they are much reduced in size, which undoubtedly arises from the exhausted condition of the soil, so when the stems die down they will be lifted and replanted. *Lilium, July* 7.

HARDY PLANTS IN FLOWER.

Primula suffrutescens. — This is a new and scarce Californian species, introduced by Mr. Ware, of Tottenham, or I believe he was the first to bring it before the public in this country. I have two plants, obtained from him, and I now take the following brief description from them:—Stems long, straggling, and sub-woody; leaves narrow, spathulate dentate at the apices, 1½—2 inches long, and about 4 lines across the widest portion; peduncle about 6 inches high, terete, smooth, umbellate at the top; pedicels ½—¾ inch long; calyx about two-thirds as long as the corolla tube, 4 lines long, cut about half-way down; segments ovate acute; corolla funnel-shaped, about ¾ inch across the limb, rich rosy-purple, with a distinct yellow eye; segments obcordate, about 3 lines wide. It is a very pretty species, but, I am afraid, rather delicate, and liable to die away. It should be planted or potted in very gritty soil, and the growing portions securely fastened between nodules of limestone. I have not fully tested its hardiness, but the best results have up to the present time been obtained by keeping it in a frame, potted in the way described above. *T.*

Astragalus alopecuroides.—This is one of a very large genus, many of which are useless as decorative plants, but there are several honestly worth being at a little trouble to cultivate; the true subject of this note is one of them. I say true, because one so frequently finds other worthless species substituted for it. I have at different times received not less than five different species for it, but am glad to have the right plant at last. It grows about 2 feet high, with long pinnate glaucous leaves. Flowers in dense axillary clusters, each about ¾ inch long, of a pale yellow colour, the calyces thickly covered with long silky hairs. There are several flower bunches to each shoot at different heights, so the plant presents a very pleasing and not showy appearance. It is a native of Spain, and is figured in Pallas' *Species Astragalorum*, 8. I find it quite hardy, but rather difficult to increase except by seeds, which germinate freely enough, but are rather difficult to obtain. I have tried several times to root cuttings, but have had only very poor results. *T.*

Campanula glomerata alba. — A most useful border plant, with pure white flowers in dense heads, like those of the typical form. The variety pallida is also very desirable, with very pale blue flowers. They are invaluable for cutting, most easily increased, and quite hardy. *T.*

Erodium macrodenium.—A very pretty hardy rock-plant, with light green finely divided leaves, and small cymes of flowers each about ¾ inch across, resembling a miniature show Pelargonium; the three lower petals are white veined with light purple; the two upper ones have deeper purple veins, and a large plum-coloured blotch upon each. It flowers most profusely from May until very late in the year, enjoying a well-drained position on the rockery, and it may be increased by cuttings or seeds. *T.*

Œnothera speciosa.—In my opinion this is one of the finest hardy plants known in our collections. It is now a mass of pure white flowers, and its flowering period is somewhat lengthened. It grows with me from 2—3 feet high, the extremities of the branches being crowded with pure white flowers quite 3 inches across. I have seen it grow much taller in some places, but as a rule the height is under 3 feet. I remember seeing a fine patch at Messrs. Cannell's, of Swanley, about a year since, very dwarf in habit and wonderfully floriferous. This increases freely enough by division or cuttings; the latter strike freely now in a cold frame, and they will make excellent plants for next season's flowering. *T.*

Spiræa aruncus.—A grand plant, not by any means so abundant as it should be in our gardens, owing to its very distinct and effective appearance. Of course there are positions in the garden where it would be out of place, but there are many others to which it would give additional beauty. We have yet much to learn or appreciate in the arrangement of hardy plants. Here is a plant which may be fittingly arranged in the shrubberies, by the margins of lakes, surrounded (taste would suggest) by dark foliaged subjects, such as the Copper Beeches or Nuts, when the white feathery plumes would be seen to much greater advantage than otherwise disposed. I may say, for the benefit of those unacquainted with the plant, that it grows from 3—4 feet high, with large divided foliage, and immense plumes of white flowers, forming when established most conspicuous objects. I lately saw several masses 3 and 4 feet in diameter, and as much high, and nothing could surpass their unique beauty. *T.*

Erodium Reichardi.—This is a favourite little alpine of mine, forming dense spreading little tufts with dark green reniform leaves, and solitary flowers upon slender peduncles from 2—3 inches long. The corollas are about ½ inch across; petals white, veined with purple. Although such an inconspicuous member of the Heron's-bill genus, yet it commands respect because of its long blooming period, for it is quite astonishing what a large number of flowers it produces. It requires a well-drained sunny position, and is not easily propagated except by seed. It was well figured in the *Botanical Magazine*, vol. i., t. 18, where Mr. Curtis, writing in the year 1787, says:—"It has been known for several years about London under the name of acaule, a name I should have been disposed to adopt had not Prof. Murray previously described it under the name of Reichardi, in compliment to a French gentleman who first discovered it in the island of Minorca." Of course it was named in the *Botanical Magazine* Geranium Reichardi. *T.*

Lathyrus Drummondi. — This is certainly one of the handsomest Everlasting Peas we possess; so different in colour from the rest, except L. rotundifolius, which closely resembles it, but the latter has not nearly so good a constitution as the subject of this note. It forms a large bush from 4—5 feet high, thickly covered with large racemes of bright red flowers individually nearly or quite as large as those of L. latifolius. It is very vigorous growing and freely branched, but of course its chief merit is the colour of the flowers, so highly decorative and serviceable for cutting. It is one of those good things so liberally distributed by the Rev. Mr. Ellacombe, Sen., but is still extremely rare; indeed, it has scarcely found its way into dealers' collections, consequently the bulk of hardy plant fanciers are without it. I recently saw three large masses in one favoured garden, which were indeed a picture. *T., July* 9.

Messrs. Backhouse, of York, send a collection of choice herbaceous plants in excellent condition. Among them we may name grand spikes of Orchis foliosa and O. maculata superba, the lovely Calochortus venustus, the gorgeously coloured Gaillardia grandiflora, Lilium pardalinum, and L. puberulum, in which, however, we see nothing puberulous, together with the following, of which a more detailed note may be given:—

Allium acuminatum, with simple many-rayed umbels of pinkish star-shaped flowers, each about 1 inch across, the six segments ovate lanceolate, with the greenish midrib prolonged into a long point, whence the name. Unfortunately it possesses the powerful odour of Onions to a high degree.

Gentiana arvernensis.—A charming species, of medium height, with sessile lanceolate leaves and terminal erect flowers, each about 2 inches long; the calyx is funnel-shaped, with a long tube and linear oblong segments of the same length. The corolla is nearly twice the length of the calyx, tubular, oblong, dilated in the centre, with five longitudinal folds, and the limb divided into five shallow ovate acute lobes, the sinuses between which are slightly toothed. The colour is Napoleon-blue.

Campanula turbinata, with its broad bowl-shaped purplish-blue flowers, requires no further notice.

C. Van Houtte is a tall-growing form, the upper leaves of which are sessile, broadly lanceolate, acuminate, irregularly toothed, and rough. The flowers are borne in pairs, one above another, on long stalks, the upper flower the youngest (unilateral cymes). Each corolla is nodding, 3 inches long, tubular, bell-shaped, rich purple, and surrounded at the base by a short funnel-shaped calyx, the limb of which is divided into five lanceolate spreading lobes.

C. macrantha is another noble tall-growing species, the upper leaves sessile, broadly lanceolate, serrulate, rough. The numerous deep purple flowers are borne in erect racemes, at the end of the stems. Each flower measures about 2 inches in length with a cup-shaped downy calyx dividing into five linear lanceolate spreading segments, supporting a tubular bell-shaped erect or spreading corolla, dividing at the limb into five lanceolate segments.

C. macrantha alba is if possible even more stately. The habit is the same as in the preceding, but the flowers are white.

The Rosery.

Roses in Pots.—The Roses planted out in the open ground are now in glorious bloom; the clean healthy foliage, like the flowers, full of life and beauty; a striking contrast to the pot Roses as they are seen in many private gardens. I say nothing about the healthy well-grown plants of all sizes to be seen in such nurseries as that of "the old Cheshunt" firm, where sturdy veterans a quarter of a century old vie in health and general excellence with those of but two or three summers. The only reference that need be made to the Roses in question is that those who wish to excel in the pot-culture of the queen of flowers should pay Mr. Paul a visit, and try to obtain a chat with the foreman in charge of the Roses under glass and in pots. Many of my readers I know cannot do this, consequently the next best thing will be for me to try to offer a few practical remarks on the culture of Roses in pots.

As the Roses come into flower out-of-doors those which have been flowering under glass ought to be over, and at that time there is usually considerable pressure of work in the greenhouse and hothouse departments; so the poor unfortunate Roses, that have so very recently charmed with their sweetness and beauty, are turned out into some out-of-the-way corner, where they often suffer from the two most serious ills of pot-Rose life—greenfly and mildew; added to these I have actually seen the leaves well furnished with red-spider and orange fungus, with an occasional vigorous sucker from Brier and Manetti stock.

It is after the blooming period is over that the Rose is neglected, and the Rose cannot bear neglect at any time. How, indeed, can it be expected to produce strong healthy blooming wood next year if it is prevented from producing good well-matured wood after flowering? It is difficult to keep Roses clean and healthy under glass during the hot weather in May; the only thing is to watch for the first appearance of any of the ills that afflict the Rose. It is very easy to manage the Roses if they are kept clean while making their growth. Fumigate on the very first appearance of greenfly, keeping ever in mind the golden rule for gardeners, that prevention is easier, and far better, than cure. Dust with sulphur for mildew and all fungoid diseases. Syringe underneath the leaves to keep red-spider off them. For orange fungus cut off the affected parts. Remember, too, that the Rose loves air and light; take a little pains to get the plants as near as possible to the glass. One day a man whom I thought was an excellent gardener (indeed, I know he is in some things), said to me, "Your plants are too near the glass to do well." Most gardeners know that Roses, at least, do best near the glass; and if they are not doing well almost hugging the glass roof, it will not mend matters to push them away from it. Well then, we have as essentials to success, cleanliness, abundance of air and light. All these can be obtained easily.

In as few words as possible I will give our routine of culture for one year. At present all the hardy

Roses, such as the hybrid perpetuals, Bourbons, hybrid Bourbons, &c., ought to be out-of-doors, making clean and healthy growth in an open position, but sheltered from the south-west winds which come up strong from that direction in the autumn. Tea Roses rather like a glass shelter all the year round. If aphis and mildew appear when they are out-of-doors the whole plant may be dipped or syringed with soft-soapy water in which a handful or two of flowers of sulphur has been stirred. Of course they must be watered judiciously, and be frequently syringed to prevent or destroy red-spider, to which some varieties are more attractive than others. This pest browns the leaves, causing them to drop before their time, a catastrophe which prevents the ripening of the wood and other disastrous results. The time for repotting is before the leaves drop in the autumn. Whether it be fruit trees, Roses, or any other class of shrubs, they establish themselves best when repotting is done before the leaves are shed. Good decayed turfy clayey loam four parts, rotten manure one part, leaf-mould one part, and in addition to this, for Tea Roses, one part of peat. Use clean pots well drained, and pot firmly.

After repotting it would be well to place the Roses in a glass-house, to prevent the cold autumnal rains from soaking the roots too much, and killing the young fibres that are so rapidly formed after potting. As the leaves drop less water is required, but over-dryness is to be deprecated, even in winter.

The next attention required is pruning, and the time that this should be done will depend upon the time the Roses are required to bloom. The earliest should be pruned before Christmas, the last pruning about the middle of February, or even later than that, should the plants be required very late for exhibition or any special purpose. I like to have the soil in the pots rather dry when they are pruned, and to keep it so for a few days after, to prevent bleeding.

Of course it would be unwise to begin forcing for some little time after pruning. I like to see the buds moving a little before they are put into heat. Many gardeners are also required to produce forced Roses with very limited means indeed at their command. Of course if there are difficulties in the way they must be overcome. I used to have excellent forced Roses early in the year by starting them with the Vines after the middle of December. We put up a bed of leaves and manure in the house, and placed the Roses over it after the first violent heat was spent. The little bottom-heat, and consequent atmospheric moisture, was just what they wanted, and they made clean strong growths. Sometimes the leaves of the Vines were developed too much, and the temperature increased too fast for them; in that case they were placed in the vinery started later, where the temperature was lower, and the roof unshaded by the Vine leaves. In this house the flowers opened well, and they were removed to the greenhouse or conservatory. Those Roses that flower early should be protected under glass, in a greenhouse temperature, until the weather is such that they may safely be removed out-of-doors.

It would take up too much space to give the names of the best Roses, as they have been enough before the public lately; but it is well to state that some of the best Roses that are seen at our exhibitions as cut blooms are not by any means the best for pot-culture; what we require for that is a free branching habit. Some varieties do not take naturally the form of a bush, and refuse to be trained into that form; others do not grow freely enough. The best type of a pot-Rose is one that grows freely, and forms a good bush naturally. Such is La France, H.P., and the hybrid China Charles Lawson, the Noisette Celine Forestier, and the Tea Madame Margottin. The names of the pot Roses shown at exhibitions, and given in recent numbers of the *Gardeners' Chronicle*, should be referred to. *J. Douglas.*

Rosa lucida flore-pleno.—In Mr. Ellacombe's garden at Bitton this pretty Rose grows and flowers freely. Although much altered by cultivation from the dwarf wild Rose of the United States, there seems no doubt of the propriety of referring it as a variety to R. lucida. It seems identical, too, with the Rose figured by Andrews in his *Monograph* as R. pennsylvanica flore-pleno. The outer petals of this fade into a pale rose, leaving the centre of the flower a deep rich rose colour.

AMIANTHIUM MUSCÆTOXICUM.

Mr. Smith sends us this from Messrs. Rodger, McClelland & Co., of Newry. Though a very old plant, introduced in 1770, it is one rarely seen in gardens. It is a tall herbaceous perennial, with long linear lanceolate glabrous leaves, and erect close racemes (3—5 inches long) of cream-coloured flowers, each mounted on a longish white pedicel, and regularly 6-parted. It is a member of the Colchicum group, not far off Veratrum as to its affinity, and is a native of the Eastern United States of America, extending as far south as Florida. It is stated that the root, when bruised and mixed with honey, acts as a poison to flies. It is the Helonias læta of the *Botanical Magazine*, t. 803.

Fig. 7.—Amianthium muscætoxicum: pollen grains magn.

REINVIGORATED POTATOS

A few years ago an accident caused a small number of roots of a favourite variety of Potato to be disturbed prematurely, and the tubers, having been dug up when not one quarter grown, were exposed for some weeks, at the foot of a south wall, to the full power of the heat of a July sun. When taken in they were shrivelled, and were put away in a light closet, and on being planted the following spring they produced a notably fine crop, which entirely resisted the disease of a very bad year, when the rows, right and left, were almost completely destroyed. So marked was the improvement in this lot of Potatos, that part of the crop of this section of the variety has been saved for seed every season since, raising them for next year's seed as soon as we begin to use the first new Potatos. And it is quite certain that, both in constitution and yield, the stock which came through these shrivelled tubers of 1878 still keeps ahead of others which sprang from the same origin, but have shared the ordinary practice of the garden—*i.e.*, have been left in the ground till they were mature. In 1882 I tried the experiment of early raising with one root of ten sorts. All were dug up the first week in July, when the tubers of the later kinds were no bigger than marbles. All were replanted in the third week in March, 1883. I have to-day (July 2) been examining them, and in every case I find the early kinds full-sized (*i.e.*, they have been left too long to continue the treatment for another season), and in all cases the produce is larger than is usual. Altogether, it seems to me quite proved that, by arresting the growth of the tuber at an early stage, and by exposing it to a long period of dry treatment in trays in an upstairs room in the full light, we can ensure that such tubers shall shoot very early and vigorously, and shall bring their crop to use much quicker than they would under any other way. In no case has there been any difference of soil or manure between these and the ordinary crops, yet the stouter foliage, and the intense green of the leaves of the specimen plants, attract attention from any observer.

I read in an American farm paper that it had been found that the finest spring crops of early Potatos are grown there from seed, which is the second crop of the previous season—*i.e.*, as soon as tubers are formed in the spring they are taken up, ripened in the sun, and replanted—and that these bear, late in autumn, crops of immature Potatos, very inferior for table purposes, but quite above all others for seed. The American summer is, I believe, more varied than ours, and the ground parts with its heat more slowly; so that they can rely on a growth later in the autumn than we can. Anyhow, they seem to succeed in getting two crops of all the early kinds of Potatos—one to eat, and one to produce the main crop of the following season. I have not yet succeeded in doing this, although I have planted a crop of Champions in July where the Early Ashleaf came off, and got Champions of a good seed size for next year's use. Very probably this practice may be neither new nor uncommon in other districts. The practice of "greening" seed is common enough, but not the course which I suggest, *i.e.*, the taking up the tubers as soon as formed, and compelling them to ripen outside, and not within the soil. This plan was, so far as I am concerned, accidentally discovered; and the results were sufficiently marked and sufficiently good to arrest attention. *G., in the "Field."*

PLANT PORTRAITS.

Acer insigne, Boiss.; Hook. f., *Bot. Mag.*, t. 6697.—A species remarkable for the beauty of its large red bud-scales. The flowers are in terminal panicles. At Kew it is found to be very hardy, but this is not at all our own experience on a clay soil.

Angræcum modestum, Hook. f., *Bot. Mag.*, t. 6693.—A short-stemmed plant with racemes of small white, star-like flowers, the segments being lanceolate, the lip of the same form but rather wider, and with a long, narrow spur. Native of Madagascar. Hort. Kew.

Bomarea patacoensis, Herbert; Hook. in *Bot. Mag.*, t. 6692.—According to the synonymy here given this plant is the same as that described by Bentham as B. conferta, and figured by us under that name in 1882, p. 186, fig. 31.

Carnation, Crimson Souvenir de la Malmaison, *Florist*, June.

Cephaelis tomentosa, Willd., *Bot. Mag.*, t. 6696.—A hirsute shrub. Native of Guiana, with broadly lanceolate leaves, and long-stalked heads of flowers, enveloped by two large ovate acute red bracts. Messrs. Veitch.

Clerodendron macrosiphon, Hook. f., *Bot. Mag.*, t. 6695.—A Verbenaceous shrub with oblanceolate, coarsely toothed leaves, narrowing into a petiole. Flowers in terminal tufts, each with a long slender corolla tube, 3—4 inches long, and a limb divided into five lobes turned to one side. Filaments very long, projecting. Native of South-East Tropical Africa.

Rose Louise Odier, *Journal des Roses*, June.—Raised about 1843 by M. Margottin from a Bourbon variety. Flowers large, very double, well formed, rose-pink.

Rubus rosifolius coronarius, *Revue de l'Hortic. Belge.*—A very pretty double-flowered Bramble, with pinnate Rose-like leaves.

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LIST OF GARDEN ORCHIDS.

(*Continued from p. 764, vol. xix.*)

80. EPIDENDRUM, Linnæus.—Base or claw of the labellum more or less adnate to the footless column, upper part spreading. Stems with the leaves in two rows or pseudobulbous. Inflorescence simple or branched, rarely reduced to a single large flower. A very numerous genus, of which between 400 and 500 species have been described. They are widely spread in Tropical America, and a very few occur in the Southern States of North America.

As will be seen from what has already been published of this list, Mr. Bentham has raised some of Lindley's sections of Epidendrum to the rank of distinct genera. These are Diacrium, Hormidium, Lanium and Pleuranthium. He also restores Cattleya, Broughtonia, and Læliopsis, which Dr. Reichenbach had reduced to Epidendrum, to the rank of distinct genera. As thus circumscribed, Mr. Bentham subdivides the genus Epidendrum in the following manner :—

Sect. 1. *Barkeria.*—Stems either scarcely at all thickened and fleshy, or forming narrow spindle-shaped pseudobulbs 2—4-leaved at the top. Labellum very shortly adnate to the base of the column, more rarely nearly up to the middle; column distinctly and often broadly 2-winged above the junction with the labellum. Species few. Ex. E. elegans, E. Lindleyanum, E. Skinneri.

Sect. 2. *Encyclium.* — Stems thickened into ovoid, flattened or long spindle-shaped pseudobulbs, 1-, 2-, or more rarely 3-leaved at the top. Labellum very shortly adnate to the base of the column, or not up to the middle; column so far as observed not distinctly winged in the free part. Species numerous, classified by Lindley into the following series :—

a. HOLOCHILA.—Labellum quite entire. Ex. E. flabellatum, E. Ghiesbreghtianum, E. vitellinum.

b. SARCOCHILA.—Labellum rather thick, shortly toothed. Flowers small, paniculate, at first sight like Amblostoma, but having exactly the anther and pollinia of Epidendrum. Ex. E. glaucum, and E. ochraceum.

c. HYMENOCHILA.—Labellum 3-lobed, petal-like, with the lateral lobes rounded in a few species, short in the rest. Ex. E. alatum, E. aromaticum, E. atropurpureum, E. Friderici-Guilielmi, E. variegatum.

Sect. 3. *Aulizeum.* — Stems usually more or less thickened into long spindle-shaped pseudobulbs, 1- or 2- more rarely 3-leaved at the top. Labellum adnate from the base to the top of the column, or the very tip of the latter barely free.

a. SCHISTOCHILA.—Labellum 3-parted, or more or less 3-lobed. Ex. E. ciliare, E. clavatum, E. erubescens.

b. HOLOCHILA (the same as Lindley's section Osmophytum).—Labellum quite entire. Ex. E. calamarium, E. cochleatum, E. fragrans.

Sect. 4. *Euepidendrum.*—Stems leafy, without pseudobulbs. Labellum adnate to the top of the column, or only the very tip of the latter free.

a. SPATHACEÆ.—Raceme simple, erect, many-flowered. Peduncle enclosed at the base in a spathe-like, often large sheath. Ex. E. armeniacum, E. spathaceum.

b. SUBUMBELLATÆ.—Raceme simple, shortened; flowers few or only one, often rather large and long-stalked; common peduncle short, and included in a spathe-like sheath or naked. Ex. E. difforme, E. eburneum, E. lacertinum, E. longicolle, E. nocturnum.

c. NUTANTES.—Raceme simple, nodding, many flowered, common peduncle included at the base in a spathe-like sheath or nearly naked. Ex. E. cnemidophorum, E. Cooperianum.

d. RECURVÆ. — Stems usually branched and leafy. Racemes simple, sessile between the topmost leaves, bent down, often with crowded flowers. Ex. E. recurvatum.

e. TENUIFOLIÆ.—Stems either slender and dwarf, or longer, often branched. Leaves narrow or lanceolate, thin. Racemes shortly stalked, slender, or loose, solitary and erect or in pairs, and spreading. Ex. E. conopseum, E. fimbriatum.

f. AMPHIGLOTTIDEÆ.—Racemes short, dense, spike-like; flowers solitary or two or three together at the top of a long peduncle that is furnished with distant, appressed sheaths, or scattered singly or in clusters all along the peduncle. Ex. E. antenniferum, E. cinnabarinum, E. elongatum, E. erectum, E. ibaguense.

g. PANICULATÆ.—Racemes several, loosely paniculate; common peduncle more or less developed, and furnished with sheathing bracts, or nearly naked. Ex. E. Blepharistes, E. densiflorum, E. floribundum, E. myrianthum, E. paniculatum, E. polyanthum.

h. STROBILIFERÆ.—Stems usually diffusely branched or low; spikes simple, loosely few-flowered, or rarely elongated, with the flowers partly included in broad concave bracts.—Ex. E. coriifolium, E. imbricatum.

i. SESSILIFLORÆ.—Flowers few or solitary, subtended by chaff-like bracts; and sessile, or nearly so, at the top of the stems. Ex. E. equitans.

k. NANÆ.—Stems dwarf, spreading, with the leaves in two rows. Flowers terminal, usually solitary, seated within a large spathe-like sheath. Column with a short tube; anther-bed membranous. Labellum undivided, usually larger than the sepals. Ex. E. Matthewsii.

Sect. 5. *Psilanthemum.*—This section is limited to one very distinct species (E. Stamfordianum), differing from all the other species of the genus in the inflorescence being produced from the base of the stem, in the pollinia, and some other characters.

1. E. (ENCYCLIUM - HYMENOCHILA) ACICULARE, Batem., *Bot. Reg.*, 1841, Misc., p. 46; Lindl., *Fol. Orch.*, n. 44; *Walp. Ann.*, vi., p. 333; *E. linearifolium*, Hook., *Bot. Mag.*, t. 4572; Lemaire, *Jard. Fleur.*, ii., t. 145 (copied from *Bot. Mag.*) *E. bractescens*, Lindl., *Bot. Reg.*, 1840, Misc., p. 58.—Mexico. Introduced by Hartweg for the Horticultural Society of London. One of the prettiest of the medium-size species, having slender grass-leaves and slender scapes, bearing numerous flowers with dull purple-brown green-tipped sepals and petals and a delicately painted white lip.

2. E. (EUEPIDENDRUM-SPATHACEÆ) ACUTISSIMUM, Lindl., *Fol. Orch.*, n. 142; *Walp. Ann.*, vi., p. 362; *Ill. Hort.*, xxviii., p. 95.—New Grenada. Introduced by Linden in 1852.

3. E. (ENCYCLIUM-HYMENOCHILA) ADENOCARPUM, Llav. et Lex., *Nov. Veg. Descr.*, fasc. ii., *Orch. Opusc.*, p. 22; Lindl., *Fol. Orch.*, n. 62; *Walp. Ann.*, vi., p. 339. *E. crispatum*, Knowles and Westc., *Fl. Cab.*, ii., p. 79. *E. papillosum*, Batem., *Bot. Reg.* 1838, Misc., p. 7; *Bot. Mag.*, t. 3631.—Mexico and Guatemala. Introduced by Mr. G. Ure Skinner, and cultivated by Mr. Bateman. Sepals and petals yellowish-green; labellum white with three purple lines in the middle.

4. E. (ENCYCLIUM) ADVENA, Rchb. f., *Gard. Chron.* 1872, p. 1194.—Brazil. Cultivated by Mr. O. O. Wrigley, of Bridge Hall, Bury, Lancashire. A beautiful species, allied to E. altissimum, with flowers nearly two-thirds the size of those of E. atropurpureum. Sepals and petals yellowish, veined with brown; lip yellowish-white, with purple streaks.

E. ÆMULUM = fragans.
E. ÆRIDIFORME = Harrisonæ.
E. AFFINE, Focke = oncidioides.
E. AFFINE, Rich. = fucatum.
E. AGATHOSMICUM = densiflorum.
E. ALATUM, Lindl. (not of Batem.) = ambiguum.
E. ALATUM, Lindl. = trachychilum.

5. E. (ENCYCLIUM—HYMENOCHILA) ALATUM, Batem., *Orch. Mex. and Guat.*, t. 18; Lindl., *Fol. Orch.*, n. 53; *Walp. Ann.*, vi., p. 336. *E. longipetalum*, Lindl., *Lindl. and Paxt. Fl. Gard.*, i., t. 30; Lemaire, *Jard. Fleur.*, i., t. 81 (copied from *Lindl. and Paxt. Fl. Gard.*). *E. calochilum*, Hook., *Bot. Mag.*, t. 3898. *E. formosum*, Klotzsch, Otto and Dietr., *Alg. Gart. Zeit.* 1853, p. 201.—Guatemala. Hartweg, Warscewicz, and others. Very sweet-scented. Panicles long and straggling. Sepals and petals purple and green; lip straw-coloured, bordered with yellow and streaked with rose. Hort. Kew.

E. ALOIFOLIUM = falcatum.
E. ALTERNANS = fimbriatum.

6. E. (ENCYCLIUM — HYMENOCHILA) ALTISSIMUM, Batem., *Bot. Reg.* 1838, Misc., p. 38; *Fol. Orch.*, n. 52; *Walp. Ann.*, vi., p. 336.—Bahamas Introduced by Ure Skinner, and cultivated by Mr. Bateman. Flowers smelling strongly of bee's wax, as large as those of E. oncidioides, on a very long branching scape.

7. E. (ENCYCLIUM) AMABILE, Linden and Rchb. f., *Bonplandia*, 1855, p. 219; *Walp. Ann.*, vi., p. 332; *Ill. Hort.*, xxviii., p. 96.—Mexico. Introduced by Linden in 1854. Panicle slender; flowers as large as those of E. virgatum; sepals and petals hoary brown; lip golden, dotted with purple.

8. E. (ENCYCLIUM — HYMENOCHILA) AMBIGUUM, Lindl., *Fol. Orch.*, n. 56; *Ill. Hort.*, t. 606; *Walp. Ann.*, vi., p. 338. *E. alatum*, Lindl., *Bot. Reg.* 1847, t. 53, not of Batem.—Guatemala. Cultivated by Mr. Rucker. Sepals and petals yellowish-green; lip wavy, white and crimson. Hort. Kew.

9. E. (SPATHIUM—RACEMOSÆ) AMETHYSTINA, Rchb. f., *Gard. Chron.* 1867, p. 376.—Western South America. Imported and cultivated by Messrs. Backhouse, of York. A graceful little Orchid, bearing erect racemes of about a dozen amethystine flowers, nearly as large as those of Rodriguezia secunda.

10. E. (ENCYCLIUM) ANICETUM, Linden and Rchb. f., *Bonplandia*, 1855, p. 219; *Walp. Ann.*, vi., p. 327; *Ill. Hort.*, xxviii., p. 96.—New Grenada. Introduced by Linden in 1852. Flowers about the size of those of E. aromaticum; sepals and petals greenish; lip striped with purple.

E. ANCEPS = fuscatum.

11. E. (EUEPIDENDRUM—AMPHIGLOTTIDEÆ) ANTENNIFERUM, Lindl., *Lindl. and Paxt. Fl. Gard.*, i., p. 184, fig. 113; *Fol. Orch.*, n. 195; *Walp. Ann.*, vi., p. 382; *Refug. Bot.*, ii., t. 91. *E. longipetalum*, A. Rich. and Gal., *Ann. Sc. Nat.*, série 3, p. 22.—Mexico. Introduced by Quesnel, and flowered by Mr. Pescatore. Flowers small, green tinged with red, remarkable for the relatively long and narrow petals, which are three or four times as long as the other parts of the flower, and directed downward under the labellum.

12. E. (EUEPIDENDRUM—SPATHACEÆ) ANTHOCEROS, Linden and Rchb. f., *Bonplandia*, 1854, p. 281; *Walp. Ann.*, vi., p. 366; *Ill. Hort.*, xxviii., p. 96.—New Grenada, at 6000 to 8000 feet. Introduced by Mr. J. Linden in 1850. Near E. cornutum. Flowers yellowish.

13. E. ARACHNOGLOSSUM, André, *Rev. Hort.* 1882, p. 554, with a coloured plate.—New Grenada. Introduced by Mr. Ed. André, and cultivated by Mr. Godefroy-Lebeuf, Argenteuil. A showy species of the same group as E. ibaguense. Flowers rich lilac-purple, with a little yellow on the column; lip deeply fringed.

14. E. (EUEPIDENDRUM) ARBUSCULUM, Lindl.; Benth., *Pl. Hartw.*, p. 93; *Fol. Orch.*, n. 277; *Walp. Ann.*, vi., p. 410; *Gard. Chron.* 1843, p. 523.—Mexico. Introduced by Hartweg, and flowered in the garden of the Horticultural Society of London. Flowers dull chocolate, relieved by a patch of yellow in the middle of the labellum.

15. E. (EUEPIDENDRUM—SPATHACEÆ) ARMENIACUM, Lindl., *Bot. Reg.*, t. 1867; *Fol. Orch.*, n. 153; *Walp. Ann.*, vi., p. 367.—Brazil and Peru. First flowered in England about 1835. Flowers Apricot-coloured, numerous, very small (less than ¼ inch across), in drooping racemes. Pretty.

16. E. (ENCYCLIUM—HYMENOCHILA) AROMATICUM, Batem., *Orch. Mex. and Guat.*, t. 10; Lindl., *Fol. Orch.*, n. 55; *Refug. Bot.*, ii., t. 89. *E. incumbens*, Lindl., *Bot. Reg.* 1840, Misc., p. 45.—Guatemala. Originally introduced by Mr. Skinner, and cultivated by Mr. Bateman. Flowers medium size, yellowish-green, with a white labellum, veined or streaked with crimson. Hort. Kew.

E. ARTICULATUM = tessellatum.

17. E. (ENCYCLIUM) ASPERUM, Lindl.; Hook., *Journ. Bot.*, i., p. 6; *Fol. Orch.*, n., 61; *Walp. Ann.*, vi., p. 339. *E. flabellatum* and *E. rugosissimum*, Hort.—Panama to Peru. Cultivated by Consul Schiller in 1857.

E. ATROPURPUREUM, Lindl. = bifidum.

18. E. (ENCYCLIUM—HYMENOCHILA) ATROPURPUREUM, Willd.; Rchb. f., *Bonplandia*, 1854, p. 19. *E. macrochilum*, Hook, *Bot. Mag.*, t. 3534; *Ann. de Gand*, t. 86 (var. albopurpurea); Batem., *Orch. Mex. and Guat.*, t. 17, and Paxt., *Mag. Bot.*, xi., p. 243, with a coloured plate, copied in *Fl. des Serres*, t. 372 (var. roseum).—Mexico. Introduced by Mr. C. Horsfall, in whose collection it flowered in 1836. A very handsome species, said to have the largest flowers in the genus. The original variety has bronze-green sepals and petals, and a yellowish-white lip with crimson stripes, and the variety roseum has purple sepals and petals, and a bright rosy lip. Hort. Kew.

E. AUREUM = aurantiacum.

19. E. (EPICLADIUM) AURANTIACUM, Batem., *Bot. Reg.* 1838, Misc., p. 8; Lindl., *Fol. Orch.*, n. 1; Batem., *Orch. Mex. and Guat.*, t. 12; Regel, *Gartenflora*, t. 158. *E. aureum*, Lindl., *Fol. Orch.*, n. 5. *Broughtonia aurea*, Lindl., *Bot. Reg.*, 1840, Misc., p. 19.—Mexico and Guatemala. Introduced by G. Ure Skinner, and flowered both by Mr. Bateman and Sir Charles Lemon about 1836. A very handsome species. Mr. Bateman was doubtful whether this should be referred to Cattleya or Epidendrum; and Mr. Bentham says that in structure it is nearer the former genus. Hort. Kew.

20. E. (ENCYCLIUM—HOLOCHILA) AURITUM, Lindl., *Bot. Reg.* 1843, Misc., p. 4; *Fol. Orch.*, n. 13; *Walp. Ann.*, vi., p. 323. *Dinema paleaceum*, Lindl., *Bot. Reg.* 1840, Misc., p. 51; *Refug. Bot.*, t. 87. *E. Lindenianum*, A. Rich. and Gal.; Lindl., *Fol. Orch.*, n. 83.—Guatemala. Cultivated by Mr. Bateman. A small plant, with quite small very pale yellow, though very sweet-scented flowers.

21. E. BAHIENSE, Rchb. f., *Hamb. Gart. Zeit.*, xv., p. 53.—Bahia. Imported and cultivated by Consul Schiller, of Hamburg. Allied to E. longicolle, but having flowers only half as large.

E. BASILARE = Stamfordianum.

22. E. (ENCYCLIUM) BELIZENSE, Rchb. f., *Linnæa*, xli., p. 78.—Belize. Cultivated by Mr. W. W. Saunders and Mr. Day.

23. E. (ENCYCLIUM) BICAMERATUM, Rchb. f., *Gard. Chron.* 1871, p. 1194. *E. Karwinskii*, Rchb. f., *Gard. Chron.* 1869, p. 210, not of others. *E. squalidum*, Lindl., *Fol. Orch.*, n. 20, not Llav. and Lex.—Mexico. Introduced and cultivated by Messrs. Veitch. Like E. vitellinum in growth, but the flowers are ochre-yellow, with a deep brown disc; lip white and ochre.

24. E. (ENCYCLIUM—HYMENOCHILA) BIFIDUM, Aublet; Lindl., *Fol. Orch.*, n. 75; *Walp. Ann.*, vi., p. 343; *Bot. Reg.*, t. 1879; Redouté, *Liliac.*, t. 84. *E. atropurpureum*, Lindl., *Gen. and Sp. Orch.*, p. 99. *E. papilionaceum*, West., *S. Cruz*, p. 230.—West Indies, Guiana. A pretty species, having a tall erect spike of rather large flowers; sepals and petals pale green, dotted with purple near the tips; labellum rose, orange, and white.

E. BIFORATUM = cucullatum.
E. BISETUM = polyanthum.

25. E. (EUEPIDENDRUM — PANICULATÆ) BLEPHARISTES, Barker, *Bot. Reg.* 1844, p. 20; Lindl., *Fol. Orch.*, n. 185; *Walp. Ann.*, vi., p. 379.—Venezuela. Imported by Mr. Linden. Flowers rich rose colour, the column having the deepest tint of the garnet.

(*To be continued.*)

FORESTRY.

Maturity of Trees.—The subject of ripeness and maturity of crop is one, in its comprehensive sense, that less or more concerns every one, but specially those whose interest is closely connected with it. To know precisely when each respective product entrusted to their watchful care is ripe and mature, is to know that which is of immense importance, first to individuals, and then to nations. The farmer and gardener frequently require all their skill and knowledge to enable them to know the right and proper time to gather and store their diverse products, and yet their task is an easy and simple one, compared with that of the forester in respect of trees as to their ripeness and maturity.

A few days, or even hours, too late, or too early, in husbanding the product of the farm, or garden, so completely turns the scale at times as to lose or win a competency; and, therefore, the inevitable care and anxiety entailed upon both, in the pursuit of their avocations. To these harassing cares and perturbations the forester is happily almost a total stranger, and soundly sleeps while his brethren are kept awake by anxiety and care, because to him a few weeks or months, or even years, produces no alarming symptoms or signs of anything wrong in trees. This very influence, however, which so sweetly soothes the mind, is that which also lulls it asleep; and if, on the one hand, there is nothing to alarm, on the other there is as little to arouse; but the siren's enchanting note that whispers "Time enough yet," is by-and-bye transformed into the hideous reproach, "Too late, too late."

The whole economy and development of trees is so uniformly slow and imperceptible, that we neither observe it coming nor passing, and it is only when receding in the hazy distance of decay that a clear and startling revelation is made that something is far otherwise than it ought to be—that the goal of maturity had not only been reached, but considerably gone past. I saw a plantation of mixed hardwoods, sixty-five years old, partly cut down, a few weeks ago, of which fully 80 per cent. were diseased, the result of over-ripeness. This plantation should have been cut ten or fifteen years ago, and the ground replanted. The proprietor all the while little suspected that anything was seriously wrong with the plantation, and never thought of the circumstance that the growth of ten or fifteen years was not only lost on what should otherwise have been a succeeding crop of young trees, but every year it stood it was of less and less value. The term maturity, which bears several constructions, as used here signifies that state at which the timber is at its highest attainable industrial or commercial value, and beyond which state it loses in value every year it stands. In my last article (April 14 last), under maturity of trees, I endeavoured to show some of the more conspicuous aspects of the Norway Spruce, Silver Fir, Scotch Pine, Larch and Spanish Chestnut, and shall here speak of the Ash, Oak, and Wych Elm.

The common Ash is believed to be a native of Britain, and few trees are better adapted to the soil and climate of this country. It is one thing however to grow this, or any other tree for ornamental effect, and quite another thing to grow it for industrial purposes; and the different modes of culture for each have often been a means of misleading rather than enlightening, and require to be properly distinguished and explained. The Ash is essentially a fast growing tree, and if grown for profit should be in soils and situations where fastness of growth is promoted to the highest possible degree. Considering the kind of purposes to which it is usually applied, it is evident it should be grown with a clean and usually straight stem, to as great a height and proportional girth as possible. It is necessary that its rapid growth should continue throughout its whole life from first to last, and when it ceases to grow fast it should cease to grow at all, for if the tree is allowed to stand uncut after it ceases to grow rapidly, the wood very soon loses its toughness and elasticity. An example of this occurred under the writer's observation some years ago, which illustrates the subject. The plantation was at its prime at fifty-five years' growth, and the root cuts at that age were, to use the phrase of a carpenter who used much of the wood, as tough as whalebone. At seventy-five years old the toughness of the wood had almost entirely left it, so much so indeed, that what at the former period he paid 2*s.* 6*d.* per foot for, and sometimes even more, he now reluctantly gave 1*s.*, and said it was not worth even that price.

The subsoil was of a clayey nature, mixed with small stones, some of them water-worn, and of a cold unkindly nature, but the active soil (2 or 3 inches deep), was of better quality. The exposure was to the south, and the most sheltered trees were the best both in size and quality, and maintained their toughness longer than those on the high and exposed ground. It was evident the plantation should have been cut down and replanted at about fifty to sixty years old.

The Oak as a timber tree, unless damaged or diseased, may (unlike the Ash) be considered to improve in quality as long as it grows, even though slowly. Nor does it matter though the growth be fast in its early years and slow towards the end of life. If the soil is moderately dry, and the situation in other respects suitable, the Oak will grow profitably to 150 years, at which period it often pays well as a crop to cut and replant.

The Oak, as a rule, should not be cut so long as it is in a paying condition to stand, for it not unfrequently happens that a tree will make more wood and therefore pay better in ten years after it has reached 50 or 100 years than it did in the whole period of growth previously.

There is greater danger of the Oak being cut too young than of standing till too old, and the signs of ripeness and maturity in the Oak are so marked and evident that there is but little risk of mistaking the evidence even by those limited observations. The Oak, from its tenacity of life, and youth-renewing proclivities, fulfils amongst others one very important purpose in forest economy. As is well known, there are many situations in the landscape when the entire cutting and clearing of a plantation at one sweep as it were, would be nothing short of a rural calamity, hence the necessity of having some trees left to maintain appearance to the landscape till the succeeding crop is sufficiently advanced to take its place. The Oak answers this purpose remarkably well, because it usually remains healthy and in a paying condition twice as long as most other species. If therefore a plantation of Larch, Ash, Poplar, &c., be mixed with Oak when planted, when the crop is ripe, at say fifty, sixty, or seventy years, the whole may be cut except the Oak, which will be mature at the time when the succeeding crop is ready for clearing; and the same process may be repeated perpetually, by always planting Oak trees as a mixture amongst the general crop.

The Elm — at least the Mountain, Scotch, or Wych Elm (Ulmus montana), by which it is variously known, is thought to be a native of Scotland. Of this species there are considerable variety of various marked distinctions — some of them of very good quality and others quite the reverse, and it is a subject that deeply concerns any one connected with tree culture to find out how properly to distinguish between the good and bad, in order to make the selection before planting, for it is too late to make the discovery when the trees have grown forty or fifty years that they are of the spurious sort, and of no value. For timber of the proper kind of tree 2*s.* 6*d.* per cubic foot is readily obtained, while the wood of the others is only used for charcoal and household fuel, &c. Nothing reliable in the external appearance of the tree indicates what its quality is, and therefore the tree must first be cut down before it can be known what the quality of the wood is. The Elm requires good dry sound soil to grow in to perfection, and every tree should be thoroughly clothed with branches and have ample room so as to promote continuous rapid growth. With every attention, however, and the most skilful treatment it can never overcome or make good that which in its original nature is wrong in the kind of tree.

The Elm, in addition to the spurious varieties almost invariably found mixed with it in the nursery, is extremely liable to shake—both what is termed ring-shake and star-shake; defects but too well known to all connected with wood to require explanation. It is also very liable to ground-rot, but this is avoidable by proper care in planting and early thinning if the ground is well adapted to it in other respects.

Shaky trees are readily known, especially those affected by star-shake, for in them the rend, or split, less or more extends to the surface of the tree, and is quite easily seen upon the bark and trunk. To the former it imparts the appearance of incisions made with an instrument longitudinally, and to the latter a fluted irregular form, destroying the round smooth form common to sound trees, and gives the trunk an irregular form frequently accompanied by the discharge of a dark yeasty-looking fluid, alike unsightly and unsavoury.

The Elm, in Scotland at least, should be planted very sparingly, for as a rule there are few instances in which other trees would not pay from 50 to 80 per cent. better. When it really grows sound and healthy it is a valuable tree, and can be used for many purposes even at an early age; and when mature, if sound and of the proper sort, commands a good price. On this estate a tree was sold at an auction sale a few years ago which realised £17. It contained a little over 70 cubic feet, and was of excellent quality, and well adapted for boat-building purposes, for which it was used.

It is very difficult to state the age at which Elm should be cut as perfect and mature, but eighty to one hundred years may be considered not far from the age at which it pays best to cut it. *C. Y. Michie, Cullen House.*

COLONIAL NOTES.

Ceylon Botanic Gardens.—From the annual report of the Director we learn that, as regards Coffee, leaf disease has in no degree diminished, and the continued failure of crop during the past year has added to the difficulties of all concerned in the planting enterprise of the Colony. No combined effort whatever to prevent the disease on the lines indicated by its known nature has been even attempted, whilst the waste of money and time in local applications of "cures" has continued. As, at the same time, high cultivation and liberal manuring have become, generally, impossible from pecuniary necessities, the existing state of things, however much to be lamented, cannot be considered surprising.

Liberian Coffee has had to bear severe attacks of leaf-disease,* and rises and falls in planters' estimation, yet in suitable soils and localities it does well, and the old trees in Pérádeniya (now eight and nine years old), though badly diseased, show no marked diminution in their crop-bearing capacities; they are, however, regularly manured.

Cinchona.—The enormous advance in the cultivation of Cinchona fully justifies one in considering it, at present, as the foremost product of Ceylon. In some of the older districts C. succirubra is, on numerous estates, now completely supplanting the Coffee, which is allowed gradually to go out of cultivation as the former grows up amongst it. During the year ending September last, as much as 3,099,895 lb. were exported, being an increase of 1,892,175 lb. over that for the previous year, or considerably more than double.

The remarks made in my report for 1880 become thus every day more and more warranted—that, so long as quinine retains its supremacy, only the rich barks can secure good prices, whilst the inferior ones must hang on hand, and only be sold at reduced rates. There is little or no fear of an excess in production of bark of the best qualities here, but it is otherwise with the poorer sorts, and it is with these that, from the planting point of view, production may be overdone. On this account, in growing quinine barks, planters will do well to go in for the best kinds only. Of these, C. Ledgeriana still remains by far the most desirable, but it cannot be grown at high elevations.

It is, however, at the same time, pretty evident that we are approaching the time when the almost exclusive estimation of quinine must give way before the evident advantages of employing the mixed alkaloids. The great philanthropic idea which led to the acclimatisation of these trees in the East—the provision of the blessing of cheap febrifuge to a fever-stricken population—must be carried to its issue in spite of any interested efforts to delay it; the practical efficiency of the imperfect preparation made by the Indian Government, now well established, has shown the way to a vast future development of the use of similar and improved preparations.

The practice, invented by Mr. Moens, of shaving off the rich outer portions of the bark down to a plane as near the cambium zone as possible without reaching it, has become very general. It is found to be simple and easily learnt, expeditious, cheap, and very

* Hemileia not unfrequently attacks the fruit in this species.

convenient for drying, packing, and baling for shipment. As a consequence, it has nearly superseded other modes of harvesting, and it has been remarked that there will soon be little but renewed bark sent from Ceylon. The practice is applied to all the kinds grown, and, as a rule, the trees do not appear to suffer much, if the operation be carefully performed. New bark is rapidly formed, and the amount of quinine is much increased in the renewed tissues. The scraped surface is usually covered, the common Mana-grass (Andropogon Martini, Thw.), readily obtained and durable, being commonly used for the purpose; renewal, however, occurs without any covering, except in very dry weather. It is regrettable to see such very young trees (saplings of eighteen months even, scarcely ¾ of an inch in diameter) subjected to this process, with the accompanying pruning off of all side branches, and the short intervals allowed between successive shavings. There is a present small gain in such procedure, but it is doubtless wasteful in the long run. I have noticed many young trees succumb to the treatment, and in any case it must greatly check their growth, impair their vigour, and shorten their life. Experiments, however, are greatly needed to determine several points in connection with this subject, especially as to the ratio of the increase of alkaloids in renewed bark to the age of the tree, the best period to allow to pass between successive shavings, &c.

After much trouble, seed has been obtained at Kew of the "Cûpra Quina" tree affording the "Cuprea" bark imported during the last two or three years to the London market (*viâ* New York) in such vast quantities. A little of this seed has been sent to me; it was collected from trees growing between 5000 and 6000 feet at Landasugi, in the State of Santander (U.S. Columbia), and sent from Bogota. No time was lost by me in forwarding this to Hakgala, but I regret to say that only two seeds germinated, of which one subsequently died, so that we have now but a single seedling of this interesting plant. Mr. Triana has identified the Cuprea-bark trees as a species of Remijia, a genus nearly allied to Cinchona, so that it is no longer possible to consider the febrifugal alkaloids exclusively produced by the latter.

Tea.—The past year has witnessed a very striking rise in the export of Tea—no less than 345,702 lb. more in the year ending September, 1882, than in the previous one, the whole quantity shipped being 623,292 lb. Tea estates have been opened at all elevations, from near sea level up to the highest available land in the wet districts, and many old Coffee estates, not suited for Cinchona, are now cropped with Tea. This article has thus stepped into the second place, and with Cinchona has gone a considerable way towards compensating for the serious diminution in Coffee.

In connection with Tea, I may mention that an excellent wood for boxes is that of Cedrela toona, a large tree with a wide geographical range in Tropical Asia, but not native to Ceylon. The few trees in the gardens give an abundance of seed, and it has the advantage of growing very quickly. Thus, seedlings at six months measure 10 feet high, and in trees seven years old the circumference of the stem 1 foot above the ground is 4 feet 10 inches. The wood is light, strong, clean, non-resinous, and not attacked by insects.

Cacao.—There is every prospect that this article will play an important part in the future of Ceylon cultures. The year ending with September, 1882, saw 1018 cwt. exported, against 479 cwt. in the previous one; and what is more satisfactory is, that the prices secured show that our product is of the best quality, and esteemed in the market. In the lower hill districts are many old and more or less abandoned coffee estates, and on not a few of these Cacao is being successfully grown, if only due care be taken in first planting, and protection from wind afforded during the first two years.

Indiarubber.—In continuation of my previous reports on the South American rubber trees, I have now to record a considerable step in advance. Samples collected from each of the three species have been submitted to the best commercial authority in London, and the reports received are very encouraging so far as the quality and value of the product is concerned. In no way does the rubber fall short of that from the wild trees.

A tapping of Ceara (Manihot Glaziovi) was made at the end of April (dry weather) and about 20 oz. of dry rubber were obtained from nine or ten trees. One of these afforded nearly 4 oz., whilst another, which had been bled to the extent of 2 oz. the year before, gave scarcely 1 oz. The process followed consisted merely in peeling off the dry parchment-like outer bark and making short slanting cuts with a sharp knife on the green surface exposed. The milk flowed most freely in the early morning. I at first experimented with a small axe, purposely constructed, with a sharp cutting edge, prevented from penetrating too deeply by a projecting shoulder, but this did not answer so well as an ordinary knife. The milk which trickled down the stem was allowed to remain there till it solidified, when the strings were pulled off and rolled into balls. By this means a generally clean and dry sample was secured; a portion, however, afterwards acquired a somewhat sticky consistence along with a slight admixture of sand contracted by dropping on to the soil at the foot of the tree. I separated this from the rest and submitted both to Messrs. Silver for report, in June. They valued the dry and clean

Fig 8.—Pinus monophylla: showing the young and the adult foliage. (see p. 48.)

portion at 2*s.* 9*d.* to 3*s.* per pound—a high price for "Ceara Scrap;" the sticky portion, which could not be properly washed and analysed, was not considered worth more than 1*s.* to 1*s.* 3*d.* per pound. The importance of taking care to secure a clean, dry rubber is thus very evident.

The value of Ceara rubber being now assured, it may be expected that planters (some of whom have now a large stock of trees) will institute experiments as to the method which will secure the largest quantity of milk per annum or during the life of the tree.

Chinese Cassia lignea.—To Mr. Ford (Superintendent of the Botanic Garden at Hong Kong) the Gardens are indebted for sending (with the consent of the Secretary of State and the Government of Hong Kong) a Wardian case of young plants of Cinnamomum Cassia, the plant affording the "Cassia lignea" of commerce. Eighteen of these have been planted at Péradeniya, and some sent to Hakgala for trial. The plants seem very hardy. These were collected by Mr. Ford himself from the plantations on the West River in the province of Kwangtung, South China, where an immense cultivation is carried on. Like our Ceylon Cinnamon, the precise plant is not known wild, but is probably a cultivated race of some common wild species. By this visit Mr. Ford has satisfactorily determined that this is the sole source of "Cassia lignea," which has been hitherto supposed to be derived from a number of species of Cinnamomum. Dried specimens kindly sent me at the same time show that the species is quite the same as the C. cassia figured by me in *Medicinal Plants*, tab. 223, which was drawn from dried specimens at Kew, collected by Dr. Hance from a tree (as I have since ascertained) growing in the Public Garden of Canton. The export of this product from Canton in 1878 reached the enormous quantity of 58,313 piculs; it is, however, of far less value than Cinnamon in the market. The spice has been brought from South China since the earliest dawn of history, and is doubtless the original Cinnamon of the Mosaic and other early writings. The scent of the leaves is far more pleasant than that of Ceylon Cinnamon. A return case of the latter has been sent to Hong Kong.

The Apiary.

The Drumming of Bees.—In the last volume of the *Gardeners' Chronicle*, p. 819, embodied in a note commencing on p. 818, entitled "The Right of Property in a Roving Swarm of Bees," occurs the following paragraph:—"Such a statement as this shows in a simple way what strong yet absurd superstitious ideas still cluster about our rural districts, for both the hideous drumming discord and the non-prosperity of stocks quarrelled over are equally foolish." I am quite willing to agree that belief in non-prosperity of stocks quarrelled over is a foolish superstition, and to grant that the drumming is a hideous discord, but that it is equally foolish with the quarrelling superstition, I think, requires proving before it is set aside as an absurd custom. The idea is, I believe, that the drumming noise tends to quiet the bees, and causes them to settle somewhere near at hand instead of flying away to a distance; and in this, I think, the countryman is most likely more correct than the wise one who regards the drumming as of no use. Although I have no practical knowledge of bees, yet, from observation of other insects, I have long known that some—and more especially moths—are most decidedly attracted by certain sounds. For on very many occasions, when on a spring or summer evening at dusk I have been walking with, or talking to a companion, I have had a moth fly direct at my mouth or ear, and some of my companions have experienced the same thing whilst with me, when speaking in a certain tone of voice, and with the sound of the words rather prolonged. I have never known them fly at me when speaking rapidly, or in shrill tones. That the moths are attracted by the sound of the voice, and that they have not flown against my mouth or ear by accident, I am perfectly certain, for on more than one occasion, when a moth has flown at me in that manner when speaking, I have amused myself by repeating in the same tone, over and over again, the word or words I had just spoken, and have had the moth, or what I have taken to be the same moth, again and again fly at my mouth or ear, though why they should fly at the ear I never have been able to comprehend. Often, too, when a piano has been playing and there has happened to be a moth in the room, I have seen it come and hover over and even settle upon the piano, not attracted by the lights on the instrument, for they were not used; and I have seen as lately as a month back a moth deliberately leave a gas-light around which it was flying and go straight to the piano when it began to be played upon. I have also on one or two occasions seen a moth hover over a violin that was being played upon. But the most remarkable instance of their being attracted by sound was upon one occasion when at dusk one spring evening in a country town an Italian boy was playing the instrument called a hurdy-gurdy, and there were two or three moths and a beetle (a Melolontha, I believe), hovering around the instrument, and it was amusing to see the boy try to drive them away and play his instrument at the same time. The moths I have above alluded to were all of the larger kinds, but as I never attempted to catch them I do not know what species they were, but

they were certainly either Bombyces, Nocluæ, or Geometers, and I do not remember to have seen any of the smaller moths similarly attracted by sounds.

Now if certain sounds have an attraction for some other insects why may they not also affect bees, and produce the effect of causing them to settle sooner than they otherwise would do? There are many customs practised by country folk that are looked upon by scientific men as absurd and foolish, and many of them undoubtedly are so, but it is doubtful if the drumming of bees be one. *N. E. Brown.*

Law Notes.

THE RATING OF GREENHOUSES.—At the Hertfordshire Quarter Sessions, held on July 2, Messrs. W. Paul & Son, of Waltham Cross, appealed against their new assessment to the Edmonton Union. They were in 1881 assessed at £180 (£165 ratable), and this year, although there had been no addition made to the property, the assessment had been raised to £345, consequent on a re-valuation of the waterworks, gasworks, railways, and greenhouses in the Union.

Mr. Douglas Walker for appellants; Mr. Castle (specially retained) for respondents.

Mr. Walker pointed out that in the new valuation Mr. Paul's land had been put up to £5 an acre, whilst some, on account of being liable to be flooded, and some through being used for growing Coniferæ, was not worth that sum. The ratable value of the land, 32 acres 3 roods, at £5 an acre, came to £165, which, with £38 ratable value of offices and buildings, came to £203. That left £142 for the greenhouses, which made the £345. The great question was the value of the greenhouses. There were twenty-one houses, a considerable number close by the high road, and the parish had rated them most unjustly. Mr. Walker then cited cases in support of the following principle, which, he contended, was applicable to the matter in dispute, viz., they would first consider what a hypothetical tenant would give for the land, and then what more rent he would pay because of the convenience offered him by what existed on the land, in this case, by the greenhouses. He then contended that the value of the greenhouses was very small, because of the great cost of keeping them in repair.

Mr. Castle did not dispute the principle. The appellants were entitled to deduct insurance and the cost of work necessary to maintain the greenhouses in a fit state to earn the rent.

Mr. D. Walker said the houses had been valued at £1462; and taking 10 per cent. on the present value as the rent, they arrived at £146 19*s.* as the ratable value. Going back to the expense of keeping up the houses, he said Mr. Paul paid a man £1 a week to paint and repair, £52; and there was the cost of materials, insurance, &c., which left £28 2*s.* for the rent, which he contended was the outside value of the houses to an incoming tenant.

Mr. G. F. Morris, of Protheroe & Morris: I have had thirty years' experience and valued important nurseries; have inspected Mr. Paul's greenhouses; they are not of the plan adopted at the present time; the average life of a greenhouse is twenty years, some would decay sooner, as if you were growing Cucumbers. My business is to let as well as sell. I should think the greenhouses would be a great obstacle in letting the land, as we find it difficult to get a man to take them undertaking to keep them in repair; they are no more value to the premises than a carpenter's bench; I do not think we should get a tenant for the greenhouses on a repairing lease, especially rafter greenhouses. As to the cost of keeping the houses in repair it is my opinion the cost will increase; the expense of putting new bars, glass, and painting would be about 8*d.* a foot. Taking the land at 32 acres, I know a piece of land near the stream, 3 acres 2 roods, which I value at £2 an acre, which gives £7; there are 7 acres 2 roods, very stony and poor—I value that at £18 2*s.* 6*d.*; the remaining 21 acres I value, deducting 2 acres for the buildings, at £4, which gives £101 2*s.* 6*d.* I value the offices and premises at £30; I value the greenhouses at £1105 13*s*; piping outside, £20; making £1125 15*s.*; pipes, £176 4*s.*; cart sheds, corn sheds, stabling, £89; large pump and tanks, £48; boiler, £23; making, £1462 11*s.*

(Cross-examined): Mr. Castle asked what the property would let for as a whole, the landlord doing repairs?—Mr. Morris: I do not believe the landlord would do the repairs; I have not considered the question.

Mr. Castle: The tenant doing the repairs what ought the landlord to get?—Mr. Morris: I should say about £215.—Mr. Castle: That is what the landlord ought to put in his pocket. The repairs come to £104 7*s.* and the insurance to £14 10*s.*, which make £118 7*s.*, which added to £215 makes £333 17*s.*; so that if the landlord did the repairs, he would expect £333 17*s.* according to your own figures—is it not so?—Mr. Morris: I don't consider the landlord would do the repairs; we should never get that sum. Some of Mr. Paul's greenhouses are more than twenty years old. The letting value of the land, cleared of all houses, is about £110; have seen better land nearer London let at £3 an acre.

(Re-examined): I don't think you could get £215 a year for the property, the tenant doing the repairs.

Mr. W. Paul, Waltham Cross: In 1881 I was assessed at £180: have since been rated at £345; the 3½ acres, overflowed with water part of the year, is not worth so much as Mr. Morris stated; we cannot drain it; the 7½ acres is very stony soil and is worth £2 5*s.* or £2 10*s.* at the outside; only the very commonest description of nursery stock grows there. I put the 21 acres at £4 as the full outside value; it would be no use for a market gardener. Jno. Dewey's land is well suited for a market gardener.—Mr. D. Walker said Mr. Dewey's worked out £2 16*s.* 9*d.* per acre, rateable value.—Mr. Paul: I know Wilson's; it is a very fine meadow, 4 a. 1 r.—Mr. D. Walker said the rateable value came out £3 an acre.—Mr. Paul: The greenhouses cost a great deal to keep up, and we have a glazier constantly watching and repairing: they require painting inside once a year. For the land and buildings I would take £150 a year, the tenant doing repairs, but this property is not letable; I do not think I should get it. I make the yearly cost of repairs about £108. I have to remove much earth with the plants. Some of our crops extend over three, four, five, or six years. We have great competition. Cut Roses that used to sell for 9*s.* now fetch only 3*s.*

FIG. 9.—PINUS PINEA: SHOWING THE TWO FORMS OF FOLIAGE. (SEE P. 48.)

(Cross-examined): I would take £150 for the whole place, the tenant doing repairs. Don't want to let it. The figure is based on calculation. Am freeholder of all but 4 acres. I pay £24 for them. I bought some of the remainder at £90 an acre. For 12 acres and three cottages, which let at £36 a year, I paid £85 an acre, which brought the land to £49. I let some of the other land, which I bought twenty-five years ago, at £3 an acre, until I wanted it.

Alexander Adams said: I was many years a horticultural builder; I built all these greenhouses but one; began about twenty years ago; I should not like to keep them in repair for £100 a-year—think I should lose. I charged 4½*d.* a foot for the woodwork.

W. C. Simmons, horticultural builder, Stoke Newington: I have seen Mr. Paul's greenhouses. Unless let on repairing lease they would not let.

G. Ward, son of Mr. Ward, florist and nurseryman, proved that there was much competition in the business, foreign and home, for flowers, and for fruits more particularly.

J. Hayes: I have been over Mr. Paul's grounds; could not give a yearly value; at times I have lost the whole of my glass.

J. B. Slade, clerk to Protheroe & Morris: I know cases of property let with greenhouses on seven, fourteen, or twenty-one years' lease, the tenant to repair, and with the option of the tenant to continue. We do not let many properties on such leases; we cannot get tenants. Think we have let five or six the last two years.

(Cross-examined): We are the only firm that let nurseries. We have some on our books four years. Do not know that £150 for 32 acres with a lot of glass would be cheap; it would all depend on what the greenhouses were.

This was appellant's case.

Mr. Castle, in opening respondents' case, said the case was first brought as a kind of test case to decide whether greenhouses were part of the ratable buildings, and instead of having to fight that, he was met with the allegation that the greenhouses being assessable the valuation was excessive. He contended that the evidence of Mr. Morris and Mr. Paul was not sufficient to alter the valuation, and that the appellants had not shown that £5 an acre for the land was too much. The respondents' estimate of the value was £2900.

Mr. W. H. B. Castle, Fellow of the Surveyors' Institute, said he had valued important horticultural properties; had valued all the nurseries in Edmonton Union; valued Mr. Paul's at £2944; he valued the greenhouses by ascertaining the cubic contents, 126,000 odd, and the land at £5 an acre, on experience gained in going through the Union.—(By Lord Salisbury): Cheshunt was some of the most northern part of the Union, and least valuable.

(Cross-examined): He had been employed to value the railways, gasworks, waterworks, and greenhouses in the Union, and he valued the land appertaining to the greenhouses; he was paid a commission on the value sustained before the Assessment Committee; believed his valuation of some of Mr. Geo. Paul's land was reduced by the Assessment Committee; did not know that he put the value at £702, and the Committee reduced it to £577. Mr. Tudgey's land, which was close to Mr. W. Paul's, was valued at more than £5; it was rated at £105 nett, and consisted of glass, glasshouses, and 1 a. 3 r. 24 p.; he valued it; did not think Mr. Tudgey had appealed.

The Court asked whether Mr. Paul's books could be got at in order to ascertain the rent that Mr. Paul put on his premises in his partnership account with his son.—Mr. D. Walker said the books were not there.

Mr. Paul, Jun., was called, but could not say how much rent was charged.

Mr. Edwin Fox, senior partner in the well-known firm of Fox & Bousfield, Gresham Street, City, said he had been in practice many years, and knew something of the description of property in question. Mr. Paul's land, considering its state of cultivation, was worth £5 an acre to any one; and as far as the freehold value was concerned they would not get land with a frontage to the high road for less than from £100 to £150 an acre. £2944 was a fair valuation.

Mr. Castle again addressed the Court. Mr. D. Walker replied, and, amongst other things, contended that £4 an acre was ample for the land. The Justices retired. On their return,

Lord Salisbury, chairman, said: The Bench has fixed the ratable value of the holding at £250. The Court ordered the rate to be amended accordingly, and costs follow the event.

Orchid Notes and Gleanings.

Work in the Houses.—In the East Indian-house most of the early blooming Aërides will now be over, and there will be nothing to prevent giving the plants a full supply of atmospheric moisture. Where a high development is expected among the epiphytal Orchids, such as the occupants of this house, the state of the atmosphere at this season is most important. During bright weather this house will require damping down several times daily, and a good supply of moisture must be maintained during the night. For giving off a constant supply of moisture nothing is better than a good bed of cocoa-fibre or decayed leaves, placed under the stages and in out-of-the-way places in the house. These beds, kept constantly damp, will prevent the plants from suffering from aridity of atmosphere, even during the brightest weather. With this abundant humidity it is necessary to ventilate freely—in fact, the house should never be entirely closed, night or day, as nothing is more injurious than a damp, stagnant atmosphere. A very slight degree of ventilation will keep the air of the house in motion, and this is a very necessary condition during the growing season, as growths made in houses insufficiently ventilated seldom last long, and soon become a prey to spot or some other disease. This treatment with the fullest possible light—short of direct sunshine—will give good growths with firm tissues, almost equal to plants growing in their native habitats, where they are always under the beneficial influence of gentle breezes, and sometimes to winds of great fury, which no doubt greatly assist in ripening the growths, and bringing the plants into a condition to stand vicissitudes of temperature. All the Aërides after flowering should be carefully sponged over, as where the flower-spikes have come in contact with the foliage they generally leave a glutinous substance on the leaves, and this, by stopping up the pores, may, if left long on the plant, lead to decay. The late summer bloomers, such as A. quinquevulnerum and A. suavissimum, will be pushing out their spikes, and should be encouraged with a little extra moisture. The late flowering Saccolabium Blumei and S. Blumei majus will also be in similar condition to the above, and the flower-spikes of this plant should be guarded from the attacks of insects. The Phalænopsis will now be growing freely, and will take very liberal supplies of water at the roots—especially if the material about their roots is thoroughly porous, which it always should be—when there will be little danger of overdoing them at this season. Any flower-spikes that may appear while the plants are making growth must be removed, so that the whole root force will be concentrated in the development of healthy leaves. Keep these plants as near the light as is consistent with safety, and watch carefully that no thrips or other insects get into the heart of the plants, as if once they get a footing they are difficult to eradicate. A very moist atmosphere is a necessity and a constant gentle current of air should always be maintained around them, to render the growths firm and lasting. The Stanhopeas will now be in season, and after flowering any that need rebasketing may be seen to early. It is necessary to keep the drainage of these very open so that as little obstruction as possible be given to the spikes as they descend from the base of the bulbs. A compost of fibry peat and charcoal will suit them, surfacing over with clean sphagnum moss. Some of the late flowering Dendrobes, such as D. moschatum and D. clavatum, will be starting into growth, and as they are free rooters they soon fill out and require more root-run. These strong growing Dendrobes will do best in fibry peat and potsherds, and as they require abundance of water while growing a liberal allowance of drainage must be placed under them, and the plants be put in strong heat so as to get the growths as forward as possible before the days get short. *J. Roberts, Gunnersbury Park Gardens.*

Cypripedium macranthum.—I have read Mr. Golding's excellent article on Cypripediums (p. 755, vol. xix.), and I hope derived some benefit. We all (I, certainly) want to grow successfully the hardy varieties, and gather hints from all quarters. I send you some extracts from my note-book as to the culture of C. macranthum. Mr. Golding says, "C. macranthum and its near neighbour ventricosum are the most difficult to deal with in gardens; but this difficulty arises no doubt from placing the plants in moist peaty bogs, whereas they require to be treated similarly to C. calceolus," *i.e.*, "in stiff loamy soil mixed with limestone." Referring to my note-book I find, in reference to C. macranthum, "Grows well in boggy soil near the river, where it gets flooded in winter and spring." This is an extract from a letter received from those most successful cultivators, the New Plant and Bulb Company, Colchester. Again, as to C. calceolus, Mr. Goldring says, "stiff loamy soil mixed with limestone;" but a very recent note (I have lost the authority, but I think I took it from the *Gardeners' Chronicle*) says, "it grows best in almost pure sand." I could give many similar instances of the discrepancy in the system of culture, &c., commended by different persons, and the plants are far too expensive to experiment on. We want some one who actually manages them from year to year to give precise notes as to his practice. I have no difficulty whatever with C. spectabile, and can grow it well (at least, I suppose so, as I had a Cultural Commendation from the Royal Horticultural Society); but all the others, excepting C. pubescens and C. calceolus, are simply unmanageable. Any further hints from really successful growers would much oblige. *A. R.*

Vanda teres.—I send you a few blooms of a Vanda teres that is just waning. The plant was gorgeous when in full beauty; with the pot it measured upwards of 4 feet high and about 3 feet through, and carried from 250 to 260 flowers, in some instances six on a stem. Being fond of Vanda teres I have grown two to four plants for the last twenty years, but never had one in such grand bloom as this. Strange to say, the circumstances of growth have been of the simplest character, no coddling or extra attention. The plant has been in a small, close, hot, moist stove for about twelve months—a house principally devoted to East Indian Orchids, such as Dendrobiums, &c. I have another large plant which I exhibited a few years ago at one of our Whitsuntide exhibitions, and it obtained universal admiration though it only carried about forty flowers. This I presume is the Andersoni variety which Mr. Williams in his *Orchid Growers' Manual* says is a more free-flowering variety. *Jos. Broome, Wood Lawn, Didsbury.* [The true Vanda teres. Ed.]

Saccolabium Berkeleyi, Rchb. f.—This beautiful Saccolabium has flowered for the first time in England in Lieut.-Colonel Berkeley's collection. The flowers are large, more loosely placed on the stem than is customary in the genus, and the flowers white and very regularly striped with amethyst.

Cypripedium ciliolare.—This recent introduction is described in the *Gard. Chron.*, vol. xviii., p. 488, as closely allied to C. superbiens, and a very ornamental one of its class. As to its handsome and decorative character there is no uncertainty, and every collection of any pretensions ought to include it. The standard or upper sepal is traversed longitudinally with green veins on a white ground suffused with purple, while the oblong lanceolate purple petals are closely spotted with black on the lower half, and strongly ciliate on both margins with black hairs. The labellum, generally the least attractively coloured, is here dull purple, and covered all over with a short pubescence. These characters, together with the pale green spotted leaves, and coupled with the long lasting properties of the flowers, constitute the species a valuable one for garden purposes. It has been flowering for some time in the Kew collection.

Mr. Leech's Orchids, Fallowfield, Manchester.—It is a pleasure to see a collection of Orchids where the proverbially most difficult to manage East Indian section, Aërides especially, are in a rude healthy condition, the plants keeping on thriving with perfect foliage free from spot or blemish, remaining on the plants so as to clothe their stems down to the pots. Such is the condition of the large number of these plants which this collection contains, and which collectively are models of successful cultivation. Of A. Fieldingi, which more than many kinds is liable to spot in the leaves, there are quantities with the foliage as perfect as it could possibly be, and literally loaded with their long branching spikes; there are several dozen examples of A. Lobbii in similar condition; some of the strongest spikes measured, a few weeks ago, as much as 35 inches, with two or three branches each, and had not reached their full length. A. Dayanum, A. Warneri, A. nobile Rucker's variety; A. suavissimum, A. crispum, and the beautiful A. crassifolium, the last one of the finest of all the species, and, like the rest, was blooming freely. One side of a good sized span-roofed house is filled with these plants, and it does one's eyes good to look upon them when it is no unusual thing to hear of people giving up growing East Indian Orchids on account of their not doing so well as the cooler kinds. Naturally free flowerers—as most of the species are—they bear more as well as larger spikes when in a vigorous and healthy state, such as the plants assume when the treatment they receive is of a kind to bring out their true character; the result being that they bloom without any of the over-drying punishing winter treatment, which, if even carried so far as to cause the bottom leaves to prematurely fall off, will not induce the plants to more than produce an unsatisfactory amount of flower. In an adjoining house, principally occupied by Cattleyas and Lælias, the plants are in equally satisfactory order, with big stout bulbs and leaves to match, free from speck or spot. The collection is particularly rich in C. Warneri, and others of the leading kinds; a remarkable plant of C. Mendeli had some seven very strong spikes coming on. Amongst Dendrobiums is D. Falconeri, one of the best flowered examples I have seen, the flowers large and highly coloured; D. album, D. thrysiflorum, several plants bearing from a dozen to seventeen spikes; D. chrysotoxum, a fine form, with ten spikes coming on. Whatever similarity there may be in the flowers of Mr. Swan's hybrid Dendrobium Leechianum to those of D. Ainsworthii the habit of the plants is very different, differing still more as they get older, and show more of their true character. The cool division, including Masdevallias and Odontoglots are in equally fine order. Amongst numbers of the latter in bloom were O. Coradinei, deep primrose ground, with purplish-brown spots on sepals, petals, and lip; and one or two other supposed natural hybrids, as yet little known. Cypripediums thrive like weeds. The collection contains most of the best representatives of the genus, a good many of the spring-flowering kinds being in bloom. Disa grandiflora grows with Mr. Swan in a way that makes its flowering profusely a certainty. The plants are as thick and stout in their stems as Lilies growing in the open air, and are kept quite cool and soaked with moisture regularly whilst growing.

Cypripedium spectabile.—In Sir William Marriott's garden, at Down House, Blandford, there is a clump of this Orchid, bearing thirty spikes of flowers, seven with single flowers, and twenty-three with two flowers on each spike, making in all fifty-three flowers. The original plant was put out in the herbaceous garden about nine years ago; all the protection it has had since has been a few leaves shaken over the crown late in the autumn. It increases in size very fast.

Notices of Books.

Traité de Botanique Médicale.—M. Baillon has added to his already voluminous publications by the issue of a treatise on medical botany, which comprises a summary of the conformation and physiology of plants, to be followed in the next part by a description of the plants interesting to the medical man. The book is copiously illustrated with excellent woodcuts, many of which have done duty before in the author's other works. The sections relating to organography and physiology are treated solely with reference to the needs of medical students, and are not intended as full expositions of the subject.

—— *Jahrbuch des Königlichen Botanischen Gartens zu Berlin.*—The Year-Book of the Berlin Botanic Garden, published under the editorship of Drs. Eichler and Garcke, contains a detailed monograph of the Turneraceæ, by Dr. Urban, who also contributes a memoir on the biology and morphology of Rutaceæ; a paper on the nature of the Androecium of Malvaceæ, by Dr. Schröter; on the exudation of liquid water from the leaves of plants, by Dr. Volkens; on the Pomaceæ, by M. Wenzig—the list of which is apparently incomplete. Dr. Garcke gives a list of Hildebrand's Malvaceæ.

—— *Familiar Wild Flowers* and *Familiar Garden Flowers* (Cassell) go on in their accustomed course, with pretty illustrations and interesting texts. The initial letters are particularly good.

The Hardy Fruit Garden.

COPIOUS rains have fallen in most places, providing for the time sufficient moisture to the roots of fruit trees, so necessary for the swelling of the fruit, which process has been rapid during the past week. Where wide glass copings are permanently retained, the fact may be overlooked that the rain has not been able to get at the roots of trees under its protection, hence it will be found necessary to regularly supply water by means of the hose or waterpot, and to keep them well mulched, otherwise a premature ripening or falling off may be anticipated. The above applies more especially to south walls. Continue to train the growths of Peaches and Nectarines, and keep all lateral growths closely stopped. Apply sulphur where mildew has made its appearance. The application of liquid manure to fruit trees must be governed by the general appearance of the health of the tree, and the crop it is intended to retain. A vigorous growing tree will perfect its fruit if mulched and supplied with water without the aid of any further stimulant, otherwise the vigour is increased and the chances of a future crop lessened. Only those of medium growth and carrying heavy crops need the aid of liquid manure, and this must be carefully and judiciously applied.

Finally stop the growth of Pears and Plums on walls, also pyramids, espaliers, cordons, &c. Remove the suckers from all kinds of fruit trees, and the growth from the stocks of newly grafted trees. The Apple crop now without a doubt will be good both in gardens and orchards, the foliage as well as the fruit having been greatly benefited by the cleansing from blight, &c. Fig trees that have suffered from the effects of the late spring frosts are breaking very thickly; where such is the case disbudding must be performed, reducing the number to one or two shoots, as the case requires, to provide against the overcrowding of branches. Layer Strawberries for making new plantations. Well manure and trench where it is intended to plant, if not already done. Keep the runners cut away from the newly planted beds stocked from the old forced plants, also from those now yielding crops if the runners are not required. Net up later crops on north borders as they commence to ripen. *D. C. Powell, Powderham, Devon.*

Grapes and Vineries.

THE earliest houses from which all the Grapes have been cut must have the front and back ventilators open night and day, and plenty of clear water at the roots when the border is dry. Houses in which the fruit is ripe must have plenty of air on both back and front ventilators, only closing them to keep out the wet. When the border is dry water with clear tepid water, choosing a bright day for the operation. Houses in which the fruit is colouring must not be allowed to fall lower than 65° at night, with a rise of 10° by day. Keep air on the front and back ventilators both night and day according to the temperature outside, and sufficient heat in the pipes to keep the atmosphere light and dry. Damp the house down with tepid water early in the morning on bright days; so that it will dry up before the air is reduced for the evening; when the border is dry water with clear tepid water. Late houses of Hamburghs that are swelling their fruit must have liberal supplies of tepid manure-water at the roots until they commence colouring, when clear water must be used. Very little fire-heat will now be required, but use it to keep the temperature from falling lower than 65° at night, and on dull mornings a little turned on for a short time will be of service. Admit air by the back ventilators early in the day and increase it as the heat rises, and close the house early in the afternoon with an abundance of moisture. If red-spider is troublesome paint the pipes when very hot with sulphur, doing it late in the evening, and leaving the house closed until the following morning, when air must be given on the back ventilators early. Pull out any laterals that are not required to cover the trellis, so that the foliage has room for the sun and light to act upon it. Muscats that are ripe will now do without fire-heat, and must have sufficient clear water at the roots to keep the berries plump. Damp the paths and borders early in the morning on the brightest days only, as it benefits the foliage and dries up before evening, so that the house is dry when the air is reduced for the night. Muscats that are colouring must be kept at a night temperature of 70°, with a rise of 10° by day; and when the border is dry water with clear tepid water at 85°. Admit air on the back ventilators early, and a little on the front, sufficient to keep up a circulation of warm air without a draught. Keep a little heat in the pipes until they are ripe, and increase the air in the early part of the day as the heat rises until mid-day, then reduce it as the sun-heat declines in the afternoon; they will be better with a little back air on all night now. Muscats that are swelling must have liberal supplies of tepid manure-water at the roots, and the evaporating pans filled with weak manure-water. Keep the night temperature at 70°, with a rise of 10° by day. Give back air early in the day, and increase it as the heat rises, and close the house early in the afternoon, so that the temperature reaches 95° after closing time with bright sunshine; and use plenty of atmospheric moisture. Pull out any laterals that are not required, so that the foliage does not become crowded. Late varieties of Grapes can be kept at a night temperature of 65° to 70°, with a rise of 10° by day. Admit air on the back ventilators in the early part of the day, and close the house early in the afternoon. When the border is dry water liberally with tepid manure-water. Where Lady Downe's is grown, as soon as the berries begin to look transparent keep the atmosphere drier and use a little extra fire-heat and air. Do not close the house in the afternoon, but leave back air on all night, which will prevent the berries scalding; give the border water when it is dry, but very little damping down will be required. Pot Vines for early forcing next year must have all the light possible and plenty of heat and air; and now that the pots are well filled with roots they will take liberal supplies of weak manure-water. Keep all the laterals stopped, and close early in the afternoon. *Joshua Atkins.*

The Pine Stove.

CLEAR out the plants as soon as the fruits are cut, to make room for fruiters coming on in succession. If succession plants are left too long before being finally arranged at their proper distances apart the leaves become drawn—an evil which cannot afterwards be corrected. All available space will be required at the present time, more especially where a large number are grown. Frames on dung beds are excellent places for rooted suckers or newly potted or small succession plants. In these quarters they start away freely, making a stout sturdy growth with short thick stems—appearances that at once indicate good cultivation. Give succession plants every encouragement during the next three months to make a rapid growth, so that it may be well matured by autumn. Close both fruiting and succession-houses early in the afternoons, the former by 4 P.M. at 90°, allowing for a rise as high as 95° or 100° for a short time after closing with adequate dampings. Let the damping be done when each house is closed, also keep down the blinds or shading until 4.30 or 5 P.M. during very hot and bright afternoons. These precautions prevent any chance of scalding. When damping down let the front portion of the houses be done thoroughly first, so as to steam the glass and prevent any chance of burning. Where early closing with high solar temperatures is carried out, these injunctions must be strictly adhered to. Damp all plants over once a day, plying the syringe well round the collars, so that the aërial roots in the axils of the leaves are kept moist. A late batch of Queens should now be starting with some Smooth Cayennes and Charlotte Rothschilds; these will come in at a good time in the autumn, when home-grown Pines are in great demand, and before good St. Michael's are in the market. Take off suckers from the old stems, expose the base of the sucker to the sun for twenty-four hours, and when potted plunge them in a brisk temperature for three or four weeks. Give fruiting plants liquid manure each time they are watered, and the succession plants liquid manure at every alternate watering. *D. Wilson.*

ACANTHOMENTHA ILICIFOLIA is a recently introduced Californian Labiate, which will shortly be figured in the *Botanical Magazine*. It is a dwarf free-flowering annual, with spiny bracts (like Holly leaves in miniature), and large, slender-tubed, lilac and white flowers. It is now in bloom in the Kew collection, and will probably become a general favourite before long.

The Kitchen Garden.

NOTES ON VEGETABLES.

CARTER'S NEW PEAS.—The experience of another year leads me to form even a higher opinion of the Messrs. Carter's new Peas than I had previously entertained of them. They are not only fine, but also truly grand looking Peas, and being prodigious bearers of large well-filled pods, they form a noteworthy feature in the kitchen gardens here, as in other places, and are the admiration of all who see them—the effect produced by rows of these Peas—Telegraph, Telephone, Stratagem, and Pride of the Market—being such as to call forth the remark, "It is a pity to pick them!" To those who experience any difficulty in procuring long Pea-sticks I would strongly recommend them to grow Pride of the Market and Stratagem Peas, which, being dwarf varieties (from 2½ to 3 feet high), require very short sticks; but, being such heavy croppers, they require substantial supports to prevent the heavily laden haulms being prostrated in consequence thereof. Therefore, in the absence of suitable sticks, and to prevent such an undesirable occurrence as that above indicated taking place, a few Rose sticks should be stuck firmly in the ground at short intervals on either side the rows of Peas, and to these be strained a few lengths of tar-string, and connect them at short intervals, to insure strength, and thereby prevent the haulms swaying. *H. W. Ward, Longford Castle.*

FRUIT NOTES.

CHERRIES.—Although these are not over-abundant they are very fine this year, which is more than could have been expected, as they appeared sadly pinched by frost and cold just after setting, which caused many to fall, through imperfect stoning; but those remaining have since been favoured by the soaking rains and warm weather, which set them swelling at a rapid rate before ripening off. The sorts that do best with us are Frogmore Bigarreau, Governor Wood, Black Eagle, Knight's Early Elton, May Duke, and Circassian, which come in quick succession in the order named, and I think are the richest flavoured any one can have for dessert. Governor Wood is a very pale semi-transparent kind and an enormous cropper, the Cherries hanging quite thick from all the spurs up the entire length of the branches. Frogmore Bigarreau is larger and brighter, putting on much colour when exposed to the sun, and when fully ripe is of exquisite flavour. Black Eagle is a small sort, very black and shiny looking, with firm flesh and the sweetest of juice. To get these three early they should be planted on a warm sunny wall in a sheltered spot, to save their blossoms from being cut off in the spring. Knight's Early Black is much bigger than Black Eagle, and has a finer appearance, but is not equal in quality. Circassian, or Tartarian, as it is sometimes called, is a tempting looking fruit, having a glossy blue-black skin, and when allowed to hang a fair time on the tree is of very fair flavour. The Elton is quite unsurpassed among the whites, and it not only bears the finest and best of Cherries, but is a strong, hardy habited kind and an excellent doer. May Duke is only fit for tarts, and as the berries hang long on the tree it lasts in use till the Morellos come in. For cooking these are quite unrivalled, as they have a pleasant subacid flavour that no others possess. Fortunately, the crops of this sort are good this year, especially on walls, where the trees are laden and will soon be a fine sight. *J. Sheppard.*

WASHINGTON APPLE.—The last number of the *Florist* includes an illustration of this beautiful Apple, exhibited by Mr. George Bunyard at one of the Royal Horticultural Society's meetings. It is an American fruit, of large size, symmetrical form, ovoid truncate, the short stalk set in a deep basin, and the eye also depressed; skin yellow, flecked with crimson; flesh white, juicy, perfumed.

PEACH EARLY CHEVALIER.—In the *Revue Horticole* for June 16 is a figure of the Pêche précoce Chevalier of the French, a seedling, the main interest attaching to which is the fact that early and late varieties are produced on different branches of the same tree, which leads M. CARRIÈRE to recommend that in the selection of grafts care should be taken to take them from the best or most suitable branches. The early variety is like Early Beatrice; the late one is almost identical, save that it is a month later.

APPOINTMENTS FOR THE ENSUING WEEK.

Tuesday,	July 17	Leek Rose Show. Evesham Flower Show. Sale of Imported and Established Orchids, at Protheroe & Morris' Rooms.
Wednesday,	July 18	Darlington Rose Show. Nottingham Floral Fete (two days). Loughborough Flower Show. Sale of Established Orchids, at Stevens' Rooms.
Thursday,	July 19	Evening Fete at Chiswick. Sale of Imported Orchids, at Stevens' Rooms.
Saturday,	July 21	Rose and Strawberry Show in the Botanical Gardens, Old Trafford.

IN a recent number we alluded to certain appearances connected with the Growth of Conifers, which, from what we learn, have attracted some attention (see p. 792, vol. xix). This can hardly be from any absolute novelty, for they must have often been noted by others, but from the light they throw on the mode of growth and the suggestions they offer to the thoughtful culturist. We propose, therefore, to speak now of a few additional matters of the same kind, which have struck our attention in watching the development of these plants in the course of the current spring. For the present we shall deal with the subject in a somewhat desultory fashion, in the hope at some future time of co-relating our notes and adverting to the literature of the subject.

Every one must have observed the Chinese Juniper, with its leaves of two different shapes; some small, more or less pressed against the stem, the others more closely crowded and spreading, as shown in our illlustration of Juniperus bermudiana at p. 657, vol. xix. The Pines and Retinosporas occasionally show something of the same kind, and a walk through any collection of these plants will furnish abundant illustrations to the careful observer. It is always interesting to try and ascertain the reason for this diversity, satisfied with the conviction that, ultimately at least, the knowledge so gained may be turned to practical use. The figure on p. 45, of two sprays of Pinus Pinea, shows a not unfrequent condition in some species of Pinus, especially P. Sabiniana. It will be seen by the figure that while the longer shoot has the leaves in tufts in the usual way the shorter branch, at least at the upper part, has smaller leaves, arranged, not in tufts, but scattered on all sides of the stem. There is a marked difference in colour in the case of P. Pinea between the two sets of leaves, the tufted ones being deep green, the scattered ones glaucous-blue. The two sprays of Pinus monophylla at p. 44 show a similar diversity in the leaves, and show, moreover, that the apparent unity of the leaf in this plant is due to the fusion or lack of separation of two leaves—a point, however, the consideration of which we do not intend further to advert to now. Any one who has grown Pines from the seedling stage knows full well that in the first instance in the young seedling the leaves are scattered, and that the tufts are not produced till later on. So far, then, the case of the Pinus Pinea just alluded to is simply due to the appearance at an advanced age of the condition which is universal in the seedling stage. Adverting now to the Junipers and Thuias, where the twofold foliage is very common, we may note that in the leader or extension shoots, where the growth in length of the central axis is relatively very active, the leaves are relatively small, pressed up against the axis, and often, as it is termed, "decurrent"—that is, that the base of the leaf appears to run down the stem for a certain distance, causing little furrows in the stem. The real explanation is, not that the leaf runs down the stem, as the term decurrent implies, but that the base of the leaf, not being early detached from the shoot from which it is produced, as it is when growth is slower and less active, is raised or uplifted with the fast lengthening shoot, producing the appearance in question, while the longitudinal furrows are clearly the beginning of those much deeper cracks which characterise the bark of the older stems. The irregular cracks and plates of the bark, then, have their origin, in a great measure, if not wholly, in the tiny furrows visible on the baby shoot. In those shoots which are not specially destined to extend the framework of the tree or bush, and which we may, for our present purpose, call furnishing shoots, the growth in length of the shoot is relatively less active, and the leaves, instead of being uplifted with the growing shoot, detach themselves from it at once, and produce quite a different appearance—an appearance like that of the leaves in the seedling stage. In the Junipers we get both kinds of leaves on the same bush; but in the Retinosporas it often happens that we get only the one form or the other. Presently, from some accident, the true nature of the case is revealed by a "sport," and the Retinospora is shown to be, in some cases at least, only a form of Thuia or a Juniperus.

In some variegated Junipers now before us the distribution of the variegation is very instructive. In the free, rapid growing extension shoots the variegation is trifling or absent, while in the furnishing shoots of shorter, closer, slower growth, where the leaves are free at the base, relatively broader, and spreading, there the variegation is much more pronounced. We do not say it is always so, but the tendency in those plants where the two forms exist together on the same bush is as we have described it. It seems clear, then, that the one form of leaf is specially connected with the rapid growth of the shoot, the other with a less rapid development.

If we inquire further into the meaning of this twofold character of the leaves of Conifers we shall see that it opens up suggestions as to the history and genealogy of the plants, their life-work or physiology, their relation to the nature of the Pine needles—a very contested point, and as to the very peculiar conformation of their flowers. These latter points are extremely interesting, but too abstruse to be entered upon here without giving fuller details than we have now space for.

As to the historical interest, it consists in the fact that the reproduction in adult age of peculiarities usually met with only in the seedling stage, suggests a possible clue to the origin of Conifers. Just as the scattered leaves on the adult branches reproduce the seedling state, so, it may be argued, does that seedling state reproduce for us the original condition of the Conifers from which, in course of ages, existing Conifers have been evolved by progressive development. For the most part this is at present matter for pure speculation; still, there is a basis of fact in it, and every day broadens that base, and increases the probability of the deductions. From considerations of floral structure, and especially from the development of the seedling from the very earliest stages, only to be made out by patient and continuous microscopic study, it has been established with something like certainty that the Conifers represent an advanced stage of some such plants the Lycopodiums and Selaginellas, or rather perhaps that they all, together with the Cycads, had a common origin, from which they have diverged in various directions according to circumstances. If the twofold leaves of Conifers, as above described, be compared with the twofold leaves of Selaginellas, and if the scattered leaves on such a shoot as that of P. Pinea be compared with the shoot and leaves of some of the larger Lycopods, an interesting analogy at any rate may be observed —an analogy strengthened very materially by the minute details of floral development before mentioned. It must not be overlooked, however, that similarity of form and disposition may be produced by similarity of condition quite apart from community of descent, and therefore no value can be attached to it, unless substantiated by evidence of other kinds, evidence that is, as we have said, forthcoming. The twofold leaves then may reasonably be considered to afford a clue to the course of development and genealogical descent of the Coniferæ. But this may be thought too hypothetical, and in these days when by some ready writers brilliant hypotheses are spun at the writing-table rather than cautiously evolved by persistent observation in the plantation and careful and continuous scrutiny at the work-table of the microscopist—it is well not to be led away by speculation, however fascinating, but to be content to plod on carefully in the more secure paths of observation and experiment.

Turning, then, to the life-work or physiology of these twofold leaves, what has observation to teach us? Well nigh everything, it may be answered; and by way of illustration let us take the case of the breathing pores, or "stomata"—little orifices in the skin of the leaf destined for the passage of vapours from the interior of the leaf, and perhaps in the reverse direction also. If now these pores be looked at in the two forms of leaves it may be seen, even with a high-powered pocket lens, that these breathing pores are relatively more numerous upon the free scattered leaves than they are upon the smaller adnate leaves. In Junipers and Thuias this is particularly apparent. In the ordinary form of leaf the stomata are frequently (not always) confined to a comparatively small area, while in the free leaves the stomata are not only much more numerous, but they are disposed over a much wider area, so that the function of the stomata, whatever it be, is much more active in the free primordial leaves than in those more particularly characteristic of the adult foliage. The office, then, of the leaves on the fast growing extension shoots is different, in degree at any rate, from that of the leaves on the slower growing furnishing shoots. In the Junipers this is particularly evident from the fact that the pores are specially abundant on the upper surface (not, as in the majority of plants where the pores are most abundant, beneath), and their large numbers correspond to the glaucous-blue colour so very distinct as the season of the year upon the upper surface of the free leaves of the Juniper.

Another circumstance of interest, and possibly of genealogical importance also, is the fact, not generally known or recorded, that the breathing pores on the cotyledons of many flat-leaved Conifers, like the Silver Firs, are on the upper surface; while on the succeeding leaves they are on the lower. We must not, however, pursue the subject further now; it must suffice if we have made it clear that fuller insight into the matters now brought under notice would not only be interesting but practically important, for in order to improve in our methods of cultivation and management of plants the first essential is a thorough knowledge of their structure and mode of growth.

—— Rhododendron Nuttalli.—This grand Rhododendron is a native of Bhotan, whence it was introduced nearly a quarter of a century since by Mr. Booth. The foliage is noble of itself, the bullate leaves being of a dark green colour, thick in texture, and with the veins on the under surface of a reddish colour; and the large trusses of fine white flowers with golden throat truly magnificent. It is too tender for outdoor cultivation, but well suited for conservatories or winter gardens. Mr. Otto Forster, of Augsburg was, we believe, the first to flower this magnificent species. The truss of flowers is too large for us to give any adequate representation of it, on which account Mr. Fitch has selected two separate flowers, sufficient, at least, to ustify our remarks. (See fig. 10.)

—— The Royal Society.—Professor Huxley has been elected President in lieu of the late Mr. Spottiswoode.

FIG. 10.—RHODODENDRON NUTTALLI. (SEE P. 48.)

—— The Troubles of a Local Board.—Abroad the *gendarmes* have orders to arrest all vagrant Phylloxeras. At home the district surveyor is called on to remove all nuisances, and, to do him justice, he is more successful than his brother officer across the Channel. We cut the following from a local paper, retaining the spelling, but removing the names. The culprit was evidently the loathsome Phallus impudicus. "Obnoxious fungii.—The Surveyor said for some time complaints had been made of an offensive smell in —— Lane, and considerable efforts had to be expended before the source could be trace. Eventually the road foreman discovered a quantity of fungii on the inside of the park fence, and this was found to be the cause of the nuisance, which at times was of a most sickly character. (A specimen of the fungii was here brought before the Board, the effluvia from which quite scented the room.) Mr. —— said this fungii was known by the name of 'stinking horn.'—Mr. —— : Is it injurious to health? —Mr. —— said it would be injurious to remain in the vitiated air for long together.—In reply to Mr. —— the Surveyor said the fungii were discovered in the grounds of two ladies."

—— "The Shakspere Flora."—In our notice of this new book of Mr. Leo Grindon's we adverted to what appeared to be an oversight in reference to the introduction of the Birch tree. We had not then observed that the author gives it, in his preface, as a printer's error for Larch. Mr. Grindon adopts the spelling of Shakspere (not Shakespere), we may add, in deference to the choice of ways made by the London "New Shakspere Society."

—— Sarcocaulon Burmannii.—Amongst the many strange forms of Geraniaceæ which abound in South Africa, one of the most remarkable is that which forms the subject of this note. It is conspicuous for its woody stem, which abounds in resin; its short tortuous branches, slender spines, dark green two-lobed leaves, and beautiful plaited, pearly-white, faintly rose-tinged corollas. Specimens are now in flower in the Cape collection at Kew. The plant is well figured in the *Botanical Magazine*, t. 5729.

—— Mesembryanthemum violaceum is one of the most free-flowering and neat-habited of the large genus to which it belongs. It has rather large handsome violet-purple blossoms, and altogether is a most desirable plant for conservatory decoration. Well-rooted and established cuttings planted out in summer in a hot, well-drained border grow freely and make a splendid show during bright sunny weather.

—— Wood Forests and Estates of Perthshire.—We are glad to see that the remarkable series of articles on this subject, published in the *Perthshire Constitutional* is to be reprinted as a separate volume, illustrated by woodcuts.

—— "Flora of British India."—We are glad to be able to announce the publication of the tenth part of this important work, or the first part of the fourth volume. It comprises the orders from the Asclepiads onwards to the commencement of the Scrophulariads. Sir Joseph Hooker describes the plants of the two orders mentioned, the remainder, including the Gentians, Borages, Convolvulads, Solanads, &c., being the work of Mr. C. B. Clarke.

—— Federation of French Horticultural Societies.—Following the practice of their Belgian neighbours, the French provincial horticultural societies have banded themselves together, or are in process of so doing. The object is to establish co-operation between the several societies, to ascertain the general current opinion upon horticultural matters, and exercise conjoint influence in case of need. A Congress will be held annually in some French town.

—— The Continuity of Protoplasm.—To some this expression might be rather alarming, while others might derive as much comfort from it as from that blessed word Mesopotamia. The physiologist in his turn will look upon it with interest and satisfaction. Up till recently it has been held that plants were made up of cells or bags containing the protoplasm, and that, unless in exceptional cases, there was no passage of the protoplasm from one cell to another, although there are, in many instances, pores through which such passage might, it would seem, be made. Any communication from cell to cell was supposed to be made by exudation of thinner liquid only, and not by passage of the thicker protoplasm. Lately, however, Mr. Gardiner has demonstrated the passage of threads of protoplasm through the pores. This was accomplished by first causing the cell-membrane to swell up by means of sulphuric acid, and afterwards by staining the section with a solution of Koffmann's blue in alcohol, saturated with picric acid, by which means the protoplasm threads are coloured. By this process the continuity of, or rather the passage of, the protoplasm from cell to cell of the pulvinus, or swollen base of the leaf-stalk, of the Sensitive-plant was demonstrated, as also in the case of the cells surrounding the embryo in the case of numerous seeds. It is obvious that these experiments have an important bearing on the changes in the degree of tension and movements of leaves, &c., as also on many phenomena of nutrition.

—— The Botanic Garden, Cambridge.—We are glad to learn that the Senate has authorised the opening of the gardens to members of the University on the afternoons of Sundays. The opening of the Royal Gardens at Kew on the Sunday, which has now been practised for very many years, has, we believe, been productive of nothing but good.

—— Samuel Dale.—The *Journal of Botany* for the current month contains a portrait of Samuel Dale, together with a short biographical notice by Mr. G. S. Boulger. Dale was the neighbour and executor of Ray. In the preface to the *Historia Plantarum* Ray acknowledges his indebtedness to his friend, while it would seem that it was to Ray that Dale owed his early proficiency in natural history.

—— Rabbits as a Food Supply.—The gardener does not look on the rabbit as a friend, but he may remember the adage—*Fas est et ab hoste doceri*, and turn his enemy to advantage. Major Morant's little book, published by Ridgway, will show him how to do this. The Major is flippant, and allows his political proclivities to show themselves where they should be as little seen as "fur" in a flower garden. There is, however, not much of his book, a fact which will be consolatory to those who remember the "rabbits tender, rabbits tough;" at the same time there is a good deal in it, and so without endorsing all the arithmetical details, we may commend the production to the serious attention of our readers.

—— Affinity of Garrya and Aucuba.—M. Carrière, alluding, in the *Revue Horticole*, to the curious illustration of affinity as furnished by the grafting of the Garrya upon the Aucuba, recently brought before the Scientific Committee, says that twenty years ago he published an account of a similar graft. No doubt, therefore, the practice has been directly or indirectly adopted from M. Carrière, or from French gardens.

—— Relation between Seeding and Quality in certain Vegetables and Fruits.—Any experiments which go to the definition and establishment of natural laws cannot fail to be of value, even if incomplete. Dr. E. Lewis Sturtevant, in a paper contributed to the Society for the Promotion of Agricultural Science at Cincinnati, says, from observations he has made, there appears to be a fixed relation between the quality of our various fruits and garden vegetables, and the abundance of the seed produced by such plants. In 1879, Dr. Sturtevant became more strongly impressed with this fact in the case of fruit of the Christiana Melon. Of the crop of 1881 he tasted many hundred Melons, keeping the seed of those which were of very superior flavour and quality. Where the quality was very superior, the Doctor invariably found the quality of seed small; where the quality was not up to standard, the seeds were in greater abundance; but where the quality was very inferior, the seeds were exceedingly numerous: from which fact it seems probable that as our fruits and vegetables gain in form and quality, that this gain is counterbalanced by a corresponding loss elsewhere. A summary of the results obtained by Dr. Sturtevant goes to prove that a relation certainly exists between the number and size of the seed, and the character of the fruit in the first instance, as between the germinating power of the seed and the character of the fruit in the second. That the best fruits and vegetables prove to have the smallest seeds in the least numbers is not therefore a deduction but a fact, and it is of course a most interesting and important fact to establish, that the lowest standard of fertility in plants indicates the highest type. This is known to be the case in our improved breeds of cattle, and there is much in all this to sustain Darwin's theories concerning *Natural Selection*. The entire subject is decidedly, therefore, one of great importance both to the agriculturist, the gardener, and botanist.

—— Lace Bonnets (we learn from the *Queen*) are now sometimes trimmed with real Pines and cones; they are genuine Pines, with the perfume preserved, and are treated so that decay is arrested. They are arranged as a wreath round the crowns of small white lace bonnets, mounted on gilt frames, and occasionally Ox-eye Daisies and Horse Chestnut flowers mingle with them. The effect of the dark green Pines on the white lace is, we learn from our contemporary — rather singular we should have thought, but of course on such matters our opinions would have no weight—cool and pleasing.

—— The Potato Crop.—There is a general consensus of opinion that the Potato crop never looked better than it does just now—a fact that signally proves the falsity of all those pessimist croakings heard from time to time, that Potatos were in danger of being exterminated. How the case would have stood had the country been still dependent upon the favoured kinds of ten or twelve years since is a problem as to which we need not now greatly concern ourselves. It is pleasanter and safer to concern ourselves with facts rather than with conjectures—for "facts are chiels that winna ding, and dinna be disputed." Potatos will probably tuber late because, owing to a late spring, they were late in making growth, whilst so far the season has been unusually favourable to the development of that growth. Some of the robust kinds are unusually strong, but all seem very sound and flourishing so far, and it is noteworthy that most kinds which bloom are flowering most freely. Indeed, in a field where several free blooming kinds are being grown the flowers are so abundant as to make the field for the time resemble a huge flower garden. The unusual warmth has doubtless tended to promote this luxuriant growth of plant and abundant bloom. In spite of the partial showers which have fallen, however, the soil is fast becoming heated and dry. The strong growth on the one hand and the heat on the other are fast telling upon the earth, and moisture is being rapidly absorbed. We shall soon probably have to take our chances between heavy rain—which will whilst promoting tuber growth also promote the fungoid disease—and continued drought, which will, if protecting from disease, also seriously check the swelling of the tubers. In any case it is pleasant to find that, so far, we have reached the second week in July and little or nothing has yet been heard of the fatal spot which marks the progress of the Peronospora.

—— Dracocephalum austriacum.—For choice borders or for the rock garden, this is a most useful subject. The plant attains the height of from 9 to 12 inches, and branches to such an extent as to form quite a hemispheric little bush, which is thickly set with tubular Pentstemon-like flowers of a light slatey-blue, the effect of which is decidedly pleasing. In the herbaceous grounds at the York Nurseries we saw this finely in flower. Dracocephalum speciosum is a singular kind, with large heads of dark blue flowers, very pubescent, stems 9 to 15 inches high. It is a distinct herbaceous plant.

—— Wild Flowers.—Apart from what has been written in these pages recently respecting the desirability of teaching children something useful about wild flowers, a few successive exhibitions of these flowers shown in monotonous and rudely constructed bunches by the score, as seen in abundance at this time of the year, is enough to disenchant even the most enthusiastic admirer of wild flowers as to the usefulness of such displays. A collection of some forty or fifty bunches of wild flowers and grasses put together without taste or skill, and without even the rudest attempt at classification, can do no earthly good nor teach any useful lesson. Indeed, so far from good resulting, rather is evil likely to follow from the indiscriminate and ruthless plucking of so many beautiful flowers from the hedgerows and woodlands, especially when done by children, as they gather them, not out of pure and natural love for the flowers, but rather

because they have some pecuniary interest to serve in so doing. To such little ones, reckless gathering of wild flowers tends, not to inculcate a reverence for them, or for any flowers, but rather feelings of contempt and of disregard. Those who would wish to teach a knowledge of, and an intelligent love for birds, would hardly begin by inciting their disciples to rob the birds'-nests of their eggs, and in the same way rude and uncultivated pluckings of wild flowers will rather promote ignorance than knowledge. It may be not unworthy to use wild flowers in moderation and intelligently for the decoration of vases, or any kind of flower-stands, however simple, where taste rather than quantity is the ruling aim. Better still, however, is it to make the flowers and grasses the means of imparting simple botanical knowledge; and once a love for such knowledge is acquired, then a genuine love for the flowers will be created also.

—— STREET TREES.—One of the prettiest of our suburban boulevards, Sutton Court Road, adjoining the Royal Horticultural Gardens, Chiswick, is, we fear, in danger of being seriously injured by the action of the Local Board. Those who have entered the Horticultural Gardens from the new entrance in the Sutton Court Road at this time of the year, can hardly have failed to admire the long lines of Acacias which have been planted near the edge of the paths on either side. These trees, hard pruned early every spring, have developed during each succeeding summer handsome, indeed we may say elegant, heads of foliage, dense, rich green, and beautiful. The Acacia is notoriously a loose, straggling looking tree when left to its own devices, but bears hard cropping perhaps better than any other large growing kind. It suffers quickly from lack of moisture, and therefore it is of the first importance that that element should be accessible. Hitherto the Sutton Court Road paths have been of gravel, through which the water could percolate freely, whilst the road, having been a private one, had been for a long time in that delightful state which usually marks private roads in suburban districts. The Local Board, however, have now got possession of the road, and their first proceeding has been to kerb and channel the sides with stone. Then they have covered the paths with asphalte, thus excluding from the roots of the unfortunate Acacias, henceforth and for ever, all moisture and air; and finally, they are macadamising the road, so that every drop of rain which falls on it shall pass into the stone channels, and thence into the drains, to be carried where it is not wanted—into the Thames. About 1 foot square space has been left round the stems, but it need hardly be said that the end of these charming trees must be near. How true it is, that if GOD gives us the country, man—and too often very stupid man—makes the town.

—— HARDY PLANTS AT THE BIRMINGHAM BOTANIC GARDENS. — Amongst a good selection of hardy herbaceous plants in this garden the Irises are conspicuous. The barbatum section is strongly represented—at the time we saw them many were in flower, others fast approaching this state. It seems strange that these, the hardiest of hardy plants, are not more generally grown than at present, for whenever planted in a situation where they have a fair chance, in decent soil, not too near trees so as to be impoverished by their roots, they go on increasing in size and strength for years with little attention. Their charming flowers, which apart from their individual beauty are so distinct from others, are amongst the most effective for cutting. For using in this way there is one peculiarity attached to them not present in all flowers, that is, the unopened blooms expand in water almost as perfectly as when growing on the plant. Saxifrages thrive well on a sloping bank adjoining the principal walk: amongst those in flower were S. umbrosa elegans, S. umbrosa variegata, S. pyramidalis, S. geum, S. Andrewsii, S. hypnoides elegantissima, S. affinis, S. aizoon, S. cæspitosa, S. decipiens, S. pectinata, S. globuligera, S. palmata, S. hirsuta, S. incurvifolia, S. altissima, S. peltata. Alpines as well as herbaceous plants thrive well, the soil is light, and consequently there is less trouble with those worst of pests, slugs, which in heavy adhesive soils make the cultivation of this class of plants all but impossible, as those who have attempted to grow them in land of this description know to their cost. The collection in this garden thrive, and have a healthy appearance about them indicative of careful attention. Amongst many others in bloom, in addition to those already named that were in flower, was Thalictrum aquilegifolium, Rheum palmatum, Orobus lathyroides, Asphodelus ramosus, Silene maritima, Doronicum caucasicum, Camassia esculenta, Polygonum Bistorta. Armeria maritima, A. montana, Veronica gentianoides, V. prostrata, Ranunculus speciosus, Anthericum liliastrum, double and single Zinnias, Pyrethrums, double and single. These general favourites thrive and bloom here profusely, and are amongst the most effective plants grown. An unnamed Lychnis from the Alps, with very dark pink flowers, which it produces freely, is a welcome addition to these interesting plants. In a number of seedling Aquilegias in bloom were several that promised to take a place amongst these beautiful flowers. Antennaria dioica does remarkably well. Violas succeed well in this garden, and are freely used. Nothing could be finer than some beds in the Rose garden, so full of flowers were they as to completely hide the leaves.

—— THE "ENCYCLOPÆDIA AMERICANA" aims at supplying the want of both English and American readers by devoting a large part of its space to articles relating to historical events, geographical explorations, scientific researches and discoveries, the progress of speculative thought, politics, law, fine arts, industries, inventions, natural history, and biographies (including the distinguished men that have recently passed away, viz., CARLYLE, EMERSON, GARFIELD, GAMBETTA, JESSEL, &c.). Other topics distinctively American, including its religious denominations and benevolent institutions; its great natural resources; its agriculture, in many respects so different from that of other countries; its enormous deposits of coal; its remarkable growth of railroads; the adaptation of electricity to various purposes; its construction of bridges, aqueducts, and public buildings; its banking and other features of finance, receive particular attention; also, for the first time in a general Encyclopædia, a clear and concise series of articles upon the origin, character, and career of the several political parties in the United States. These volumes may be regarded as furnishing a valuable and indispensable addition, not only to the *Encyclopædia Britannica*—now passing through its ninth edition—but also to all other standard works of a similar character.

—— TREE FERNS AT THE BIRMINGHAM BOTANIC GARDENS.—The fine collection of Tree Ferns in the conservatory here is amongst the best grown of any with which we are acquainted. The plants have tall, straight stems, supporting massive heads that show, by the unusual quantity of fronds they carry, that they are vigorous, and are kept free from insects, without which these plants never can be expected to have well-furnished heads. There is amongst them a very interesting plant, raised by the Curator, Mr. LATHAM, some twenty-five years ago. The history of the plant is this:—A pan of the spores from D. antarctica was sown and stood beside another in which the spores of D. arborescens were sown at the same time. From the first, when the seedlings began to show their character, there were two or three which had a decidedly different appearance to the others. These were not lost sight of, and as in the course of years they grew, the difference was still more apparent, and such as led Mr. LATHAM to suspect they were hybrids between the two parents above-named. And there is no doubt they partake of the character of both parents in some respects, but are essentially different to either in others. The specimen now in the large conservatory has a short thick stem over a foot in diameter, with an immense head of fronds 16 or 18 feet through, the fronds being structurally different to those of any species in cultivation; in addition to which they are much more enduring, retaining their vitality for several years. They assume an erect position, more like those of Cyathea medullaris than any other tree species. Mr. LATHAM has also another seedling Tree Fern that has attained a size sufficient to show its habit, which is intermediate between that of Cyathea princeps and Alsophila excelsa; the fronds and rachis are somewhat after those of the Cyathea, whilst it shows the Alsophila parentage, but the pinnules are much more open than those of either of its parents. It is a noble Fern, with a strong, vigorous habit.

—— HOULLETIA BROCKLEHURSTIANA. — This rare and curious Orchid was exhibited by Mr. DINSMORE, Gardener to T. F. BLACKWELL, Esq., The Cedars, Harrow Weald, at the Harrow Flower Show, on Tuesday. The flower-spike bore seven of the large wax-like blossoms, Indian-yellow in colour, densely spotted with crimson. The flowers exhale a delightful odour of cinnamon. Although this fine Orchid has been known for a long time it is yet rare.

—— THE REV. E. R. BENYON.—Many readers of this journal will regret to hear of the death, on the 7th inst., of that fine old English gentleman, the Rev. E. R. BENYON, of Culford Hall, near Bury St. Edmunds. The fine estate at Culford, consisting of 12,000 acres, and including five entire parishes, became his about forty years ago. He was one of the most liberal of landlords, generous to a degree in his contributions to benevolent objects, and a great promoter of gardening.

—— LITTONIA KEITI.—Under this name there is now in flower, in the Kew collection, a plant which was presented by Herr MAX LEICHTLIN. It is apparently a vigorous and rather large flowered form of the pretty L. modesta, which, itself, is a charming plant for cool-house decoration. L. Keiti differs from this somewhat in the different shape of its tubers, and in its larger handsome orange-yellow flowers.

—— MISS NORTH. — This enterprising lady has, we learn, returned from South Africa, bringing with her a large collection of drawings.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending July 9, issued by the Meteorological Office, London:—The weather has been generally cloudy, or rather dull, with somewhat frequent showers. During the first few days thunderstorms were very prevalent over England, and in some parts of Scotland. The temperature has been a little above the mean in all the "wheat-producing districts," as well as in "Scotland, W.;" but slightly below, or about equal to, its normal value in Ireland and the west of England. The maxima readings were registered in most places on the 3d, and varied from 75° to 82° over the greater part of England, and from 69° to 72° elsewhere. The minima, which were recorded on different days in the various districts, ranged from 45° in "Scotland, W." and "England, N.W.," and 46° in "Ireland, N.," to 51° in "England, S." Rainfall has been more than the mean in all the "grazing districts" as well as in "Scotland, E."; but at most of the English stations a deficit is reported. Bright sunshine percentages have not differed much from those recorded during last week; in "England, E.," 43 of the possible duration has been registered, and in "England, S.," 37; while in "England, N.E.," and "Ireland, N.," only 29 has been recorded, and in "Ireland, S.," only 20. Depressions observed:—Pressure has continued comparatively high and steady on the southern and eastern parts of our area, and rather low and unsteady over Great Britain and Ireland. Several thunderstorm depressions have again passed across and developed over our islands, while some larger disturbances have skirted our northern and north-western coasts. The winds, which have been generally light or moderate in force, have varied in direction between S., S.W., and S.E.

—— THE BURY ST. EDMUNDS HORTICULTURAL SOCIETY.—We understand that Mr. PETER GRIEVE, late of Culford, has temporarily undertaken the duties of Secretary of this Society, consequent upon the death of Mr. Alderman CLAY, who for so many years efficiently carried out the duties of that office.

—— GARDENING APPOINTMENTS. — Mr. WM. TAYLOR, who for the last fourteen years has been Gardener to the Marquis of BATH at Longleat, has resigned, and Mr. PRATT, late of Hawkstone, has been engaged to succeed him. Mr. PRATT'S Shropshire friends presented him with a purse of sovereigns before he left Lord HILL'S service. — Mr. W. MILNE, for the past six years Foreman in The Gardens at Wimbledon House, as Gardener and Forester on the Levens estates, Westmoreland, in succession to Mr. CRAIG, who is leaving through a change of ownership, after nearly twenty-five years' service.—Mr. J. F. DAVIES, also of The Gardens, Wimbledon House, as Gardener at East Hill House, Wimbledon. Mr. WM. DRUMMOND, late Gardener at Brandsby Lodge, Easingwold, Yorkshire, as Gardener to Sir JAMES BOURNE, Bart., Drayton Hall, West Drayton, Middlesex.

Home Correspondence.

Strawberries at the Bath Exhibition.—At the Bath Rose and Strawberry exhibition, held on the 3d inst., the Strawberry certainly shared to a great extent the admiration and eulogium the public showered upon its rival for the day, the queen of flowers. Seldom is the Strawberry exhibited in such perfection and quantity. Conspicuous among the varieties staged was Sir Joseph Paxton; for the single dish it was awarded both 1st and 2d honours; and in the classes for three and six dishes it showed itself superior both in size and colour, and this under the influence of cloud and rain, the absence of colour being marked in most all the other varieties staged. Sir Joseph maintained its reputation for being a good packer, though some staged had travelled 100 miles or more, being picked the day before, yet they were perfect and bright in comparison with any other. Exception may be made to Myatt's Eleanor, which is also well adapted for that purpose. Mr. Garaway was awarded 1st prize for a single dish of uniform well-coloured cockscomb-shaped fruit. The other varieties, all of good size, staged, were Sir Charles Napier, James Veitch, Duke of Edinburgh, British Queen, Countess, Dr. Hogg, Kitley's Goliath, Marguerite, Oscar, and Lord Clyde, most of them deficient in colour. *D. C. Powell.*

The Gardeners' Royal Benevolent Institution: a Plan for Increasing its Income.—At the anniversary dinner of the Gardeners' Royal Benevolent Institution, recently given at the "Albion," under the very efficient Presidency of Mr. Alderman Cotton, M.P., various means of increasing its funds and usefulness were proposed. Mr. Bruce Findlay, of Manchester, suggested an admirable method of attaining this end. He proposed to call upon the secretaries of the horticultural societies throughout the kingdom to ask all the noblemen and gentlemen throughout their districts who had grounds worth visiting to throw them open to the public one day in the year on payment of a small entrance fee. Mr. Bruce Findlay stated that he thought he could raise £200 yearly by this means in the neighbourhood of Manchester alone. It has occurred to me that an all but indefinite extension of the income of this valuable institution might also be attained by a direct appeal to the employers of gardeners. I would suggest that every person employing a regular gardener should subscribe a guinea a year to the Institution in his (the gardener's) name. That is, he should forward the name of the gardener he employed for the time being, and pay the annual guinea subscription as long as the said gardener remained in his service. [We believe a few gentlemen do pay their gardener's subscription. Ed.] If the latter left him the employer would simply send in the name of the new gardener, or pay the annual subscription if the said new gardener was already a subscriber. The former one would either get his subscription paid by his new employer, or pay it himself, or let it drop if disinclined to continue it. It appears to me that few employers would hesitate to add a guinea a-year to their gardening expenses for such a laudable object, and that a large yearly income could be raised in this simple way. In sending my dinner subscription to Mr. Cutler, the Secretary, 14, Tavistock Row, W.C., I am adding a guinea in my gardener's name, Mr. James Gray, which I purpose paying along with my own subscription as long as he remains in my service. The latter tells me that he and many of his friends have not joined the Institution because the pension of £16 was too small—not amounting to 1s. a-day. The increase to £20, he said, small as it is, would alter that feeling. Were this plan adopted there might be some provision by which a working gardener's annual payment should cease entirely after fifteen or twenty years, and by which also an employer, losing the service of a valued gardener, or his executors on his death, could complete in one sum the payment which secures a right to pre-selection for a pension. Our gardeners, having the same tastes, the same interests, the same horticultural enthusiasm as ourselves, often become our friends, and we should often be quite disposed to help them to secure a competency in old age by a small money contribution. *Henry Bennet, M.D., The Ferns, Weybridge.*

—— In reply to numerous inquiries, I beg to state that the cards for the ensuing collection in aid of the Pension Augmentation Fund will be issued about the 18th or 19th inst. to all gardeners whose names can be found in the horticultural Directories; but as there must be a great number of gardeners whose addresses are not in either of the Directories, I shall be much pleased to send cards and afford any other information to any who will kindly communicate with me. I also beg to state that the amount of the reserve fund is now £16,550, leaving the sum of £3450 to be collected before the pensions can be raised. Considering the great number of horticulturists, and the great interest taken in horticulture, I think if gardeners will only be true to themselves, "with a long pull, a strong pull, and a pull altogether," there can be but little doubt the sum in question can be secured. It depends entirely on gardeners themselves to say when the pensions are to be increased. *E. R. Cutler, 14, Tavistock Row, W.C.*

Strawberries.—I enclose some Strawberry leaves that have been injured by new tanned netting, and I should be glad if some of your numerous correspondents would kindly say if they have experienced anything of the kind from using new netting. The whole bed on which the new net is placed has the appearaoce of having been seared with hot irons, while other beds close by, with old netting on them, are uniojured, so that no doubt exists in my mind but that the damage arises from some deleterious matter in which the net has been steeped. *A. N. Jones, Marbury Hall, Northwich.*

Lilium Harrisi.—"Lilium" at p. 8 wishes to know if Lilium Harrisi really is perpetual flowering. At Mr. Mayo's nursery, Oxford, last winter, some plants of L. Harrisi flowered in February and March, and some of the bulbs, although small, began sending fresh stems up immediately after the last flower was over, and a few of them were potted on at once without any rest. I am not at present able to ascertain for certain how many stems and flowers they have produced, but I noticed when I last saw them two or three stems on some, and from one to three buds set on each. *C. Clausen, Oxford.*

Anagallis grandiflora alba.—We have much pleasure in enclosing a branch of a new Anagallis grandiflora alba (collina), which we have succeeded in raising after several years' cultivation, and of which we shall offer seed in 1884. The flowers are large and pure white. The plant, contrary to the other forms, grows bushy and compact, and less branching; it is, however, covered profusely by its lovely flowers. A coloured plate and minute description will be published in an early number of Professor Regel's *Gartenflora. Damman & Co., Portici, Italy.* [The flowers are rather densely massed towards the end of the branches, and are of a pure white colour. It is a very effective novelty. Ed.]

Pyrus Aria var. scandica.—Would you kindly give me some information about Pyrus scandica? I have met with it in several parts of England, and some fine specimens in Scotland; it has also been supplied to me as the Service tree, but I have never been able to ascertain its history, except that I was once assured that it was a hybrid. *H. K., Chithurst, Petersfield.* [P. scandica is a form of P. Aria, the White Beam, also called P. intermedia. Ed.]

Primula obconica.—To Primrose growers, one of the most interesting plants now in blossom in the College Gardens, Dublin, is the new Primula obconica, a Chinese species from the Tchang Valley. The flower, which is almost white, is rather like that of P. Munroi, but in habit the plant is more like P. mollis, the inflorescence being verticillate, and the corolla having in most blossom an oblique limb. The calyx is the most remarkable part of the flower, being very short and wide, so that the corolla tube stands in it as in a large cup. The foliage somewhat resembles that of P. mollis or P. sinensis in shape; but is of a thick stiff texture and slightly glabrous; and the surface of the leaf is very uneven, more so than that of any Primula I know. A batch of seedling plants have, as Mr. Burbidge pointed out, a rather dangerous likeness, at first sight, to little plants of Coltsfoot. He also informs me that although this P. obconcia (= P. poculiformis) is a true whorl-flowered species, yet its seeds germinate very quickly if sown as soon as they ripen. The same is true of P. japonica, but if the seeds be kept in a dry state for some time most of the species are slow and uncertain in germination. One peculiarity about P. obconica is that if the seed capsules are removed the plant continues to flower all through the year. The plant in the College Gardens came from Messrs. Veitch in November of last year, and has been in flower ever since, having also ripened seeds from which a good crop of young plants have been raised. *C. M. Owen.* [The plant was figured at p. 121, vol. xix.]

Setting Alnwick Seedling Grape.—Some weeks since Mr. Thomson, of Clovenfords, when writing in the *Gardeners' Chronicle* on the sterility of Vines, referred to the uncertain setting character of this Grape, and gave it as his opinion that the glutinous exudations sometimes present on the stigmas of this variety prevent proper fertilisation and are thereby the cause of the imperfection. As a means to surmount this difficulty he makes the following suggestion (which he wished some one who had the means would carry into practice), viz., that this glutinous matter be syringed away, and the stigmas be impregnated with the pollen of other Grapes. Having the opportunity this season we tried this and other experiments in order to obtain a good set, and it may be interesting to Mr. Thomson, and others, to know the result. Our Alnwick Seedlings are young and robust, and grow in a soil very favourable to the production of good Grapes, for the most popular kinds succeed remarkably well in it under ordinary treatment. The seedling showed numbers of large bunches, and when in blossom the stigmas were all alike tipped with the honeyed matter, in appearance similar to small drops of dew; when in this condition the bunches on the greater portion of the Vines were thoroughly syringed on several successive days, at the time when the house in which they grow was closed, care being taken not to wet those reserved to be treated in a different way. In order to assist the Vines to dry more readily they were shaken an hour or so after the syringing was done, to free them from the drops of water which collected, and about noon on each day, while they were dry, the bunches that had been washed (with the exception of a few purposely reserved and marked to prevent mistake) were run over with a camel-hair brush, which conveyed pollen taken from Alicantes. The bunches thus treated set perfectly, and are now all that can be desired. They are large and well formed, and have regular berries which have stoned and promise to be excellent in every way. Those bunches we had marked had not the assistance of foreign pollen, and although several free setting kinds are growing in the same house, and were in blossom with and close by them, yet they set very imperfectly. The exudation from some of the bunches that were not syringed was removed with a camel-hair brush, and to give an idea of the condition of the stigmas I may mention that the brush after the operation was so saturated with moisture that it had the appearance of being used in varnishing. These bunches were also dusted with Alicante pollen and set freely. The other portion, however, which remained undisturbed by water or brush were of all the most unsatisfactory miserable examples of what the crop would have been if left to Nature. I think this sufficiently proves that Mr. Thomson's opinion in reference to the bad setting properties of this Grape is correct. It is evidently necessary to remove the moisture that proper fertilisation may be procured, and there is no better mode of doing this than by the help of the syringe. It is also manifest that ours would have been a failure unless foreign pollen had been employed. *Thomas Coomber, Hendre Gardens.*

Puccinia mixta (Fckl.).—In passing through a friend's garden a few days back my attention was attracted to a row of Chives (Allium Schœnoprasum) in a most deplorable condition of disease, the leaves and scapes being covered with yellow, intermixed with brown spots, presenting a miserable appearance. On taking a few leaves home for examination I found them to be infested with oval or oblong sori of a yellow colour, filled with yellow, nearly spherical spores; and brown, or greyish-brown, linear, often confluent sori, covered by the epidermis, which ultimately splits, exposing a mass of brown uniseptate spores supported on pedicels. These appear to be Puccinia mixta, Fuckel, in the two stages of this fungus, which he calls respectively Fungus stylosporiferus and Fungus teleutosporiferus. The first is Uromyces alliorum, DC., already known to the British flora, but I am not sure as I write whether the Puccinia form has yet been found here. Fuckel called it "*sehr selten*"—very rare—and it is devoutly to be wished it may remain so by those who value Chives as a pot-herb, for its power of destruction in this instance is complete. The more quickly crops attacked by it are destroyed by burning the better, for there is a possibility that it may attack other plants of the genus Allium, which would involve considerable commercial loss to large growers of Onions. The losses sustained from the ravages of a closely allied parasite, Puccinia malvacearum, will be fresh in the minds of all your readers. *William Phillips.*

Hybrids between the Pelargonium and the Geranium.—The Pelargonium Society has for several years annually offered, among its other prizes, a prize for the best hybrid, having for one of its parents Geranium pratense or Geranium sanguineum, and for the best hybrid having for one of its parents Pelargonium oblongatum; and the show held on June 26 has, like its predecessors, passed off without a single hybrid being forthcoming. It can hardly be doubted that efforts have been made in this direction; but up to the present time it may, I think, be taken for granted that a hybrid between the Pelargonium and the Geranium has not been secured, and perhaps will never be realised, although in a conversation held lately with a very successful raiser of improved varieties of the zonal and other Pelargoniums, I find he still thinks this within the limits of the possible. For my own part I have frequently used the pollen of various kinds of Pelargoniums upon the flowers of the

Geranium pratense and other species, and have used the pollen of the latter upon the blooms of the former, and have on several occasions been induced, by the appearance of the seedlings during their early stages, to think that I had been successful in obtaining a hybrid, having more than once induced the condition of variegation in the Geranium by the use of the pollen of variegated varieties of the Pelargonium. This variegation, however, did not prove persistent, and I have never succeeded in securing an intermediate or hybrid variety. So recently as last summer I used the pollen of several varieties of the zonal Pelargonium upon the blooms of a very showy and pretty Geranium—whether a distinct species, or a variety, I am unable to say, being uncertain as to the specific name of the plant, but the flowers are of a purple or rosy-red colour. And in this instance, too, the seedlings showed considerable diversity in the character of their foliage—in some cases being in all respects the same as the parent or seed-bearing plant, while the foliage of others appeared to be that of Geranium pratense. All were, however, planted out in a bed in the open air, and all are now in bloom, forming an exceedingly pretty bed, the flowers being in colour red, white, and blue, a portion of the plants being, as regards flowers as well as foliage, identical with the parent plant, while others show a reversion to the true form of Geranium pratense, with its well-known light-blue flowers, while some of the plants are producing pure white flowers, but in no instance does the Pelargonium pollen appear to have had the least effect. The reversion of some of the seedlings to the form of Geranium pratense appears somewhat remarkable, as the parent plant can hardly be considered as a variety of that species, its foliage being entirely distinct from it. I enclose blooms and leaves of each of the varieties for your inspection. *P. Grieve, Bury St. Edmunds.* [The seed parent appears to be G. palustre. ED.]

The Parcel Post: Plant Boxes.—The parcel post will come into operation in less than a month. That it will cause a revolution in the customary means of transmitting plants there can be little doubt. Hitherto, with nurserymen doing a large business a small difference in the cost of postage came to a handsome sum at the end of the year. As a consequence I and thousands of others received their plants either dried up in transmission or reduced to pulp by the "stamping" or weight going through the post-office or the mail packets. Nurserymen received much annoyance by being called on to replace plants, &c., or the expectant recipients were disappointed. Perhaps you would open your columns to a discussion of the best sort of plant boxes. *W. J. Murphy, Clonmel.*

Todeas at Glasnevin.—The house devoted to Filmy Ferns is in a well shaded position. It is not usually open to the public, as the delicate leaves would be easily injured, and cold draughts of air are especially hurtful to them, though even in the coldest weather no artificial heat is given. Todeas grow there to perfection. The largest specimen of T. superba has leaves 3 feet long, and the plant is about 5½ feet through. Some leaves of T. pellucida measure nearly 3½ feet in length, and the plant is about 5½ feet across; its drooping habit is very graceful. T. plumosa resembles T. pellucida, but is more finely cut and of a darker green shade, more like that of T. superba. Though still a young plant, it is one of great beauty. T. Fraseri has leaves over 3½ feet long. Smaller plants of this Fern are grown in a wall of Filmy Ferns, which extends the full length of one side of the house. The position shows to advantage the large drooping feather-like leaves of this Todea. T. barbara (T. africana) differs entirely from these Filmy Todeas, it much more resembles a Lastrea in habit. The leaves are by no means filmy, nor has it the beautiful colouring of the other Todeas. The two plants of it are grown in different houses, and probably in a higher temperature than that of the Filmy Fern-house. *C. M. Owen.*

Double Wild Flowers.—This interesting subject, introduced by "H." on p. 20, suggests a question which I have tried in vain for several years to solve by experiments in my garden. Can a plant, born to produce single flowers, be made by any skill or accident of cultivation to produce double flowers? I say I have laboured on this question in vain, because the tendency of my cold and wet soil is to turn double-flowered plants into single-flowered. This it abundantly does in the case of double Daffodils and double Primroses, especially a Primrose called P. platypetala, the single flowers produced being perfect in all their parts. On the other hand, I continue to receive assurances from several gardening friends that single Daffodils become double in their soil; and a gentleman who lives in Italy assures me that he can keep no single Daffodils for more than a year or two, as they all turn double; and I am sending him some Emperors and Empresses, in hopes that he may succeed with these in producing the same result. I know only three wild plants which habitually produce double flowers in England. The first is N. Pseudo-Narcissus, the common wild Daffodil, which is found double in Devonshire and in the Isle of Wight, but which in my garden becomes again single. The second is Cardamine pratensis, the Ladies' Smock, the double form of which is not uncommon, and where found is generally abundant. This is probably owing to the curious viviparous habit of the plant, which produces little bulbs upon its leaves, and from them produces young plants. These young plants in their natural soil probably reproduce the double form of their parent, but having carefully noticed them in my garden, I can affirm with certainty that the bulbils of double-flowered plants produce single flowers. The third plant which I have found naturally double is Saponaria officinalis. No doubt the list may be increased. I have in my garden a double Ranunculus repens which my friend, Mr. Brockbank, found wild in a meadow in Lancashire; and some one has told me that they found in Devonshire a double Primula acaulis wild; but where I have tried to naturalise double plants in my own grounds they have either died out or reverted to their single form. *C. Wolley Dod, Llandudno, July 9.*

Packing Grapes for Market.—The annexed illustration (fig. 11) shows the method of packing Grapes adopted by Mr. Grindrod, Whitfield, Hereford, who took the 3d prize in the Messrs. Webber's Fruit Packing Competition at South Kensington last week. The cross-handle wicker baskets are lined with clean picked moss and soft paper, and the bunches carefully dropped in and tied to the rim. The top is covered with stout brown paper only, and

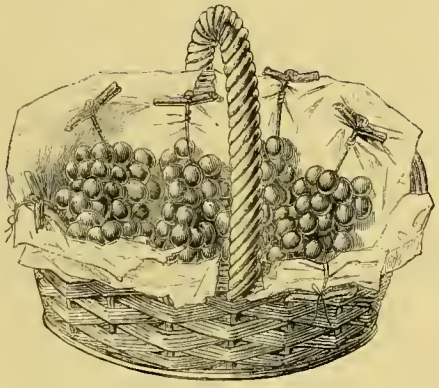

FIG. 11.—GRAPE PACKING FOR MARKET.

in this way we have seen them arrive in Covent Garden without spot or blemish.

Cactus Notes.—The curiously terminal, or as it were acroterial* fruit of Cereus speciosissimus, figured in the *Gardeners' Chronicle* of February 24, came to a bad end. On Good Friday it was missing, apparently pulled off by some meddling visitor—as senseless a piece of stupidity as well could be, for the berry was but half grown. On June 15, I fertilised a normal flower of C. speciosissimus with pollen of C. (Phyllanthus, Phyllocactus, or what not) speciosus, and the resulting fruit is already growing fast. Did not this cross originate the C. Jenkinsoni? The Cactus tribe seem bent, when I get hold of them, on playing curious tricks. In January last, a Birmingham friend gave me a plant which, not knowing its proper name, I call for the present C. ensiformis. It has eleven leaves of from 6 to 12 inches long by nearly two inches wide, lanceolate, very faintly crenate (the blotches being hardly visible, and apparently "blind"), and in fact they closely resemble two-edged daggers. The margins are as sharp as (*hibernicè*) a blunt knife; and I have purposely called them leaves from their being apparently incapable of throwing out flower or shoot. Yet the plant bore, a fortnight since, a grand blossom nearly as big as itself. The bud came from the collar or ground line, grew rapidly, and before opening stood 9 inches high, of a rich brown-orange and cream colour. The flower was 6 inches across, white, richly scented, and very handsome. It remained open three days. My friend could not tell me the name of it, but it came, I understood, from Mr. Grey, of Hagley. *H. B. Biden, Sale, Cheshire.*

Hardy Shrubs in the County Wicklow.—The suitability of the south-east coast of Ireland for flowering shrubs is well shown by many beautiful specimens at Old Conna Hill, the residence of Phineas Riall, Esq., D.L., J.P., &c., near Bray. In a well-sheltered part of the gardens (a speciality of which is its thick Yew hedges, 14 feet or more in height) is a fine specimen of Cordyline australis, now in blossom. This plant is 15 feet high, the stem being 2½ feet in circumference near the base. The foliage begins about 6 feet from the ground, and is 4½ feet across. The large head of creamy-white flowers is also about 4½ feet through. In the same garden the Java St. John's Wort (Hypericum triflorum, Blume) has proved hardy; the Loquat (Eriobotrya japonica) grows out-of-doors, but has not as yet fruited. Myrtles form good-sized bushes, but are not so fine as before the hard winters of late years; a specimen of Eucalyptus globulus, now about 20 feet high, has survived these winters, having been at least nine or ten years in its present position. This Eucalyptus has in most cases been killed, in this part of Ireland, and even this exceptional survival did not escape without injury. Though east wind in spring may be the penalty to pay for the lovely views of mountains and sea, with a richly-wooded foreground, yet trees and shrubs at present show no trace of its effects. One of the best of the shrubs now in blossom is Abutilon vitifolium, with bunches of drooping, very pale blue blossoms, of an open cup-shape, between 2 and 3 inches across. Wherever the climate suits it this large shrub would be well worth growing. Even if not quite hardy in open positions as a tree, it in some places succeeds as a wall shrub, yielding its clusters of Meconopsis-like blossoms in abundance. The leaves somewhat resemble those of the Vine, and are slightly woolly at the back. Not even in Scotland could Tropæolum speciosum grow better or flower more freely than against the garden walls, in one case spreading itself prettily into one of the Yew hedges. Possibly the need of a rather damp climate causes the difficulty in growing this beautiful crimson Tropæolum in some places. It is easy enough to grow it, even in the South, once it gets established. *C. M. O.*

The Potato Crop.—Never perhaps has the Potato crop looked better or more promising than it does at the present time, and yield, good or bad, whichever it may be, depends entirely on the state of the weather during the next few weeks. The hot, dry weather we were favoured with at the end of May and at the beginning of June was all that could be desired, and induced such a rapid and vigorous top growth as has rarely been equalled in recent years, thereby raising our hopes as to what the ultimate result would be to a very high pitch. But, as in years gone by, so it is now—just as we begin to feel sanguine and our prophecies savour of an absolute character the disease puts in an appearance; then there begins to flow into newspaper offices the annual batch of letters and a vast amount of writing relative to quack remedies, disease-resisting varieties, and so forth; the outcome of it all being, so far as the principal is concerned, simply *nil*, for we are still fighting with what appears to be an unconquerable foe. Early planting is strongly recommended by many; in fact, I may say that I myself am one of its advocates, but it must be frankly confessed, for this season at all events, that the late planted ones are likely to be the better crop of the two; they certainly look better at the present time, and with us those which were planted in April are decidedly in a more advanced state than the March planted ones. The reason for this is not far to seek; those which were planted early had to endure the very severe frosts of March, and received a check which it took them weeks to get over; indeed, many thought the seed would have been killed outright. Such, however, was not the case, and it only served as a lesson to show that seed planted some 6 inches deep will stand 14° or 16° of frost. Seeing that the disease has already attacked the haulm, it may not be out of place to call the attention of your readers to the *modus operandi* of Mr. Jensen, concerning which the Press and the pamphlet written by Mr. Jensen had so much to say last year. As full details of the operation were given in your columns a year ago, it is quite unnecessary to dwell upon it at any length, but for the information of new subscribers I may quote the following from vol. xviii., p. 38:—"Though the descriptive matter in the book which relates to protective mouldiog is of a somewhat elaborate kind, yet we can sum up for the benefit of our readers the outline of the operations in a few words. The first part of it consists in earthing-up moderately, but leaving on either side of the plant stems a flat ledge. The next earthing is not done till about the ordinary time of the appearance of the disease, or at the moment of its first discovery, because it seems to be an important part in the plan that the tubers shall, as far as possible, be approaching maturity before the additional earthing is given. In any case, however, the high moulding must be done the moment the disease appears. This is performed by depressing the haulm towards the sun and drawing up the soil in the furrow (which should first be well pulverised) on to the roots, and partially on to the stems, so that whilst the tops

* ἀκρωτήριον — translated in a well-known passage the "chief corner stone," but more closely rendered as the "crown or capping of the pediment."

are depressed at an angle of 45° or thereabouts, the earth covers the new tubers to a depth of not less than 4 inches, and forms on the north side of the ridge a deep sharp slope. What rain may thenceforth fall will in so doing either wash the fungus spores into the furrows, or, if to any extent, on to the ridges, the extra thickness of soil will prevent this reaching the tubers." That this plan will overcome the disease or give us better crops of sound tubers I do not myself believe. It looks well on paper, and to read of the spores falling and being washed into the furrows has all the appearance of being sound logic; close observation, however, with one season's practice and comparative results will test the matter and show whether the remedy has anything about it or not. We first saw the disease in the gardens here some days ago, on a quarter of Beauty of Hebron, for the first time this year; the affected leaves were at once picked off and the protective moulding method applied. The plants being in full vigour, and, like the old horse in Major White Melville's famous hunting song, "going strong and well," it is not surprising that the uncovered points should already be turning upwards; and, I may add, they promise soon to be not only on a level but to overtop the ridges. Such being the case, I fail to see any advantage whatever in Mr. Jensen's plan, and cannot bring myself to believe that we shall derive much benefit from it; of this, however, we shall be able to speak with more certainty in a few weeks hence. *J. Horsefield, Heytesbury, Wilts.*

Bouvardia Propagation. — During the past spring, and especially in the early part of that season, my losses were very great among Bouvardia cuttings, owing to the wholesale growth of that terrible fungus pest so well known to propagators, and to which I made allusion at p. 572 of your last volume. As therein stated, I tried all I could think of to rid myself of such an enemy, but to no purpose; and as I require Bouvardias in large quantities for cut purposes it became obvious that some other means must be devised; accordingly I set to thinking, and had not long been thus engaged when the happy thought occurred to me as to "why they should not root in sand and water," as well as many other plants —such, for instance, as Lobelia, Coleus, Cucumber, Dracænas, Verbenas, Alternantheras, and many more. I resolved to give it a trial, however, and the result is a complete success. In this way they have been rooted by the hundred; in short, I am so far in favour of this method that I am inclined to throw off entirely the old system of sand and soil, &c., and adopt this in its stead. The advantages of this system over the old are these:—Firstly, there is no fear of flagging, which they are sure to do unless carefully watched, when inserted in the ordinary way, and which is detrimental to them; secondly, no time need be spent in making the cuttings, for they root freely up the stem, and may be inserted in the wet sand far more readily, besides which they are easily removed without fear of injury; and thirdly, there is nothing to be feared from the much-dreaded fungus pest, which, while luxuriating in moisture, cannot exist where half an inch of water covers the sand; the cuttings, I may say, root readily—that is to say, in ten or twelve days, and take quite readily to the soil when potted. It will be found, however, that the cuttings do not make their tiny fibrous roots till after they are potted, for on close examination I find that about half an inch of the base of the cuttings is bristling with roots scarcely one-eighth of an inch in length. I at first thought that a good sign, and that they would soon be ready for potting. After waiting for a fortnight, however, during which time the roots made no advance, and commenced to turn brown, I potted them, and about a week after they had made roots to the outside of the ball. Thinking this conclusive evidence of what was needed, I always pot them at this stage with most satisfactory results. The kinds which I have rooted in this way are elegans, Hogarth, jasminoides, and the two doubles, Alfred Neuner and President Garfield. Bell-glasses, earthenware or zinc pans—or, in fact, any water-tight vessel, may be employed for the purpose, plunged on a bottom-heat of from 75° to 85°. *E. Jenkins.*

Ornamental Grasses.—When we come to consider what a useful and interesting class of plants the grasses are, it is somewhat surprising that many of them are not more frequently met with in private gardens than they are. It may be that the majority of those who do not cultivate them think they have already more than enough with what are grown on the lawn, and that veritable pest, Poa annua, which infests their flower beds and kitchen gardens; be that as it may, there is no gainsaying the fact, that there are many really handsome and charming species well deserving of a place in any garden, but it is rarely that one meets with them anywhere except in their natural habitats or in botanical gardens; or, if in private gardens, the man growing them will not unlikely by some members of the craft be said to be affected with what they call the "botanical craze," and be regarded as one who grows a lot of rubbish, which is neither of any use nor ornament. Having myself what may be termed a slight hereditary touch of this botanical craze complaint, I shall make no apology for bringing before the notice of your readers three or four grasses which in the writer's opinion are worthy of a place in any garden, inasmuch as they are very ornamental—so to speak—when in flower, and very useful for indoor decorative purposes. They are all easily grown, and require no special care or attention except lifting, dividing, and replanting every three or four years. In the front rank stands that beautiful species, Stipa pennata, commonly called Feather-grass: of this one cannot speak in too high terms of praise. It is one of those popular things which when well grown, and seen in its true character, elicits words of approval and admiration from persons who take little or no interest in plants generally, and who have no time to devote to their study, or space in which to cultivate them. Lasiagrostis calamogrostis—Stipa elegantissima of seedsmen—is another species richly deserving a more extended cultivation than it at present meets with; growing as it does some 2 or 3 feet high, it is a suitable plant for intermixing with many summer flowering herbaceous plants of the same height, and if planted in juxtaposition to plants producing white, scarlet, or pink flowers it affords relief and adds greatly to the effect of the same. Hordeum jubatum ought certainly to be more grown than it is, as it is a plant possessing great merit, and when in flower is very attractive. Elymus arenarius, with its long, drooping, silvery leaves, is a grass which any gardener would do well to become practically acquainted with; being a strong grower, with a bold and commanding appearance, it requires plenty of room to develope itself properly. For planting in clumps or in shrubbery borders along with Rhododendrons, hardy Azaleas, Kalmias, &c., it is admirably adapted, and is really a plant which ought not to be neglected. With the above, which are here mentioned with a view to their becoming more popular, we will take leave, and pass on to a few others which, although they are more common, are none the less interesting and pretty, but which, I would here remark, had better not be introduced into well-kept gardens, or they would soon establish themselves as weeds; indeed, they are already so plentiful, and may be found growing abundantly by the side of almost every country lane and footpath, that, to think of cultivating many of them except on meadow land, would be little short of lunacy. They are all, however, useful—at least may be made so—to the man who has much to do with floral decorating; and if gathered now, whilst they are in flower, and properly dried, will be found very serviceable through the autumn and winter months. One of the most useful for mixing with cut flowers in large epergnes is the barren Brome-grass, Bromus sterilis; it has a fine, handsome, and graceful appearance, and is eminently suited for the dressing of large trumpet-shaped glasses for drawing-rooms, libraries, and front hall work. Glyceria fluitans—Floating Meadow-grass—is also a good decorative species, as well as the following:—Phalaris arundinacea, Poa pratensis, Trisetum flavescens. Holcus mollis, Hordeum pratense, Dactylis glomerata, Festuca gigantea, Cynosurus cristatus, and Glyceria aquatica. Many others might be mentioned which, although equally pretty, are perhaps less common than the above. With the single exception of the last named (which is not yet in its true character), they are all at the present time in a fit state for cutting and drying. Let them be cut with long stems, and each sort tied up separately in bunches, afterwards they may be hung up and allowed to dry in the sun. In this state they will last till the plants flower again the following year. *J. Horsefield, Heytesbury.*

Foreign Correspondence.

Flowering of Agaves at La Mortola.—An unusually wet spring has tended to produce a greater flowering of these noble plants than I have ever had in any previous sesason. At present there are no fewer than twenty-three in blossom, as follows:—Six Agave americana, four A. mexicana picta, three A. yuccæfolia, two A. Rumphii; also single specimens of A. glaucescens, A. angustifolia, A. mitis, A. densiflora, A chiapensis, A. scolymus, A. applanata, and A. ferox. The little Agave glaucescens, considering its size, has made the most extraordinary effort of any. The leaves of this plant are only 28 inches in length by 3¼ in breadth, yet it has sent out a flowerstalk 14½ feet in length, which is twisted, and looks like a gigantic serpent; it is not branched, but thickly covered with yellowish-green flowers, the number of which on a careful estimate I find exceeds 3000. *Thomas Hanbury, La Mortola, near Mentone, July 3.*

Reports of Societies.

Royal Horticultural: *July 10.*

Scientific Committee.—Sir J. D. Hooker in the chair. Present: Messrs. Henslow, Grote, Loder, Mangles, G. F. Wilson, T. Moore, W. G. Smith, McLachlan, A. W. Bennett, J. Glaisher, Professor Michael Foster, and Dr. Masters.

Growth of Conifers.—Dr. Masters made some observations on this subject (see p. 48).

Rhododendron Maddeni.—Mr. Mangles showed flowers of this plant produced upon a plant which had been grown through the winter under a canvas-house without other protection.

Cereus giganteus.—Mr. W. G. Smith showed photographs, taken by Mr. Herbert Green, of this plant as growing in the plains of Arizona. The plant attains the height of 35 feet. Dr. Bell was the first person to photograph this plant *in situ.*

Coloured Lilies.—Mr. Aldous sent a bouquet of Lilium candidum, the flowers of which were tinted by being made to absorb coloured solutions in the soil.

Æcidium.—Mr. Plowright sent specimens of Rhubarb with Æcidium upon it, which he had produced by inoculating the plant with Puccinia arundinacea. The leaves on the same plant not so infected were free from the Æcidium.

The Season and Insects.—Mr. McLachlan commented on the vigour of the foliage generally this year, and on the general freedom from insects, which he attributed to the mild wet winter, the rains washing out the insects and drowning them. Severe winters and hard frosts had, contrary to the usual opinion, but little adverse influence on insects in their hibernating condition.

Plants Exhibited. — By Mr. Loder, Arnebia echioides, A. Griffithi (annual), Dianthus monspessulanus, Geum reptans, very ornamental; Morina longifolia, Campanula Hendersoni, Antirrhinum rupestre, Erigeron Roezli?, Papaver?. From Messrs. Veitch came Masdevallia Carderi, Phalænopsis maculata; and from Mr. Wilson, a fasciated Pine.

Floral Committee.—Present: G. F. Wilson, Esq., in the chair; Messrs. T. Moore, J. Laing. W. Bealby, H. Bennett, J. McIntosh, J. Wills, J. James, J. Dominy, H. Ebbage, H. Cannell, H. Turner, J. Fraser, and Dr. Masters. Small and select was the character of the meeting to-day, which was held in the conservatory—an improvement on the picture gallery off the Deep Sea Fisheries gallery, which has done duty as a Council-room lately. The largest contributor was Mr. T. S. Ware, who again staged an extensive and singularly interesting group of cut specimens of hardy border flowers, for which he was awarded a Silver Medal. Included in the group were no less than thirty-one species and varieties of Lilium, to one of which, L. Bloomerianum occellatum, with tall, handsome spikes of rich orange-yellow flowers, spotted with brown and crimson, a First-class Certificate was awarded. Milla triflora, a species with white flowers, produced on very long stalks, also came in for notice. From Chiswick Mr. Barron sent up a capital group of Begonias and Achimenes, among the former being a new one, named Graziella, a very distinct double flower, with clear primrose-yellow flowers. From Chiswick, and also from Messrs. James Carter & Co., came collections of Sweet Peas, shown as cut flowers. Messrs. Veitch & Sons showed in Davallia brachycarpa a handsome, strong-growing species, with long arching fronds; the new Masdevallia Carderi, a flower with a small white cup prolonged into three long thread-like tails, a grand bloom of Lilium auratum platyphyllum, a flower measuring 11 inches across, and the golden rays very pure; the pretty new Oncidium nigratum (see p. 790, vol. xix.), and a very singular New Zealand hardy plant, named Nothospermum Carmichaeliæ, a Rush-like plant with clusters of minute bluish-purple pea-shaped blossoms; and a number of showy cut flowers of the gorgeous varieties of Iris Kæmpferi. Mr. Ebbage, gr. to J. S. Bockett, Esq., Stamford Hill, showed a lovely variety of Cattleya superba named splendens, a spike of three flowers, with the sepals and petals of an indescribable colour, a shaded rosy violet laid on a light maroon ground. Mr. H. James staged Cattleya Mendeli rosea odorata, a pretty rose-tinted variety; and a very dwarf, compact white flowered Lobelia named Florie Wood. Mr. Vicary, gr. to J. T. Peacock, Esq., sent a group of twelve flowering plants of Odontoglossum vexillarium Klabochorum, a pretty, small pink flowered variety (see p. 818, vol. xix.) Messrs. Cannell & Sons, as usual, contributed some of their seasonable novelties, including the Swanley Blue Lobelia, a very good thing, with rich blue flowers, white in the centre; and Ivy-leaved Pelargonium Abel Carrière, a double rich rose-pink, of very fine quality. Messrs. James Carter & Co. had a couple of first-rate novelties in Lobelia speciosa Prima Donna, rich dark maroon, almost crimson, with a small white eye, a new shade of colour in bedding Lobelias; and Nemophila atomaria

atro-cœrulea, blue, with a black belt surrounding the white centre. From Mr. W. Bealby, Roehampton, came the largest double flowered Begonia yet shown—a variety named Goliath, as perfectly double as a Hollyhock, equally good in shape, scarlet in colour, and measuring 3½ inches in diameter. Lilium Szovitzianum pallidum, shown by the Chairman, was a creamy-white ground coloured variety of the clear yellow Szovitzianum. Messrs. Hugh Low & Co. sent a grand example of the noble Grammatophyllum Ellisii, with a spike of thirty-two flowers; and a well bloomed plant of the new rosy-red flowered Mascarenhasia Curnowiana. Mr. Noble brought from Bagshot a cut spike with seventeen flowers of Lilium giganteum, also a number of bunches of flowers and foliage of the fine Spiræa palmata, for which he received a vote of thanks.

The awards made were :—

First-class Certificates.

To Messrs. Veitch & Sons, for Davallia brachycarpa.
To Messrs. Veitch & Sons, for Oncidium nigratum.
To Mr. Ebbage, for Cattleya superba splendens.
To Messrs. Cannell & Sons, for Lobelia Swanley Blue.
To Messrs. Cannell & Sons, for Ivy-leaved Pelargonium Abel Carrière.
To Messrs. James Carter & Co., for Lobelia speciosa Prima Donna.
To Messrs. James Carter & Co., for Nemophila atomaria atro-cœrulea.
To Mr. T. S. Ware, for Lilium Bloomerianum occellatum.
To Mr. T. S. Ware, for Milla biflora.
To Mr. W. Bealby, for Begonia Goliath.
To G. F. Wilson, Esq., for Lilium Szovitzianum pallidum.
To Mr. H. James, for Lobelia Florie Wood.

Cultural Commendation.

To Messrs. Hugh Low & Co., or Grammatophyllum Ellisii.

FRUIT COMMITTEE.—Present: H. J. Veitch, Esq., in the chair; Messrs. P. Crowley, G. Bunyard, A. W. Sutton, F. Rutland, and R. D. Blackmore. Mr. Carmichael, gr. to J. Porteus Oakes, Esq., Nowton Court, Bury St. Edmund's, exhibited a seedling Melon, Captain Larks, weighing 7 lb., oval in shape, ribbed, scarlet-fleshed, and good in flavour; also a dish of Bellegarde Peaches, large and even in size, and superbly coloured, for which he received a Cultural Commendation. Mr. W. Fitt, The Gardens, Cassiobury, sent some fine examples of a seedling Strawberry, large in size, and of a rich deep crimson colour; another seedling Strawberry was also shown by Mr. E. Whitehouse, of Kiddermiaster, but neither gained any award. A white-fleshed seedling Melon, named Oatlands Superb, came from Mr. Franks, of Weybridge; and Mr. Gilbert sent from Burghley a fruit of his green-fleshed Burghley Pet Melon, which was certificated last year, and which well maintains its high character. A large, oval-shaped, ribbed, and white-fleshed variety, named Graaf Reinette, came from Messrs. R. T. Veitch & Son, of Exeter; and a large, heavily netted, green-fleshed, and well-flavoured variety, named Chalfont Favourite, was exhibited by Mr. Herrin, gr. to C. N. Hibbert, Esq. A collection of forty-five named sorts of Cabbage Lettuces came from the trial grounds of the Messrs. Veitch, at Langley.

Crystal Palace Rose Show: *July* 7.—This large annual show of Roses took place on Saturday last, the weather assisting in a great degree to make it a very successful gathering. The Roses, too, were as good as we may expect to see them this season, the slightly cloudy weather of the few previous days helping materially to preserve their colours, form, and freshness. The usual trade competitors at metropolitan shows were again to the fore, as were also the leading growers amongst the amateurs. In the larger classes in the two main divisions the blooms staged were very good, and the competition generally keen, and lengthy were the consultations of the judges over some of them ere their decisions were given. Meanwhile the public were anxiously awaiting admittance within the barriers, and it was comparatively late ere the work of the judges was completed and the public inspection began. In the nurserymen's class for seventy-two blooms, Messrs. Paul & Son, of Cheshunt, won the 1st prize, with excellent blooms of Countess of Rosebery, Prince Arthur, Marie Finger, Merveille de Lyon, Antoine Ducher, Marie Van Houtte, Charles Darwin, Niphetos, Captain Christy, Nardy Frères, Charles Lefebvre, Marguerite de St. Amand, Léon Renault, Pride of Waltham, &c. The 2d prize fell to Mr. B. R. Cant, Colchester, who had amongst other beautiful blooms grand specimens of Horace Vernet, Rubens, Penelope Mayo, Pauline Talbot, Abel Carrière, Mdme. Hippolyte Jamain, Sir Garnet Wolseley, and Fisher Holmes. Mr. Chas. Turner was 3d, and in his stands were good flowers of Elie Morel, Etienne Levet, Annie Laxton, Mrs. H. Turner, Maréchal Niel, and Comtesse Riza du Parc. In the class for forty-eight varieties, three trusses of each, Messrs. Paul & Son were again the winners of the 1st prize, showing capital blooms of Julie Touvais, Ferdinand Chaffolte, Beauty of Waltham, Marie Baumann, Marie Wood, La France, Prince Arthur, Alfred Colomb, Madame Gabrielle Luizet, and Countess of Oxford. The Cranston Nursery and Seed Company, Hereford, who showed very fine examples of Mary Pochin, Monsieur E. Y. Teas, A. K. Williams, Madame Lacharme, and Mdlle. Julie Dymonier were 2d; and Messrs. Keynes & Co., Salisbury, were 3d. In the competition for twenty-four varieties, three trusses of each, Messrs. Jefferies & Sons, Cirencester, were 1st, having beautiful blooms of Magna Charta, Marguerite de St. Amand, Egerie, Marie Verdier, Edouard Morren, Camille Bernardin, Madame Gabrielle Luizet, and others; Mr. John House, Eastgate Nurseries, Peterborough, came in 2d, in his stand being good flowers of Charles Lefebvre, Charles Darwin, Françoise Michelon, Exposition de Brie, &c.; Mr. F. Cant, Mile End Nurseries, Colchester, came in 3d. In the class for twenty-four varieties, one truss of each, Mr. F. Cant was 1st, with good examples of Souvenir d'Elise Vardon, Captain Christy, A. K. Williams, Abel Carrière, La Boule d'Or, and Baronne de Rothschild, &c. Mr. John Mattock, New Headington, Oxon, took the 3d prize, no 2d being awarded. For twelve Tea-scented sorts, Messrs. James Mitchell & Son, Pilt Down Nurseries, Sussex, were 1st, showing very fine examples of Madame Willermoz, Souvenir d'Elise Vardon, Souvenir de Paul Néron, Jean Ducher, Comte de Paris, Niphetos, and Rubens. Mr. B. R. Cant was 2d, with good specimens of Devoniensis, Maréchal Niel, Comtesse de Nadaillac, Innocente Pirola; and Mr. George Prince, Oxford, was 4th.

In the amateurs' class for forty-eight, distinct varieties, single trusses, the 1st prize went to A. Slaughter, Esq., Steyning. This very successful amateur had fine blooms of Black Prince, Annie Wood, Pierre Notting, Baronne de Rothschild, Madame Sertot, Duke of Wellington, Belle Lyonnaise, Etoile de Lyon, Lord Macaulay, Alfred Colomb, Innocente Pirola, and Prince Camille de Rohan, &c. E. R. Whitwell, Esq., Barton Hall, Darlington, came in 2d, with good examples of Horace Vernet, Prince Arthur, and Prince Camille de Rohan; and Mr. John Grant, Hope End, Ledbury, was 3d; Mr. C. Davis, the Grammar School, Aynhoe, Banbury, being Highly Commended. Mr. John Tark and Mr. George Endicott had also very nice stands. In the class for thirty-six varieties, distinct, single trusses, J. Sargant, Esq., of Reigate, came in 1st, showing excellent examples of good cultivation in Le Havre, Baron de Bonstettin, Camille Bernardin, A. K. Williams, Alfred Colomb, Dr. Andry, Fisher Holmes, and Prince de Portia. The 2d prize went to Mr. W. Harrington, gr. to — Mitchell, Esq., Corbet's Tey, who had some capital blooms notably of Edouard Morren, Mons. Boncenne, Mons. E. Y. Teas, and Emily Hausburg. 3d, Mr. J. Ridout, gr. to T. B. Heywood, Esq., Reigate. For twenty-four varieties, distinct, three trusses of each, Mr. W. J. Grant, Ledbury, was 1st, amongst his blooms being good examples of Prince Arthur, Madame Sophie Fropot, Beauty of Waltham, Madame Thérèse Levet, Marquis de Castellane, and Madame Hippolyte Jamain. Mr. C. Davis, the Grammar School, Aynhoe, was 2d, with very good blooms of Xavier Olibo, Exposition de Brie, and Egerie, &c. 3d, John Hollingsworth, Esq., Turkey Court, Maidstone. In the class for twelve varieties, distinct, three trusses of each, the 1st prize went to the Rev. J. H. Pemberton, Round House, Havering-atte-Bower, in whose boxes were very fine blooms of Baronne de Rothschild, Beauty of Waltham, Exposition de Brie, and Horace Vernet. 2d, Mr. M. Teed, Bungalow Road, Exeter. 3d, Mr. G. Mount, Harbledown, Canterbury. In this class the following exhibitors also staged good lots :—Miss Watson Taylor, Headington, Oxon; Mr. Varnel, Brookfield, Rugby; Mr. Girdlestone, Sunningdale; and Mr. Bethune, Durne Park.

In the class for twelve Tea-scented and Noisettes, three trusses of each, the 1st prize was won by the Rev. J. H. Pemberton, whose box contained beautiful trusses of Anna Olivier, Madame Margottin, Marie Van Houtte, Souvenir de Madame Pernet, Rêve d'Or, Rubens, Souvenir d'un Ami, and Caroline Kuster; 2d, Alfred Slaughter, Esq.; 3d, Mr. Charles Davis.

Open Classes.—In the competition for eighteen trusses of Maréchal Niel, Mr. W. Farren, How House Nurseries, Cambridge, was 1st; Mr. B. R. Cant 2d, and Messrs. J. Mitchell & Sons 3d. In the class for eighteen trusses of any kind of Noisette or Tea Rose, Messrs. Keynes were 1st with very fine, fresh-looking Niphetos; 2d, Mr. G. Prince, with capital blooms of Jean Ducher; 3d, Mr. B. Cant, for Innocente Pirola. For eighteen trusses of Marie Baumann, or a similar-coloured Rose, Mr. C. Turner was 1st with A. K. Williams; Mr. G. Prince 2d with Marie Baumann; and Messrs. Paul & Son, Cheshunt, 3d, with the same kind. For eighteen trusses of Prince Camille de Rohan, or a similar coloured Rose, Messrs. Paul & Son were 1st with a grand box of Abel Carrière; 2d, The Cranston Nursery Company with the same sort; no 3d was awarded. For eighteen trusses of Françoise Michelon, or a similar-coloured Rose, The Cranston Nursery Company came in 1st with fine Françoise Michelon; 2d, Messrs. Paul & Son, Cheshunt, for Etienne Levet; 3d, Mr. B. R. Cant, for the same kind. For eighteen blooms of Captain Christy, or a similarly coloured variety Mr. G. Prince was 1st with Captain Christy, Mr. W. Farren 2d with La France, The Cranston Nursery Company 3d with Duchesse de Vallombrosa. Beautiful lots were put up for the competition in yellow Roses, three trusses of each: Messrs. Paul & Son, Cheshunt, were 1st, having Caroline Kuster, Jean Ducher, Perle des Jardins, Anna Olivier, Belle Lyonnaise, Marie Van Houtte, Maréchal Niel, and Mons. Furtado; 2d, Mr. Cant; 3d, Mr. G. Prince. In the open class for white Roses, three trusses of each, Mr. G. Prince, who had fine blooms of Alba rosea, Niphetos, Innocente Pirola, Madame Willermoz, and Madame Jamain, was 1st; 2d, Mr. Cant; 3d, Mr. W. Rumsey, Joyning's Nursery, Waltham Cross; Messrs. Paul & Son were Commended.

In the open class for pink Roses the 1st prize went to Mr. Cant, in whose lot were some beautiful blooms of William Warden, Elie Morel, Mons. Noman, and Marguerite de St. Amand; 2d, The Cranston Nursery Company; 3d, Mr. H. Bennett.

For collections of crimson Roses, three trusses of each.—1st, Mr. Cant, with fine flowers of A. K. Williams, Marie Baumann, Alfred Colomb, Général Jacqueminot, Mrs. Laxton, and Fisher Holmes; 2d, Messrs. Paul & Son, Cheshunt; 3d, Mr. W. Rumsey. For collections of velvety-crimson Roses, three trusses of each, Mr. Cant was 1st, in his box being excellent blooms of Xavier Olibo, Abel Carrière, Prince Camille de Rohan, Reynolds Hole, and Horace Vernet; 2d, Mr. W. Rumsey; 3d, Messrs. Paul & Son.

For the best new Rose not in commerce previous to 1880, of which twelve blooms were to be shown.—1st, Messrs. Paul & Son, Cheshunt, with Pride of Waltham; 2d, The Cranston Nursery Company, with Julie Dymonier; 3d, not awarded.

For a collection of twelve new Roses, not in commerce previous to 1880, three trusses of each, The Cranston Nursery Company came in 1st, with grand blooms of Mons. Alfred Dumesnil, Julie Dymonier, and Pride of Waltham, &c.; 2d, Messrs. Paul & Son, Cheshunt, with fine-grown flowers of White Baroness, Brightness of Cheshunt, and Mrs. Jowitt. In the class for hybrid Teas there were no entries. For new Rose, Mary Bennett, a fine rose-coloured flower, Mr. H. Bennett, Shepperton, received a First-class Certificate.

Messrs. Laing & Co. showed a nice representative collection of their hybrid Begonias, and were Highly Commended, as also were Mr. H. Bennett, for three boxes of Rose blooms; Messrs, Cannell & Son, for cut flowers; and Mr. G. Prince for Tea Roses. Messrs. T. Rivers & Son were Commended for four dishes of luscious-looking Cherries from orchard-house trees, and also for Peaches from potted plants; and Messrs. Hooper & Co. were Commended for a collection of cut blooms of bulbous plants.

Rochester Horticultural: *July* 3.—The seventh annual exhibition of this Society took place in the pretty grounds of The Paddock, St. Margaret's, near to the Cathedral, and easily accessible from all parts of the city. One result of the show was to demonstrate the steady advance being made in the quality of the products from exhibitors. Stove and greenhouse plants were nicely shown by local growers; the best six came from Mr. R. Phillips, gr. to Dr. Baber, who had good examples of Allamanda Hendersoni, Bougainvillea glabra, Plumbago capensis, Anthurium Scherzerianum, Erica Cavendishiana, and Vinca alba. Mr. Youseman had the best specimen, staging a good piece of Stephanotis floribunda; Mr. Phillips coming in 2d with a good specimen of Oncidium flexuosum. Mr. Deuxbury, gr. to the Earl of Darnley, who with Mr. Phillips made the two leading exhibitors, had the best six fine-foliage plants, staging very good examples of Croton D'Israeli, C. Queen Victoria, Latania borbonica, Alocasia macrorhiza variegata, Pandanus Veitchii and Maranta zebrina; 2d, Mr. A. Stevens, gr. to Mrs. Fletcher, who had Caladium Prince Albert Edward in fine condition, Acalypha musaica, and Dracæna Fraseri as his best specimens. Mr. Deuxbury had the best six Ferns, several collections being shown. Zonal Pelargoniums, especially the double varieties, were very attractive, and tuberous-rooted Begonias were very creditable also. Mr. Phillips had the best arranged group of plants, showing considerable taste in the arrangement: and Mr. Deuxbury came in 2d. The best box of twelve Roses came from Messrs. G. Bunyard & Sons, Maidstone, nice fresh well coloured blooms, that were very attractive; Mr. G. W. Piper, Uckfield, was 2d. Mr. R. L. Knight had the best twelve blooms in the amateurs' class. Other cut flowers included Pelargoniums, Sweet William, Bouquets, &c.

Some excellent fruit was brought by Mr. Deuxbury from Cobham Hall Gardens. He was far away 1st with eight dishes, having excellent Madresfield Court and Muscat of Alexandria Grapes, Queen Pine, Royal George Peaches, Elruge Nectarines, Sir J. Paxton Strawberries, Bigarreau Cherries, and Raspberries; 2d, Mr. Phillips. Mr. Deuxbury had the best three bunches of White Grapes, staging very good Foster's Seedling; 2d, Mr. Youseman, with the same variety. Duke of Buccleuch and Muscat of Alexandria were also shown in this class. Mr. A. Bindur had the best three bunches of Black Hamburghs, staging nicely finished examples; Mr. R. Phillips being 2d.

Vegetables were capitally shown. In the class for twelve varieties Mr. R. Phillips staged an excellent lot, consisting of Seville Longpod Beans, Perfection Tomatos, Artichokes, Telephone Peas, Early Nantes Carrot, Onions, Cauliflowers, Potatos, &c.; 2d, Mr. A. Stevens, with a good lot also; Mr. F. Deuxbury had the best six varieties; Mr. W. Richardson being 2d.

While this exhibition grows steadily in importance and extent, it does not appear to receive that amount of support from the citizens it so well deserves, and there is generally, even when fine weather prevails, as it did on this occasion, a small deficit. Let us hope this will soon be changed into a balance on the right side.

Norwood Amateur Floral Society: *July* 4.—This is one of many suburban horticultural societies that have sprung up round London of late years; and being well managed, it is now a decided success. This exhibition was held in the grounds of Werndee Hall, the residence of Mrs. Miller, close to Norwood Junction.

One remarkable feature was the number of table decorations produced, for though there were only two prizes of nominal value in each class, yet there were six tables laid out in each, each table 9 by 3½ feet, and most of them showed an educated taste in the arrangement. The best, arranged with ordinary flowers, came from Miss

M. S. Stanley, Anerley; Miss Phillips, White Horse Lane, being 2d; and an extra prize was awarded to Miss A. H. Lellyett. The best arrangement in wild flowers in glasses came from Miss Minnie Berney, Mr. Castle Turner being 2d; and an extra prize was awarded to Miss E. Hinton. Collections of wild flowers correctly named, baskets of flowers, bouquets, button-holes, &c., were all very attractive indeed. In addition there were some excellent cut Roses, and Mr. E. Mawley, of Addiscombe, one of the hon. secretaries of the National Rose Society, was in excellent form, being 1st in several classes; the Rev. W. Wilkes, M. Hodgson, Esq., and others showing well also. Messrs. Geo. Bunyard & Co., Maidstone, had several boxes of very nice fresh, well-coloured flowers, and were placed 1st in the nurserymen's class for thirty-six varieties.

In the plant tent there were some excellent groups arranged for effect. That arranged by the gardener to F. F. Lynch, Esq., was as near perfect as one could well desire; R. R. Hyatt, Esq., being 2d. In the open class Mr. H. James, nurseryman, had the best large group; Mr. Thos. Butcher, South Norwood, being 2d. Some good Orchids were shown, the best six being staged by R. R. Hyatt, Esq., who had Masdevallia Harryana, Odontoglossum vexillarium, Phalænopsis grandiflora, Cattleya Mossiæ, Oncidium ampliatum majus, and Cypripedium barbatum majus; 2d, P. Crowley, Esq., who had very nicely formed specimens of Odontoglossum Alexandræ, Lælia purpurata, and Aërides Lobbii. Tuberous-rooted Begonias were a pretty feature, and they served to illustrate the fact that they have become great favourites for exhibition purposes. F. Mitchiner, Esq., was 1st with eight plants, and they were well cultivated; M. Hodgson, Esq., being 2d. There were some good Gloxinias also, especially a large group of charming seedlings from F. Wiltshire, Esq. Ferns, foliage plants, Fuchsias, flowering plants were all of a pleasing character, while not including anything calling for special mention. There were some excellent Selaginellas from P. Crowley, Esq., a specimen of S. Kraussiana aurea being especially fine. This exhibitor was in strong force throughout the show, being 1st also with six stove and greenhouse plants in flower, and also with six exotic Ferns. Messrs. J. Laing & Co., Stanstead Park Nursery, sent a miscellaneous group of plants, other local nurserymen doing the same, and Mr. G. H. Cooper, Sydenham Road Nursery, contributed a stand of very pretty Petunias, both double and single, some of the fringed variety being especially attractive.

Bath Rose Show: *July* 5.—The second annual Rose show held in this city in association with the National Rose Society took place in the Sydney Gardens, under the management of the Floral Fête and Band Committee, the members of which deserve congratulation for their admirable arrangements, as well as for the successful result of their strenuous efforts to make this show, as it undoubtedly already is, one of the best and most representative Rose shows in the provinces. The numerous classes were all well filled, and, with one or two exceptions, the most noted rosarians, both nurserymen and amateurs, were represented, the competition being in many instances unusually close and keen. Owing to the unfavourable weather in the spring, there was not perhaps quite that perfection of bloom on the whole of which the Rose is capable in the best seasons; on the other hand, there was an entire absence of bad, and almost so of indifferent blooms, which in a show of such magnitude was extremely gratifying.

Nurserymen's Classes.—For seventy-two distinct varieties, single trusses, The Cranston Nursery Company, Hereford, were 1st, their stands containing some choice and finely-developed blooms of the well-known popular sorts. Messrs. Paul & Son, Cheshunt, were 2d, their superb collection being scarcely inferior to the former, containing as it did many new varieties, although perhaps not quite so large in size of bloom. Messrs. Keynes & Co., Salisbury, were 3d, showing also some magnificent blooms; and Messrs. John Jefferies & Sons, Cirencester; Messrs. Parker & Sons, Bristol; and Messrs. Curtis & Sandford, Torquay, also showed well in this class. In the class for thirty-six distinct varieties, three trusses of each, the successful exhibitors were placed in the same order of merit as in the 1st class; and in the competition for twenty-four distinct varieties, three trusses of each, The Cranston Nursery Company came in 1st, Messrs. Keynes & Co. 2d, and Messrs. Curtis, Sandford & Co., Torquay, 3d. The best twenty-four single trusses came from Mr. G. Prince, Oxford; Messrs. G. Cooling & Son, Bath; and Messrs. Cross & Steer, Salisbury, in the order named. In this class the competition was exceedingly close, the exhibits in each case being remarkably fine. In Messrs. Cross & Steer's collection the Alfred Colombs were grand, and the A. K. Williams in Mr. G. Prince's stand was a superb bloom, to which was awarded the Society's Silver Medal, as the finest H.P. in the whole exhibition; and a similar award was also made to Messrs. Keynes & Co. or the best bloom, either Tea or Noisette, in the show—a magnificent Niphetos in this case gaining the coveted prize. With eighteen Teas or Noisettes Messrs. Paul & Son were 1st, Mr. G. Prince 2d, and Mr. John Mattock, Oxford, 3d. In this class some splendid flowers were shown, Oxford being strongly represented.

The prizes in the amateurs' class for thirty-six distinct varieties, single trusses, fell to Miss Watson Taylor, Manor House, Headingly (gr., Mr. F. Guerdon); Mr. T. B. Hall, Birkenhead; and Mr. T. Hobbs, Bristol, in the order named; while for twenty-four distinct varieties, single trusses, Mr. A. Evans was 1st, Mr. John Scott 2d, and Mr. W. Pethick 3d. Other awards were:—Twelve distinct varieties, three trusses of each—1st, Mr. T. B. Hall; 2d, Miss Watson Taylor; 3d, Mr. D. C. Powell. Six distinct varieties, three trusses of each.—Equal 1st, Messrs. Evans and Scott; 3d, Mr. W. Pethick. Six distinct vars., single trusses.—1st, Mr. T. Tanner; 2d, Mr. H. F. Hooper; 3d, Mr. H. Ball. In each of these classes were some splendid blooms, nearly, in some instances, superior in quality to those in the larger classes. Twelve Teas or Noisette, distinct vars., single trusses.—1st, Miss Watson Taylor; 2d, Mr. T. B. Hall; 3d, Mr. T. Hobbs. Six Teas or Noisettes, distinct varieties, single trusses.—1st, Mr. J. Hinton; 2d, Mr. W. Narroway; 3d, Mr. R. B. Cator. Twelve single trusses of any Rose.—1st, Mr. G. Prince, with a magnifient stand of Catherine Mermet; 2d, Messrs. Paul & Son, with a grand stand of Marie Baumann; 3d, Messrs. J. Jefferies & Son, with a neat stand of Cannes la Coquette. In this class were also shown excellent stands of Niphetos, La France, Mdlle. Marie Cointet, Alfred Colomb, and Baroness Rothschild. Twelve single trusses of any yellow Rose.—1st, Mr. George Prince, with a beautiful stand of Jean Ducher; 2d, Mr. J. Mattock, Oxford, with a good twelve of Marie Van Houtte. Twelve single trusses of any crimson Rose.—Messrs. Paul & Son and Mr. J. Prince equal 1st, each with marvellous stands of A. K. Williams; 3d, Messrs. Keynes & Co., with Duke of Edinburgh. In this class were some superb Roses, the Alfred Colomb shown by Messrs. Cross & Steer, also a grand strain of Marie Baumann, richly deserved a better fate. Twelve single trusses of any pink Rose—1st, Messrs. J. Cooling & Son, with exquisite blooms of Madame Gabrielle Luizet, the soft silvery radiance of which made it a most lovely and conspicuous object; 2d, A. Evans, Esq.; 3d, The Cranston Nursery Co., each with a stand of La France. In this class were also exhibited fine stands of Monsieur Noman and Marie Cointet. Six trusses of any new Rose of 1881 or 1882.—1st, Messrs. Paul & Son, with Madame Cusin, a Tea Rose of good form and substance, the colour rosy-purple, each petal having a yellow base gives it a novel and attractive appearance. 3d, The Cranston Nursery Co., with Violette Bowyer, H.P., the colour being somewhat washy and undecided. A basket of Teas, hybrid Teas, or Noisette.—These were not particularly effective, the arrangement being somewhat heavy and devoid of relief, nor were the three-legged wicker stands particularly elegant.

Local Prizes (Amateurs').—Twenty-four distinct varieties, single trusses.—1st, Mr. S. P. Budd; 2d, Mr. H. Cattley; 3d, Mr. T. Fluke. Twelve distinct varieties, single trusses.—1st, Mr. R. B. Cator, Bath; 2d, Mr. J. Stuckey, Bath. Six distinct varieties, single trusses.—1st, Mr. W. Meddick; 2d, the Rev. C. C. Layard. Nine Teas or Noisettes, single trusses.—1st, Mr. H. Cattley; 2d, Mr. R. B. Cator; 3d, Mr. T. Jolly. Bath is notorious for amateur Rose growers, and on this occasion they fully sustained their reputation by their splendid productions. Liberal prizes were also offered for bouquets of Roses suitable for the hand; some of the exhibits were exceedingly pretty, but in most instances, if more relief either with foliage or Fern had been given, they would have been much more effective.

Strawberries were also exhibted in splendid condition, for which Bath is particularly noted; also the ornamental foliaged plants and Ferns arranged along the centre of the tents, afforded a pleasing relief to the eye after gazing on such glowing colours. At one end of the principal tent were very tastefully arranged, in shallow baskets with moss, a fine display of Roses and decorative plants, not for competition, by Messrs. G. Cooling & Son; and at the opposite end Mr. G. Hooper, of Widcombe, Bath, exhibited a choice collection of Carnations, Picotees, and Pansies, as well as a stand of a dark purple seedling Rose named Jerome Murch, the somewhat dingy colour of which, however, did not tell in its favour.

In a separate tent, arranged under the auspices of the British Bee-keeper's Association, and presided over by Mr. S. J. Baldwin, of Bromley, Kent, was an excellent exhibition of the varied approved methods of housing bees. Experimental lectures were delivered and practical illustrations given of the best means of "driving" bees from one hive to another at intervals throughout the day, and appeared to create great interest in the numerous visitors.

Aylesbury Horticultural: *July* 5.—On the present occasion the show took place under canvas in some grounds close to the town, and it was generally felt to be a great improvement upon that held in the Corn Exchange; and not only was a very attractive exhibition got together, but a very large number of people came together to see it, and some £120 taken as gate-money. In order to attract the country people some athletic sports and a good band are provided, and they attract the rustics in great numbers. The principal contributor of plants was Mr. Shrimpton, gr. to Lady A. de Rothschild. He had the best six stove and greenhouse plants, among them a good example of Calanthe veratrifolia, with twenty-five spikes of bloom; Mr. Moggs, gr. to H. Cazenove, Esq., being 2d. It would be much best if this class had the condition "in flower" appended to it, as the second collection of plants contained only one in flower. In the class for an unlimited collection of stove and greenhouse plants, a very fine group was staged by Mr. Shrimpton, which included many examples of fine quality; 2d, C. Threlfal, Esq. (Mr. Moggs, gr.), who had a very good lot also. With six Ferns Mr. Shrimpton was again to the fore with very good plants of Adiantum Farleyense, Gymnogramma chrysophylla, &c.; 2d, H. Cazenove, Esq. Some capital tuberous-rooted Begonias came from Mr. Threlfal, which did his gardener much credit; and Mr. John De Fraine, a local nurseryman, had some capital zonal Pelargoniums in two classes. Fuchsias were numerously produced, and comprised handsome well-grown and flowered plants.

A large number of cut Roses were staged in several classes, but the dry hot weather had told on them, and many of the flowers soon went all abroad. From Thame Mr. John Walker brought an excellent lot of flowers. Marie Baumann, Général Jacqueminot, old, but very fine; Dupuy Jamain, Marie Finger, Alfred Colomb, Mons. Noman, Comtesse d'Oxford, Annie Wood, brilliant in colour; Charles Lefebvre, Maréchal Vaillant, Mabel Morris, John Hopper, Captain Christy, and Mdlle. Bonnaire, made up a capital lot of exhibition Roses. There were other cut flowers, but nothing claiming special mention.

There was an excellent lot of fruit. The collection of twelve varieties shown by Mr. Robins, gr. to E. D. Lee, Esq., Hartwell House, was most praiseworthy. It consisted of excellent Black Hamburgh and Foster's Seedling Grapes, extra fine Noblesse Peaches, capital Grosse Mignonne and Royal George, also Lord Napier Nectarines, Melons, Strawberries, &c. 2d, C. Threlfal, Esq. Mr. Miles, the Gardens, Wycombe Abbey, Bucks, had the best two bunches of Grapes, one white and one black, staging capitally finished bunches of Madresfield Court and Foster's Seedling; Mr. Shrimpton being 2d, with excellent bunches of Black Hamburgh and Foster's Seedling. Prizes were also offered for the best general collection of plants, fruits, and flowers, and the winning collection, which came from Mr. Roberts, Hartwell House, covered a great space, and included some forty varieties of fruits—Grapes, Peaches, and Nectarines, being very fine. Fine weather, and a very large company, rewarded the efforts of the managers.

Highgate Horticultural: *July* 5.—This Society held its annual show this year at Holly Lodge, the Baroness Burdett-Coutts' beautiful old-fashioned place, the well kept grounds of which are in themselves no small attraction to the crowds of people who throng the tents and grounds whenever the exhibition is held there. On the present occasion we hear that nearly 20,000 persons visited the show. The display, both in quantity and quality, was quite equal to that of any previous occasion. The President, Mr. L. A. B. Burdett-Coutts, Esq., offered a number of prizes, amongst them being one for a competition of miscellaneous plants occupying a space of 60 square feet. For these Mr. Brooks, gr. to W. Reynolds, Esq., Highgate, was 1st; Mr. Shepherd, gr. to Mrs. Horwood, 2d.

For a collection of miscellaneous flowering plants, occupying a space not exceeding 40 square feet, Mr. Rundell was 1st, and Mr. Welch, gr. to B. W. Smith, Esq., 2d. The Treasurer's (Mr. Cutbush's) prizes, for six Ericas in 13-inch pots, brought out only one competitor—Mr. Eason, gr. to B. Noakes, Esq., Highgate, who took the 1st prize. For Mrs. Stedall's prizes for a group of flowering and fine-foliage plants arranged for effect there were a number of competitors, and Mr. Aldous, gr. to G. Heriot, Esq., Highgate, took the lead with a group in which several Orchids were introduced amongst the fine-leaved plants with good effect. Mr. McKinley gr. to C. Wright, Esq., Highgate, was a good 2d. For the prizes offered by W. Reynolds, Esq., for six Palms, there was a close contest, in which Mr. Sparkes came in 1st with a handsome lot; and Mr. Hodges, gr. to Mrs. Crossley, Highgate, was 2d. J. S. Law, Esq., offered prizes for tuberous Begonias, and the 1st was well won by his own gardener, Mr. Tonge, with well flowered examples; 2d, Mr. Osborne, gr. to J. N. Mappin, Esq., Southgate House, Southgate. For the prizes given by B. Noakes, Esq., for six Adiantums, there was also a close contest, in which Mr. Tubbs, gr. to B. W. Smith, Esq., took the lead, Mr. Osborne being 2d, and both staging good collections. Mrs. Wilkinson's prizes for twelve hardy Ferns were taken by Mr. Carter, gr. to W. Brown, Esq., North Finchley; and Mr. Cowles, gr. to E. Fox, Esq., Finchley.

With six stove and greenhouse plants Mr. Osborn was easily 1st, showing in a nicely flowered half-dozen the bright pink Erica Parmentieri rosea, E. Cavendishiana, and Kalosanthes coccinea; Mr. Eason was 2d. In the class for six Orchids there was a very close run between Mr. Birse, gr. to J. H. Lermitte, Esq., Finchley, and Mr. Aldous, who took the prizes in the order named. The winning collection contained a beautifully bloomed plant of Odontoglossum vexillarium album, and O. vexillarium, both bearing remarkably fine flowers; with the yellow Masdevallia Davisii, bearing some eighteen flowers; and Cypripedium Stonei, nicely bloomed. In the 2d prize half-dozen was a well managed example of Dendrobium suavissimum and Masdevallia Harryana. For a single Orchid Mr. Birse had 1st, with a nice specimen of Odontoglossum vexillarium; 2d, Mr. Aldous, staging Aërides virens.

Single stove or greenhouse plant in flower.—1st, Mr. Eason, with a beautifully fresh and well bloomed Clerodendron Balfourianum; 2d, Mr. Birse, with Anthurium Scherzerianum.

Fine-foliaged plants, as usual here, were in force, Mr. Tubbs taking the 1st prize with a group of large plants, in which Kentia Fosteriana and Latania borbonica were in fine condition. Mr. Aldous, who was 2d, had, along with others, a nice example of Croton Prince of Wales and the variegated Phyllanthus nivosus, large and unusually well managed, the white colouring in the leaves pure and prominent. For four fine-foliaged plants the competition was also keen, Mr. Archer, gr. to J. J. Griffin, Esq., Highbury Grange, being 1st, and Mr. Williams, gr. to W. H. Wills, Esq., Hampstead, 2d.

With six Ferns Mr. Osborne took the lead, staging in a pretty group Neottopteris australasica and Davallia Mooreana; 2d, Mr. Burnett, gr. to R. D. M. Littler,

Esq. For four Ferns Mr. Tubbs was 1st, and Mr. Eason 2d. Mr. Burnett was 1st for Fuchsias, with a nice half-dozen, better managed than these plants are often met with; and with six large-flowered Pelargoniums, and also with six fancies, Mr. Osborne took the 1st prize, with well-flowered examples. Coleuses were amongst the best grown plants in the show, and in the half dozen with which Mr. Brooks was deservedly 1st were Sky Rocket, G. Simpson, and Mrs. G. Simpson, beautifully coloured; 2d, Mr. Theobald, gr. to A. Goslett, Esq. Caladiums were very well shown, with large, stout, well-coloured leaves. Gloxinias were never so well and extensively grown or shown as at present. Roses were only moderately well exhibited, but miscellaneous cut flowers were plentiful. For the Baroness Burdett-Coutts' prize offered for a collection, Mr. Theobald was 1st, and Mr. Shepherd 2d.

Fruit was present in moderate quantity and nice condition. With a collection of six dishes Mr. Theobald took the 1st prize, and Mr. Wilkinson, gr. to W. Webster, Esq., the 2d. For a miscellaneous collection of fruit, the prizes being offered by the President, Mr. Sparkes was 1st, his best dishes being of black and white Grapes, Peaches, Cherries, and Strawberries. Black Grapes, as usual here, were well shown, and with three bunches Mr. Birse was 1st, showing Black Hamburghs well finished; Mr. Sparkes was 2d. For three bunches of white Grapes Mr. May, gr. to T. Lodge, Esq., was 1st with, for the time of year, creditable Muscat of Alexandria; 2d, Mr. Birse, with Buckland Sweetwater in nice condition. Mr. Sparkes was 1st with a good dish of Peaches; Mr. Osborne 2d. With a Melon Mr. Cowles was 1st, and Mr. Brooks 2d.

The Baroness Burdett-Coutts offers a number of prizes for competition by ordinary members of the Society, and also cottagers and school children, and likewise for cottage garden allotments, which, with the liberal encouragement given by the Society to cottage and allotment holders, bring out an immense quantity of produce that by the high standard of cultivation displayed gives evidence of the excellent results of the encouragement thus held out.

Groups of miscellaneous flowering and fineleaved-plants were shown by Mr. B. S. Williams, of the Victoria Nursery, and also by Messrs. Cutbush & Son, who had, in addition, a large collection of cut Roses, and also a beautiful group of Ivies tastefully shown in round wicker-work baskets. The collection contained from forty to fifty varieties, comprising all the best kinds, and presenting much variety and beauty in form and colour.

Woodbridge Horticultural: *July* 5.—This Society held its annual exhibition in the Abbey Grounds, immediately adjoining the town, under very favourable auspices as regards the weather, which is almost always propitious on these occasions, for during twenty years or more I only remember one wet day; and as the committee work well together, and have a most energetic and enthusiastic secretary, they cannot be otherwise than successful, or the Society fail to be flourishing. This latter satisfactory state of things is, no doubt, in a great measure brought about by the hearty support of the neighbouring nobility and gentry in giving special prizes and patronising the show by their presence, and sending so many things from their well stocked gardens, by which, and the cordial good feeling existing among all, the public are attracted and the shillings roll into the coffers. There are some who think these horticultural gatherings do little or no good, but this very erroneous idea can only be entertained by those who seldom attend, for one has but to see how earnestly nearly all the visitors scan the productions and discuss their merits, dwelling thereon with such interest till the passages in the tents become quite blocked and impassable. Witnessing this, as I have done again and again, any sceptic must be convinced that such meetings do much to encourage and foster the art, which never would have risen to anything like the position it has now reached, nor would the love of gardening have taken such a hold of the people, whose tastes it improves and adds a hundredfold to their pleasures. The entries, though very numerous at Woodbridge, did not come up to the usual standard, and had it not been for Mr. Bethell, Sir Richard Wallace's able gardener, who more than keeps up the fame of Sudbourne Hall, the marquee tables would have been much thinner packed than they were, as two of the chief exhibitors of other years—E. Packard, Esq., of Berkfield, and the Messrs. Gilbert, of Ipswich, were conspicuous by their absence. It would have taken a strong opponent, however, to have beaten Mr. Bethell in the class for six stove and greenhouse plants, in which he was an easy winner, showing a very fine and well flowered Azalea Hendersoni and Clerodendron Balfourianum, Allamanda Hendersoni, Dipladenia boloniensis, and Dracocephalum gracile.

In the class for six stove and greenhouse plants in 12-inch pots, Mr. Bethell was again 1st, with a highly meritorious lot, the whole being clean, and in the most perfect health; and the same gentleman was also 1st for the single specimen, carrying off the prize with a well-bloomed Dipladenia profusa. For four Caladiums, Mr. Bethell was again to the fore, having huge plants of Leplay, Mrs. Laing, Chantini, and Mrs. Lane, all with big, stout, well coloured leaves, that stood the air without flagging.

In the class for the best collection of stove and greenhouse plants, arranged in a semicircle 12 feet by 4, Mr. Mill, gr. to Lord Rendlesham, was quite unapproachable, not only for the excellent taste displayed in setting them up, but for the great variety and intrinsic worth of the lot, among which were Anthurium Andreanum, Epidendrum vitellinum, Cattleya superba, Odontoglossum Alexandræ, and other good Orchids, with richly coloured Dracænas and Crotons, together with small Palms and Amaryllis, the whole being interspersed and relieved by heads of various kinds of Carnations, and the lovely pure white spikes of Tuberoses towering out above the bright foliage of the Dracænas, thus giving the mass a very light and pleasing appearance. The next strongest competitor for honours in this part of the tent was Mr. Bethell, gr. to Sir Richard Wallace, who was 2d, with a very nice group; and Mr. Jones 3d. There were several others very praiseworthy, and it is not too much to say that these several exhibits constituted one of the most interesting and attractive features of the show, as well as being of an instructive nature, by setting forth what may be done on a stage, or in furnishing and embellishing a house.

For six plants for table decoration Mr. Bethell was again 1st; and in the classes for Orchids Mr. Mill, gr. to Lord Rendlesham, carried all before him.

In the list for fine-foliage plants Mr. Bethell took the lead with Croton angustifolius and C. Veitchii, well coloured; Phœnix dactylifera, and Kentia Belmoreana.

Fuchsias were not up to the usual mark, and the sorts consisted of such old favourites as Daniel Lambert, Rose of Castile, and Jules André, which, except in habit, will not compare with others now out. One great attraction in the exhibition was the collection of tuberous Begonias contributed by Mr. Keen, gr. to Mrs. Sheppard, of Campsey Ashe, whose superb strain has been noticed on several occasions in the *Gardeners' Chronicle* before; and standing, as the numerous plants did, beside a lot more, in competition for the same special prize, they made the others look weedy and poor by comparison, so magnificent were they in the size and colouring of their fine substanced flowers. Several of the white were remarkable, not only for size but exceeding purity, and Mr. Keen is certainly to be congratulated on raising such a capital lot.

In the cut flower department the Rev. H. A. Berners, of Harkstead, a most enthusiastic rosarian, scored a great success in having carried off all the 1st prizes in every class, beating the champion growers in the twenty-fours with a stand of splendid blooms, chief among which were Adam, Souvenir d'Elise, Françoise Michelon, Marie Finger and Duke of Edinburgh. Mr. B. Cant's collection contained some grand flowers, but by bad travelling, or some other cause, they had not that freshness and finish which were the characteristic points of the others. In the Teas the rev. gentleman referred to was also well ahead, and Mr. Bethell, gr. to Sir Richard Wallace, had a good stand, but as there were three hybrids the judges ignored it and awarded an extra, which it highly deserved.

The show of herbaceous flowers was an exceedingly good one, but the way many exhibitors have of putting them up, in close bunches, crowded together on small stands, is not the best for displaying them, as was plainly exemplified by Mr. Bethell, in the lot he contributed, which were placed in tall jars with the stems fixed in moss, to keep them upright and in position, and as they had plenty of room they could be seen to the greatest advantage, and looked almost as natural as they do in the borders when growing. Good as these were they were beaten by the Messrs. Gilbert's twenty-four sorts, the finest and showiest among which were the Alströmeria aurea, A. rosea, Delphinium Brilliant, Iris Queen Victoria, Dianthus Marie Parc, Centaurea montana, a fine large loose white Galega persica alba, Gladiolus Ne Plus Ultra, Orchis foliosa, and Dictamnus Fraxinella.

The stands of wild flowers for table decoration displayed most exquisite taste, especially that contributed by Miss Stidolph, who had many choice and rare things, and which she so lightly and artistically arranged that they almost eclipsed the hothouse exotics; and the same may be said of Miss Hayward's. In the special class competing for the prize offered by the Duke of Hamilton for a stand of fruit and flowers combined, Mr. Keen, gr. to Mrs. Sheppard, was 1st; and Mr. Eden, gr. to Lord Stradbroke, a very close 2d. For bridal bouquet Mr. Bethell was 1st, the chief flowers in it being Stephanotis and Pancratium fragrans, the form and purity of the latter being very telling for such kind of work. The 2d prize fell to Mr. Eden, whose was nearly equally good. The ball-room bouquets had to be competed for by ladies, and 1st honours were won by Miss Bethell, the 2d falling to the lot of Mrs. Keene.

Fruit was staged in grand style. In the collection of eight dishes, in which Mr. Bethell outdistanced all others by his fine exhibit of splendid Black Hamburgh Grapes, large and close in the bunch, and the well finished Melon, Peaches, and Nectarines were also greatly admired. In the class for Grapes, black and white, two bunches of each, Mr. Mill was a good 1st; and he also occupied the same proud position for three of Black Hamburgh, and was to the fore again with six Peaches. Strawberries were displayed in quantity, Mr. Mill taking 1st for a collection, and also the heaviest thirty-six, while the premier award for flavour went to Mr. Stearn, of Ipswich, for a dish of fine Queens.

Woodbridge show is noted for its vegetables, and this year there was no falling off, as the tables were all full to repletion. For the best collection Mr. Bethell, gr. to Sir Richard Wallace, was 1st, and Mr. Crisp 2d. The season is evidently suiting Potatos, as the tubers were not only very large and sound, but remarkably clear in the skin. *J. Sheppard.*

Tunbridge Wells: *July* 6.—On this occasion the Society was fortunate in having the best display of plants that it has been able to secure for some years, and this applies not only to the flowering and fine-leaved sections of large specimens, but especially to the smaller examples more generally in use for ordinary decorative purposes. In the open classes for eight flowering stove and greenhouse plants there were five competitors. Mr. Gilbert, of the Springfield Nursery, Marine Parade, Hastings, who staged a capital lot, was 1st; his plants being all fresh, and well and evenly flowered. Conspicuous amongst them was Allamanda grandiflora and A. Hendersoni, both profusely flowered; Kalosanthes coccinea, highly coloured; Dipladenia amabilis, and Aphelexis macrantha rosea, quite fresh; Mr. Tudgey, Exotic Nursery, Waltham Cross, was a good 2d, with a fresh well bloomed group, containing Erica ferruginea superba, Allamanda nobilis, the finest yellow of all the species of this favourite family; and Ixora coccinea; Messrs. Jackson & Son, of Kingston, were 3d. Extra prizes in this class were also awarded to Mr. Rann, gr. to J. Warren, Esq., Handcross Park, Crawley, Sussex, and Mr. Pope, gr. to J. J. Barrow, Esq., Holmwood.

In the class for four stove and and greenhouse plants, Messrs. Jackson exhibited a bright finely bloomed group including Allamanda cathartica, Dipladenia amabilis, Statice profusa, and a beautiful example of Erica Davisoniana, one of Rollisson's latest seedlings, a grand Heath, with waxy white flowers a little smaller than those of E. obbata, but quite free from the objectionable glutinous coating which makes the flowers of this favourite variety so susceptible of catching dust, but which is of service to the flower by preventing the access of objectionable insects. Mr. Gilbert, who was 2d, had in a good lot a large and well flowered Statice imbricata. In the amateurs' division for six flowering stove and greenhouse plants, Mr. Pope took the lead with a creditable half-dozen, in which were nicely bloomed examples of Rollisson's variety of Ixora javanica, and a beautiful orange-flowered hybrid; Clerodendron Balfourianum, well flowered; and a very large Tabernæmontana coronaria flore-pleno. 2d, Mr. Jupp, gr. to J. Bolton, Esq., Eastbourne, with a nice collection in which was Bougainvillea glabra, with intensely-coloured flowers. With four stove and greenhouse plants Mr. Pope was again 1st, staging a well-bloomed medium-sized group.

Fine-foliage plants were in great force. Mr. Rann easily took the 1st honours in the open class for eight with one of the best collections we have ever seen him stage—large, fresh, healthy, and containing enough bright-coloured kinds to relieve the green-leaved specimens; Croton Youngii, C. majesticus, Pandanus Veitchii, Pritchardia pacifica, and Livistonia rotundifolia, one of the finest of the Fan-leaved Palms, were the most noticeable. Mr. Tudgey was 2d with an effective group, in which was a fine example of Kentia australis; Mr. Gilbert and Mr. Pope were equal 3d. For six ornamental plants (amateurs) Mr. Rann was again 1st, staging a nice half-dozen, in which was a fine example of Phœnix tenuis and Croton Challenger, highly coloured. This variety belongs to the large-foliaged section, with very long, handsome leaves. 2d, Mr. Pope, who had a good half-dozen.

Exotic Ferns were well shown by Mr. Pope, who took the 1st prize in the open class for eight with large and well-managed examples, the best of which were Cyathea dealbata, C. medullaris, and Dicksonia antarctica For six Ferns, Mr. Johnson, gr. to the Marchioness of Camden, Bayham, came in 1st, with a well-grown group, and Mr. Wilkins was 2d.

Fuchsias were better managed than usually met with now; and with six Mr. Shoebridge, gr. to W. Edwards, Esq., Tunbridge Wells, took the 1st prize, having large examples clothed with plenty of healthy foliage, and full of flower; 2d, Mr. Turner, gr. to J. R. La Lacheur, Esq., The Wilderness, Tunbridge Wells.

It is getting too late to see large-flowered Pelargoniums at their best, but the half-dozen shown by Mr. Wilkins were good in foliage and well flowered. The same gentleman took the lead with six fancies. Zonals were nicely shown by Mr. Allan, gr. to J. Hanbury Field, Esq., Ashurst Park, who had 1st honours with six. Double zonals were about the best we have seen, literally covered with flowers, backed with good foliage, and not too stiffly trained. For six, Mr. Wilkins had the 1st, and Mr. Allan the 2d prize.

With six Caladiums, Mr. Allan took the lead, having much the smallest plants shown, but good and distinct kinds, beautifully coloured.

Gloxinias were beautifully shown by Mr. Hollands, gr. to Mrs. Muggeridge, Tunbridge Wells, who took the 1st prize with six; Mr. Read, gr. to Mrs. Cripps, Tunbridge Wells, being a close 2d. The half-dozen Achimenes with which Mr. H. Scammell, gr. to C. Reiley, Esq., The Priory, Tunbridge Wells, took the 1st prize, showed how effective these often indifferently managed plants are when really well done, with stout, sturdy growth, and clothed with flowers as these were.

The prizes offered for groups of plants arranged for effect brought out a good competition, which was very close, between Mr. Waterman, gr. to H. A. Brassey, Esq., Preston Hall, Aylesford, and Mr. Perkins, gr. to the Rev. V. R. Kinleside, Sunbury House, Tunbridge Wells, the former taking the lead with a faultless arrangement, in which form and colour had their due balance, the whole of the materials being selected, as they ever should be in competitions of this character, for their suitability rather than value or rarity; 2d, Mr. Perkins; 3d, Mr. A. Bashford. Messrs. Jackson & Son had an extra prize awarded to them for a pretty group of miscellaneous plants; and Mr. Perkins for a group of Orchids; and Mr. Cooke, gr. to B. De Barry Crawshay, Esq., Rosefield, Sevenoaks, likewise had an extra prize for Orchids, amongst which were well flowered examples of Dendrobium chrysotoxum, Odontoglossum vexillarium, and Lælia purpurata. A nice group of miscellaneous flowering and fine-leaved plants was also contributed by Mr. Coleman, gr. to Mrs. Arthur Pott, Bentham Hill.

Roses were plentiful and in fine condition. Messrs. Mitchell, Piltdown Nurseries, Uckfield, were well 1st for forty-eight single blooms, their unrivalled Tea varieties here, as usual, standing out prominently. Amongst them were Innocente Pirola, Catherine Mermet, and

Madame Willermoz. Of hybrid perpetuals in this stand the undermentioned were especially fine:—Constantin Tretiakoff, Duchesse de Vallombrosa, Madame Prosper Langier, Henri Ledechaux, La France, Louis Van Houtte, Duke of Edinburgh, and Françoise Michelon, the last-named flower taking the National Rose Society's Silver Medal for the best hybrid perpetual shown in the classes for forty-eight and twenty-four. Mr. B. R. Cant, of Colchester, who was 2d, had beautiful flowers of Mrs. Baker, Star of Waltham, Le Havre, Etienne Levet, A. K. Williams, Général Jacqueminot, and Reynolds Hole. Messrs. Bunyard & Sons, Maidstone, were 3d. With twenty-four single blooms Mr. Cant took the 1st honours, putting up a good stand of flowers, the best of which were Marie Baumann, Madame C. Wood, Edouard Morren, Countess of Rosebery, Général Jacqueminot, Emily Laxton, and Innocente Pirola; 2d, Mrs. F. Woollard, Cooksbridge Nursery, Lewes; 3d, Messrs. Mitchell. In the amateurs' class for twenty-four Mr. Ridout, gr. to J. B. Haywood, Esq., Reigate, was 1st, with a good stand; A. Slaughter, Esq., Steyning, being 2d. For twelve Roses Mr. Simmons, gr. to the Rev. R. C. Hales, Hurstpierpoint, was 1st, with a dozen good flowers, the best of which were Le Havre, Charles Lefebvre, and Annie Wood, the last named taking the National Rose Society's Silver Medal for the best bloom in this division. For twelve Teas or Noisettes A. Slaughter, Esq., was 1st, with a pretty stand, the best being beautiful blooms of Anna Olivier, Innocente Pirola, and Jean Ducher; 2d, Mr. Allan.

There were a number of competitors in the cut flower classes for stands, but a falling off was noticeable in the merits of their arrangements, so far as those of cultivated flowers are concerned.

In the competition for wild flowers, correctly named, which are here better shown than anywhere else we happen to see, Miss K. R. Ware took the lead, with an excellent collection, consisting of some 226 kinds; 2d, Mr. Dixon, gr. to Sir Spencer Wilson, Uckfield.

Fruit was scarcely up to the mark we have been in the habit of seeing it at Tunbridge Wells. With a collection Mr. Waterman, gr. to H. A. Brassey, Esq., took the 1st prize; and Mr. Hopgood, gr. to Sir Julian Goldsmid, the 2d. Black Grapes were nicely shown, Mr. Williams, gr. to C. Liddell, Esq., being 1st, with medium-sized Black Hamburghs, nicely finished. For three bunches of white Grapes 1st honours went to Mr. Adams, gr. to W. Trego, Esq., for Buckland Sweetwater, in good condition; 2d, Mr. Gore, gr. to Captain Taylor, Hastings. For three bunches of Grapes, distinct varieties, Muscats and Black Hamburghs excluded, Mr. Gore was 1st, staging nice bunches of Buckland Sweetwater, Royal Muscadine, and Madresfield Court; 2d, Mr. Allan. Dish of Peaches.—1st, Mr. Allan; 2d, Mr. A. Bashford. Dish of Nectarines.—1st, Mr. Waterman; 2d, Mr. Allan. Mr. Scammell had an extra prize for half a dozen nice Pines.

Chiswick, Turnham Green and District: *July 7.*—Upon the stretch of beautiful green sward extending from the Council chamber toward the big vinery in the gardens of the Royal Horticultural Society at Chiswick, Mr. Barron pitched the tents of this young organisation on Saturday last. A more appropriate spot could hardly be selected, and when the tent was cleared for the judges one realised what an immense advantage it is to have a smooth, level, well kept sward as a margin to groups of plants arranged for effect. There were several, and they were all very good; and the capital lawn imparted to them a refinement and finish that such an excellent sward alone could give them. In the open class for a group filling a space not exceeding 100 feet there was a capital competition. Messrs. Fromow & Son being placed 1st, Messrs. Hooker & Co. 2d, and Mr. W. Brown 3d, and an extra prize was awarded to Mr. H. James. The workmanship was excellent in all, and they were much admired. In the class for small groups filling a space of 50 feet each, Mr. Wright, gr. to E. H. Watts, Esq., Dewhurst, Turnham Green, was 1st; H. Peaker, Esq., 2d; and B. Hardy, Esq., 3d. In addition, Mr. May, gr. to the Marquis of Bute, Chiswick House, had a large and excellently arranged group of plants, not for competition; and Messrs. C. Lee & Son sent one of their charming collections of ornamental plants and trees, with other subjects, set up with excellent taste. The show was greatly helped by the presence of Mr. H. James, of Lower Norwood, as an exhibitor. He was 1st with six capital specimens of stove and greenhouse plants, that were a good feature; but the other fell so far below these that the 2d prize was withheld. Mr. James also had a very excellent group of six fine-foliaged plants, of large size and well grown—Croton Weismanni being especially fine; 2d, Mr. W. Brown, Richmond. There were several groups, all a good feature. The best six exotic Ferns were staged by Messrs. Fromow & Son; Mr. H. Davies, of Fairlawn, being 2d. These were generally well grown, without being large in size. H. Pearks, Esq., had the best six ditto, in 10-inch pots. Coleus and Caladiums were well done, the six specimens of the latter set up by Mr. J. Buckland, gr. to H. Pearks, Esq., were most creditable. Fuchsias were represented by nicely-flowered bushes, but generally small in size. In the class for twelve tuberous-rooted Begonias, J. R. Starling, Esq., was well to the fore, staging a very good lot indeed. In that for six plants Mr. Pearks took the 1st prize with six excellent specimens; Mr. C. Brown, Endsleigh, being 2d. Mr. Wright staged six excellent specimens of Selaginellas, grown in the conical form, and admirably developed. They deserved a double 1st prize at the hands of the Society; 2d, J. R. Starling, Esq.

Cut flowers were mainly represented by cut Roses. Messrs. C. Lee & Son staged several boxes of beautiful flowers, not for competition; and Mr. J. W. Moorman, Coombe, Kingston, also sent some charming blooms; but the blooms from local growers were neither numerous nor first-rate.

Table decorations were very pretty, though not numerous; but bouquets, shown in threes, one a bride's and two bridesmaids', were finely represented, Mr. J. Prewett, of Hammersmith, being 1st; 2d, Mr. W. Brown; 3d, Messrs. Fromow & Son.

Of fruit there was a limited display, but some Grapes from Mr. Baird, gr. to C. A. Daw, Esq., Holmfield, Castlebar, Ealing, were very fine indeed. He was 1st with two bunches of Black Hamburgh, and in another class with a bunch each of Duke of Buccleuch and Foster's Seedling, both wonderfully good. Some very good hardy fruits were also staged.

Vegetables were very good also: Mr. J. Coombs, gr. to Sir H. Meux, Bart., had the best collection of nine dishes, H. Smith, Esq., Chiswick, being 2d. There was a capital competition for the special prizes offered by Messrs. Sutton & Sons for six dishes of vegetables, and for the special prizes offered by Messrs. Carter & Co. for their new Peas. Prizes were also offered to children for bouquets of wild flowers, and a large number were staged.

Lee, Blackheath, and Lewisham Horticultural.—This very pleasant gathering was held in the picturesque grounds adjoining the residence of Mrs. Penn, at Lee. It was easy to fancy we were many more miles from London Bridge, looking at the rural surroundings of this extensive place, that has as yet been saved from the builder and land speculator. Long may it so continue is the oft-expressed wish of the inhabitants of this favoured suburb. The day being fine brought a great concourse of visitors to feast on the specimens of horticultural skill brought together, almost entirely by the spirited exertions of local growers, with the aid of the successful managing committee, at whose head stands Mr. B. Maller, of Lewisham.

The class for stove and greenhouse plants was well contested, Mr. Reece, gr. to R. Whyte, Esq., being 1st, and showing some nice, not over-large plants, including Ixora Williamsi, Dipladenia Brearleyana, Clerodendron Balfourianum, very well bloomed. Mr. James, Lower Norwood, also contributed a few good Heaths, such as E. Parmentieri, E. tricolor impressa, and E. Paxtoni. Other local exhibitors also contributed some very creditable plants in this class.

Ornamental foliaged plants were numerous and well done. Mr. Reece showed well in this class, having a good Phyllotænium, Crotons, and Stevensonia grandifolia. Croton Warreni was particularly telling in this lot. Mr. J. Lambert, gr. to — Segelcke, Esq., had some good plants of Alocasia and Croton. In the show Pelargonium class Mr. Reece, Mr. H. Martin, and Mr. Sharpe contributed some nicely bloomed specimens for the time of year. Zonals, double flowering, gold, bronze, and silver Pelargoniums brought a great many subjects together, and the competition, both in the open class and in that for gentlemen's gardeners and amateurs, was very keen, the best prizes going to local exhibitors. The plants were generally small, but well flowered and healthy.

Exotic Ferns and Lycopodiums were freely shown, and some very nice specimens were staged by Mr. Reece, Mr. Jeffrey, Mr. Wakeman, and Mr. Lambert. The first-named exhibitor had a very good Davallia Mooreana and a Gymnogramma peruviana. The winning lots of Lycopods were chiefly of the older well known kinds. Still newer sorts were numerously represented in some lots but being much less in size, they were awarded the lower prizes only. Caladiums were shown in numerous examples, and very well cultivated, some of them being over 5 feet high. Albert Edward, Dr. Lindley, Herald and Meyerbeer, by Mr. Martin, and Triomphe de l'Exposition by Mr. Reece, being the more noticeable ones. Tuberous-rooted Begonias and Achimenes were freely shown, and in very fair condition. Messrs. Laing & Co., of the Stanstead Park Nurseries, sending quite a collection of the former, but not for competition. One of the features in the large marquee, were the Fuchsias, these being well grown, beautifully flowered, and the best examples we have seen this season. Unfortunately the Fuchsia does not meet with so much appreciation, as it deserves. They were shown as standards and pyramids, the latter it must be admitted taking the palm for effectiveness and grace. Mr. Sharpe, gr. to F. Hatchett, Esq., Grove Park, Lee, showed Arabella Improved, an excellent light sort; Crimson Prince and Scarcity, dark kinds; Blue Beauty, a good dark kind and a long tubular pink, with the sepals of a bright red, were shown by Mr. Jeffrey. Collections of Gloxinias, very good samples of cultivation, were staged by Messrs. Sholdice, Rhoden, and Stacey. These were chiefly of the erect-habited kinds, which seem to be driving the drooping ones out of the field. Various groups of decorative plants of a small size, very suitable for the flower-table or the *jardinière*, received prizes. These are useful for the purpose of indicating to those amateurs not so well acquainted with plants as the professional gardener the sorts of things suitable for such uses.

Table decorations were rather numerous, but there was not much that we could see which showed any departure from what is seen at these shows, and as a rule too many flowers are made use of to the exclusion of graceful foliage, and a generally lighter arrangement; the same holds good of the various bouquets. These were composed of good and choice blooms, but too formally arranged to be especially pleasing. The winning bouquets consisted chiefly of white flowers and Fern fronds, whereas the epergnes for dinner-table ornamentation were made up of a variety of colours.

Roses were fairly good, but were not exhibited in any great quantities. Mr. Todman, The Nurseries, Eltham, took the 1st prize for the stands of forty-eight and twenty-four single blooms; and Messrs. C. Boatwright & Sharpe, for stands of twelve single blooms.

Small quantities of Grapes, Melons, Strawberries, Peaches, and Nectarines, as well as some small fruits, were shown, the prizes for which were mostly awarded to the same gentlemen's gardeners who had been successful in the plant competition.

On entering the tent set apart for vegetables we were surprised to find such capital collections shown by cottagers, for whom the prizes are mainly given, as incentives to good culture, some of them being so good that but little difference could be noticed betwixt the productions of these and those of the professional gardener—Peas, Beans, Cucumbers, Cauliflowers, Onions, salads, Cabbage, being all of them good. Potatos were noticed as being the weak point in this section. Evidently kitchen gardening gets a good share of attention in this district, due, probably, to the vicinity of the famous market gardens of Deptford.

Amongst the several contributors who sent flowering and ornamental foliage plants not for competition were Mr. Todman, Eltham! Mr. B. Maller, Lewisham; Messrs. North & Son, and Mr. John Laing.

Variorum.

Tobacco in Manilla.—The following note on the history of Tobacco in Manilla, from a recently received consular report, will be read with interest. The Tobacco-plant, it seems, was first introduced into these islands soon after the discovery of America, the seed having been brought from Yucatan. Its cultivation was for nearly two centuries left in the hands of the natives, who grew just enough for their own consumption; but as the habit of smoking was gradually becoming more general amongst both men and women, the cultivation increased in proportion, until finally it became one of the chief products of the island. It never, however, occurred to the Government to interfere with it until the time of Charles III. of Spain, under whose reign a naval officer of great merit and intelligence, named Don José Vasco y Vargas, was sent out as governor of these islands. This officer had travelled a great deal in South and Central America, and being well acquainted with the aims and aspirations of the inhabitants of the Spanish possessions in those countries, easily foresaw that the emancipation of the British North American colonies, which had just then taken place, would soon be followed by that of Mexico and the rest of the Spanish possessions in South America. Now the revenue of the Philippine Islands had always up to that time been insufficient to meet the expenses of their administration, and as Spain herself was unable to assist them, she had imposed on Mexico the obligation of contributing an annual sum of 500,000 dols. to fill up the deficit in their budget. Don José Vasco, therefore, knowing that if Mexico were lost to Spain he had nothing to expect from the mother country, set to work to create some new source of revenue which might ultimately render these islands independent of foreign pecuniary aid. It was then that he conceived the idea of establishing the "Estanco," or Government monopoly on Tobacco. The difficulties he met with in trying to carry out his project were at first very great, as most of the tribes inhabiting these islands were as yet but partially subjected, so that he was only enabled to impose his system on a few districts bordering on the provinces of Bulacau and Nueva Ecija, and even this was not accomplished without difficulty, owing to the determined opposition of the inhabitants. By degrees, however, the monopoly was firmly established, and the cultivation of Tobacco kept on steadily increasing; the revenue derived therefrom, which in 1785 amounted to only 39,000 dols., augmented so rapidly since that, far from requiring any pecuniary assistance from Spain, the Philippine Islands were enabled to furnish the Government of that country with large sums of money, both during the time of Napoleon's invasion of the Peninsula and since. This progressive movement in the production of Tobacco continued till the year 1854, when the quantity of cigars manufactured in these islands reached 573,000 boxes, containing 1000 cigars each, of which 132,000 boxes were sold for exportation. At the same time 135,000 cwt. of manufactured Tobacco was sent gratuitously to Spain for the requirements of the Spanish Regie, and 40,000 cwt. were sold for exportation to other countries. Subsequent to that epoch, however, unwise regulations emanating from the home Government, and the action of the authorities of these islands towards the growers of Tobacco, caused not only a

decrease in the production, but also a deterioration in the quality of that weed. Blind to their interests, the Government officials, instead of encouraging the native cultivators to improve the quality of Tobacco, only exacted of them that the leaves should be no less than 16 centimetres in length, rejecting and destroying, without any compensation to their owners, all other leaves, of however good a quality, which did not attain the required dimensions. The result was that growers generally restricted themselves to the cultivation of a quality of Tobacco called "Hoja espada (Sword-leaf), which has a long and narrow leaf, but which is inferior as to quality to other kinds of Tobacco grown here. All these evils will soon disappear with the abolition of the monopoly, and probably nothing but the best quality of Tobacco will be grown in future.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JULY 11, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
July	In.	In.	°	°	°	°	°	°	°		In.
5	29.73	—0.08	72.0	52.5	19.5	60.3	— 1.2	51.2	71	S.W.	0.00
6	29.66	—0.14	73.9	52.5	21.4	62.7	+ 1.1	49.7	60	S.	0.00
7	29.66	—0.15	72.0	58.0	14.0	63.0	+ 1.2	53.4	71	W.SW.	0.00
8	29.70	—0.11	76.0	58.2	17.8	64.4	+ 2.4	56.4	75	S.W.	0.18
9	29.70	—0.11	74.0	58.0	16.0	63.0	+ 0.9	52.7	69	W.SW	0.00
10	29.71	—0.11	72.5	54.7	17.8	61.8	— 0.4	52.2	71	W.	0.00
11	29.47	—0.35	71.5	56.6	14.9	62.1	— 0.2	51.1	68	S. W.SW	0.03
Mean	29.66	—0.15	73.1	55.8	17.3	62.8	+ 0.8	52.4	69	W.SW.	0.21

July 5.—Fine and bright generally during the day. Fine night, and cloudless.
— 6.—Very fine bright morning; overcast afternoon. Fine night.
— 7.—Fine and bright at times throughout the day. Fine cloudy night.
— 8.—Fine day. Rain from 9 P.M. to 10 P.M. Thunderstorm from 9.40 P.M. to 10.30 P.M. Fine at midnight.
— 9.—Fine day; mostly overcast. Fine night.
— 10.—Fine and bright at times throughout the day. Fine cloudy night.
— 11.—Fine and bright from about 11 A.M.; windy, and alternately clear and cloudy afterwards. Strong wind at night.

LONDON: *Atmospheric Pressure.*—During the week ending July 7 the reading of the barometer at the level of the sea decreased from 30.09 inches at the beginning of the week to 29.87 inches by 3 P.M. on the 3d, decreased to 29.81 inches by 3 P.M. on the 4th, increased to 29.93 inches by midnight on the 5th, decreased to 29.82 inches by 3 P.M. on the 6th, and was 29.90 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.93 inches, being the same as last week, and 0.07 inch lower than the average of the week.

Temperature.—The highest temperature in the shade in the week was 85°, on the 2d; the highest on the 5th and 7th was 72°. The mean of the seven high day temperatures was 76°.

The lowest temperature in the shade in the week was 52°.5, on the 5th and 6th; on the 3d the lowest was 62°. The mean of the seven low night temperatures was 55°.7.

The greatest range of temperatures was 29°, on the 2d; the smallest was 13°.5, on the 3d. The mean of the seven daily ranges was 20°.4.

The mean temperatures were—on the 1st, 64°.4; on the 2d, 70°.3; on the 3d, 67°; on the 4th, 62°; on the 5th, 60°.3; on the 6th, 62°.7; and on the 7th, 63°; and these were all above their averages (excepting the 5th, which was 1°.2 below) by 3°.2, 9°.2, 5°.8, 0°.7, 1°.1, and 1°.2 respectively.

The mean temperature was 64°.3, being 2°.3 higher than last week, and 2°.9 higher than the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 147°, on the 2d. The mean of the seven readings was 137°.6.

The lowest reading of a minimum thermometer placed on grass, and fully exposed to the sky, was 43°, on the 1st. The mean of the seven low night temperatures was 48°.3.

Rain.—Rain fell on the 3d to the amount of 0°.12 inch.

ENGLAND: *Temperature.*—During the week ending July 7 the highest temperatures were 85° at Blackheath, 84°.2 at Nottingham, and 81°.1 at Cambridge; the highest, at Plymouth, was 68°.1, at Truro 69°, and at Sunderland 72°. The general mean was 76°.2.

The lowest temperatures in the week were 48°.2, at Wolverhampton, 49° at Bristol, and 49°.4 at Nottingham; the lowest temperature at Plymouth was 55°, at Bradford 53°.3, and at Blackheath 52°.5. The general mean was 50°.8.

The greatest ranges of temperature in the week were 34°.8 at Nottingham, 32°.5 at Blackheath, and 31°.1 at Cambridge; the least ranges were 13°.1, at Plymouth, 17° at Truro, and 22° at Sunderland. The general mean was 25°.4.

The mean of the seven high day temperatures was highest at Cambridge, 77°.4, at Nottingham 77°.2, and at Blackheath 76°; and was lowest at Plymouth, 66°.5, at Truro 66°.7, and at Sunderland 68°.1. The general mean was 71°.6.

The mean of the seven low night temperatures was highest at Plymouth, 56°.8, at Bradford 56°.7, and at Leicester 55°.8; and was lowest at Wolverhampton 51°.8, at Bolton 12°.6, and at Nottingham 52°.9. The general mean was 54°.5.

The mean daily range was greatest at Nottingham, 24°.3, at Cambridge 23°.2, and at Wolverhampton 20°.4; and was least at Plymouth, 9°.7, at Truro 11°.7, and at Bradford 14°.5. The general mean was 17°.1.

The mean temperature was highest at Blackheath, 64°.3, at Cambridge 63°.9, and at Nottingham 63°.1; and was lowest at Sunderland, 58°.8, at Truro 58°.9, and at Bolton 59°. The general mean was 61°.2.

Rain.—The largest falls were 1.31 inch at Leeds, 1.25 inch at Hull, and 1.24 inch at Sheffield; the smallest falls were 0.12 inch at Blackheath, 0.37 inch at Brighton, and 0.39 inch at Wolverhampton. The general mean fall was 0.76 inch. Rain fell on every day in the week at Nottingham.

SCOTLAND: *Temperature.*—During the week ending June 7 the highest temperature was 76°, at Dundee; at Greenock the highest temperature was 69°.2. The general mean was 72°.4.

The lowest temperature in the week was 48.°6, at Edinburgh; at Aberdeen the lowest temperature was 51°.8. The general mean was 50°.4.

The mean temperature was highest at Leith, 60°.8; and lowest at Edinburgh, 59°.3. The general mean was 60°.1.

Rain.—The largest fall was 1.75 inches, at Dundee, and the smallest was 0.59 inch at Glasgow. The general mean fall was 1.18 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

CAMELLIAS: *J. E.* It is difficult to say what is the cause of the spotting, but we suspect that although the border was well made the roots have not taken kindly to it. Were the balls broken and the roots carefully spread out when planted?

CORN EXCHANGE ROSE SHOW: ERRATUM. By an unfortunate typographical error, the name of Mr. R. J. Webber, of Edmonton, was printed as "Webster" in our note on this show at p. 19.

DISEASED CHERRY TREE: *I. O. W.* If the tree is an old one root-pruning will not do much good, and if you entirely remove it you must take the risk of losing it altogether. If a young tree it would be greatly benefited by fresh planting in good soil, in October.

GRAPES: *R. Clark.* The berries are scalded, an injury to which the variety, Lady Downe's, is peculiarly liable in certain stages of its growth. See Mr. Atkins' note at p. 47. The overflow of rain-water has nothing to do with it, but rather an excess of atmospheric moisture in the house.

NAMES OF PLANTS. Professor Reichenbach requests us to state that he has received a registered card box, coming from Montelimar, from an unknown correspondent, the contents of which are: Dipodium paludosum and Cymbidium ensifolium striatum, the first flowering probably but the second time in Europe.—*N., Devon.* Astrantia major.—*T. Impey.* The Litchi, Nephelium Litchi, a native of Southern China.—*L. N.* Tropæolum speciosum.—*Botanist.* The Bee Orchis, Ophrys apifera.—*J. B. M.* A variety of Ulmus campestris—perhaps the form known as var. gracilis.—*Alpha.* 1, Abies pectinata; 2, Sedum acre; 3, Nephrodium filix-mas var.; 4, Athyrium filix-fœmina; 5, Campanula garganica, hairy var.—*A. R. L.* Maxillaria tenuifolia.—*C. E. F.* Dianthus deltoides, and Saxifraga aizoon.—*J. S., Brockley.* 1, Phalaris canariensis (Canary-grass); 2, Triticum repens; 3, Mimulus luteus; 4, probably a Cerinthe, not in flower.—*E. D.* 1, not recognised; 2, Rubus odoratus; 3, Rosa lucida; 4, Zenobia pulverulenta.—*E. M.* Spiræa filipendula.—*S.* Lonicera flava (see *Bot. Mag.*, t. 1318), a native of South Carolina. *A. M., Kent.* 1, Aconitum Napellus; 2, Spiræa filipendula flore-pleno; 3, Geranium sanguineum; 4, Stenactis speciosa; 5, Spiræa aruncus; 6, Œnothera fructicosa. The other six next week.—*J. Pride.* 1, Viburnum Lantana; 2, Deutzia crenata; 3, send a better specimen; 4, Hieracium aurantiacum.—*Basset.* The flower is a Valerian, but we cannot say which from such a specimen; the leaf we do not recognise.—*Thos. Dunny.* If the bulbs are slightly glaucous it is, in all probability, Epidendrum ionophlebium.—*Frank Dee.* Lilium Isabellinum.—*F. C. W.* 1, Atriplex Halimus; 2, Polypodium Billardieri; 3, Campanula glomerata.—*R. May.* It is the common Sycamore, erroneously called the Plane in Scotland. Your other question next week.

PEACHES: *J. H., Ireland.* Manure applied to the roots eighteen months ago could certainly not be the cause of your trees being injured now. The mischief was done by the black-fly. The houses should have been carefully but thoroughly fumigated, or the trees well washed with Quassia-water before they came into flower, so as to avoid having to resort to either of these measures while the flowers were setting.

PEAR TREES: *F. Tufnail.* The practice of slitting the bark of the trees in the manner described is a very old one, and is as injurious as it is obsolete. The rising generation of gardeners regard all such practices as barbarous.

ROSE PETALS: *A. N.* You can only use them in making *pot-pourri*, upon which, perhaps, some of our lady readers will kindly give us a few instructions.

SEEDLING PELARGONIUMS: *C. W. H.* Your seedling Pelargonium belongs to the decorative group, but is nothing like so good as many that are now grown by the market growers. Florists' flowers like this are most generally named by those who raise or distribute them.

TOMATOS DISEASED: *E. C.* You are right in supposing there is no Peronospora on your diseased Tomato stems, leaves, and flowers. There is no fungus whatever on any part of the plants. The disease is probably caused by some defect in cultivation, and the roots, water, heat, and ventilation should be looked to. An illustrated article on the fungoid diseases of the Tomato, from the pen of Mr. C. B. Plowright, was published in the *Gardeners' Chronicle* for November 12, 1881. *W. G. S.*

COMMUNICATIONS RECEIVED.—J. G.—J. R. J.—C. O.—S. & M.—N. T. S.—J. W.—J. S.—A. B.—E. C.—R. F.—C. Wissenbach.—J. P. B.—W. E. D.—W. S.—J. G.—D. B. C.—W. G. S.—P. N. F.—W. D.—W. Y.—H. L. C.—W Brockbaok.

Markets.

COVENT GARDEN, July 12.

HEAVY supplies to hand this week, and prices considerably reduced, with a sluggish trade. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Cherries, ½ sieve	4 0–10 0	Lemons, per case	15 0–20 0
Currants, Black, ½-sieve	4 6– 5 6	Melons, each	2 0– 3 6
— Red, ½-sieve	3 0– 5 0	Peaches, per doz.	6 0–12 0
Figs, per dozen	2 0– 3 0	Pine-apples, Eng., lb.	2 0– 3 6
Grapes, per lb.	1 0– 3 0	— St. Mich., each	3 6–10 0
Gooseberries, ½-siv.	2 6– 3 3	Strawberries, per lb.	0 3– 0 9

VEGETABLES—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 4 0	Horse Radish, per bundle	4 0– ..
— Jerusalem, bush.	3 0– ..	Lettuces, Cabbage, per dozen	1 0– 2 0
Asparagus (Sprue), per bundle	2 6– ..	— Cos, per dozen	1 6– 4 0
— English, bund.	3 6– 8 0	Mint, green, bunch	0 6– ..
— French, bund.	2 0– 3 6	Mushrooms, p. baskt.	1 0– 2 0
Beans, Fr. grown, lb.	1 0– ..	Onions, per bushel	4 0– ..
— Jersey, per lb.	1 0– ..	— Spring, per bun.	0 6– ..
Beet, per doz.	1 0– ..	Parsley, per bunch	0 4– ..
Cabbages, per doz.	1 0– 2 0	Peas, English, quart	1 0– ..
Carrots, new, p. bun.	1 0– ..	Radishes, per doz.	1 6– ..
Cauliflowers, English, dozen	3 0– 6 0	Rhubarb, per bundl.	0 6– ..
Celery, per bundle	1 6– ..	Small salading, pun.	0 4– ..
Cucumbers, each	0 6– 1 0	Spinach, per bushel	4 0– ..
Endive, French, per dozen	2 0– ..	Sweet Potatos, lb.	0 6– ..
Garlic, per lb.	1 0– ..	Tomatos, per lb.	1 0– ..
Herbs, per bunch	0 2– 0 4	Turnips, new, bun.	0 9– ..
		Vegt. Marrows, each	0 6– 0 9

POTATOS.—Jersey Kidneys, 5s. to 7s.; Rounds, 5s. to 6s., per cwt.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	12 0–24 0	Ficus elastica, each	1 6– 7 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Foliage Plants, various, each	2 0–10 0
— (common), dozen	6 0–12 0	Fuchsias, per dozen	6 0–12 6
Begonias, per doz.	6 0–12 0	Hydrangea, per. doz.	9 0–24 0
Bouvardia, doz.	12 0–18 0	Lilium longiflorum, per dozen	18 0 42 0
Calceolarias, dozen	4 0– 9 0	Liliums, various, per dozen	12 0–36 0
Cockscombs, doz.	4 0– 9 0	Lobelias, per dozen	3 0– 6 0
Coleus, doz.	3 0– 6 0	Marguerite Daisy, per dozen	12 0–24 0
Dracæna term. doz.	30 0–60 0	Mignonnette, doz.	4 0– 6 0
—viridis, per doz	12 0–24 0	Myrtles, per doz.	6 0–12 0
Erica, various, doz.	12 0–36 0	Palms in variety, each	2 6–21 0
Euonymus, various, per dozen	9 0–18 0	Pelargoniums, scarlet, per dozen	2 6– 9 0
Evergreens, in var., per dozen	6 0–24 0	— decorative, doz.	6 0–18 0
Ferns, in variety, per dozen	4 0–18 0	Spiræa, per dozen	8 0–12 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Mignonette, 12 bun.	6 0– 9 0
Arum Lilies, per doz.	3 0– 6 0	Marigolds, 12 bun...	2 0– 4 0
Bouvardias, per bun.	1 0– 1 6	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 0
Canterbury Bell, bun.	1 0– 2 0	Pelargoniums, 12 spr.	0 9– 1 0
Carnations, 12 blms.	1 0– 3 0	— zonal, 12 sprays	3 0– 6 0
— 12 bunches ..	3 0– 0 0	Picks, 12 bunches ..	2 0– 6 0
Cornflower, 12 bun..	1 6– 4 0	Primula, double, bun.	1 0– 1 6
Dahlias, 12 bun ..	6 0– 8 0	Pyrethrum, 12 bun..	3 0– 6 0
Delphinium, p. bun.	0 6– 1 0	Roses (indoor), doz.	2 0– 6 0
Eucharis, per doz. ..	4 0– 6 0	— (outdoor), 12 bun.	3 0– 6 0
Escbscholtzia, 12 bn.	2 0– 4 0	— coloured, doz. ..	3 0– 8 0
Gardenias, 12 blms..	3 0– 6 0	Spiræa, 12 bunches..	6 0–12 0
Heliotropes, 12 sp. ..	0 6– 1 0	Stephanotis, 12 spr.	1 6– 3 0
Lapageria, white, 12 blooms	3 0– 6 0	Stocks, 12 bunches..	4 0– 9 0
— red, 12 blooms..	1 0– 3 0	Sweet Peas, 12 bun.	3 0– 6 0
Lilac (French), bun.	4 6– 7 0	Sweet Sultan, 12 bun.	4 0– 6 0
Liliums, 12 bun. ..	12 0–18 0	Tropæolum, 12 bun.	1 0– 2 0
Marguerites, 12 bun.	6 0– 9 0	White Jasmine, bun.	1 0– 1 6

SEEDS.

LONDON: *July* 11.—The seed market to-day, as might be expected, was most thinly attended, and altogether wanting in any feature either of interest or importance. Indeed, at present there is a complete absence alike of speculative inquiry and of consumptive demand. New French Trifolium, although offered low, is quite neglected. Some choice New Zealand Cock's-foot just arrived attracts attention. Mustard and Rape seed move off slowly on former terms. The Board of Trade returns give the imports last month into the United Kingdom of Clover and grass seeds as 1473 cwt., value £2301, against 6135 cwt., value £10,192, for June, 1882. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday the business passing in Wheat, English and foreign, was apparently restricted to retail quantities of best qualities, for which quotations were not altered, but the general tone of the trade was depressed, and the tendency of prices against holders. Flour met an equally dull sale. Maize on the spot was about 3*d.* to 6*d.* lower on the week. Rather easier rates were accepted for grinding Barley. For Oats the market was firmer, and Swedish imports were rather dearer than on Monday se'nnight. Beans and Peas were quiet and unchanged.—On Wednesday Wheat and flour remained nominally unaltered, and Barley drooping. The small transactions in Beans and Peas did not alter previous quotations. Oats were firm, with prices in some instances against the buyer. Maize was dull, with prices against sellers. Average prices of corn for the week ending July 7:—Wheat, 42*s.* 4*d.*; Barley, 28*s.* 11*d.*; Oats, 23*s.* 5*d.* For the corresponding period last year:—Wheat, 47*s.* 7*d.*; Barley, 27*s.* 4*d.*; Oats, 24*s.*

CATTLE.

At the Metropolitan Market on Monday light supplies and some demand for the country, as well as the shop trade, gave firmness to all prime quality stock, which advanced 2*d.* per stone. The calf trade was dull. Quotations:—Beasts, 4*s.* 4*d.* to 5*s.* 8*d.*, and 5*s.* 10*d.* to 6*s.* 2*d.*; calves, 5*s.* 4*d.* to 6*s.* 4*d.*; sheep, 5*s.* 8*d.* to 6*s.* 2*d.*, and 6*s.* 4*d.* to 6*s.* 10*d.*; lambs, 7*s.* 8*d.* to 8*s.* 4*d.*—On Thursday beasts were dull and drooping in value, but sheep were firm, and rather better. Lambs were steady, and calves and pigs quiet.

HAY.

Tuesday's Whitechapel report states that supplies continue small, and trade quiet, at the following quotations: Prime Clover, 105*s.* to 120*s.*; inferior, 60*s.* to 70*s.*; prime meadow hay, 70*s.* to 90*s.*; inferior, 40*s.* to 50*s.*; and straw, 30*s.* to 40*s.* per load.—On Thursday there was a short supply, and the trade was quiet at the above rates.—Cumberland Market quotations:—Superior old meadow hay, 90*s.* to 100*s.*; inferior, 70*s.* to 76*s.*; new, 65*s.* to 84*s.*; superior old Clover, 112*s.* to 120*s.*; inferior, 84*s.* to 98*s.*; new, 84*s.* to 100*s.*; and straw, 38*s.* to 43*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that there have been fair supplies and a steady demand, at the following prices:—Jersey kidneys, 7*s.* to 8*s.*; ditto round, 7*s.*; Cherbourg flukes, 7*s.* to 8*s.*; ditto round, 6*s.* 6*d.* to 7*s.*; Kent kidneys, 10*s.*; Essex shaws, 7*s.* per cwt.—The imports into London last week were as follows:—893 cases from Cherbourg, 100 baskets Rotterdam, 68 cases Havre, 68 baskets 20 packages Boulogne, 100 cases Bordeaux, 457 baskets St. Nazaire, 44 tons 5668 packages 2065 boxes Jersey, 62 packages 46 cases 32 casks Malta, 1623 cases Barfleur, 35 boxes Lisbon, 159 bags Hamburgh, 40 cases Marseilles, and 900 boxes from Fernanville.

COALS.

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

Government Stock.—Consols closed on Monday at 100⅛ to 100¼ for delivery, and 100⅜ to 100 7/16 for the account. Tuesday's finishing prices were 99⅞ to 100 for delivery, and 100⅛ to 100¼ for the account. The closing quotations on Wednesday were, for delivery, as on the preceding day, and 100 to 100⅛ for the account. On Thursday the final prices showed a decline of ¼ for delivery, and of 3/16 for the account.

POUNCE'S BLIGHT KILLER, in addition to keeping all Plants Clean and free from Fly, Mealy-bug, Thrips, American Blight, &c., drives Moles from ground watered with it. Price 1*s.* per bottle (to make 10 gallons), 5*s.* per gallon. Wholesale and Retail of
POUNCE AND SONS, 18, Westbourne Grove, London, W.

Amortiser.—Amortiser.—Amortiser.
To HOP and FRUIT GROWERS, FLORISTS, MARKET GARDENERS and OTHERS.
STEVENS AND CO.'S AMORTISER INSTANTLY DESTROYS Hop Flea, Green Fly, Caterpillar, and every kind of Blight. Fruit Growers, Florists, more especially Rose Growers, will find this preparation invaluable, as one application causes INSTANT DESTRUCTION of all INSECT PESTS. For Hothouse, Greenhouse, and other Plants it is equally valuable, and is guaranteed not to injure the most delicate bloom or foliage. We have a Special Preparation of the Amortiser for Watering the Ground which Instantly Destroys Slugs, Wireworms, Caterpillars, Grubs, &c When ordering state which preparation is required. Sample Cans, 4½ gallons, 3*s.* 6*d.*, tin included. Special Quotations for Large Quantities.
Orders received at 67, High Street, Borough, London, S.E.

Important Discovery.
For Cleansing Plants from Aphides and all Parasites—To Prevent American Blight, and all kinds of Scale, &c., and for Washing all Hard-Wooded Plants, always use
HUDSON'S SOAP.
A ¼ lb. Packet to 3 Gallons of Water.
A strong solution thickened with clay makes an effective Winter Dressing.
Testimonial.
"Coton Hall Nursery, Shrewsbury, July 28, 1880.
"We find Hudson's Soap a very useful Winter Dressing for all kinds of Fruit Trees; both as a preventive and cure against American Blight and all kinds of Scales. We also use it for Camellias, Azaleas, Rhododendrons, and all kinds of Hard-wooded Plants. We have much pleasure in presenting you with this testimonial, and remain, yours truly,
(Signed) "JOHN JONES AND CO."
REMARKABLE DISAPPEARANCE! of all DIRT from EVERYTHING BY USING HUDSON'S EXTRACT OF SOAP.

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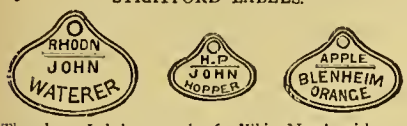

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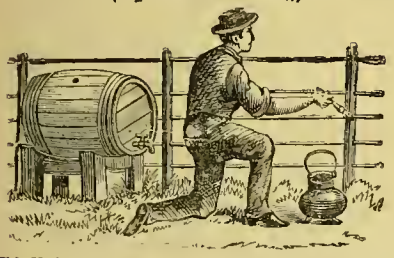

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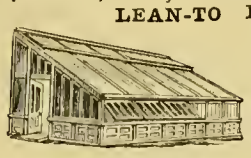

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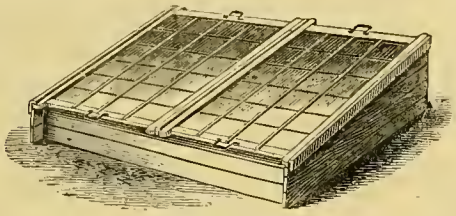

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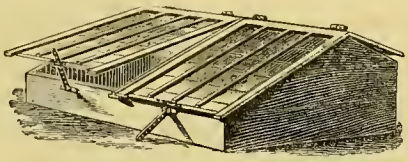

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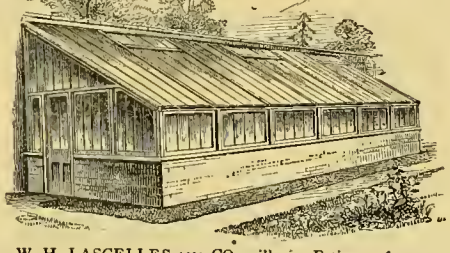

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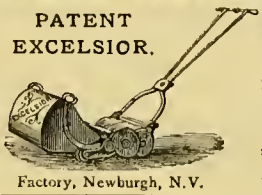

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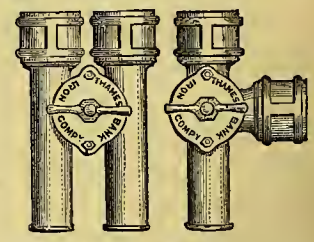

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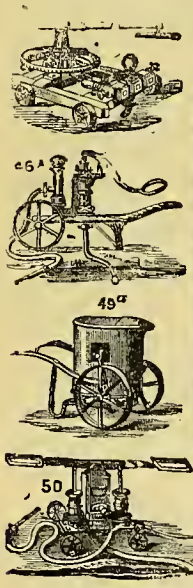

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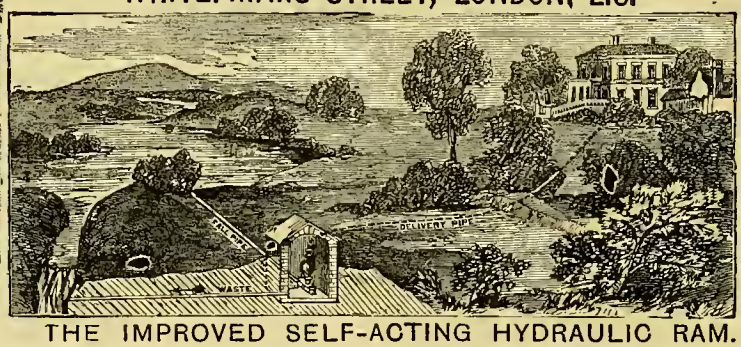

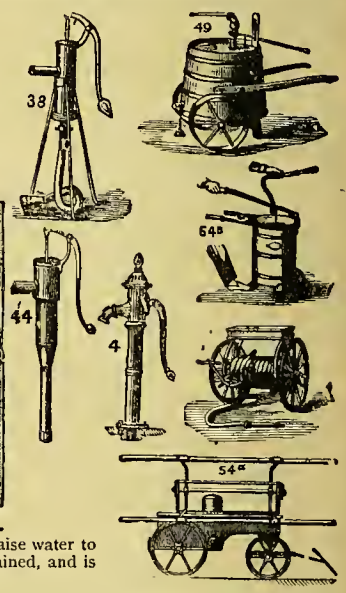

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Post-office Orders and Postal Orders should now be made payable at
DRURY LANE.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.
NATIONAL CARNATION and PICOTEE SOCIETY'S SHOW and EXHIBITION of BEGONIAS, GLOXINIAS, FUCHSIAS, FERNS and LILIES, on TUESDAY, July 24.
Band of the Second Life Guards from 3 o'Clock.
Entrance to the Show from the Fisheries Exhibition only, on payment of 2s. 6d. in addition to the 1s. paid at the Doors of the Exhibition.
Tickets admitting to the Exhibition and Flower Show can be purchased by Fellows and Fisheries Season Ticket Holders beforehand, at 2s each.
Doors open at 1 o'Clock. Show closes at 6 o'Clock.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.
NOTICE!—COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M.; Scientific at 1 P.M.; General Meeting, for the Election of Fellows, &c., at 3 P.M. on TUESDAY NEXT, July 24.
NATIONAL CARNATION and PICOTEE SOCIETY'S SHOW and EXHIBITION of BEGONIAS, GLOXINIAS, FUCHSIAS, FERNS, and LILIES, for which Money Prizes and Medals will be awarded. (See Schedule.)
COMPETITION for PRIZES offered by Messrs. SUTTON AND SONS and Messrs. JAMES CARTER AND CO. (See Schedule.)
Band of the Second Life Guards from 3 o'Clock.
Doors open at 1 o'Clock. Show closes at 6 o'Clock.

LIVERPOOL HORTICULTURAL ASSOCIATION.
GREAT ANNUAL SUMMER SHOW will be held in Sefton Park, on SATURDAY and MONDAY, August 4 and 6, when nearly FOUR HUNDRED POUNDS will be given in PRIZES.
Entries Close July 31. For Schedules and further information apply to the Secretary,
JOSEPH GORE, 34, Ullet Road, Liverpool.

THE ROYAL HORTICULTURAL SOCIETY of SOUTHAMPTON.
President H.S.H. PRINCE EDWARD OF SAXE WEIMAR.
In the Society's beautiful Grounds, Westwood Park, Southampton, on SATURDAY and MONDAY, August 4 and 6,
GREAT SUMMER SHOW of Plants, Fruit, Vegetables, Cut Flowers, Table Decorations, &c. THREE HUNDRED and FIFTY POUNDS in Prizes. Also opening EXHIBITION of HANTS and ISLE of WIGHT BEE-KEEPERS' ASSOCIATION. Valuable Prizes for Honey, Bee Appliances, &c.
Entries Close, July 28.
For Schedule of Horticultural Prizes, apply to C. S. FUIDGE, 54, York Street, Avenue, Southampton.
For List of Prizes for Honey and Bee Appliances, apply to E. H. BELLAIRS, Esq., Nea Close, Christ Church, Hants.

CHOICE SELECTIONS of ALPINES and HERBACEOUS PLANTS.—100 for 28s; 200, 60s.; 300 100s.; 400, 140s.; 500, 200s. Distinct species, established in pots. SAXIFRAGES.—100, 28s.; 200, 100s., distinct species and var. CATALOGUE on application.
STANSFIELD BROS., Southport.

For Sowing in July.
SUTTONS' CALCEOLARIA. THE BEST.
From Mr. J. DARBYSHIRE, Gardener to W. Smith, Esq., Wilmslow, May 16, 1883.—"I got First Prize with your Perfection Calceolarias at the Botanic Show on Friday. They are really splendid, 2 feet through, and well marked."
Price, 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' CINERARIA. THE BEST.
From Mr. H. K. WARD, Gardener to W. H. Budgett, Esq., Stoke Bishop, April 2, 1883.—"Your Cineraria is the best strain I have yet seen. I have taken the Premier Prize with them three years in succession. Your strain took the First Prize against fourteen or fifteen competitors, and a finer half-dozen plants could scarcely be got together."
Price, 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' PRIMULA. THE BEST.
From F. J. WALKER, Esq., The Priory, Bath, Jan. 3, 1883.—"I took First Prize for Primulas at the Bath Chrysanthemum and Primula Show from the seed you supplied us with last year. There was a great competition. Your strain cannot be surpassed."
Price, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. per packet, post-free.

SUTTONS' BEGONIA. THE BEST.
"The Begonias are perfection. I have a small conservatory entirely filled with them, which are the admiration of all my friends."—J. DARLINGTON, Esq., Netherwood.
Price, 1s., 1s. 6d., 2s. 6d., and 5s. per packet, post-free.

SUTTONS' GLOXINIA. THE BEST.
From Miss DUNSTERVILLE, Airdie, Malvern Link, Feb. 3, 1883.—"The Gloxinia seed has produced the finest blooms I have ever seen even in the Crystal Palace Show."
Price, 2s. 6d. and 5s. per packet, post-free.

SUTTON AND SONS, THE QUEEN'S SEEDSMEN, READING, BERKS.

AQUILEGIA GLANDULOSA (true).—Seed just collected, 2s. 6d. and 5s. per packet; 1-yr. Seedlings, now ready, 2s. 6d. per dozen. Usual discount to the Trade.
R. AND A. MORRISON, The Nurseries, Elgin.

KELWAY AND SON, Langport, Somerset, offer HERBACEOUS PLANTS, DAHLIAS, single and double; PYRETHRUMS, single and double; PHLOXES and TEA ROSES; CALCEOLARIA and CINERARIA SEED.
CATALOGUES gratis and post-free.

Hyacinths, Tulips, Narcissus, Lilies, &c.
BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland.
Wholesale CATALOGUE now ready, and will be sent post-free on application.

R. H. VERTEGANS' Descriptive Pocket CATALOGUE of Alpines and Hardy Perennials. Post-free on applications.
Chad Valley Nurseries, Edgbaston, Birmingham.

East Lothian Intermediate Stocks.
THOMAS METHVEN AND SONS beg to offer their choice strain of the above, in four colours, viz., Scarlet, Purple, White, and Crimson, at 1s., 2s. 6d., and 5s. each colour. Price to the Trade on application.
15, Princes Street, Edinburgh.

Rape Seed.—Mustard Seed.
CHARLES SHARPE AND CO. have the above to offer. Samples and prices on application. Sleaford.—July, 1883.

STRAWBERRY RUNNERS, from twenty choice varieties. Price LIST on application. Sample box of plants with fruit, 4d. "Manual on Strawberry Culture," 6d.
W. LOVEL AND SON, Strawberry Growers, Driffield.

MESSRS. SQUELCH AND BARNHAM, FRUIT and FLOWER SALESMEN, Covent Garden Market, W.C., are open to RECEIVE CONSIGNMENTS of choice FRUIT and FLOWERS. Baskets and Labels supplied.
Terms and references on application.

Home-grown Bulbs.
WANTED, SNOWDROPS, NARCISSUS, LILIES, ACONITES, &c. Any quantity. Samples and price to
GOLDSMITH AND CO., 118, York Road, Lambeth, S.E.

Single Snowdrops.
WANTED TO PURCHASE, any quantity. Cash.
J. W., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, a small quantity of good-sized HARDY SHRUBS, in pots or tubs, fit for planting-out at once. Plants suitable for a chalky soil required, such as Cupressus, Thuiopsis, Yews of sorts, Box of sorts, &c.
Apply to Mr. BAIN, Burford Lodge, Dorking.

WANTED, 100 Old Pine STRAWBERRY RUNNERS.
JAS. DICKSON AND SONS, "Newton" Nurseries, Chester.

WANTED, PEACHES, NECTARINES, GRAPES, MELONS, CUCUMBERS, TOMATOS, &c. Also Maréchal Niel ROSES, EUCHARIS, ORCHIDS, ORANGE BLOSSOM, GARDENIAS, &c.
WISE AND RIDES, Fruit & Flower Salesmen, Covent Garden.

JULY IN THE GARDEN.
What to Sow.

THE BEST CABBAGES and LETTUCES.

CABBAGE.—CARTERS' HEARTWELL EARLY MARROW.—Pronounced to be the finest early Cabbage in cultivation. Very distinct. Indispensable both for the gentleman's garden and for market purposes. In sealed packets only 2s. per ounce; 6d. and 1s. per packet, post-free. Carters' Heartwell Cabbage was awarded the First Prize in a competition of 20 varieties at the Great International Exhibition held in Manchester, August 24, 1881.

CABBAGE. — CARTERS' MAMMOTH BEEFHEART.—The best main-crop Cabbage; large firm heads of exquisite flavour, invaluable both for table and exhibition. In sealed packets, 2s. per ounce, 1s. per packet, post-free.

CABBAGE. — CARTERS' MINIATURE DRUMHEAD.—An early, globular-shaped Cabbage, of delicate flavour and good colour. 1s. per ounce, 6d. per packet, post-free.

LETTUCE.—CARTERS' GIANT WHITE COS.—The largest, most delicious, and best summer Cos Lettuce in cultivation. No tying required. Heads very solid and crisp eating. 2s. 6d. per ounce, 6d. and 1s. per packet, post-free.

LETTUCE. — DUNNETTS' GIANT WINTER COS.—Very hardy and crisp. 2s. per ounce, 6d. and 1s. per packet, post-free.

LETTUCE.—ALL THE YEAR ROUND.—Crisp and compact. If sown at intervals it will provide Lettuces all the year round. 2s. per ounce, 6d. and 1s. per packet, post-free.

CARTERS, The Queen's Seedsmen, and by Royal Command to H.R.H. the Prince of Wales.
237 and 238, High Holborn, London, W.C.

ORCHIDS.—We invite intending purchasers to pay us a visit and inspect our houses.
The NEW PLANT AND BULB COMPANY, Colchester.
Send for our NEW LIST, No. 63.

NOTICE.—Intending planters should visit our Nurseries. Many thousand Standard and Dwarf ROSES are now in bloom. FRUIT TREES in great variety, in full bearing. Now is the best time to select ORNAMENTAL TREES and SHRUBS for autumn planting. 150 acres of Nursery Stock in fine condition.
H. LANE AND SON, The Nurseries, Berkamsted, Herts.

Tea Roses—Tea Roses.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this year a splendid stock of Tea and other Roses in pots. Prices and full particulars on application to
The MANAGER, The Vineyard, Garston, Liverpool.

To the Trade only.—10,000 Maidenhair Ferns.
MESSRS. PERKINS AND SONS are now offering a very fine lot of ADIANTUM CUNEATUM in 72's, at 20s. per 100. Sample plant per post (to intending purchasers) sent on application. 1s. per 100 package.
Warwick Road and Park Nurseries, Coventry.

Cheap, Strong, Hybrid Perpetual Roses.
W. JACKSON AND CO., Nurseries, Bedale, will supply fine flowering plants, from pots, 8 inches diameter, at 24s. per dozen. LIST of sorts on application.

PAUL AND SON'S ROSES.—These are now superbly in flower, finer than for many years, indeed equal to the finest years, 1876 to 1878. The blooming plants exceed 200,000, and form the finest display of Roses anywhere near London.
The Old Nurseries, Cheshunt, Herts.
One mile from Cheshunt Station, G.E.R.

Hyacinths, Tulips, Crocus, Lilies, &c.
C. G. VAN TUBERGEN, Jun., Haarlem, Holland. Wholesale CATALOGUE now ready and may be had on application to
Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, Crutched Friars, London, E.C.

CREEPERS for WALLS, TRELLISES, &c., in great variety. See Descriptive LIST. Most of these plants being in pots, may be moved now.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To the Trade only.
E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, Holland. The Wholesale CATALOGUE (No. 36bis) of Dutch Flower Roots and Miscellaneous Bulbous and Tuberous rooted Plants for 1883-84 is now ready, and may be had free on prepaid application by Nurserymen, Florists, and Seedsmen.

AQUILEGIA GLANDULOSA (Grigor's, guaranteed True).
Fine young plants of the above beautiful Columbine, to bloom next spring, 30s. per 100, or 6s. per dozen. Also Seed, just gathered, at 2s. 6d. and 5s. per packet, from
JOHN GRIGOR AND CO., The Nurseries, Forres, N.B.
The Trade supplied at Wholesale Prices.

SALES BY AUCTION.

Friday Next.
CATTLEYA MAXIMA, Backhouse's variety.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, July 27, at half-past 12 o'Clock precisely, a splendid importation of CATTLEYA MAXIMA (Backhouse's variety), the superb form from Peru, one of the rarest and finest varieties extant. The importation, owing to this type being so rare, is a small one, but in extra fine order. Also a large and unusually fine consignment of CATTLEYA MOSSIÆ, from the best district, mostly with short stout bulbs; and various other consignments.
On view morning of Sale, and Catalogues had.

Lælia purpurata.

MESSRS. PROTHEROE AND MORRIS will include in the above SALE, on FRIDAY NEXT, a specially fine importation of the above—in all, about 100 lots.
On view at the Rooms the day prior to Sale.

Enville Gardens, Stourbridge.
About 5 miles from the Stourbridge Stations.
IMPORTANT SALE of CHOICE PLANTS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the Countess of Stamford and Warrington to SELL by AUCTION, on the Premises, as above, on WEDNESDAY, August 1, at 2 o'Clock precisely, a large quantity of beautifully grown ORNAMENTAL FOLIAGE PLANTS for the Stove and Greenhouse, including handsome Tree Ferns, which embrace some of the finest examples of Dicksonia antarctica ever offered, several stately Palms, Ixoras, Crotons—many fit for exhibition, Anthuriums, well-grown Caladiums, fifty specimen Eucharis, splendidly furnished plants, in fine condition, &c.
On view the day prior to the Sale. Catalogues of Mr. GREEN, on the Premises; or of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, London, E.C.
N.B.—A wagonette will meet certain trains on the day of Sale, to convey intending purchasers to the Gardens. (See Catalogue.)

Wednesday Next.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, July 25, a small COLLECTION of FOLIAGE PLANTS, consisting of Crotons, Caladiums, and Dracænas of sorts, Palms, Tree and other Ferns, &c., the property of a gentleman.
May be viewed the morning of Sale, and Catalogues had.

Wednesday Next.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, July 25, at half-past 12 o'Clock precisely, by order of Mr. R. Pfau, a consignment of ORCHIDS, comprising Odontoglossum Krameri, O. Oerstedii, O. Schlieperianum, Epidendrum pseudepidendrum, Oncidium cheirophorum, Masdevallia lata, Eucharis candida, from a new locality, &c.
May be viewed morning of Sale, and Catalogues had.

Wednesday Next.

MR. J. C. STEVENS will include in his SALE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, July 25, about 50 extra fine plants of ODONTOGLOSSUM CRISPUM, recently received by a gentleman from Mexico.
On view morning of Sale, and Catalogues had.

Thursday Next.
NEW ODONTOGLOSSUM.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, July 26, at half-past 12 o'Clock precisely, by order of Mr. F. Sander, a fine lot of a new ODONTOGLOSSUM, sent home by Mr. Lehmann; petals golden-yellow, blotched heavily with bright chocolate; sepals golden-yellow, spotted with the same colour; the lip has a dark crimson blotch, and is edged with the same colour; flowers large, borne on strong, stiff spikes. A fine COMPARETTIA, flowers carmine-red, and freely produced; ONCIDIUM, variety of OBRYZATUM; a splendid importation of ODONTOGLOSSUM ALEXANDRÆ, and other ORCHIDS.
On view morning of Sale, and Catalogues had.

Preliminary Announcement.
LÆLIA ELEGANS.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., a very grand importation of LÆLIA ELEGANS. Further particulars will shortly appear.
On view morning of Sale, and Catalogues had.

WANTED, a Small SEED and FLORIST'S BUSINESS—capable of extension—or PARTNERSHIP, by a young man of experience and capital, in London or on South Coast.
Address, S. B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, MARKET GARDEN GROUND, within 10 miles of London, by Michaelmas. About 40 acres. Particulars to DENNANT AND PORTER, 63, Queen Victoria Street, E.C.

London.

FOR SALE, a FLORIST and NURSERY BUSINESS, with an extensive connection in Landscape Gardening and Jobbing. There are two Nurseries, held at the low rental together of £65, and well situate, in the midst of a fashionable Residential District, only 4 miles from the City and West End. Returns £4000 per annum. Books open for inspection. Owner retiring, and will sell the whole concern at a reasonable offer, about £2500, which includes Greenhouses, Lease, Goodwill, the immense and varied Stock in Trade, Horses, Carts, and everything complete.
Apply to Messrs. PROTHEROE AND MORRIS, 8, New Broad Street, London, E.C.

FOR SALE, SIDCUP HILL NURSERY, Foot's Cray, Kent. Established over fifty years, and widely famous for the culture of Ferns. In consequence of the death (without issue) of the late Mr. Robert Sim, the Stock, Leases, Business Structures, &c., of this Nursery are to be immediately disposed of.
For particulars apply to Miss SIM, at the above address.

Investment.—Important to Orchid Growers.
15 miles from London.

FOR DISPOSAL, a small and easily worked HORTICULTURAL BUSINESS—proprietor wishing to devote his whole time to another Business in which he is engaged. Capital opening for Growing Orchids.
Apply to Messrs. PROTHEROE AND MORRIS, 8, New Broad Street, E.C.—(Folio 5865.)

To Nurserymen, Florists, Seedsmen, and Capitalists.

TO BE SOLD, an Old-established BUSINESS, near a good Market Town, in the West of England, easily accessible to London and South-Western Railway. There are about 27 Acres of NURSERY STOCK of the finest varieties and well-stocked Greenhouses. The Residence, Offices, Stabling, and Cottages for Men, as well as portion of the Nursery Grounds belong to the Owner of the Business, and may be purchased or taken on Lease. The proprietor's state of health alone induces him to retire, and he will be prepared to sell on advantageous terms.
For particulars and orders to view apply to Mr. JNO. FOWLE, 4, Hedgerley Park Terrace, Gunnersbury, London, W.

The Nurseries, Woodhall, Spa, Lincolnshire.

FOR SALE, the Unexpired Term of a Ten Years' Lease, at a low rental, of 5 Acres of well stocked NURSERY GROUND, comprising a choice Collection of Fruit Trees, Roses, Evergreens, Shrubs, and Trees; four Greenhouses, well heated and stocked with Plants; with Pits and Frames. This Business, which is an old-established and lucrative one, is for disposal by valuation, or agreement, owing to the death of Mr. Edmund Blyton, the late proprietor. Easy terms of payment would be arranged for a suitable applicant.
Apply to W. T. PAGE, Jun., Solicitor, Lincoln.

NURSERY and MARKET GARDEN BUSINESS, established thirty years, on rail 12 miles from London, to be DISPOSED OF by Widow of Proprietor, as it stands—25 acres in all—part on Lease, part Yearly Agreement. Well Stocked, with good Residence. Four splendid Greenhouses, Strawberry and Gooseberry Plantations, &c. A first-rate Trade and Private Connection.
NURSERY, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

First-class opportunity to Intending Dairymen, &c.

FOR SALE, genuine old-established (90 years) DAIRY BUSINESS. Main road, doing 10 Barn Gallons daily, also large trade in Butter, Eggs, Nevill's Bread, Packet Tea, &c. Perambulator, Churns, and all utensils. Rent £22: ¼ Acre of Garden. Business taught if required. Price £120. No agents. Apply,
DEVONSHIRE DAIRY, High Road, Lower Tottenham.

To Gardeners and Others.

NURSERY and FLORIST, N.W. — An opportunity seldom met with for a couple of enterprising men about entering into business. There is every convenience, and position undeniable, with a rapidly improving neighbourhood. Terms easy.
FLORIST, 4, Tavistock Row, Covent Garden, W.C.

INVESTMENT.—A most comfortable, newly erected MODERN RESIDENCE, at Twickenham, close to the Station and the river Thames—Dining-room, 24 × 18; Billiard-room same size, two other Reception-rooms, seven Bedrooms, Stabling. Grounds half an acre in extent, tastefully laid out; fine Orchid and Plant-houses, with all modern improvements. The whole most suitable to a Gentleman with a taste for horticulture. Price, £2300.
Address, D., Messrs. Pottle & Son, Royal Exchange, who will give cards to view.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

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

WHAT A MISTAKE, because we don't advertise weekly, to suppose that we do not possess a large Stock. We have Seventeen Acres entirely devoted to Flowers, and above seventy *employés*. Every department is kept in the highest order, and Plants and Seeds always ready to be sent to all parts of the Globe. Send for a CATALOGUE.
H. CANNELL AND SONS, The Home for Flowers, Swanley, Kent.

CATALOGUE, new and descriptive.—Alpines and Hardy Perennials, comprising 2000 species. Post-free on application.—STANSFIELD BROTHERS, Southport.

To the Trade.

ROSES ON OWN ROOTS, GLOIRE DE DIJON, ISABELLA SPRUNT, RÊVE D'OR, &c.
£2 per 100 for cash, carefully packed, out of 4½-inch pots.
MAIRIS AND CO., Weston-in-Gordano, Bristol.

To the Trade.

BAUMFORTH'S SEEDLING RASPBERRY.
Special Prices for Orders before September 1 may be had on application.
EDMUND PHILIP DIXON, Hull.

PINES, Surplus, for SALE, healthy and clean—20 strong Plants and 36 Suckers.
J. M., 19, Waterloo Place, North Shields.

ROSE BUDS, for Budding—Teas, 7*s.* 6*d.*; H.P., 5*s.*; Newer Varieties, 6*s.* per 100; my selection, choice kinds only, from LIST per arrangement.
W. CAUDWELL, F.R.H.S., The Ivies, Wantage.

CHADBURY EARLY CABBAGE SEED.—This seed has been grown by careful selection for sixteen years, and planting the stems where the produce would not be likely to be affected by Bees. It is liked by the Evesham gardeners, who are good judges of what pays them best, and is recommended to Farmers as a safe crop to plant—selling the Cabbages if they can grow them early enough and good enough—feeding them off by sheep if they cannot. Price 7*s.* per pound in small quantities; 5*s.* 6*d.* per pound for 20 lb. and upwards. For Cash only. Apply to
Mr. RANDELL, Chadbury, near Evesham.

SPYERS' MEMORIAL FUND.

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Mr. James, Norwood.

Treasurer.—Dr. Maxwell T. Masters, F.R.S., the *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Secretary.—Mr. James O'Brien, Harrow-on-the-Hill, to whom all communications should be addressed.

Subscriptions since those acknowledged July 7.

Baron Alfred de Rothschild	£2	2	0
Baron Leopold de Rothschild	3	3	0
T. Farmer Hall, Esq., Effingham House, Leatherhead	5	5	0
Mr. Ed. Morse, The Nurseries, Epsom	1	1	0
Mr. Tracy, Twickenham	0	10	0
A. Benecke, Esq., and Mrs. Benecke	2	0	0
Messrs. Colts & Sons	1	1	0
J. L. W.	1	1	0
Geo. Meredeth, Esq.	1	0	0
Mr. Challecombe	0	10	6
Mr. Beasley	0	5	0
Mr. Tidy	0	5	0
Mr. Teal	0	2	6
Mr. Pitts	0	5	0
G. E. F.	0	1	0
Mr. Saunders	0	2	0
Mr. Cole	0	2	0
Messrs. J. Ivery & Sons	0	10	6
Mr. Bain	0	10	6
Mr. Dewdney	0	2	0
Mr. Burnett	0	5	0
Mr. Sciver	0	10	6
Mr. Mortemore	0	10	0
Mr. Irons	0	2	0
Mr. Wiggins	0	2	6
Mr. T. Bloxam	0	2	6
Mr. Walton	0	10	0
Mr. Putney	0	10	0
Mr. Bond	0	2	0
Mr. Osborne	0	5	0
Mr. Gold	0	5	0
Mr. Swindon	0	2	0
Mr. T. E. Rose	0	5	0
Mr. Megeney	0	5	0
Mr. Dickenson	0	2	0
Mr. Ampleford	0	2	6
Mr. Gueriott	0	5	0
Mr. Bick	0	5	0
Mr. Baxter	0	10	0
Mrs. Mann	0	8	0
Mr. Norton	0	5	0
Mrs. Lucas	0	4	0
Mr. Fielder	0	5	0
Mrs. Bloxam	0	7	6
Mr. Tweed	0	10	0
Miss Dacre	0	10	0
Robert Warner, Esq., Broomfield	1	1	0
J. N. Fitch, Esq., 17, Eversholt Street, N.W.	1	1	0
Mr. H. Ballantine, The Gardens, The Dell, Egham	1	1	0
Mr. H. Burberry, Marks Tey	0	10	0
Friends and Schoolfellows, through Mr. Thos. Yeates	13	14	0

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE.
4*d.* per bushel; 100 for 25*s*; truck (loose, about 2 tons), 40*s.*; 4-bushel bags, 4*d.* each.
LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s*; sacks, 4*d.* each.
BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks 22*s.*; sacks, 4*d.* each.
COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* per half ton, 26*s.* per 100; in 2 bushel bags, 4*d.* each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1*s.* per bushel.
SPHAGNUM MOSS, 8*s.* 6*d.* per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Free Price LIST.—**H. G. SMYTH**, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

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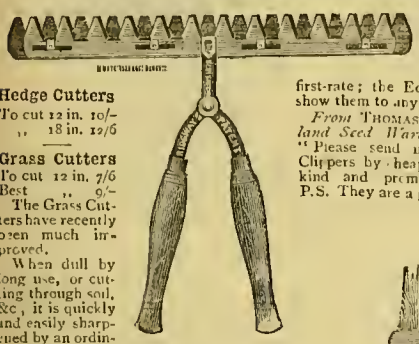

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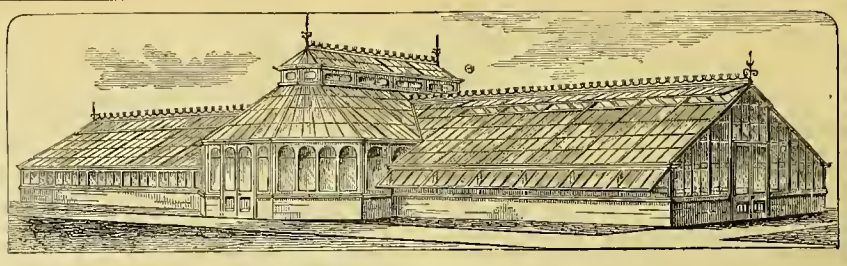

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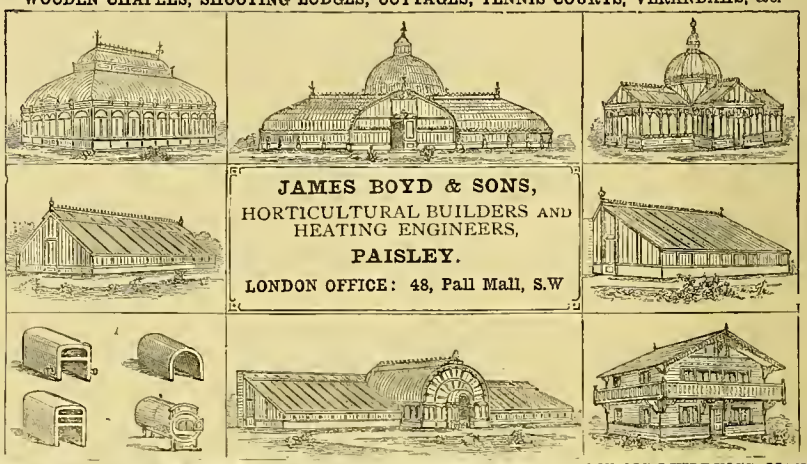

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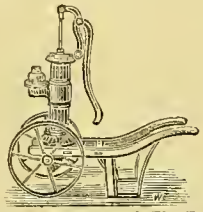

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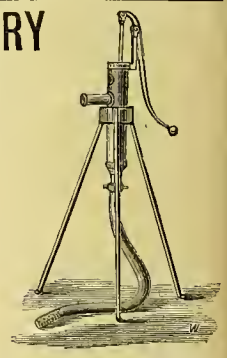

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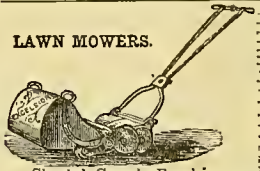

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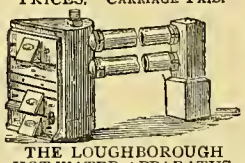

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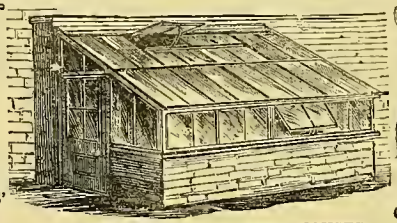

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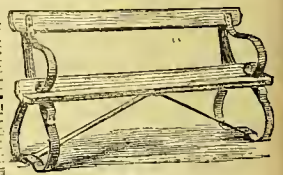

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THE
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SATURDAY, JULY 21, 1883.

UNSHADED ORCHIDS.

AN opportunity of again seeing the Orchids grown at the York Nurseries in unshaded houses, after another year's progress under such conditions, goes to confirm the impression as to the advantage of this kind of treatment for a large number of species which, in common with those possessing leaves that will not bear exposure to the drying influence of the sun, have hitherto been supposed by many to require shade. The large house originally used for pot Vines is now occupied by Orchids, consisting of thousands of plants, old-established specimens as well as others more recently introduced, collectively in a condition of health and vigour such as it is not possible to improve upon, if even to equal. Each season sees some additional kinds tried under the non-shading system. Epidendrum vitellinum is now on trial, and seems to stand exposure without showing any ill effects. The large numbers of different kinds of Barkeria which have for three or four years been fully exposed in this house present an appearance possibly never before seen out of their native habitats; quantities of B. Skinneri, only imported last year, are this season making growth double the size of anything we have before seen. These beautiful, but with many growers unmanageable plants, keep on growing each season with increased vigour, exhibiting none of the signs of weakness usual after being cultivated for a time. Oncidium Lanceanum—another ticklish subject so often affected with spot, yet when in good condition one of the finest and most distinct of Orchids—is here quite at home, making leaves unusually broad and thick.

All the thicker leaved Dendrobiums revel in the strong light, D. formosum especially. Amongst Epidendrums the lovely E. nemorale may be seen in perfection; a lot of plants occupying a considerable space on one of the side stages are pushing up their flower-spikes literally as thickly as the shoots on a bed of Willows. Vanda teres, as those conversant with the conditions under which this beautiful species usually thrives and flowers freely would expect, is just suited with the treatment, as also is V. cœrulea. Saccolabium Blumei and S. giganteum are alike strong and fully able to bear the sun, along with the many other species here located. But it is amongst the large and beautiful family of Cattleyas, and their allies, the Lælias, that the experiment of exposure is the most marked in its effects. C. Skinneri, C. Leopoldi, C. Mendeli, C. Mossiæ, C. Warneri, C. gigas, and C. gigas Sanderiana—the new and magnificent form of C. gigas—(the best forms of this are greatly superior to the old gigas, with the additional merit that they are as free in flowering as the old kind is shy), C. Gaskelliana, and C. Trianæ are present in quantity, and the growths they make are of a character that not only gives evidence of their treatment being the right one for the time being, but, what is of equal importance, the plants have an appearance that forecasts a continuance of rude health.

Not the least remarkable result of the unusual strength and substance which the whole growth, bulbs and leaves, attain, is the endurance the flowers produced by plants so grown exhibit; the flowers of C. Trianæ lasting for eight or nine weeks. The fact of cultivation having much to do with the length of time Orchid flowers last has been observed by some engaged in their culture, but evidently not to its fullest extent by all; hence the controversies that have taken place as to the time the flowers of particular species last. As might naturally be expected from the near affinity of Cattleyas and Lælias, the latter succeed equally as well as the former under exposure to sun; how they bloom may be judged from a single spike of Lælia purpurata which we saw carrying eight large flowers. In fact, quantity and endurance in the flowers are the natural outcome of this kind of treatment. Yet any one who would be inconsiderate enough to submit a house of plants to sudden and complete exposure to the summer sun, that up to the time had been at all subjected to close, dark, coddling treatment, would find to their cost the mistake, as the spongy texture of the plants would not bear the ordeal. A few plants of this character which Messrs. Backhouse have purposely submitted to the test have almost shrivelled out of existence.

The gradual reduction of shading with more air for a summer or two would be necessary to prepare soft-grown plants to stand the sun. Neither will many Orchids do wholly without shade at mid-day in bright weather, either in lean-to houses facing south, or in such as are span-roofed when the ends of the structure stand east and west, for reasons that cannot fail to be obvious to any one who has noticed how the bars and rafters minimise the sun's power at noon in houses that stand in opposite positions to the above-named. In another unshaded house a large batch of Sobralia macrantha nana was a blaze of bloom, the great flowers bending down the stout stems not more than 18 inches high. Lælia anceps, L. autumnalis, and L. majalis, with such kinds as Dendrobium infundibulum, Cœlogyne cristata, and many others that succeed under similar conditions of temperature, are thriving as well as they possibly could do. Like the others that are subjected to non-shading, the colour of the leaves is paler than where shaded, but both bulbs and leaves have a hard, board-like texture that shows their robust condition.

One of the consequences that naturally follow the sun's unobstructed rays coming directly on the plants is, that they require much more water, not alone on account of the drying influence it has on the material in which their roots are placed, but equally so by the more vigour imparted to the plants which enables them to take more without any danger of the young growths or the roots decaying through its presence. This is a decided gain in more ways than one; where water can be given freely to plants overhead it is one of the best means for keeping them clear of insects, especially thrips; and when the plants are thus not impatient of receiving a little more or having it a little sooner than it may be required, it is not necessary to look so minutely into their condition before giving it. Those who have had much to do with Orchid cultivation know that where the plants are grown soft and tender they are impatient of receiving the least water more than they require, and that it takes considerable practice to determine when it should be withheld and when given. Messrs. Backhouse's sun-exposed Orchids need none of this nice discrimination. Whilst these notes were being taken the thousands of Cattleyas and other occupants of these unshaded houses were being watered overhead from the spout of an ordinary watering-pot, it being applied to them with as little stint as if the whole had been a bed of Cabbages; and to enable the potting material to keep moist longer a much greater body of it is used for the Cattleyas and allied species than is generally looked upon as orthodox in practice. In fact the whole treatment may well be described as Orchid growing simplified, with results vastly more satisfactory than those which have been the outcome of the mistaken over-kindness with which these plants have too long been inflicted.

New Garden Plants.

CYRTANDRA PENDULA, *Bl.**

A PLANT of the typical form of this species flowered some time since at Kew; it differs from the plant figured under this name in Hooker's *Icones Plantarum*, vol. viii., t. 1735-36, and in the *Flore des Jardins*, vol. iv., p. 161, t. 11, and to which Mr. C. B. Clarke, who has monographed the Cyrtandraceæ for De Candolle's *Monographiæ Phanerogamarum*, has applied the varietal name of Blumeana, in having larger, longer petioled leaves, and especially in the inflorescence, the peduncle being twice as long as in var. Blumeana; the involucre is not cup-shaped, but spread open nearly flat (though this may not always be the case), and the corolla is not straight, but somewhat abruptly bent, and swollen from the point where it emerges from the calyx. The following is a brief description of it:—

Stem short and stout, somewhat creeping. Leaves opposite on long petioles, elliptic or elliptic-lanceolate acute; base acute or subcordate, above glabrous, dark green, with greyish blotches, beneath pale green, glabrous, with the nerves and petiole covered with fine, short, curly brown hairs. Peduncle about 6 inches long, bent down so as to lie upon the earth, covered with fine curly brown hairs. Involucre openly spreading, rough at base from elongated processes. Flowers several, sessile in the involucre. Calyx 10—11 lines long, with five subulate teeth, and splitting open on one side to about one-third the way down, pale brownish, covered with fine, adpressed, silky brown hairs. Corolla at its exsertion from the calyx and from that point somewhat abruptly enlarged or inflated, 1½ inch long, subequally 5-lobed, the lobes elliptic oblong, obtuse, white, clothed outside with adpressed silky brown hairs, like the calyx, inside dotted with purple on the lower side of the inflated part. A native of Java. *N. E. Brown, Kew.*

SPATHANTHEUM HETERANDRUM, *N. E. Brown.*

This is the remarkable and interesting Aroid that was described by Mr. Baker in the *Gardeners' Chronicle*, 1876, vol. vi., p. 164, as Gamochlamys heterandra, and is figured in the *Refugium Botanicum* at t. 346, under the same name, but upon dissecting it in 1878 I found that it is really a second species of the little known genus Spathantheum. In the above places this plant is stated to be a native of Africa, but this is exceedingly doubtful, as the only other known member of the genus is Bolivian, therefore it is probable that S. heterandrum also comes from the same region. After a lapse of twelve years this remarkable plant has again flowered at Kew, not having flowered since 1871, when it was in the possession of Mr. Wilson Saunders. As it has already been described and figured further description is unnecessary beyond saying that it produces its inflorescence before the leaves appear, having a tall green scape, and a boat-shaped green spathe, with no distinct spadix, but having the unisexual flowers arraged in rows along the midrib of the spathe, the males in the centre, the females outside; the leaf is solitary on a long petiole, erect, and elliptic in outline, with deeply laciniated margins. Since 1873, when it first came to Kew, it has been several times exhibited in the T range. *N. E. Brown.*

PROMENÆA STAPELIOIDES (*Lindl.*) HETEROPTERA, *n. var.*

This is a new variety of an old and well-known plant. Its sepals are only partially painted with stripes and blotches of a much lighter brown than the petals, which are like the petals and sepals in the common variety, though the stripes are more numerous; thus a curious contrast is effected. I had it from Messrs. H. Low & Co. *H. G. Rchb. f.*

* *Cyrtandra pendula*, Blume, *Bijdragen*, p. 768; DC., *Prod.* x., p. 281; Miq., *Fl. Ind. Bat.*, ii., p. 739.

WILD PLANTS ON BOXHILL.

WHETHER to botanists or pleasure-seekers generally, Boxhill offers temptations and allurements of no ordinary kind, affording a retreat at once exhilarating to the spirits, attractive and picturesque on all sides, striking the eye of the beholder who is accustomed to more populated thoroughfares with a sense of relief, and a feeling that the world seems wider than when the vision is bounded by parallel lines of houses in a level country. Approaching the hill from the railway station the prospect is very imposing, where the chalk of which it is composed rises abruptly to the height of several hundred feet, and seems so steep that the wonder is how vegetation can exist; yet it is closely covered with large Yew bushes, which give it a dark and sombre appearance. Crossing the winding river Mole, the ascent is made by a footpath on a grassy sloping flank of the hill. Here the close greensward is enlivened in a charming manner with patches of Polygala vulgaris, in various shades of blue, purple, and white, interspersed with Poterium Sanguisorba, Linum catharticum, Chlora perfoliata (a pretty Gentianwort with sea-green leaves and yellow flowers, often cultivated in gardens), and Carex recurva; while amongst grasses Briza media and Avena pubescens are prominent—the former a pretty perennial species by no means very common.

Once the summit is gained the country opens on the view like a grand panorama, showing the scattered hamlets and villages nestling amidst the leafy bowers of trees, from which ascends the busy hum of the human population, supplemented by the noisy whiz of passing trains, while the flight of time is duly noted by the village clock.

The Box tree (Buxus sempervirens), considered indigenous in this country only in Surrey, occurs plentifully on many parts of the hill, and gives evidence of being at home by the number of seedlings scattered about. All over the hill the flora is peculiarly rich, but the greatest number of interesting and rare plants seem to abound on the southern and western slopes. In the woody parts Sanicula europæa, Ajuga reptans, and Scilla nutans find suitable places; while under the Beech trees Neottia nidus-avis attracts attention by its peculiar scaly leafless brown stems, and flowers resembling at first sight an Orobanche. It is, moreover, a parasite on the roots of the Beech, and is the original Bird's-nest of Linnæus, although included by some modern authors in the genus Listera. Amongst other Orchids, Aceras anthropophora is most widely distributed; Habenaria bifolia (the Butterfly Orchis) crops up here and there at wide intervals; while Gymnadenia conopsea, another fragrant species, is pretty frequent on the grassy southern slope, along with Orchis maculata, which is less frequent. Cephalanthera grandiflora occurs in widely distant colonies under the shade of trees. Ophrys apifera (the Bee Orchis) is the most beautiful, and to the Orchid lover the most interesting of the group. The flowers are not numerous, but the large pink sepals form a charming contrast to the pale velvety-brown labellum variegated with yellow. The plant is abundant in open glades on the south-western slope, and the wonder is it has not been exterminated by the ravages of collectors. Isolated plants of Echium vulgare, one of the prettiest of our native Borageworts, bear bright blue flowers. Although of annual or biennial duration, the plant is more worthy of cultivation than hundreds that are far more difficult to manage. Onobrychis sativa, with its pyramidal panicles of rosy-red flowers beautifully veined with a deeper shade, is rather plentiful on the dry open slope, and is considered an escape from cultivation, except in the southern part of England. Certainly it deserves more attention than it gets as a plant for the herbaceous border. Hippocrepis comosa, another pretty pea-flowering plant, is also rare. The slender stems and small pinnate leaves lie on the ground, forming a close carpet of green, while the umbels of yellow flowers are borne erect, and have rather a refined appearance. It forms an ornamental plant for the rockery, and is often cultivated there. Plantago media, the most conspicuous of our native Plantains, studs the grass here and there, from which it raises its tall heads of flowers, rendered attractive by the purple stamens and white anthers. Helianthemum vulgare is a gay rock-plant, but like those of its congeners, the yellow flowers are very fugacious—a fault compensated for in a measure by their successional development. The only representative we have in this country of the Yam family, Tamus communis,

is also interesting as a twiner that might be utilised for covering fences. The foliage only is ornamental, as the small flowers are green and inconspicuous. Other rare or interesting plants abound, although not in flower; amongst which Clematis Vitalba is noticeable, especially towards Dorking, where it grows abundantly in the crevices of the chalk. *Z.*

THE SPECIES OF TULIPA.—VI.

(*Continued from p.* 12.)

Sub-genus TULIPA PROPER.—Stigma sessile.

Section 3. *Gesnerianæ.*—Filaments without a tuft of hairs at the base. Bulb-coats glabrous, or furnished with a few adpressed hairs inside. Perianth campanulate, usually bright red. Leaves usually broad.

Sub-section 4.—Peduncle permanently pubescent. All the six segments of the perianth, narrowed to an acute point.

29. *T. suaveolens*, Roth.—Marked in the section by its dwarf habit, broad leaves, very downy peduncle, large fragrant perianth, with six equal oblong acute segments, and large stigma. It flowers in March and the early part of April, and is, no doubt, the original stock of many of our early-flowering garden forms. I have seen numerous wild specimens gathered by Pallas on the shores of the Caspian Sea, and from Sarepta, by Becker and Prescott; and it is reported also from the banks of the Don by Henning, and from the Crimea by Steven. It is the Tulipa præcox of Parkinson, and the Tulipa dubia pumilio of Clusius. Figures will be found in the *Botanical Magazine*, t. 839; Redouté's *Liliaceæ*, t. 111; and the *Flore des Serres*, t. 1223.

30. *T. strangulata*, Reboul.—Very near the last, with which it is united by Dr. Regel, but much taller, and the segments furnished at the base with a large black blotch both in the typical red-flowered and also in some of the yellow varieties. T. neglecta, T. Bonarotiana, and T. vario-picta are no doubt mere colour-varieties of the same plant. They are found in cultivated fields near Florence, and flower towards the end of April. Four of the forms are figured in the *Botanical Register*, tab. 1990.

31. *T. bœtica*, Boiss. et Heldr.—Bulb as large as in T. Gesneriana, the outer tunics nearly or quite hairless inside. Stem about a foot long in the wild plant, with three Gesneriana-like leaves, the lowest 1½—2 inches broad, much undulated towards the edge. Peduncle pubescent, 3—4 inches long. Perianth campanulate, always bright red, 1½—2 inches long in the wild plant, all the six segments decidedly acute and furnished with a black Oculus-solis-like blotch at the base. Filaments black, linear, glabrous, equalling the anthers. Stigma about equalling the diameter of the ovary. A native of cornfields in Greece, where it flowers in March. A near ally of T. suaveolens. T. Euanthiæ of Orphanides, which I have not seen, is now placed by both Boissier and Nyman under this species.

32. *T. Kaufmanniana*, Regel, *Gartenflora*, tab. 906.—A new, showy, Central Asian species, as yet very little known to us in England. Stature of T. Gesneriana. Leaves three, glaucous; the lowest oblong-lanceolate, 1½—2 inches broad. Peduncle erect, downy, 5—6 inches long. Perianth nearly 3 inches long in the only living specimen I have seen (which was raised by Mr. Elwes from a bulb sent by Max Leichtlin), bright yellow, slightly tinted with red outside towards the top; all the six segments oblong and acute, without any basal blotch. Filaments linear, glabrous, ⅝ inch long, equalling the anther. Stigma equalling in breadth the diameter of the ovary. Dr. Regel describes and figures two forms, one of which he calls albo-variegata, and the other luteo-variegata. We shall, no doubt, hear further about the plant, which seems a well-marked species.

33. *T. altaica*, Pallas.—Bulb ¾—1 inch diameter; the outer tunics without any hairs inside. Stem 6—9 inches long in the wild specimens. Leaves usually three, the lowest lanceolate, about an inch broad. Peduncle pubescent, 3—4 inches long. Perianth usually yellow, rarely red, 1—1½ inch long in wild specimens; all the six segments oblong and decidedly acute, without any basal blotch. Filaments glabrous, lanceolate, equalling the anthers. Stigmas equalling the ovary in diameter. A native of the mountains of South Central Siberia, where it ascends to a height of 6000 feet above sea-level. It is figured by Ledebour, and the red-flowered variety recently by Regel, in the *Gartenflora*, tab. 942. *J. G. Baker.*

(*To be continued.*)

SOCIAL LIFE OF ANTS AND PLANTS.

It is now nearly 150 years since Rumphius (*Herbarium Amboinense*, vi., p. 119) published figures and descriptions of the Nidus germinans, a curious plant inhabited by ants. According to him the ants not only inhabited the tuber-like root-stock of the plant, but they actually produced the plant itself. He says:—"This curious production of Nature originates without father or mother . . . for it is known that these plants spring up from the substance of ants' nests wherein there could have been no seed." Evidently Rumphius would have found no difficulties in the way of evolution. He distinguished two kinds, namely, Nidus germinans formicarum rubrarum and Nidus germinans formicarum nigrarum. No writer—or, at least, no botanist—seems to have written on these singular plants after Rumphius, until Dr. Jack in 1825 described them botanically (*Transactions of the Linnean Society*, xiv., p. 122), and named them respectively Myrmecodia tuberosa and Hydnophytum formicarum, and rightly referred them to the Rubiaceæ. They are both of them epiphytes, attaching themselves by their roots to the branches of trees. The bulk of the plant consists of a large irregular tuber-like mass, from which spring a few short leafy branches, bearing small flowers in the axils of their leaves.

Concerning their inhabitants Jack gives little information. Of the latter (Hydnophytum) he says:—"The tuber is generally inhabited by ants, and hollowed by them into numerous winding passages, which frequently extend a good way into the branches also." Since then several other species have been discovered, and the range of the genera is from the Malayan peninsula to New Guinea, Australia, the Admiralty Islands, and the Fijis. Dr. Beccari, who has travelled so widely in the islands, from Borneo to New Guinea, paid special attention to them; and Professor Caruel figured and described (*Nuovo Giornale Botanico Italiano*, iv., p. 170, t. 1) a species of Myrmecodia with a spiny tuber. Figures are given of the plant in various stages, from soon after germination up to flower-bearing; and the text consists largely of Dr. Beccari's notes made in the country where he collected the plant. So persistently is this species inhabited by a certain species of ant, and so early in its existence—even before it has produced any leaves beyond the cotyledons, that, from that and other circumstances, it was supposed the two organisms were mutually beneficial to each other—in fact, necessary to each other and dependent upon each other for existence. Dr. Beccari went so far as to say that the plants die when the ants desert them. Those who did not go so far as to regard it as a case of symbiosis, were mostly convinced that the winding galleries and chambers in the tuber inhabited by the ants were excavated by the latter.

Dr. Treub, Director of the Botanic Garden at Buitenzorg, Java, has had an opportunity of studying the life history of Myrmecodia echinata, from actual germination up to the adult stage, which he describes and illustrates in the *Annales du Jardin Botanique de Buitenzorg*, vol. iii., p. 129, t. 20—24. What he regards as the most singular fact resulting from his investigations is, that the ants have nothing whatever to do with the formation of the cavities within the tuber. The tuber, instead of arising from the puncture of an ant, as the Oak-gall does from that of a cynips, is a normal production. Soon after germination, and before the first leaves above the seed-leaves are formed, the axis below the cotyledons, or seed-leaves, begins to enlarge; and it is from this part of the plant that the whole tuber is produced. In a quite young plantlet the tuber consists of a single central vascular bundle, surrounded by parenchyma out to the epidermis. Soon a layer of cork tissue appears in the periphery, and at about the same time a number of woody suberous bundles are formed in a circle nearer the outside than the centre. These vertical bundles are subsequently united by oblique ones, the formation of bundles going on in both directions as the plant has need of them. The first circle of bundles precedes, and may be said to announce the formation of the first gallery. Soon a series of transverse sections will show under a low power a circular line parallel to the circumference, which a higher magnifier shows to be a layer of meristem. Where this is quite young the whole mass of cells, including the central bundle which it encloses, is still continuous; but where it is older, some of the central cells are seen to be dried up; and thus begins the first cavity. As the gallery is formed it is covered with a layer of suberous cells. It extends downwards, and finally it becomes a more or less axile gallery, only closed at the bottom by a thin layer of cork tissue. Eventually this gives way, and the entrance is free. In time other galleries are formed, but whether at first independently or not, Dr. Treub was not able to decide, as they communicate with each other at an early stage.

Altogether the internal growths of these tuberous bodies is very curious and interesting. The walls of the galleries are in some parts smooth and uniform, in other parts they are studded with little prominences, which Dr. Treub, dominated by the preconceived idea that the ants were in some way concerned in the nourishment of the plant, at first took for glands, whose function was to absorb certain substances brought within their reach by the ants. On examination, however, they turned out to be lenticels.

With regard to the relations existing between the ants and the plant, Dr. Treub has proved that the former are not essential to the latter. As already stated, the ants do not excavate the galleries, which are the result of internal differentiations. Besides the plants that Dr. Treub raised from seed, he has had under observation numerous large ones brought in from the forests. Some of those brought in died, while others threw out new roots, and attached themselves to the trees. Whether the plants lived or died, the little red ants that inhabited them in the forest invariably left the tubers either voluntarily, or they were expelled by a species of black ant common in the garden. The plants flourished as well tenanted by black ants as by red, thus affording proof that no particular species of these lively insects was necessary to the plants. Further, they had several plants both of Myrmecodia and Hydnophytum, which were altogether deserted by ants, and flourished nevertheless, producing leaves, flowers, and fruit, and enlarging their tubers, and forming new galleries.

As to the benefits derived by the ants from the plant, Dr. Treub is of opinion that the plant is inhabited by the ants simply because it affords them a secure shelter. He does not deny that the ants may in return be of some service to the plant, but he has not a single fact to adduce in support of the theory of mutual dependence.

Then arises the question—Of what use to the plant is this labyrinth of galleries? Dr. Treub thinks the most plausible answer is, "to permit of the free circulation of atmospheric air within the tuber." The presence of internal lenticels, he says, strengthens this view, because it is generally admitted that lenticels serve as channels of communication between the tissues and the air.

There is one other noteworthy fact in connection with these plants which was first deduced by Professor Caruel. The tubers of several of the species are armed with rigid spines, which are merely transformed adventitious roots.

Dr. Treub's discovery, that the galleries are not the work of ants, but a part of the natural development of the plant, is no more than might have been expected, when we reflect that this seems to be the usual condition of things in plants inhabited by ants; and it in no way weakens the theory of mutual service, and perhaps even of mutual dependence under their ordinary state of existence. On the other hand, it may be that in some cases of ant-inhabited plants the plant benefits, in others the insects, while in others both benefit by the arrangement. It has been proved that insectivorous plants flourish as well or even better under favourable cultivation without insects as in the wild state with; yet they continue to provide the means for entrapping insects.

The number of plants in various parts of the world inhabited by ants is very great, and we believe that in all instances of these social relations the plant provides the accommodation for the insect without the aid of the latter. Nevertheless, insects may have been the primary indirect cause of the exaggerated development of certain parts or organs of plants which they have inhabited generation after generation. In Tropical America, among other plants, many Melastomaceæ afford shelter to ants in the form of a pair of pouches or bladders, or one two-lobed pouch, at the base of the blade of each leaf. The genera Tococa, Calophysa, Microphysa, and Myrmidone are specially remarkable for this provision, which takes different shapes and sizes in diverse species. Formerly it was supposed by some botanists that these bladders were

gall formations, caused by the puncture of the ants; now I believe nobody doubts that they are normal productions or appendages of the leaf.

Another Tropical American plant inhabited by ants is the Bull's-horn Thorn, Acacia cornuta, which is furnished with very large hollow thorns, arranged in pairs, and in shape and direction resembling a pair of horns. These formidable-looking thorns are fully developed in the plant cultivated at Kew.

I will conclude this paper with an extract from Belt's *Naturalist in Nicaragua*, relating to the economy of the plant last named, leaving the author, of course, responsible for the accuracy of the details :—

" . . . These thorns are hollow, and are tenanted by ants, that make a small hole for their entrance and exit near one end of the thorn, and also burrow through the partition that separates the two horns; so that the one entrance serves for both. Here they rear their young, and in the wet season every one of the thorns is tenanted; and hundreds of young ants are to be seen running about, especially over the young leaves. If one of these be touched, or a branch shaken, the little ants (Pseudomyrma bicolor) swarm out from the hollow thorns, and attack the aggressor with jaws and sting. They sting severely, raising a little white lump that does not disappear in less than twenty-four hours. These ants form a most efficient standing army for the plant, which prevents not only the mammalia from browsing on the leaves, but delivers it from the attacks of a much more dangerous enemy—the leaf-cutting ants. For these services the ants are not only securely housed by the plants, but are provided with a bountiful supply of food; and to secure their attendance at the right time and place this food is so arranged as to effect that object with wonderful perfection. The leaves are twice-pinnate, and at the base of each pair of leaflets, on the midrib, is a crater-shaped gland, which, when the leaves are young, secretes a honey-like liquid. Of this the ants are very fond, and they are constantly running about from one gland to another to sip up the honey as it is secreted. But this is not all; there is a still more wonderful provision of more solid food. At the end of each of the small divisions of the compound leaf there is, when the leaf first unfolds, a little yellow fruit-like body, united by a point at its base to the end of the pinnule. Examined through a microscope this little appendage looks like a golden Pear. When the leaf first unfolds, the little Pears are not quite ripe, and the ants are continually employed going from one to another, examining them. When an ant finds one sufficiently advanced it bites the small point of attachment, then bending down the fruit-like body it breaks it off, and bears it away in triumph to the nest. All the fruit-like bodies do not ripen at once, but successively, so that the ants are kept about the young leaf for some time after it unfolds. Thus the young leaf is always guarded by the ants, and no caterpillar or larger animal could attempt to injure them without being attacked by the little warriors. The fruit-like bodies are about one-twelfth of an inch long, and are about one-third of the size of the ants, so that the ant bearing one away is as heavily laden as a man bearing a large bunch of Plantains. I think these facts show that the ants are really kept by the Acacia as a standing army, to protect its leaves from herbivorous mammals and insects."

W. B. Hemsley.

DIONÆA MUSCIPULA.

That there are many gardens in this country where the Venus' Fly-trap could be more readily and successfully grown in the open air than in greenhouses is shown by a nice group of strong, well developed plants, now in fine flower, planted out in a boggy spot in the herbaceous department at Kew. These plants have been more than a year in their present position, and the only protection afforded them during the winter of 1882-83 was a large bell-glass in bad weather. The leaves are large and well formed, and the plants altogether are the picture of health. Dionæa muscipula was cultivated in 1768 by Collinson, and in *Hortus Collinsonianus* the following extract is given from a letter written by its discoverer, Governor Dobbs, of North Carolina :—" But the great wonder of the vegetable kingdom is a very curious unknown species of Sensitive. It is a dwarf plant; the leaves are like a narrow segment of a sphere, consisting of two parts, like the cap of a spring purse, the concave part outwards, each of which falls back with indented edges (like an iron spring fox-trap). Upon anything touching the leaves, or falling between them, they instantly close like a spring trap, and confine any insect or thing that falls between them; it bears a white flower. To this surprising plant I have given the name of Fly-trap Sensitive."

DISTANCE OF VINES FROM THE GLASS.

The late cloudless skies and glitter and glare of sunlight from morn to eve have severely tested the endurance of Vines at various distances from the glass. At first sight most Vines strike one as too close; seldom, indeed, does one enter a vinery at noon on a cloudless day, especially if the wind is from the east, without observing drooping leaves, and not seldom more patent and injurious symptoms and proofs of excessive heat. Now it is a mistake to make light of leaf flagging, for it is at once a sign of distress and a proof positive of an arrestment of growth. It proves that the Vines are too dry, too hot, or too cold, and all of these extremes are equally injurious to health and fatal to growth. In most cases of leaf flagging during the late spell of bright weather close proximity to the glass has been either a producing cause or an aggravating effect. The cribbed, cabined, and confined area between the upper leaf-surface and the glass is the very spot where all the evils of heat, cold, and drought combine to do their worst on the Vines. That worst is not seldom seen in leaf scorching, Grape scalding, and even the blotching or burning of the young wood. Most of these evils might be greatly mitigated, if not wholly cured, by simply letting the Vines down lower into the atmosphere of the house. This is not a mere matter of opinion, but of fact and daily experience; for though the majority of Vine leaves are probably kept too close to the glass there is no uniform distance adopted in practice. On the contrary, the area of diversity of distance from the glass ranges over a distance so wide as that included between 5 inches and 5 feet. The first is assuredly far too near, the latter too far from the glass. The mean average distance will be found included between 1 or 2 feet, and were these distances measured from the upper surface of the leaves instead of from the Vine rod, they would leave little to be desired; but taking into account the large size of Vine leaves, the length of their petioles and their strong tendency to rise to the surface of the glass, it is little wonder that many of the finest leaves are found firmly abutting against the glass. In such circumstances their chief functions are fettered or entirely arrested, or they are alternately scalded by heat or chilled by cold.

No doubt the practice of training Vines near the glass originated in times when the glass itself was only semi-transparent, and every ray of light became of special value; hence no doubt also the origin of the idea that, to utilise most or all of the light available in our climate, it was necessary to lift the leaves of the Vines and other plants as close to the glass as possible. It is now found, however, that this is a mistake, and probably the leaves enjoy far more light, say 18 inches from the glass, than when impinging against its surface. The best distance for utilising the light can hardly be considered as settled as yet; but it is a hopeful and promising sign of the times that practical men are experimenting on this point in all directions, and the result will be undoubtedly an increase of the distance between glass and foliage. There are obvious reasons against rushing to either extreme. The evils of too close proximity to the glass have been already pointed out. Those of excessive distance, if less speedily injurious or disastrous, are almost equally obvious. But there are many compensations to set against such evils: the greater certainty and higher quality of the crops are the more important. Not a few Vine failures have their origin in that narrow area included between the upper surface of the leaves and the glass. Here extremes of temperature, and of drought and moisture, meet daily, almost hourly, at times, in rapid succession; and such sudden and severe alternations are often the cause of failure and disease; here imperfect setting, irregular swelling, faulty finishing originate.

In the same stiff, stifling atmosphere thrips and spider breed and feed. Scarcely any plant is less subject to insect pests than the Grape Vine under good treatment—few become more infested with vermin, troublesome and destructive in the ratio of their minuteness, when badly used: and what treatment can be worse than the alternately passing their tender leaves through frost and fire? Of course the full force of the evil of contact with the glass is mitigated by various expedients. Shade, vapourising, and free ventilation are the most common of these, but we have seldom any excess of sunshine for the well-being and thorough ripening of Grapes in our climate; consequently, every ray shut out represents a waste of force, or a loss of produce, or both. Fewer Grapes are gathered, and those of inferior quality, than if the whole of the sun's rays had been fully and freely utilised, as they might have been had the leaves been only further removed from the glass.

Then as to vapourising: it is a most useful aid to growth, but when carried to excess—as it often may be as a direct antidote to leaf scorching—it tends to promote a soft, spongy condition of vegetable tissues, that is neither favourable to the furnishing of a full crop of Grapes, nor the permanent health of the Grape Vine.

Excessive ventilation is more injurious still. It involves a loss of heat, moisture, and time. With the view of lowering the temperature the confined area of air included between the leaves and the glass, the entire atmosphere of the house is not seldom injudiciously and injuriously cooled. Heat and moisture are thus recklessly lost, and the Vines are rudely checked by excessive doses of cold external air. Perhaps of all the evils either directly or indirectly resulting from the excessive proximity of the foliage of Vines to the glass, that of excessive ventilation is the most widely and promptly disastrous. Perhaps fewer higher services could be rendered to horticulture at this time than the publication of the experience of the many Grape growing readers on this important subject. It is one that has been more largely determined by builders and mere habit than almost any other horticultural matter of equal moment; and it is high time that it was now determined by the merits of the Vines and the highest knowledge and richest experience of Vine growers. *F.*

MONSTROUS CYPRIPEDIUMS.

It is by no means easy to say why particular species should be more subject to deformities than others. When, indeed, there is a method in the madness, the reasons are more obvious, and the plant may simply be reproducing some ancestral trait, and when it is obliging enough to do this, great is the joy of the botanist; for a clue is then put into his hands by means of which he may, in part at least, unravel the genealogy and trace the progressive development of the flower. In such cases there is order in disorder, and a little more or a little less growth and development at a particular stage of the plant's history will account for the phenomena. But we had rather in mind those absolute distortions brought about by perversions of growth, irregular unions of parts, and which are not readily reducible to any law of form or symmetry, but simply to irregular or disproportionate growth and to adhesions with other flowers that should not under ordinary circumstances take place. Quite recently several monstrous flowers of Cypripedium from Fallowfield have come under our notice. In a flower of C. Stonei, sent by Mr. Swan, there were five sepals, one separate, the remaining four united in pairs; three lateral petals, prolonged, as is their wont in this species, into long tails; three lips, three columns, each representing, as usual, two stamens; and a one-celled ovary, with six parietal placentas. There were thus twenty-four parts to account for. In the normal flower there are eleven—viz., three sepals, two petals, one lip, two stamens (in one column), and three carpels. It seems clear that in the malformed flower we have to deal with a fusion of flowers, but if so, of how many? If of two only, then we have one part too many; if of three, as the number of "columns" would indicate, then we should have a deficiency of at least ten parts. Either hypothesis is legitimate, but the former is the more probable. Nothing is more common in cases of adhesion of this kind than for some of the parts to disappear—they become obliterated by the pressure exerted upon them, and thus while the outside parts are normal those along the line of junction get obliterated. Nothing could be told as to the exact state of the present case, owing to the dislocation of parts. An examination at an earlier period of growth might have more readily revealed the number and relative position of parts.

In a flower of Cypripedium Sedeni the raceme bore two flowers, the uppermost normal. In the lower the stalk and ovary, instead of being free, were

inseparably united with the main stem for a certain distance. The upper and lower (conjoined) sepals were normal, but within these there was a complete tangle of lip-like petals, forming five or six bags, intermingled with two flat petals of the ordinary type; the column had the usual two anthers, but, owing to a twist, they were anterio-posterior, not lateral. A cut across the ovary revealed three complete cavities, but they were much distorted and dragged out of shape. One would very much like to disentangle that mass of Calceolaria-like lips, and assign each to its place as a stamen, or a style, but they do not correspond in number, while their irregular disposition prevents us, in this instance, from considering these supplementary lips in the light of stamens. From the axil of one of them, moreover, proceeded a young flower-bud with a six-parted perianth in a rudimentary state, three tubercles outside, three within, and within the last mentioned, three more tubercles — stamens? — surrounding a minute conical eminence, the top of which was depressed.

From Kew we hear of a similar malformation:— "On a stem bearing two flowers one is of the ordinary typical kind, while a second presents a peculiar and clustered appearance. The staminode and labellum occupy their ordinary positions, with a rudimentary labellum lying alongside the latter. Above the staminode three other labellums in an inverted or resupinate position, alter the true character of the flower altogether. Four out of the five are perfectly developed but somewhat altered in shape, and lose their usual inflated appearance, from the circumstance of the three upper ones being produced slightly within the other, and consequently crowded. The sepals and petals are of the usual typical kind. This duplication of parts, if not a gain from a decorative point of view, is certainly a curiosity, and probably of rare occurrence."

FIG. 12.—A MONSTROUS CYPRIPEDIUM STONEI. (SEE P. 72.)

CARNATIONS AND PICOTEES.

MESSRS. VEITCH & SON'S collection of all that is best among these general favourites is now in full flower. The show has become an annual affair, and should assist materially in proving the adaptability of the Picotee and Carnation for out-of-door cultivation in London itself, to say nothing of the suburbs. The flowers seen here are every bit as fresh looking, healthy, and robust as when grown beyond the region of soot and dust. The "grass" is the picture of health, and in every way so good that stock is continually being raised from it. In looking over a collection so extensive, it is at once possible to select plants that bloom later or earlier than the bulk of the sorts, and in that way to select sorts suitable for either purpose. Also the habit of each may be observed; some kinds being greatly inclined to produce a succession of buds down the

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flower-stalk, others again form latent bloom-buds on this year's "grass," becoming then, with a little protection and assistance from a glass frame or hand-light, early winter or late autumn bloomers.

A few varieties are to be met with which are exceptionally dwarf in habit, and this last seems to be the aim of some of the raisers of new kinds; and although it may not be possible to obtatn a self-supporting flower-stalk, yet the results already obtained point in that direction. Among scarlet selfs may be noticed as being remarkably good, Heaton Bank, of bright colour, and Fireman; this last should prove a good kind for bedding purposes. Sportsman is also an excellent variety, being very bright in colour.

Among pink and rose selfs a new sort called Lothair, a very bright, large, charming bloom, of a very taking colour; and Mrs. Teigner, a pink suffused with white, were very noteworthy. In crimson selfs Sparkler is worthy of much notice, and amongst the purple selfs Walter Ware. The new Mary Morris is a bold flower, free in habit, and tall. Amongst the choice free flowering white kinds must be noticed Hodge's Bride, which is very pure, robust and dwarf, and the habit all that could be wished. The best of the newer white Carnations is undoubtedly Mrs. W. P. Milner, which is dwarf, free-flowering, and said to force well. Royal Purple is a nice smooth-outlined blueish-purple — a rich tint indeed. A fine dark crimson Carnation is Amethyst, strong in growth and tall in habit. Robert Burns is also a desirable kind among the dark selfs. It is very free and dwarf, the foliage being particularly so. Sir Beauchamp Seymour is a beautiful orange-scarlet, edged with bright scarlet. Lord Beaconsfield is a good habited, fine-coloured rose flake; as also is Sybil.

Crimson bizarres are very well represented. A few of the better ones—if one may signalise any where all are good — are Albion's Pride, Isaac Wilkinson, Marguerite, and Dr. Masters. James Taylor is a good pink and purple bizarre, as is also Princess Beatrice. The scarlet bizarres, of which the collection contains numerous kinds, are well represented by Ben Simonite, Dreadnought, George, and Mars. A fine rose flake is seen in John Keet, and purple flakes in Squire Trew and Mayor of Nottingham. Jupiter is a very nice bright scarlet flake, and equally as good are Illuminator and William IV.

The beautiful class of Picotees with crimson edge is seen to much advantage in J. B. Bryant, a very fine regular bloom with a heavy edge; Lothair, and the Rev. F. D. Horner. Queen of Summer in this section is a flower of fine substance, creamy-white, with a fine edge; and Picturata, is a large, finely-formed flower. The purple-edged Picotees, viz., Clara Penson, a pure white with a narrow, regularly-marked edging, is very pretty; Her Majesty, a very superior dwarf white flower; Mrs. A. Chancellor, a tall kind, with beautiful blooms, possessing a rich, heavy edge; and Mrs. Langtry, a sort that has a very fine narrow edging, were very good. Rival Purple is a very choice sort in this class, the flowers being smooth, regular in outline, and in the markings very pleasing. The rose-edged Picotees were seen to great advantage in Louisa, Lady Boston, Miss Gibbs, a pretty suffused rose; and Royal Visit, with a very fine broadly-marked edge.

For especial bedding-out purposes a Carnation named Auctioneer, a good purple; Chromatella, an equally fine canary—in fact, the finest in the section; and Bridesmaid, an excellent white sort, are valuable acquisitions. A blush-coloured Clove, called The Charmer, is a fine addition to this favourite class. Throughout this month, to those interested in these gems of the garden, this collection will well repay a visit, and although the earliest blooms have suffered somewhat from the heavy rains of the last few days, a short time will suffice to restore them to their original beauty. *M.*

Ensilage in America.—On the question of Ensilage a successful experiment is officially recorded from Savannah, in which it is stated that the proprietor of a dairy farm in the western part of this State during the summer packed in his *silo* some tons of Pea-vines, and on opening it at the end of November be found the forage in excellent condition. It was given to the cows, and they preferred it to any other food. The owner, it seems, purposes continuing his experiments on a large scale, and it is stated that the result will be watched with considerable interest.

CAMPANULAS.

It is always a puzzle how to maintain a constant succession of bloom in gardens, especially where you rely mainly on perennials, and very slightly on half-hardy plants, Pelargoniums, Calceolarias, Fuchsias, and the like. Up to June it is easy enough, and indeed during the first half of the year, you must, perforce, rely upon perennials alone. The delightful spring flowers which are at your command furnish abundant choice, so that gardens never look so freshly gay as they do in springtime, "blossom time" my little boy calls it.

The Campanulas come to our assistance in June—July, and rightly managed they furnish exactly what is needed, when associated with the Roses, which then form the dominant element in our beds and borders. To prepare for this we arrange clumps of Campanulas when the plants are placed in the borders in preparation for the spriog blooming. They are unobtrusive, and merely furnish a green foil to the brightness of the spring flowers of April and May, and they thus mature for the second great effect in gardening. For the backs of borders we place clumps of Campanula grandis, in its purple and white forms, and for the front lines we use C. persicifolia alba, in three varieties; these are—1, the old form, with shallow bowl-shaped flowers of a creamy-white; 2, the sort we call the "Edge Hall" variety, because we had it thence—it has deeper and more beautifully shaped bells, of bluish-white, a taller habit, and great wealth of bloom, an excellent border plant in every respect; and 3, a variety which was sent us by the late W. Hull, the artist, who found it in a cottager's garden at Cambridge some years ago. This we call the "Brockhurst" variety, as we have considerably improved it, until it is by far the finest of the three. It has a bluish shade of white, with larger and wider bell flowers, and is exceedingly floriferous. The three varieties give a sparkling effect in whites to the borders, and when associated with Roses, Pinks, Delphiniums, Geum coccineum, Lilium umbellatum, and other stately summer flowers of richest colours, the effect is brilliant.

A good many of the others Campanulas are interspersed in the borders. C. macrantha is grand everywhere, growiog 7 feet high, with large clusters of deep purple bells. C. Van Houttei, white and purple; C. nobilis, whose white variety is spotted inside like a Foxglove; C. tenella, C. Hendersoni, C. Hostii, C. celtidifolia, and a great many more are effective border plants. In the wild garden we have masses of C. latifolia, C. glomerata, and other coarse growing varieties. C. pyramidalis we use mostly for cool greenhouse work. It comes later than the rest, and is not so available at the time when it would be most useful outside. All the varieties of C. persicifolia, single and double, are useful for greenhouse work, and exceedingly beautiful when flowered under glass.

On the rockwork there are no more useful plants than the Campanulas. They almost disappear in winter, and leave the way clear for the spring flowers. When these are over they push forward, making the rockery growth fresh again, and they come into bloom just when they are most useful, and almost hide the rockwork with their wealth of flower and leafage. It requires careful consideration where to place each variety, so that erect growers be chosen for some situations, and creeping sorts for others, care being always taken that they be not so planted as to cover up and smother some valuable alpine which may have gone to rest, but which must not be neglected nor overlain. C. carpatica and turbinata are the best known of the dwarfer sorts, and these are frequently misnamed in gardens. It is therefore worth remarking that turbinata carries but one flower on each stalk, and has a trailing habit, putting out runners, and that carpatica is without runners, and carries several flowers on each stalk, and has a less erect habit, and paler coloured flowers. C. Raineri is another Campanula which is seldom supplied true to name by nurserymen, indeed for the last three years C. turbinata has been generally exhibited marked as Raineri at our flower shows, and has thus passed the scrutiny of the judges. C. Raineri is a much dwarfer plant, 4 or 5 inches high, bearing 2 or 3 funnel-shaped blue flowers on each stalk. Its leaves are almost stalkless, and are obovate and slightly serrated. It is a shy grower; we have two varieties of it here, both obtained from Switzerland. C. barbata does exceedingly well with us, coming up strongly from year to year, and increasing in its height under cultivation. It is the quaintest looking of the Campanulas, its bearded flowers, and generally hirsute appearance, never failing to amuse our visitors. The white variety is very pretty when well flowered. C. pulla, another true alpine gem, comes also stronger year after year; it loves a sunny situation, and appears also to like a dry soil amongst boulders. Its large bells of deepest purple are of exquisite shape, and are borne on stalks 3 or 4 inches high, out of all proportion to the large size of the bells. This leads us to the C. rotundifolia type, of which there are very many excellent varieties. C. tenella is the most prolific, forming solid masses of bloom, of the richest blue. C. linifolia, C. soldanellæflora, C. pusilla, C. pumila, blue and white, and least of all C. modesta, are all excellent rockery plants, which form lovely carpets of bell flowers, which cover over the stones. Smaller again is C. Zoysii, a perfect alpine gem, with exquisitely formed bell flowers of tender blue. Another lovely group includes C. garganica, a bicolor with nearly white centre and deeper blue petals; C. Portenschlagiana, a self blue, C. fragilis and C. fragilis hirsuta, C. hederacea, and C. Waldsteiniana. These have all a creeping habit, and are covered with shallow star-like bell flowers of exquisite beauty. An excellent hybrid variety with very bright blue flowers is C. haylodgensis, raised by Mr. Anderson-Henry.

Of C. alpina there appear to be two distinct varieties, one flowering in the early spring (supplied by Worbel), has pale blue flowers, covered with hairs, which it carries stiffly; it grows only 5 or 6 inches high. A second form was given to me by Mr. Moore of Glasnevin, some years ago, and is now (July 10) in full bloom in a thick clump, 12 inches high, with bells of deep purple. The stalks and leaves are slightly tomentose, and the whole plant has a greyish hue which adds to the charm of its purple bell flowers. A very quaint alpine is C. spicata, which bears white bells, the calyx being pointed. Another singular Campanula is Sibthorpii, which has panicles of narrow petalled blue flowers, very distinct from any other variety. There are two Campanulas which flower in the early spring that are exceedingly curious and well worth growing; C. thyrsoidea carries a tall cone of greenish bells, closely set on a stalk like a spike of Indian Corn; the other, C. Vanneri, is just the reverse, having a very loose panicle of large pale lilac drooping bells, borne on branches from a centre stalk, and out of all proportion to the size of the plant.

We have in all about seventy-six species and varieties of Campanulas growing here, so the temptation is great to become prolix on the subject, as each one is worthy of a remark; perhaps some other correspondent will carry the subject further, as it is not nearly exhausted by this notice. In conclusion I would say that all the Campanulas are easily raised from seed, and that I am indebted for many of my best to friends who have kindly forwarded seeds when they have come across a good variety. As the tourist season is at hand it is well to keep this in view, as there are many lovely Campanulas to be found in alpine solitudes, which may thus be transferred to the home garden, as pleasant reminiscences of a summer holiday. My stock of C. barbata reached me in this way from a reader of your journal, who kindly sent the seed to me, although I am a stranger to him. *Wm. Brockbank, Brockhurst, Didsbury.*

The Harebell Campanula.—Now flowering on my rockeries are many varieties under many names of that very polymorphous plant Campanula rotundifolia, some of them collected by me in different parts of England and Wales, some obtained in nurseries, some given by friends who have brought them from the South of Europe. The more I collect the greater the difficulty becomes of drawing a line between extreme types, such as C. rhomboidalis, C. Hostii, C. Scheuchzeri, and some of our own native forms. If this should be read by any one who is making a special study of the Campanula I shall have much pleasure in submitting to him living specimens of my plants. When raised from seed ripened in a garden I find that these Harebells generally reproduce their characters tolerably well, or certainly do not vary more than C. carpatica or C. persicifolia raised under similar conditions, and I have never had a seedling which presented any suspicion of being a hybrid. Hybrid Campanulas are rare. I know of only three in my collection of nearly a hundred named garden

varieties. Two of these were raised by that skilful producer of hybrids, Mr. Anderson-Henry; both of them are barren, and with all the care I can give them have a sickly and weakly look, the leaves being yellow. They are called C. haylodgensis and C. G. F. Wilson. Another hybrid, also of weak constitution and easily lost, though a most ornamental plant in the garden, is named C. Hendersoni. I do not know its history, but should say it was C. carpatica crossed with C. pyramidalis. [It is stated to be a cross between C. turbinata and C. alliariæfolia. Ed.] Its colour is a good purple-blue, but if the same cross could be produced in the pure white which we have both in C. carpatica and C. pyramidalis it would be a very choice addition; but the absence of a white C. Hendersoni proves the difficulty of crossing Campanulas. This very difficulty makes the raising of varieties of C. rotundifolia from seed all the more interesting, because if all the forms can be produced from the offspring of the same plant it may be inferred that they have no right to be considered more than one species. *C. Wolley Dod, Llandudno, July* 9. P.S.—I omitted to mention two very fine hybrid Campanulas known as C. Van Houttei and C. Bourghaltii. Their parentage, and probably their history, are the same, the latter being a "whitish" edition of the former. They are probably C. nobilis crossed with C. Meadia. When at their best they are excellent, but their flowering season is short, though they flower a second time after wet summers; but their constitution seems as strong as that of any true species, and they quite escaped my memory when speaking of the weakness of hybrid Campanulas. *C. Wolley Dod.*

Campanula Hendersoni.—Looking over some of the back numbers of the *Gardeners' Chronicle* I see, p. 502, vol. xviii., Mr. Dod anticipates without, as he says, knowing its history, that this Campanula is the offspring of C. carpatica and C. pyramidalis. I also am unacquainted with its origin, but am inclined to think it is a hybrid between C. turbinata and C. isophylla, since it resembles the former in its tufted habit of growth, and the latter in its semi-arborescent stem, while the flowers would appear intermediate between the two. Be this, however, as it may, I do not think that C. pyramidalis played any part in connection with this plant, it also lacks that amount of vigour which marks this latter species. As Mr. Dod observes, it is one of the best of the genus as a decorative plant; it is a shy seeder, especially in wet seasons, and cuttings of this variety do not root nearly so freely as those of the greater number of Campanulas. *E. Jenkins.* [See note above. Ed.]

SENECIO CONCOLOR.

When writing of Senecio speciosus in the *Gardeners' Chronicle*, 1879, vol. xii., p. 615, I there showed how that species had been mistaken by Harvey, in the *Flora Capensis*, for S. concolor, and that the true S. concolor was a very distinct plant, of which very little was known; recently, however, this species has been introduced into cultivation, and is now in flower at Kew, and although not quite so showy as S. speciosus, is still a very pretty half-hardy herbaceous perennial, very distinct from every other Senecio known to me in having purple ray-florets and white disc-florets.

The plant grows 1—2 feet high; the radical leaves are 4½—7 inches long, ½—1 inch broad, narrow, oblanceolate, subacute, attenuated below into a petiole, margin dentate, with 2—3 minute teeth alternating between each pair of larger teeth, above glabrous to the eye, but under a lens are seen minute scattered hairs; beneath the midrib and veins have minute glandular hairs scattered along them. Flower-stem laxly branched above, terete, striate, minutely glandular-pubescent, distantly leafy, leaves amplexicaul, broadly linear, acute or subacute, auricles roundish, otherwise as in the radical leaves; corymbs laxly 3—5-headed; peduncles ½—2 inches long, sometimes bearing two heads; heads 1¼ inch in diameter; involucre campanulate, rather shorter than the disc-florets, phyllaries 20—22, narrow-linear, glandular-pubescent, and minutely bearded at the spreading tips, furnished at the base with 5—7 outer phyllaries; ray-florets 12—14, mauve-purple, disc-florets 90—100, white; anthers purple, stigmas white. When dried the white disc-florets become brownish, which doubtless caused De Candolle to believe them to have been purple when alive, hence the misleading name S. concolor. A figure of this interesting novelty has been prepared for the *Botanical Magazine. N. E. Brown.*

LILIUMS IN FLOWER.

L. elegans, Thunb.—It is undoubtedly difficult to ascertain which is the typical form of this species, because of the large amount of differentiation exhibited in the bulbs imported from Japan. Undoubtedly this has been much fancied by the Japanese for centuries past, and most likely the vast array of varieties are the result of artificial cross-breeding; it is open to question, I think, as to whether any of the varieties cultivated and imported from the East are truly natural varieties. The whole series undoubtedly pass into the European croceum bulbiferum and davuricum, but the latter have not yet given origin to so many varieties. What is usually regarded as the normal form grows about a foot high, less in very light soils. Leaves scattered, ascending, 3—4 inches long, ½—¾ inch wide, smooth, of firm texture. Flowers usually solitary upon short stout pedicels, perianth segments 3—4 inches long, more or less oblong obtuse, orange-red from spots or slightly dotted. This Lily is often called and sold as L. Thunbergianum, Schul., but the name elegans has priority. I have many varieties now in flower, but I shall only describe the more distinct of them, although all are favourites, and very pretty. Armeniacum: stem about a foot high; flowers solitary or in pairs, rich orange-crimson, free from spots, large and open, with the three inner segments narrower than the outer, a very beautiful form. Alutaceum: stem 6—9 inches high; flowers solitary, large, with broad inner segments, pale apricot colour, the three inner segments dotted. Atrosanguinea: stem 1—1½ foot high; flowers usually solitary, rarely two in number, very open; segments broad, of good substance, deep blood-red, freely spotted, a very effective variety. Atropurpurea: stem 9—12 inches high; flowers solitary or in pairs, rather smaller than many other varieties, of a deep purplish-red colour; this is a comparatively rare variety, and very early. Brevifolium: stem about a foot high, with short leaves; flowers solitary, not so open, segments broad, brick-red, spotted black at the base. Bicolor: stem 12—18 inches high; flowers 1—3 inches in number, cup-shaped, segments broad, especially the inner ones, yellow, and crimson, spotted at the base. Fulgens: stem 1—2 feet high, bearing from 2—6 flowers at the top; perianth open, with narrowish inner segments, colour deep red, spotted. The semi-duplex form known as staminosum is a form of fulgens, and several others rally round it; this variety is the connecting link with L. davuricum. Alice Wilson is a pretty variety just out. Stem 10—15 inches high; flowers solitary, open, segments broad, lemon coloured, freely spotted, and certainly very showy. It is evidently a very rare variety even in Japan, for collectors ask a very high figure for it, and the descriptions given of it, like many others from the same region, are rather misleading. I must refrain from mentioning other well known varieties, which are equally as meritorious as those described, but recommend hardy plant growers to cultivate all the kinds they can command, because of their dwarf habit, large flowers and pleasing colours, and I may add, because they will force right well. It is indeed strange they are not more largely forced, particularly as they can be secured at a very cheap rate. Their merits in this direction are but little known. It would be interesting to know whether the Japanese have crossed the forms of elegans with auratum, speciosum, &c.; some authorities consider such manipulation has been effected, but I fail to discover any very strong evidence in the flowers hitherto examined. Hybrids, in which either auratum or speciosum is well developed, will be most desirable, and undoubtedly will some day surprise us.

L. croceum, Fuchs. — Stems 3—6 feet high, clothed with numerous spreading leaves, not producing bulbils in the axils. Flowers from 6—20, in compound umbels—wild specimens are often collected with solitary flowers; perianth more or less cup-shaped, 2—3 inches long, rather more broad when fully expanded; bright orange. The above brief description will be sufficient to distinguish this the old Orange Lily of cottage gardens, and still one of the most useful of all Lilies. I recently saw some grand clumps more than a yard across, which have not been disturbed for years, and they evidently enjoyed their quietude. It is figured under the name of L. bulbiferum in *Bot. Mag.*, t. 36, with which it is evident Mr. Curtis confused it, because he says, "it varies with and without bulbs on the stalks;" Parkinson called it L. aureum, the gold-red Lily (*Parad.* p. 37).

L. Hansoni, Leichtlin.—A very lovely species, which is nearly past, but one specimen is rather later, from which the following brief description is drawn:—Stem 3—5 feet high, terete smooth, leaves oblanceolate, acute, smooth, whorled and scattered; flowers from 4—25, usually in a lax raceme, with short erect pedicels; segments lanceolate, half an inch or more broad, sharply revolute, bright orange, spotted with purple upon the lower part inside. It is a native of Japan, being first introduced to British gardens by Max Leichtlin, but first discovered by Maximowicz in 1860, and a charming subject it is; the bulbs very much resemble those of L. tigrinum, and might be mistaken for them. It succeeds admirably in the peat bed, but attains its noblest developments in good fibrous loam, peat, and leaf-soil, in a well drained position.

L. monadelphum, Biebs., *Fl. Taur.*, i., 267, *Syn.* L. Szovitzianum, Fisch. and Lull; L. colchicum, Steven; L. Loddigesianum, Schult. fil.—It is more usually known in English gardens under the name of Szovitzianum, mainly, I think, on account of the large quantities sent over to this country by Dr. Regel under that name a few years back; the same authority adopts that name in *Gartenfl.*, t. 436; and I am sure we are largely indebted to Dr. Regel for its abundance in our gardens. Stem 2—6 feet high, stout, scabrous, with numerous ascending narrow lanceolate acute leaves, racemose at the top; flowers from 1—20, or rarely more, nodding. Perianth 2—3½ inches long, of a clear sulphur or pale canary-yellow, slightly tinged with purple, and finely spotted inside, or quite free from spots; but I have known flowers to become immaculate upon plants which have been planted some years, but which produced freely spotted flowers when first planted. Segments oblanceolate, distinctly reflexed about half way. The flowers are powerfully fragrant, and when confined, objectionable; but, for outdoor cultivation, this is one of the most beautiful species introduced, quite hardy, of vigorous growth, and extremely showy. It enjoys a moist, moderately rich, loamy soil, in which it assumes grand development. I have known many instances where bulbs have been planted in peat beds and in Rhododendron beds, where they have flowered freely for two or even three years, but suddenly die away after flowering; but in loamy soils I know at the present time batches standing, which have occupied their present position eight years, and they show no signs of decreasing vigour. It is one of those Lilies which are easily raised from seeds, and the seedlings grow rapidly, in about three years forming flowering bulbs. There is abundant evidence that it dislikes being disturbed; and it is preferable to plant in autumn, or as early as the stems die down.

L. pardalinum, Kellogg, *Proc. Calif. Acad.*, ii., 12.; L. canadense var. pardalinum, Baker, *Journ. Linn. Soc.* 1873, 45; Bolander, *Proc. Calif. Acad.*, 5, 206, &c.—Bulbs rhizomatous, thick, branching. Stem 3—5 feet high. Leaves arranged in whorls, especially near the middle of the stem, from 9—12 leaves in each whorl, more or less lanceolate, acute, shining, 3—5 inches long. Flowers in one-side lax corymb, from 2—6 in number, nodding, especially at the top, with lengthened pedicels. Perianth 2—3 inches long, bright orange-red, lighter near the centre, covered with large purplish-brown spots; segments lanceolate, strongly revolute; anthers red. This grand species and its numerous varieties inhabit wet places along the coast ranges and basal hills of the Sierra Nevada, from central California northwards. There are two or three forms which are now pretty generally cultivated, and which I think present sufficient points of deviation to warrant them being kept separate. Regarding these varieties there is a diversity of opinion, but without doubt those here enumerated may be regarded at least floriculturally distinct.

Var. californicum, Bolander (L. californicum, Lindl., *Flor. Mag.*, t. 33).—Stems not so tall as those of the type. Leaves fewer and smaller, not so regularly whorled. Flowers one to four, larger, and perianth longer, 3—4 inches long; segments broader, the upper half bright scarlet, the lower half very distinctly orange, with very large spots.

Var. pallidifolium, Baker (var. puberulum, hort. Leichtlin).—Taller growing than the type, with very numerous leaves, the upper ones in regular whorls,

the lower ones scattered, oblanceolate, pale whitish-green, very firm and acute; perianth segments about as long as those of the type, paler red, and distinctly yellow at the base.

Var. Bourgæi, Baker.—Leaves very narrow and acute, arranged in regular whorls; flowers rather smaller, with sharply revolute segments, about the same colour as the last. This is altogether a more slender plant, approaching canadense; and I think it s the var. angustifolium, Kellogg, which is said to be synonymous with L. Roezli, Regel, *Gartenfl.* 1870, t. 667; but the materials at hand are insufficient to prove the accurate identity of the latter.

Happily there is no difficulty attending the cultivation of any of these charming Lilies, as they grow most luxuriantly in almost any soil, particularly if the position is damp. I find the typical form and californicum grow most freely in light sandy soil well manured, and as they are not fastidious there is no reason why they should not be planted a hundredfold more than they ever have been, they are so charming in contour and serviceable in a cut state, lasting a long time in water. Twelve days since I cut three spikes with two flowers upon each expanded, and they are still most beautiful, the older flowers just fading. Plant in early autumn, and select strong home-grown bulbs to begin with, and you will not regret the outlay. *Lilium, July 16.*

COLONIAL NOTES.

British Honduras.—With regard to my visit to British Honduras, I was enabled, by the assistance and courtesy of the Government, to travel through all the southern settlements; and while making observations and carrying out the wishes of the local Government I had very favourable opportunities (assisted by the native collector whom I took with me) to make valuable collections of seeds and plants for the public gardens of this island. The chief plants of interest gathered were several species of Palms (Chamædorea, Bactris, Sabal, Chamærops, &c.), which were not previously in the Jamaica gardens; seeds of numerous timber trees and flowering plants; and a valuable collection of decorative Orchids, including the indigenous large growing Vanilla of Central America. This latter has pods much larger and more aromatic than the ordinary Vanilla cultivated in Jamaica, and I am hopeful that it will be largely propagated and distributed in the island.

After returning from the South, I next visited the Central and Western districts of the colony. This country generally (with the exception of a few isolated ranges) rises so very gradually from the sea coast to the interior that points on the western frontier, nearly 100 miles from the coast, are only 300 feet above sea level. This low, gently sloping land is plentifully intersected by deep navigable rivers, which flow slowly towards the sea. Along the banks of these rivers the characteristics of the soil and climate were of a most favourable character, and the vegetation essentially tropical and luxuriant. Passing across the country from one river district to another a section was traversed composed of a poor quartzy soil supporting only a sparse vegetation of Pine (Pitch Pine), evergreen Oaks, and a low shrubby Palm (Chamærops sp.). On further acquaintance with the interior portions of the country I found that the alluvial deposits along the river banks, extending some five or six, or, in some instances, ten miles on each side, contained chiefly the rich valuable soils of the colony. Beyond these were "broken lands" and "Pine ridges." I estimate that fully one-third of the area of the colony is composed of "Pine ridge."

The most important as well as the richest river valley in the colony is that of the Old River, sometimes called the Belize River. This extends in a wide sinuous course from the town of Belize at the sea coast to the western frontier; in the upper portions the valley widens into broad expanses of rich fertile plains, in some cases thirty or forty miles in breadth, covered by Cohune Palm. I carefully examined this district, and worked my way to the frontier station—the Cayo—near which a Coffee plantation has recently been established. With the exception of some six Sugar estates, and the same number of Banana plantations, this Coffee plantation is the only attempt hitherto made to establish a systematic course of culture in the colony, the bulk of the people being employed, and the chief trade of the colony depending upon mahogany and logwood cutting which, when good prices are ruling, are apparently very remunerative industries.

In the forests of the western districts I found the rubber tree of Central America (Castilloa elastica) very abundant. This tree (a member of the Bread-fruit family) is specially suitable for cultivation on account of its preferring a loamy, sandy soil, and being a deep feeder it might be utilised as a shade tree in cultivated areas with great advantage. I spent two days with a rubber gatherer in order to observe the methods for bleeding the trees and preparing the rubber; and I have brought with me botanical specimens of the tree, some seed, as well as a sample of the rubber. I hope soon to make a special report on this tree and its produce. I am, also, making arrangements to procure a large quantity of the seed, when ripe, for distribution amongst Cacao planters in this island. Trees at ten years old yield from 4 lb. to 7 lb. of rubber, which is valued at from 2*s.* 3*d.* to 3*s.* per pound. If carefully managed, the trees can be bled every three or four years.

Another interesting plant found wild in these forests was the indigenous Cacao of Central America; this differed from all kinds I had met previously. An examination of the pods, which are of a golden-yellow colour, led me to the conclusion that this "Tampasco" or "Socunusco" Cacao is the yellow form of the celebrated "Caracas" Cacao. Should such prove to be the case, there is little doubt that this yellow variety will prove as much superior to the red (Caracas) form, as the yellow Forastero does to the red (Trinidad) Cacao.

Many other interesting plants of timber and dye woods, as well as of plants of medicinal and economic value, were met, many of which I have no doubt are capable of being utilised both in British Honduras and in other British possessions. *D. Morris, Director of Public Gardens and Plantations, Jamaica.*

Jamaica: *Cinchona Plantation, Gordon Town.*—Shortly after I sent you the specimens of "Native Bread," so kindly noted at p. 472, vol. xix., I placed some of them in a pot of ordinary potting mould, and I have discovered that they are covered with mycelium, issuing from the tuber in a similar form to the roots of a Gloxinia, and on the side where they are somewhat indented, there is issuing a growth in appearance similar to sketch. This may be only a stronger mycelium growth, and as yet it is hardly enough developed to judge or hazard an opinion as to what it may become. I have sketched the size of the tuber as accurately as possible. On examining a tuber which had been broken, I find it to be covered on the broken part with a growth very similar to the substance of a Polyporus, which, though quite white when uncovered, became in a few minutes of a yellow tint. The tubers are placed for observation in a temperature under glass from 65° to 75° Fahr. I shall watch with much interest the further growth of the mycelium, and should you desire it, will inform you of the result of the observations, and I would willingly undertake to perform any experiments you might suggest to further my research. *J. Hart, Superintendent, Government Cinchona Plantation.*

COTTON SEED OIL.

It is not many years since that cotton-seed was almost a waste product, now it is largely used for the expression of oil, as will be seen from the following notes from a report on the industries of the State of Georgia. Year by year the great commercial value of cotton-seed has been gradually developed. A great authority has stated that if Cotton could be grown in the Northern States, it would be grown if only for the value of the seed alone. It yields an oil which is widely used as a substitute for lard, and is largely sold for exportation to France and Italy for the adulteration of olive-oil, while the cake finds a ready sale at home and abroad as food for cattle and as a fertiliser. For every bale of Cotton grown there is half a ton of seed, and if the crop of the present season yields but 6,500,000 bales, of which there can be no reasonable doubt, there will be 3,250,000 tons of cotton-seed. The oil-mills pay 12 dols. a ton for seed delivered at a railroad station or a river landing. Planters ordinarily put aside from 40 to 50 per cent. of the seed for planting; this would leave 1,630,000 tons as the marketable crop of the year, but as many planters live far away from railroad stations or navigable rivers, and the transportation facilities of the South are limited, 12 dols. per ton to them would leave no profit, and the seed is therefore used as a fertiliser, so that the actual quantity placed on sale may be put down at less than 500,000 tons. It is estimated that a ton of seed yields from 28 to 32 gallons of crude oil, worth 45 cents a gallon; 750 lb. of oilcake, worth from 22 dols. to 24 dols. a ton, and about 20 lb. of lint-cotton, worth 6 cents per pound. The hulls furnish more than sufficient fuel for the mills. The demand for the oil and the cake has grown enormously during the past few years. Until recently the demand was almost entirely from Europe, but during the past year the New England States alone took 15,000 tons of cotton-seed meal (the oil-cake ground), and the lard-packers of the West are now largely using the refined oil, which is worth about 60 cents per gallon, to mix with lard, which sells for 12 cents per pound or 90 cents per gallon. The prejudice against the use of the oil for domestic purposes is fast disappearing, and refiners now sell it largely for cooking purposes. In the New England States the cotton-seed meal is used as cattle food, the cattle being penned, and the manure utilised as a fertiliser; while in the South it is in most instances applied direct to the ground, or in combination with other fertilisers. The crop of cotton-seed of this State for the year 1882 is estimated at 450,000 tons.

The Apiary.

Drumming of Bees.—In contradistinction to the inference drawn by Mr. Brown in his interesting note on this subject is the fact that, under no circumstances in what may be called their ordinary life, have I heard or read of bees being affected by noise or music, and it is only when swarming that the practice of drumming is adopted. Were bees so amenable to sweet harmonies, or even discords, scores of opportunities have been offered them in their ordinary life to manifest their likes or dislikes. As, for instance, here thousands of bees pass daily close by open windows, through which often come the sweet tones of a piano, and the not unmelodious harmonies of a female voice, but never a one has been attracted from its ordinary avocations in consequence. An old but very commonplace poet once sang—

"Pretty Polly ran to see pretty chicks the hen had hatched,
As she went a saucy bee Polly's honeyed beauties watched;"

and because the impudent insect sought to sip sweet nectar from pretty Polly's honeyed lips, the little maid was stung, but never a word was said about the sweet melody of Polly's voice charming the bees to listen. Moths can hardly be accepted as evidence of the habits or tastes of bees. Moths are foolish, fragile, fluttering follies in insect form; but bees are staid, sober creatures, insect models to humanity, with the ant for the gay, the idle, and the sluggard. Bees are sometimes credited with having fond appreciation for colours, but it is of a selfish, grovelling kind. The creatures have no souls above spoil. They seek for bricks and mortar wherewith to build their houses, and for food for themselves and young, but as to developing a love for harmony, I fear we might as reasonably look for it in that other and even more grovelling insect whose existence seems spent solely in providing in summer the necessary sustenance for the coming winter.

It is somewhat remarkable, but it is the fact, that all our most able apiarians regard the drumming of swarms as useless and absurd. I have been particularly struck with the fact that in that admirable little book entitled *Modern Bee-keeping*, a handbook specially prepared for cottagers by the British Bee-keepers' Association, and which is replete with valuable information, the subject of drumming is entirely ignored, by which I infer that the Association regards the practice as too utterly ridiculous and useless to be worthy a line in the book. That the drumming may be based on the assumption that it gives a title to the ownership of the bees swarming, I admit, but it is certain that such an interpretation is not generally accepted, and almost universally where practised it is so because there exists the belief that the bees are influenced by the noise—always discordant—to remain

and settle close by. The origin of the practice may be worthy of antiquarian research, but with the skilled bee-keeper it is as dead and defunct as suffocation by sulphuration and other abominable practices of the ancient apiarian, who, compared with his modern compeer, knew as much about bees as an old quack doctor did about modern medicine. *A. D.*

BROCKHURST, DIDSBURY.

The view in Mr. Brockbank's garden given on p. 81 is taken above the large rockery, which has been formed of large blocks of red sandstone, arranged like a natural outcrop, as seen at Alderley Edge. The blocks are so arranged as to form terraced paths, with steps to obtain access to all parts of the rockery; the top has a partly level surface, and is overlaid with worn and rounded blocks of sandstone, like the summit of a hill. The blocks are arranged to form deep crevices and hollows, in which are placed Primulas, Aquilegias, Saxifragas, Narcissuses, and a large collection of alpines. Shelter is obtained by small Rhododendrons, Azaleas, and evergreen shrubs, as this part is much exposed to the north wind. The limestone rockery is on the upper terrace of the slopes, with a south and west aspect. It is formed of large blocks of Permian limestone, some of them of a ton weight. This stone is of a pink shade of colour. The stones were found in digging for some sewage works at Levensholme, 2 miles distant, and occurred under a covering of boulder clay, 20 feet deep; many of the stones are ice-worn, and also contain many fossils. The rockery has been arranged in three ledges, so as to represent as nearly as possible an outcrop of limestone, and at the same time to make it suitable for the growth of plants. It was designed for Hellebores and Campanulas; the large blocks were kept apart, and large clumps of Hellebores nestle in the spaces, obtaining what they want—shelter and moisture. Campanulas are planted to hang over the stones—the taller growing species are behind the Hellebores, and tower over the stones when they are in bloom. Space has been left in each of the terraces for small alpines such as Hepaticas, Anemones, the Edelweiss, Aster alpinus, Phyteumas, Dianthuses, Saxifragas, of which there is a large collection; Sedums, Aquilegias, Iberises, Alliums, and other plants which require shelter and limestone soil. The new Pernettyas are placed between the blocks, filling up the spaces with pretty berry-bearing evergreens, and yet not encumbering the ground space to the exclusion of alpine plants. The border in front contains large clumps of Narcissus, such as Horsfieldii, many of the larger Lilies, Leucojums, Francoas, Veratrums, Geums, Anthericums, Pyrethrums, Aquilegias, and others of the more stately growing border plants. The slope below the border is covered with Rhododendrons, tall standard Cherry trees being planted amongst them, which form a pretty feature in the spring. The border is gay with Tritomas and Phloxes in the autumn.

Fig. 13.—View in Mr. Brockbank's Garden at Brockhurst, Didsbury.

GAZANIA LONGISCAPA.

This is the correct name of the plant that has been distributed in gardens under the names of Gazania pinnata var. integrifolia, and Gazaniopsis stenophylla, neither of which have any existence except in gardens, and the sooner they are discarded for the correct one of G. longiscapa the better.

It is a hardy herbaceous perennial, having linear entire leaves (sometimes one or two pinnatisect leaves are mingled with them), 6 to 9 inches long, green and glabrous above, white-tomentose beneath, except the midrib, which is green. The flower scapes are as long or longer than the leaves, and quite glabrous; the involucre is glabrous, with long, very acuminate teeth as long as the tube, the outer ones sparsely setulose; the tube is intruse at the base, and the edge of the intrusion is acute; flower-heads showy, 2 inches in diameter, bright yellow, the ray-florets dull, dark greenish beneath.

G. longiscapa is readily distinguished from G. pinnata by the glabrous flower-scape, involucre, and upper surface of the leaves; whilst in G. pinnata the flower-scape is always, and the involucre and leaves usually hispid. *N. E. Brown.*

Orchid Notes and Gleanings.

Dendrobium Dearei, Rchb. f.—It is but now that I fully understand the recent enthusiasm for this novelty. Mr. W. Lee, Downside, Leatherhead, has kindly sent me a grand inflorescence of nine—I believe fully developed—flowers, equal to those of a good Dendrobium infundibulum, bearing Saxon colours, white and green. The gorgeous triquetrous ovaries, with their stalks, sepals, broad petals, lip, column, all are of the finest and most chaste white. The lip has a transverse green zone, and inside are a few reddish lines over certain nerves. The anther is partly white, partly green; there is some green on the front side of the column, over the stigmatic hollow, and at the base, and then there are a few brown spots on the area under the stigmatic hollow. Colonel Deare must be very proud of his fine discovery. The shrewdest thing he did was to send a sketch and dried flowers; had this not been done, we may doubt whether the plant would now bear his name. Just one horse's length behind the Colonel arrived the collectors of three firms, each delighting in the possession of the same plant. The grand inflorescence was quite fresh, though it had been in full flower a fortnight, as Mr. W. Lee informed me. *H. G. Rchb. f.*

—— Dendrobium Dearei is now flowering here in great masses of bloom, beautiful in the extreme. All lovers of beautiful white flowers should grow this in quantity, for it is quite easy of cultivation, and at present very moderate in price. One of its great recommendations is the long time the flower lasts in full beauty without fading. I believe that I was the first to flower D. Dearei in this country (see *Gardeners' Chronicle* of January 13, 1883). The raceme then, of seven flowers, lasted for nine or ten weeks. This, however, appears to be the natural time for the plant to bloom, and probably we may find that it may not last so long in the heat of July as in the cooler period of January. *William Lee, Downside, Leatherhead.*

—— We had a plant in flower here in the last week in April, and have had some in flower ever since. We have at present five plants very charming, some carrying six racemes each. I send you a raceme. [A very fine one. Ed.]. *W. Davies, Woolton Wood, Liverpool.* [A plant in Messrs. Veitch's nursery has produced a branching spike of flowers, the first we have seen. Ed.]

Vanda teres.—When at Didsbury, a few months ago, I saw Mr. Broome's plants coming into flower, and truly handsome specimens they were. I did not ascertain whether the roots were kept dry in winter; perhaps Mr. Broome will kindly state whether this is so. I have certain proof that keeping them dry from November until March does not in the least injure their constitution; they flower well under that treatment, but refuse to do so when kept growing during winter by moisture at the roots. Referring again to Mr. James' note at p. 14, I now understand that the plant he referred to was kept dry at the roots in winter, and near the glass. It is drying the plants in summer that causes the mischief. This, I know, is sometimes done in error. There is no other Orchid with which I am acquainted that will stand so much drying at the roots during winter without injury. Our plants make growths 18 inches and 2 feet in a season, and flower every year, and they do not get any water from November until March. *J. Douglas.*

Cypripedium Culture.—In answer to "A. R.'s" inquiry (p. 46), I may say that I have grown C. macranthum for five or six years, and it has flowered with me every year, increasing slowly. I procured the plant from the Berlin Botanic Gardens, where I saw the finest specimen of this species I have ever seen, growing in the open air in almost pure sand, with some admixture of leaf-mould, under the partial shade of bushes. As far as my experience goes, the nature of the soil is not nearly so important a matter in the cultivation of this and many other delicate plants as the climate and condition of the soil as to moisture at different seasons. For instance, Cephalanthera rubra, which is one of our rarest and prettiest native Orchids, grows in one or two localities in Gloucestershire, under the deepest shade of Beech trees, in a soil composed of oolitic gravel covered with Beech leaf-mould. In Switzerland I found it on an open stony pasture, covered with herbage, probably an old moraine. This summer I found it abundant, and much more luxuriant, in a Pine forest near Mayence, in Germany, in pure sand mixed with the scanty vegetable mould of decayed Pine leaves. C. Calceolus certainly does not require stiff loamy soil mixed with limestone. With me it has grown for years on a peaty soil which suits C. spectabile and C. pubescens. Sand is certainly one of the best soils for growing many delicate bulbs and plants, but it must not be constantly saturated in autumn and winter, and it must be enriched artificially with leaf-mould or very old manure if you wish to have luxuriant growth. In De Graaff's nursery at Leyden, where many of the rarest and most difficult to manage of bulbs and herbaceous plants are grown with great success, the soil is little more than sand, which has become rich by long cultivation and manuring; and so it is with many of the best Belgian and German gardens. *H. J. Elwes.*

Cattleya superba splendens.—I send you a spike of Cattleya superba splendens which has seven flowers on the spike. Is it not an unusual number? We frequently have four flowers, but I do not remember having seen so many on a spike before. Last season it flowered for the first time, and then it had only four blooms on the spike. *Thomas Denny.* [A charming spike of a variety quite equal in colour to Mr. Bockett's, which was certificated at South Kensington last week. Ed.]

The Flower Garden.

The warm and showery weather we have experienced of late has been very advantageous to the flower garden. The growth of the plants has been unusually rapid and satisfactory, and the beds generally are not only well furnished, but they also present a more gay appearance than is usually seen before the month of August. With this quick growth they will of course require more frequent attention in respect to cultivation than is the case in ordinary seasons, else they will soon grow beyond their proper limits, and become unsightly. In respect to the beds planted on the "carpet system" the chief work now lies in maintaining the plants which form the different patterns in their exact shape, not allowing a single shoot or leaf to grow beyond its allotted space, nor in any other way to interfere with the proper outline of the design which they are intended to pourtray. This cannot be accomplished except by frequent pinching, clipping, pegging, or tying, according to the habit or nature of the plant, and the position it occupies in the bed. In very elaborate designs this work will be greatly facilitated if some definite and accurate mark or guide be provided at the angle of each section of the pattern. For this purpose small wooden stakes should be inserted at the different angles; or if small lengths of thin slate be inserted so as to indicate the various outlines they will be even more preferable, and less likely to offend the eye. With such an arrangement the various lines are readily discerned, and the work of trimming is made comparatively easy. Where the ordinary plants only are used either in masses or ribbons such exactness in training is not required, nor is it desirable. The first object should be to furnish every part of the bed, and at the same time to secure them from breakage either by tying or pegging, and then allow them a certain amount of liberty without permitting any undue crowding. In those gardens where a combination of these systems of planting is adopted, where the beds consist of a judicious selection of herbaceous plants, bulbs and annuals intermixed with the ordinary bedding plants, much greater care and forethought is required, not only in training so as to prevent too great irregularity, but also to prevent any unseemly blanks occurring so as to mar that which would otherwise be an effective display. To this end it is necessary to keep in reserve, and ready for transplanting when required, a number of plants to fill in the vacancies as they occur. Amongst the most suitable subjects for this purpose are Pelargoniums, Balsams, Stocks, Asters, Petunias, Nasturtiums, Phlox, Mimulus, Pansies, Violas, Lilies, Gladiolus, and Tigridias. As the early bulbs and other plants go out of bloom their places can easily be filled by the most suitable plants and the beds be kept gay for a great length of time. By this system it is true there is not that even and uniform appearance presented by carpet beds, nor is there at any time that blaze of colour to which we have been so long accustomed; on the other hand there is an ever changing, ever charming variety in outline and colour which cannot fail to please, with just sufficient relief at all times to prevent the garden being gaudy or monotonous; and where the beds are not too small nor too strictly geometrical in shape many of the larger growing autumn flowering herbaceous plants may be introduced so as to prolong the blooming season to a later period of the year than is possible by any other system of bedding.

Roses.—The time for propagating, either by cuttings or budding, has now arrived, and no time should be lost in performing these operations. Propagation by cuttings has, during the last few destructive winters, proved most serviceable, as plants on their own roots have, in many instances, proved to be much hardier than budded plants, and when well cultivated produce blooms quite equal in size and quality to those budded on either the Dog Rose or Manetti. In propagating by cuttings, a few things require special attention. The shoots must be perfectly ripe, they must be cut off at the heel or joint, and the cuttings must be planted in sandy loam under a hand-light, in a moderately shaded and moist situation, where they should be allowed to remain undisturbed until they have formed roots an inch long. By strictly following these rules scarcely a cutting will fail, whether they belong to either the hardy perpetual, Tea or Noisette sections. In budding Roses care should be taken to catch the exact time when the bark of the stock runs freely, also to choose fine weather for the operation, as rain, if allowed to enter with the bud, often causes fermentation, and failure is the result. The larger the bark attached to the bud is in reason the better, as it is not afterwards so easily blown out by storms. In tying in the bud, the cotton or worsted should not be too fine, nor should it be tied too closely, so as to entirely exclude light and air from the bud. When the bud has fairly united with the stock the tying material should be loosened so as to allow the bud and stock to swell properly. Great injury is often done by allowing the bandages to remain on too long and too tight, whereby the free circulation of the sap is impeded.

Carnations, Picotees, and Pinks.—Now is the proper time to propagate these, either by cuttings or layers. If by cuttings or pipings, a hand-light should be placed on a very moderate hot-bed, and the cuttings planted in very sandy light soil. If by layers, the most forward and best ripened growths should be selected, and in preparing the layer the cut should be made low down and more than half way through the shoot. It should then be pegged firmly into the soil, which should have a good portion of sand mixed with it. By propagating at this time the layers become well rooted and thoroughly established before the approach of winter, and are not so liable to damp off as when propagated later in the season. Wireworm, the chief enemy of the Dianthus, should be well looked after, and should it attack them pieces of Carrot or Potato placed just under the surface soil near the plants will soon attract them, when they may easily be destroyed. *T. S. C.*

Melons and Cucumbers.

Melons.—To plants having their roots growing in a somewhat confined space, and which are now swelling off their fruits, give liberal and frequent supplies of liquid manure in a weak state, but avoid wetting the fruits as much as possible, as this, in conjunction with imperfect ventilation, would cause them to crack. Immediately after an application of liquid manure wash the foliage over with clear water. Put a little air on about half-past seven in the morning, and gradually add to it as the power of the sun increases. Shut up at from half-past three to four o'clock—a little earlier or later according to the state of the weather and the situation of the houses—with plenty of atmospheric moisture on bright days. In structures where Melons are approaching maturity increase the ventilation with a corresponding decrease in the atmospheric moisture of the houses, and apply a little fire-heat at night to finish off the flavouring and colouring of the fruits. In succession-houses, where the fruits have set too thickly thin them out to three or four (according to the strength of the plants and variety) so soon as it can be ascertained

which are going to swell-off the best and most even-shaped fruit, which should be distributed regularly over the plants. Place some pieces of wood or slate in a sloping position to prevent the lodgment of water, to keep the fruit off the damp surface, which would disfigure them. Complete the earthing-up of late plantings, and see that the same have proper attention in the way of thinning and stopping the shoots, as also the setting of the fruit on bright days when the pollen is dry. *H. W. Ward.*

Cucumbers.—These should be attended to in the way of stopping and thinning the shoots two or three times a week. The growths should be kept well thinned out, by which means the wood will become consolidated and prolific. It is a fact well known to practical gardeners, that Cucumber plants can be kept producing fruit all the year through by judicious cropping, and by having the old wood regularly cut out when practicable, and sufficient young laid in to replace it, with occasional top-dressings and frequent and liberal applications of diluted liquid manure to the roots; this, with a suitable temperature and genial atmospheric moisture, can easily be accomplished. Of course, where there is a successional-house, plants raised from seed next month would be preferable for winter work, inasmuch as they would be more vigorous growing, but where there is only one house, and it is not desirable to have a break in the supply of fruit while a fresh batch of plants are being established, the above plan may be had recourse to with advantage. *H. W. Ward, Longford Castle Gardens.*

Plants and their Culture.

Stove Climbing Plants. — Stephanotis is one of the most useful for the production of a supply of flowers for cut purposes, and now that such a great demand is made upon the resources of many establishments in this direction, it behoves those in charge to do their best to attain the desired end. The planting-out system is undoubtedly the best for the Stephanotis to secure a good crop of bloom. Many a bare roof of a stove house might with advantage be partially covered with this exotic. Those who possess large pot plants could turn them to a good account in this manner instead of keeping them trained to a formal trellis. They will thrive well in equal proportions of fibrous loam and peat, allowing a good amount of drainage. Plants that have flowered this season might now be turned out in this way, pruning them moderately; if in a congenial temperature they will soon start into growth again. To secure an early crop of flowers from plants that are permanently established in an open border or bed it is necessary to prune these also; if the plant is overgrown and occupying its allotted space somewhat severe cutting back will do no harm—rather the reverse. Keep the plant dry at the root till fresh growth commences, then give every encouragement for it to perfect the same as quickly as possible. On the shoots thus made the flower trusses will be partially pushed forward this autumn, and can then be easily had in flower by the end of the following March. Ipomœa Horsfalliæ must also be induced to make a good growth now for next winter's bloom; it will well repay the attention bestowed upon it, although the flowers last but one day. Jasminum gracillimum should also now be growing vigorously; every strong shoot now made will in the autumn put forth lateral growths freely that will have terminals with corymbs of sweet-scented flowers. We think this plant can be grown in a temperate-house, and intend to try it in this way ourselves before long. Two of the best of the Passifloras are P. princeps and P. kermesina; these will both do well in pots, and look fine when draped from the roof. Spider will attack them at this season of the year; a vigorous use of the syringe will, however, keep this enemy in check. P. quadrangularis requires more room, and is best adapted for a lofty house. We have it now in a temperate-house, making a good growth, which will, no doubt, flower in the autumn. Hibiscus schizopetalus seems to be well adapted for running up under a rafter; we are now training ours in this manner, expecting to see its flowers displayed to better advantage. Allamandas, Bougainvilleas, and Clerodendrons need no remarks now, having been lately treated upon. Jasminum grandiflorum, though classed as a greenhouse plant, is best grown in a temperate-house. It should now be in good active growth; this ought to be trained thinly near the glass; take care to keep the points intact, as nearly every one will yield flower in the autumn, when they are most useful. Tacsonia insignis is best grown in the same house, where it should now be a grand object in bloom. It will impart an amount of shade that will well suit some plants underneath it at this time of the year. Bignonia venusta will make an excellent companion for the foregoing, to flower in the winter.

Conservatory Climbers. — Nothing gives a graceful effect in this kind of structure better than an assorted collection of climbing plants. We are scarcely ever without one or more in good bloom, commencing early in the season with Chorozema Chandleri, which cannot be surpassed in the early spring months. Those who possess a good pot specimen of this or any other good kind will do wisely to turn it out in a well prepared border at once, and thereby secure a good foundation for the coming spring. Habrothamnus elegans, an almost perpetual bloomer, gives a good display in succession to the Chorozema. Where overgrown plants of any Habrothamnus exist, now is a good time to give them a good spurring-in, to secure a fresh break in time to flower in winter after the Lapageria ceases, which latter plant is now coming nicely into bloom. Tacsonia exoniensis is this season flowering well with us for the first time. Formerly we confined it exclusively to its own arch, and allowed it to festoon the same somewhat thickly; this treatment was not, however, suited to its blooming qualities. Last year we took some shoots of good strength and trained them horizontally; laterals from these strong growths are now flowering freely. We had nearly condemned this fine climber, having failed previously for several seasons; now we intend to let it ramble on the roof, keeping each main shoot a good distance apart. Tacsonia Van Volxemi is doing well under the same treatment. Over-grown plants of Trachelospermum (Rhynchospermum) jasminoides may be turned to good account as conservatory climbers if they have hitherto been grown as pot specimens. In a large conservatory with a good expanse of roof Acacia dealbata is a fine subject, so also is the now seldom seen Mandevilla suaveolens. No better time of the year than the present could be chosen to proceed with planting conservatory climbers. This structure should not, or at least ought not, to be so crowded, as early in the season better opportunity is thereby afforded to give fresh planted stock more light and air for a fair start. It often happens that in the arrangement of a conservatory due regard is not had to the convenience of planting out climbers. The best job must, however, be made in each individual case. If the space at command is limited, plant those only that want less root-room; but in all cases see that such permanent subjects as these have soil only of the best description. Be careful to introduce no insect pests—mealy-bug in particular—into a house newly planted; too much caution in regard to this cannot possibly be exercised. Carelessness in respect of this important point has undoubtedly caused climbing plants to be less popular, and consequently not so largely used as they deserve to be in every house devoted to plant culture. Where mealy-bug exists a thorough clean out will be far the cheapest in the end with climbing plants, and this process can perhaps be better seen to during the next few weeks than it could have been for some months past. The saving in future labour will amply compensate for any extra time expended in this direction at once. *James Hudson, Gunnersbury House, Acton, W., July 17.*

Peaches and Nectarines.

Keep early houses as cool as possible by throwing open the ventilators and doors to the fullest extent, by night as well as by day, and keep the foliage clean by syringing or washing with the hose twice daily. If the lights on the roof are movable, they may be taken off altogether about the end of this month, or in the beginning of August, to give the trees the benefit of the autumn sun, rain and dews. Pinch-in laterals, and stop or take out altogether any strong gross shoots that are taking the lead. Succession-houses are coming on very fast and close on the heels of each other, and in fact early varieties in the succession-house this season are ripe before the later varieties in the preceding house are over. Ventilate freely, and carry out the directions already given as to exposing the fruit to the influence of the sun and light, to get them high coloured and fine flavoured. Tie-in shoots in late houses, keeping them somewhat thinner than in the earlier houses, in order to get the wood well ripened. Stop all laterals and gross shoots or any terminal shoots that will have to be taken out after the fruit is gathered. *J. Wallis, Keele Gardens, July 17.*

The Kitchen Garden.

Early Potatos which are ripe may now be dug, and the finest tubers be carried to the root-room, and the medium sized ones spread out in the sun to green before they are stored away on the shelves. I would most strongly impress upon growers the necessity of not choosing small or inferior seed for next year. This, on the score of economy, is I know oftentimes done, and the grower wonders why his crop is not satisfactory. The late red Celery should now be planted. If the ground is in good heart, simply draw a drill on the surface as if for Peas, and into this plant the crop, but if the soil is poor stretch a line, and about a foot wide, dig in a good coating of rich rotten dung; but in either case plant on the surface, or nearly so—simply a shallow drill—to enable one to ultimately help the plant if necessary with liquid manure. This surface planting will enable the plants to stand the wintry weather better. The very earliest crop ought now to be gone over, and have any side shoots removed, and after a good and final watering have a little soil put to it. This is the best month in all the year to dry herbs. Such as Mint, Marjoram, Summer Savory, Sage, and the king of herbs, Sweet Basil, all now coming into blossom should be cut off and dried for winter use. Various plans are recommended, but to my mind the best is the screen in front of the kitchen fire. Here the process is begun and finished off in a day, and then the herbs are put away in tin boxes or wide-mouthed glass bottles, and corked up and kept in a dry cupboard for winter use. The full flavour of the herb is thus secured and retained. The Mushroom-house proper will now be empty; therefore choose a dull day, close every shutter and window, get a large shovel of live coal, place this in the middle of the floor, and throw on a good handful or two of sulphur, shut the door, and fasten it up. This will kill every insect, and, after being a day shut up, the house may be swept out and whitewashed in readiness for the autumn beds being got ready.

As fast as Peas and Beans are cleared off the ground let good breadths of Broccoli be planted. As we pointed out in our last the ground need not be dug; it will be moister than if dug at this time of the year, and if the plants have been properly prepared in the pricking out ground they will be stocky, and will not feel the move so very much; besides, in undug ground the growth is not so gross, consequently the entire crop stands the winter better. On north borders we plant dwarf Scotch Kale and Lapland Kale, as these two withstand the severest winters, and come in most useful in the spring, when other Greens are running to seed. Oftentimes an unexpected frost cuts off the entire crop of French Beans in a single night, so that one must now, in frames or pits, make another sowing of some dwarf approved kind in an open situation; the soil need not be very rich, and the lights should not be put on till the danger of frost is apprehended; the breadth sown must entirely depend upon the family. Where Vegetable Marrows have been well managed, they are now in full bearing; look over the bed daily, and cut all large enough for use because one fruit forming seed will run away with more sap from the plant than fifty young ones will. Tomatos will still require weekly attendance in removing superfluous shoots. The ripe fruit should be gathered from those under glass, and if not wanted immediately should be laid on a dry shelf and used in the rotation in which they are gathered. Plant out successional Endive on rather light soil and in a warm situation. Make the principal sowing of Cabbage in an open space to stand the winter, and in late localities the last crop of Turnips; the best to stand the winter is Chirk Castle Black Stone and Orange Jelly; another handsome and sweet-flavoured kind is Russian Cup—this, like the last mentioned, is a yellow-fleshed kind, and so not relished by some, but for what reason I never could ascertain. Pull and store away in a dry place Potatos, Onions, Garlic, and Shallots, and once again look over the Onion beds and remove any bulbs where they are too thick. A few more plants of Autumn Giant Cauliflower may be planted out for very late use. Sow again on a north border Cos and Cabbage Lettuce for autumn use, and keep the hoe going amongst crops; keep weeds under and let all be kept neat and tidy. *J. Rust, Eridge Castle, Sussex.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	July 24	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M. National Carnation and Picotee Society's Show at South Kensington.
WEDNESDAY,	July 25	Newcastle-upon-Tyne Horticultural Society's Show (three days). Sale of Imported Orchids, Stove Plants, &c., at Stevens' Rooms.
THURSDAY,	July 26	Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY,	July 27	Sale of Imported Orchids, at Protheroe & Morris' Rooms.

THE remarks lately made in our columns as to the uselessness of most of the collections of WILD FLOWERS exhibited at flower shows will, we are sure, meet with the approval of all who are concerned either with the education or the amusements of the coming generation. The collections of wild plants, living and dried, to be seen at flower shows are for the most part absolutely useless, and they may even be mischievous. Of course, the children who compete for these prizes are not to blame, the fault lies with the framers of the schedules. To say the truth, a rather lengthened experience has shown us that in the great majority of cases neither prize offerers, nor prize winners, neither committee nor judges, have any but the vaguest and most superficial knowledge of the plants exhibited, and of the lessons they might convey if properly studied. We know of striking exceptions, of course, but on the whole the case is as we have put it. This being so, what possible good can be expected to accrue from such exhibitions?

Where instruction has been afforded beforehand, as to the appearance, relationships, and properties of our common weeds the case is different, but even then the tendency is to foster mere collecting and name-giving without other more valuable information. Collecting of itself is one of the most innocent and delightful of occupations—we have nothing but good to say of it, but to be of any value beyond affording recreation and wholesome exercise, it must be associated with intelligent observation. The business of the teacher is to foster and direct this faculty, which is usually very keen in children. The teacher therefore should endeavour to interest his pupil not merely by encouraging large collections and by taxing the memory of the child with hard words, but by inducing him to observe and by demonstrating to him some or other of the infinite number of points of interest connected with the mode of growth, the habitat, the structure of the flower and its relation to insects visitors, welcome or unwelcome, &c.

With the numerous works treating of the life-history of plants now within easy reach there is no excuse for continuing in the old grooves and confining attention principally to hard words and their explanations. People who go on in this way will never make PETER BELL any better than he is. A Primrose will be for ever to him a Primrose, or at most "Primula vulgaris." But to the botanist a Primrose is not as the profane and unreflecting—and even some poets, who ought to know better—think, merely a gamopetalous dicotyledon, with certain peculiarities of floral organisation, but it is a creation instinct with life, full of exquisite beauty, endowed with the most marvellous power of fulfilling its office in the world, adapting itself to circumstances, scheming and contriving, we might almost say, how best to bear itself in the struggle for life, against the elements, and against the competition of rivals and associates. Its relationships are as intricate as any genealogist could desire; to work out its pedigree would be to unravel a thousand mysteries, and bring to light a thousand points of interest. Any weed affords means and opportunity for studying these matters. To do so even in the slightest degree is, *pro tanto*, to investigate truth, than which no purer, higher pursuit can be longed for. Instead, therefore, of indiscriminate collecting the child should be taught and shown something of the structure and life-history of the plant; its interest should be aroused by information as to how the plant grows, what it does, why and how. A few seedlings grown in a pot, a Hyacinth in a vase, a Scarlet Runner climbing up a stick, a Snapdragon flower—a hundred of the commonest things may be made the means of exciting lively interest and of obtaining instruction far more valuable than any that can be had by bunching weeds in a pickle bottle at a flower show.

For those more advanced in years and in knowledge, who do not care for mere collecting, or who desire to add to it some more profitable mental occupation, there is abundant scope which it is hardly necessary to particularise, but we may give one illustration from a recent lecture of Mr. BAKER on the "Geography of British Plants." Alluding to the question as to the propriety of attributing specific or varietal rank only to certain plants Mr. BAKER adds:—

"There is a wide field here for collecting and correlating facts, many of them of a kind that can be investigated suitably by a local country botanist with limited leisure. For instance, it would be quite within the scope of any one with a small garden to raise from seed for a few years some of the numerous varieties of Viola tricolor and its sub-species arvensis, lutea, and Curtisii, and keep a record of what happened; or to bring half-a-dozen of the native Epilobia or Rumices into his garden, and make experiments in hybridising them. Work of this kind can be done far better in a quiet little garden in the country than in a large establishment like Cambridge or Kew. There is no one now that I know of who has any large number of these 'critical' British plants under cultivation, like Mr. WATSON used to have twenty years ago in his small garden at Thames Ditton.

"In accounting for the variation of our more variable specific types, I do not think that the Darwinian principle of the propagation by natural selection of characters that aid the organism in the struggle for existence will carry us very far. In Rubus, for instance, in which of all our indigenous generic types we get the widest range of variation between remote extremes without any clear line of demarcation, one can scarcely believe that any varietal or sub-specific type (a few hybrids like R. pseudoidæus, and manifest degradations like R. Leesii excepted) possesses any character or capacity that, in the struggle for life, will give it an advantage over any other."

Another point which botanists and students who think that British botany has been so thoroughly worked out that it can now yield no further points of interest, is the distribution of plants according to the character of the soil. On this point we may again refer to what Mr. BAKER has to say:—

"As regards the minute circumstances connected with soil that affect species-distribution, gardeners could teach botanists a great deal, if they would keep their eyes open in the routine of their daily work. The most valuable recent contribution to our knowledge in this direction is KERNER'S *Cultur der Alpenpflanzen*, published at Innsbruck in 1864, of which an excellent abstract in English appeared in the number of Mr. ROBINSON'S periodical called *The Garden*, for December 10, 1881. KERNER'S observations refer to the plants of the Alps of Central Europe, and in the first place he classifies the species into three groups, according to the amount of humus, or vegetable matter, which they need. In the first group, those that can grow in a soil poor in humus, he places the alpine Crucifers, Crassulaceæ, Alsines, Silenes, and most of the Compositæ. In the second group, composed of species that grow well on soil composed of vegetable humus and inorganic detritus mixed in equal proportions, he places the Potentillas, Primulas, Gentians, Orchises, Leguminosæ, Umbelliferæ, Cyperaceæ, and grasses. In the third group, which need a soil rich in humus, he places the Junci, Luzulas, Heaths, Vaccinia, Ferns, and Lycopodia. In a second list he classifies the species in three groups, according to whether they succeed best in soil containing lime, or whether lime harms them, or whether they are indifferent to it. Among the lime-lovers he places Campanula pusilla, Cypripedium Calceolus, Draba aizoides, Dryas octopetala, Primula auricula, Scabiosa lucida, Rubus saxatilis, and Phyteuma orbiculare; amongst the lime-haters he classifies Allosorus crispus, Asplenium septentrionale, the Droseras, Linnæa borealis, Lycopodium alpinum and Selago, Viola lutea, Salix herbacea, Trientalis europæa, and Scirpus cæspitosus; amongst the species indifferent to lime he places Aspidium Lonchites, Gentiana verna, Lychnis alpina, Saxifraga aizoides and stellaris. And, finally, he again classifies all the species under three groups, according as to whether they grow best in a sandy or a clayey soil, and are indifferent in this respect. So that we get a full classification of all the species noted, made from three different points of view, which is eminently suggestive in its bearing upon their dispersion as wild plants."

The works of DARWIN, LUBBOCK, TAYLOR, COOKE, and others teem with similar illustrations, which we commend to schoolmasters and specially to framers of schedules in the hope that they may see their way to abandon profitless competitions, and encourage wholesome, interesting, and useful inquiry. The competitors would be more really interested, they would experience the satisfaction that the acquisition of knowledge by one's own powers always gives; probably they might even participate in that keener joy which the inquirer feels when he makes fresh discoveries and extends the bounds of knowledge. His whole mental organisation will be benefited, while if he is to be a cultivator of plants in the future, or the director of others, he will have all the advantage and confidence which intelligence and knowledge confer over mere tradition and routine.

—— TRADE GROUPS AT FLOWER SHOWS.—At this time of the year, when flower shows are as frequent as thunderstorms, it is not an inappropriate moment to discuss the question as to what kind of honours, if any, should be paid to trade groups of plants and flowers at such gatherings. Of course competition for prizes is out of the question, for not only are the majority of such exhibitors ineligible to compete, but they have no desire to enter into competition with those who are their customers. These groups in all cases add very materially to the interest and beauty of shows, and not infrequently there are charms about them that no other elements in the exhibition can supply. Committees of flower shows, however glad (as they are) to get these groups, are often puzzled to know how to deal with them. If they have the funds, and are wise, they will vote the trade grower some small sum towards his inevitable disbursements, and though not one half his expenses are met, yet he is gratified at the kindly consideration shown. On the other hand, there are many shows at which this good feeling is not displayed, and the trade grower perhaps gets the thanks of the committee privately conveyed—perhaps not. In any case the committee that omits to display such courtesy must be composed of a very uncouth lot of people indeed. But the managers of shows are often more perplexed as to the nature of the honours to be publicly bestowed on these groups than about private arrangements. Shall they be Commended, or Highly Commended, or shall they be left to gather their own honours unticketed? But a few days since, at a large show, one manager solved the difficulty by bestowing a label of High Commendation upon a dozen or so of these collections indiscriminately. What we should like to learn is whether in this and similar cases the tradesmen approved and appreciated the award, or did not. There are not a few show managers who would like to glean the views of the trade growers upon this delicate subject.

—— SEEDLING BEGONIAS.—Messrs. JOHN LAING & CO. have sent us a Begonia bloom—the largest they have yet raised, and which measures 6 inches by 5¾ inches. The form is perfect for so large a flower, and the colour glowing crimson-scarlet.

—— CATTLEYAS FROM MR. PERCIVAL.—Some very fine blooms of Cattleyas from R. P. PERCIVAL, Esq., of Birkdale, were on view at Mr. J. C. STEVENS' office on Thursday. C. Eldorado Wallisi was represented in all shades of white with differently tinted orange lip, the delightful Honeysuckle odour from them being perceptible even in the doorway. Mr. PERCIVAL is very successful with the Cattleyas of the Eldorado section, and he grows them in summer along with the varieties of C. Trianæ, and much cooler than Eldorado is generally grown. The fact is worth recording, as there are scores of this beautiful Cattleya at present languishing in hothouses. Cattleya gigas Sanderiana, with very large highly coloured labellum, and petals expanding 9 inches, affords a very good example of what this plant is when well grown. C. Mendeli, C. Dowiana, C. superba, Lælia elegans varieties, and

different forms of Masdevallia chimæra, also appeared in the same vase.

—— THE ORCHID EXHIBITION AT MR. BULL'S NURSERY has proved a great success. Ever since its opening a continuous and varied display has been kept up, which has induced a great number of those who have visited it to repeat the visit several times, and for the middle of July the display is still in every way remarkable. Such beautiful examples of Orchids, arranged as they are in Mr. BULL's large show-house, tastefully mingled with rare Ferns and such graceful foliage as that of Asparagus plumosus, cannot fail to prove of benefit in extending the culture of Orchids generally. The cool and comfortable temperature of the house, too, in which they are arranged, and in which they seem to last so long in bloom, cannot fail to disturb that popular error in the minds of many, viz., that Orchids must always be kept in close houses. On the occasion of our visit this week we found the Orchid show as fresh and as interesting as at its opening, although we missed many of those grand varieties of Odontoglossum vexillarium and O. Alexandræ; the best of them have passed out of bloom, but their places are taken by some grand masses of Lælia purpurata, with some of the largest blooms we ever saw; L. elegans, some gorgeous Cattleya gigas, C. Eldorado, C. Warneri, C. Mendeli, and that puzzling, yet beautiful and distinct C. Gaskelliana. Perhaps nothing in the house could equal in brilliancy the fine pans of Disa grandiflora at the entrance. There is a peculiar glow in the orange-tinted scarlet of some of the varieties of this plant which make them very catching to the eye at any reasonable distance. Where there is such a profusion of excellence it is difficult to particularise, but prominent among the good things well bloomed were some very fine Aërides Lobbii, Cymbidium Lowianum, Oncidium Gardnerianum, O. Lanceanum, O. leucochilum, Grammatophyllum Ellisii, and many very fine Masdevallias.

—— ROYAL HORTICULTURAL SOCIETY. — The annual exhibition of the Carnation and Picotee Society at South Kensington, on Tuesday next, promises to be a very successful one. Besides the display of these popular flowers it is expected that groups of Begonias will form an unusually strong feature. The show will be held in the tent, and the committees will meet in the Picture Gallery adjoining.

—— LILIUM HARRISI.—We have received a two-flowered stem of this Lily from Messrs. WATKINS & SIMPSON, who introduced it into the London market, and which is the second flower-stem produced this season in the manner described by Mr. CLAUSEN, at p. 53, by a second-sized bulb in the possession of Mr. WALKER, of Whitton, near Hounslow. The flowers are very fine, and evidence seems to be accumulating that it is distinct from L. longiflorum, or at least a well-marked variety of that species. It does not appear to do well out-of-doors, preferring the shelter of a cool greenhouse; and it stands forcing well. We understand that one of the most extensive growers of plants for market has given a large order for bulbs for forcing next spring.

—— MR. BENNETT'S ROSE HER MAJESTY.—Here is an interesting fact with reference to that magnificent new Rose, Her Majesty. Mr. BENNETT showed a splendid bloom of this variety in his box of twelve at South Kensington on July 3. On the following day the same bloom made its appearance at the Westminster Aquarium, on the Thursday it figured conspicuously at Kingston-on-Thames, and on the following Saturday was shown again at the Crystal Palace, and was quite fresh in appearance at the close of that exhibition. A few blooms of this character would be invaluable to some exhibitors of Roses.

—— CHRYSANTHEMUM SEGETUM.—This cornfield "weed" is proving a most useful plant to cut from, as the blossoms last such a long time in colour. Some flowers cut ten days ago are as fresh as they were when taken from the plants. This is saying much for any flower; besides, they are of a very pleasing bright golden colour, and though at this season of the year there are many flowers of this colour, it takes high rank among them. Mr. ROBERTS has it growing in the gardens at Gunnersbury Park in a long well-manured border,

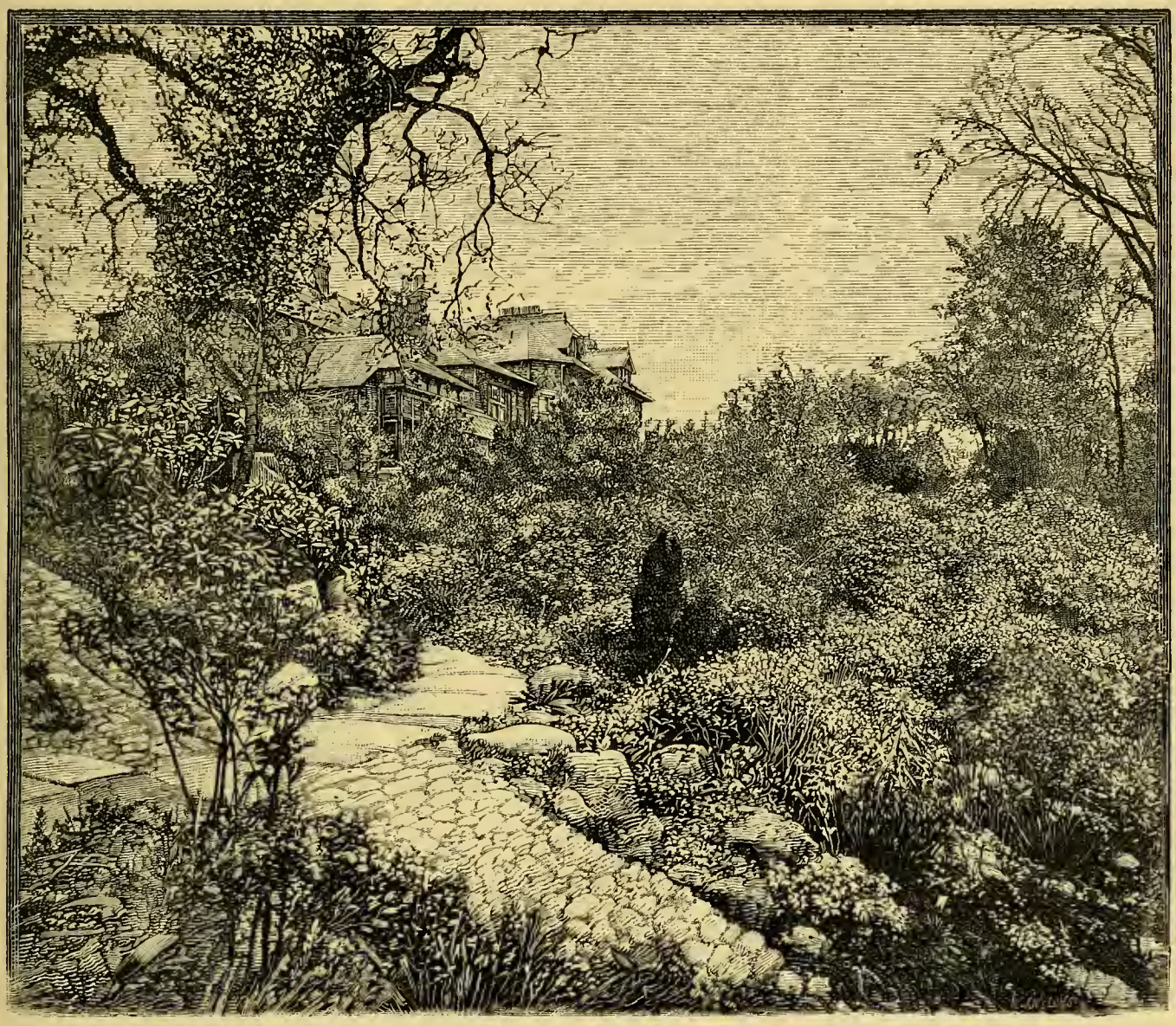


FIG. 14.—VIEW IN MR. BROCKBANK'S GARDEN AT BROCKHURST, DIDSBURY. (SEE P. 77.)

where it grows and blooms with great freedom. It is perhaps a little too straggling in growth for small gardens, but Mr. Roberts took the precaution of sowing it with Bartonia aurea, and this, being dwarfer, makes an attractive line of yellow. One tendency in matters gardening in the present age is to illustrate the value of common flowers, and many things neglected of late are coming to the fore. Centaurea Cyanus minor and its varieties offer a case in point. It is now being largely grown because so free, and it yields an enormous number of flowers of pleasing shades, and especially of an acceptable shade of blue. From being a comparatively neglected, it is now a largely cultivated plant.

—— The Brighton and Hove Chrysanthemum Society have issued a schedule of prizes for their first exhibition, which is fixed for November 13 and 14 next. Mr. Longhurst, 87, Western Road, Brighton, is the Honorary Secretary.

—— Entomological Notes. — The British Council of Education, says an American paper, has established a committee of economic entomology, and among other able members appointed are Professor Huxley, Professor Westwood, Professor Wrightson (President of Downton College of Agriculture), Mr. Dyer (Sub-Director Kew Gardens), and Miss Ormerod.

—— Almonds Fruiting.—It is worthy of remark that, while standard trees of stone fruits growing in the open, and especially Plums, are almost destitute of fruit, many of the Almond trees growing in the suburbs of London are laden with fruit. They can be seen in places bearing clusters of fruit; but perhaps sheltered positions may have had something to do with it, the trees escaping the baneful effects of the terrific gale of last March. Almond trees are generally found in forecourt gardens, where they are to some extent sheltered by dwellings, and also by neighbouring trees.

—— The Royal Jersey Horticultural and Agricultural Society.—This Society celebrates its jubilee year by holding its fiftieth anniversary on Tuesday, August 21, and four following days. The horticultural and agricultural exhibition extends over two days. There is to be a jubilee banquet, a concert in the hall of Victoria College, excursions to various parts of the island, inspections of gardens, &c., terminating with a ball on Friday, August 24. The programme is a very spirited one, and English horticulturists contemplating a holiday might spend one agreeably in visiting Jersey on this occasion.

—— Polygonum amphibium. — To the uninitiated this native plant, as seen on dry land and in water, is scarcely if at all recognisable, so different is the habitat, and altered its general appearance. On dry land the stems assume a decumbent or ascending direction with narrow leaves; but on water, as is to be seen on one of the pieces of ornamental water in Richmond Park, the leaves are much broader and floating on the surface, while the stems also present the appearance of a true aquatic. The dense oblong heads of pink flowers just emerge for a distance of a few inches above the water, and are so abundant just now as to be quite gay and effective even at a distance. It is figured in *English Botany*, t. 436.

—— Mr. Bennett's Pedigree Roses.—Some of our Rose loving readers may be interested to know that one of Mr. Bennett's seedlings has recently been the subject of a trade bargain, which in magnitude we imagine has not before been exceeded in this, if in any other country where a Rose has been the subject bartered. We believe we are divulging no secret when we state that an enterprising Philadelphia plant merchant, Mr. Evans, has bought half Mr. Bennett's stock of the crimson Tea Rose, William Francis Bennett, for £750, and has legally bound himself not to sell or otherwise dispose of any bud, cutting, or scion, but only the flowers, for a term of four years. The Rose in question is not much known, except to those who have visited Mr. Bennett's Rose nursery at Shepperton, or previously at Stapleford, but it has made its mark in Covent Garden and other markets, many thousands of its bloom-buds having been sold at highly remunerative prices. As we have before stated, it is one of the most persistent of winter bloomers. As with Wellington's soldiers at Waterloo, so it is with this Rose—when one bud is cut off another quickly takes its place. It partakes largely of the Niphetos form, and is a glowing crimson in colour. When we remember that in America, Roses in winter realise sums that make the English grower's mouth water, it needs no great stretch of imagination to convince us that Mr. Evans' speculation most soon prove a profitable investment.

—— Nuphar advena. — No ornamental water, however natural the surroundings may be, is complete without some patches of Water Lilies, and there are few places of any pretensions but can boast of our native ones (Nymphæa alba and Nuphar lutea) at least. They make an admirable contrast, and when located a little way off the margin in a sheltered quiet creek or bend of a river or lake, nothing could be more suggestive of repose. The subject of this note is even more handsome than N. lutea, and a far more vigorous grower. It is figured in the *Botanical Magazine*, t. 684, and some large patches in the pleasure-grounds, Kew, have a bold and massive appearance, from their great leathery leaves, some of which float on the surface, and others are borne clear out of it on stout petioles. The outline of the flower is rather broken by the irregularity of the sepals (two or three of them being smaller and green), but this is more than compensated for by the deep orange-red stamens, that remind one of the corona of a Passion-flower. In N. lutea these are of the same yellow colour as the sepals. The petals, unlike those of the Nymphæas, which play so prominent a part in the appearance of the flower, are in this instance small and inconspicuous, because hidden by the stamens.

—— Indoor Plants at the Chad Vale Nursery, Birmingham. — In one of the houses Lapageria alba is in a condition such as this free growing climber is but rarely met with. It is planted out in a long bed occupying one side of a long house, where a portion of the shoots are layered, and others let to occupy a good part of the roof: these last-named were thus early—the middle of June—blooming in a way it is only now and then met with even later on in the season. A single shoot had forty-seven flowers on it, the whole side of the house being hung with the pure white drooping bells. Plants that give all the year round a succession of flowers for cutting receive especial attention. Amongst these Tuberoses are grown in quantity, and very successfully, potted at various times, so as to have them all the year; those wanted for November are potted in March, they are started in bottom-heat, but kept quite cool at the top. A quantity of the African roots in bloom were unusually fine, bearing quantities of large flowers. Nicotiana tubiflora is grown so as to bloom all through the winter; it is raised from seed, and is a much more refined flower than N. affinis, and is amongst the sweetest flowers grown. Of Calanthe Veitchii and vestita there are quantities in wire baskets hung up close to the roof, where they produce bulbs and flowers proportionately much stronger than when further from the glass. Eucharis candida is being grown in quantity; its flowers, smaller than those of E. amazonica, are by many on that account preferred for bouquets. Gaillardias are here largely grown as pot plants; struck from cuttings and flowered in 4 or 5 inch pots they are very effective. Cyperus laxus variegata is well managed, and, as was obvious when first this pretty variegated plant made its appearance, it is one of the best small-growing fine-foliage subjects for decorative purposes. Solanum jasminiflorum is also cultivated in numbers. This is one of the purest of white flowers, not near so well known or so often met with as it deserves to be; blooming in succession as it does in a small state, it should find a place in every warm greenhouse.

—— Nepenthes and Orchids at the Birmingham Botanic Gardens.—In the stove a nice collection of Nepenthes is doing well, producing pitchers freely. In the house with them was a fine variety of Anthurium Andréanum, with large highly coloured spathes. Orchids of both the warm and cool sections, of which there is a nice collection being got together, are thriving satisfactorily, flowering as they invariably do when grown in light houses and kept well up to the glass. Cattleyas of various species and Lælias, with Aërides, Dendrobiums, Cypripediums, and others that require considerable warmth, go to make up the collection. Of that most useful winter blooming Orchid, Cœlogyne cristata, there is a large stock, thriving beautifully. The coolest section, comprising Odontoglossum crispum, O. Pescatorei, and others of like character, with Masdevallias, Disa grandiflora, and other cool kinds, are, as they should always be, located in a house where shade, air, and moisture in accordance with their requirements can be given them: they thrive and flower equally well with the warmer section. The elegant Russelia juncea is here grown in small pots, its bright tube-shaped drooping flowers offering an agreeable contrast to anything else with which it may be associated.

—— Mandevilla suaveolens. — Planted out, this rambling evergreen climber makes a fine subject for trelliswork or the rafters of a conservatory. Owing to the great length the stems attain, the plant never gives satisfaction if its cultivation is attempted in pots, and flowering as it does towards the extremities of the shoots no pruning should be resorted to before it has done flowering. The size of the pure white flowers, however, and their fragrance constitute it a plant worth the attention of growers. A flowering specimen in the greenhouse at Kew is noticeable amidst the many climbers that enliven that structure, and keep up a constant succession of bloom for the greater part, if not the whole year round. Many of these are far more floriferous and perhaps more valuable from a horticultural point of view, on account of the quantity of flowers to cut from or otherwise; but this one, having a long tube and expanded limb to the corolla, gives it an uncommon appearance. This, the only species, is figured in the *Botanical Register*, 1840, 7.

—— Galactites tomentosa.—Although originally introduced about a century and a half ago, this annual Composite is rarely seen occupying its proper place in the flower border. If sown early in the spring and thinned out to a proper distance where crowded, it is a plant that would repay the attention. This is a practice, however, which is too seldom attended to, and the consequences are starved plants, small flowers, and a short blooming period. This species is figured in the *Annales du Muséum d'Histoire Naturelle*, 16, t. 9, and is flowering on the new rockery at Kew, where, owing to its natural branching habit, the purple flowers will keep up a successional display for some time. The spiny cut leaves are beautifully variegated all along the midrib and principal veins with a milky-white colour, while the underside is densely felted with a white tomentum. The species was by some of the older botanists included in the genus Centaurea, from which it is easily distinguishable by the feathery, not simple pappus.

—— Dasylirion glaucophyllum. — Notwithstanding that several species of this genus have been introduced from time to time under various names, the uses to which they could be put in gardens should warrant their being more frequently seen. They are quite as graceful if not more so than many of the long narrow-leaved Cordylines, so much used in some places for relieving the stiffness and formal appearance in the flower as well as the sub-tropical garden. Several species of this genus could be utilised for the same purposes, where their spiny serrated leaves would certainly tend to vary and give the plants a mixed appearance. The present is one of the stronger growing and most useful as well. A noble specimen has been in bloom in the succulent-house at Kew for some time, the flowering stem of which has been let through an opening in the roof. The small fuscous coloured flowers are produced in a sub-fusiform panicle of several feet in length, while the slender glaucous leaves hang gracefully all around, and are remarkable for the peculiar way in which the spines on their margins are directed forwards, making it almost impossible to thrust one's hand into the centre of them.

—— Mitchella repens.—Although an old inhabitant of English gardens, this little creeping Cinchonad might be far more frequently met with than it is. The slender leafy shoots creep along, rooting in the ground, which it covers with a dense evergreen carpet. Once established it soon occupies a considerable space, and is by no means unattractive. It might be employed to carpet the ground under trees or on shady banks which are not too dry. Although not absolutely necessary, as the plant is by no means fastidious, yet a good admixture of peat would greatly assist it by retaining the moisture, and encouraging

fresh roots on the young growths. In its native country (North America) it occupies large tracts of ground, extending from 28° to 69° N. lat. A patch of it on the new rockery at Kew acquires additional interest by being dotted over with its twin axillary flowers, which are pink in bud and white when open. The plant is figured in CATESBY'S *Natural History of Carolina*, i., t. 20.

—— GENISTA ELATA.—In parks or pleasure-grounds where plants are wanted for distant effect, few subjects of the kind could be more appropriate, growing as it does to the height of some 10 or 12 feet; while in healthy, vigorous plants, every spray or slender shoot is terminated by a short raceme of flowers. A bold specimen planted here and there, even in a shrubbery border, where it might slightly overtop the neighbouring bushes, would have a conspicuous and telling effect at this season amidst the varied shades of bloom and leaf tint. It is a subject, moreover, that will bear close inspection, being in no way characterised by coarseness of habit; and when covered with its small, somewhat silky leaves and rich yellow flowers, the long, twiggy branches arch over as if weighted down by them. It is sometimes considered as a variety of G. tinctoria, and, if so, certainly a giant form, and well worth cultivating. Specimens may be seen in many parts of the pleasure and botanical grounds, Kew.

—— CIENKOWSKIA KIRKII.—Some plants of this Scitamineous stove flowering herb are noticeable amongst the other occupants of the T range at Kew for the great size and showiness of their flowers. These owe their conspicuous character to the three inner segments of the corolla, which are of a delicate mauve, fading to white at the base, with a bright yellow spot on the lower one, as well as on the anther crest. These two spots are so contiguously situated to the stigma that Nature seems to have meant it for attracting and guiding insects for the purposes of fertilisation. The individual flowers are not very enduring, but successionally developed from a spike that springs directly from the root, apparently quite independently of the leaves. The latter, however, are developed contemporaneously with the flowers, unlike those of some species of Kæmpferia, a closely allied genus, which produces the flower-spikes first and afterwards the leaves. The leaves of the present plant are ovate-elliptic, deep green, and ample, adding in no small degree to the appearance of the plant. It is a native of East Tropical Africa, and was introduced to Kew from Zanzibar, where it was flowered some ten or eleven years ago, and was figured in the *Botanical Magazine*, t. 5994.

—— NYMPHÆA ALBA VAR. ROSEA is perhaps the most handsome of all hardy aquatics cultivated in this country. A plant in the outdoor tank at Kew is now a fine sight, nearly a dozen of its large flowers being expanded at one time. There is no doubt that every cultivator of hardy aquatic plants would be glad to find a place in his collection for such a striking addition to his treasures as this Water Lily, which only differs from our common white one in the deep rose-red colour of its flowers. It is a native of Sweden, where it is only known to exist in one remote lake—Lake Fagertarn, in the parish of Hammer. FRIES, the great Swedish botanist, has recorded his opinion of the beauty of this plant by writing on the tickets accompanying the specimens in his Herbarium Normale, the Latin equivalent for "the largest and most beautiful flower in Europe, emulating the Victoria." The specimens in question retain their fine red colour, and measure 6 inches in diameter. A figure will appear in the *Botanical Magazine*.

—— A FEW FINE IVIES.—Planters should acquire that grand Ivy, Hedera amurensis, whose enormous leaf and rapid growth render the plant of great service in covering unsightly objects, and for covering arbours, &c., quickly. A good example can be seen at the Pine-apple Nursery, Maida Vale. Hedera palmata aurea, and H. aurea spectabilis, are also good kinds amongst the rapid strong-growing sorts with variegated foliage. Their growth is somewhat less vigorous than that of H. algeriensis or the first-named kind. Amongst Ivies of a dark or purplish hue of foliage there is nothing more effective than H. atropurpurea, a comparatively new plant, with exceedingly dark leafage and moderate growth, which make it admirably suitable for low walls; and H. rhomboidea is a dark green very close growing kind. The form of the leaf in this last-named variety is very pleasing and distinct.

—— WORMIA BURBIDGEI.—Many growers do not seem to succeed well with this charming stove shrub, which grows so freely at Kew. Even for its large, somewhat leathery, deep green oval leaves, it seems worthy of a place in a select set of stove plants. The flowers are, however, very showy; they measure about 3 inches in diameter, are of a pale golden-yellow colour, with the exception of the numerous stamens, which are nearly white. It is a native of Northern Borneo, and was introduced by Messrs. VEITCH through Mr. BURBIDGE, after whom it was named by Sir JOSEPH HOOKER, who described and figured the plant in a recent volume of the *Botanical Magazine*. The present species is the only one which has hitherto found its way to European gardens.

—— GENISTA ÆTNENSIS.—Among the flowering shrubs now in bloom in the Kew Arboretum this species certainly occupies a place in the first rank for its graceful habit and the profusion with which its slender branches are clothed with golden-yellow flowers. In LOUDON'S *Arboretum* 2 feet to 4 feet is given as limit of height, but many bushes at Kew measure 10 feet or more. Few more pleasing shrubs could be selected for the ornamental shrubbery, and the additional recommendation of its flowers being produced when nearly all its relations have long been past ought to lead to its being more generally planted.

—— AGRI-HORTICULTURAL SOCIETY OF MADRAS.—The following extracts from a recent report will be read with interest:—

"During the time referred to the Society has introduced, experimented with, or distributed, in addition to curious and ornamental plants, large numbers of valuable trees, plants, and vegetables of known economic value, particularly Persian Date Palms, the Copal Varnish tree, African Oil Palms, Mahogany, Landolphia, Ceara rubber, Carobs, Brazil-nuts, Sapucaia-nuts, Queensland-nuts, Water Chestnuts, Cocoa, Cinchona, Cloves, Nutmegs, Liberian Coffee, Bahmie Cotton, plants for fibre and paper-making, Eucalypti, and grasses and fodder plants.

"Ploughs, scythes, galvanised wire, canvas and rubber hose for irrigation, pumps, syringes, and other agricultural and horticultural implements have been imported or obtained, and distributed to various places in India and Burmah.

"Gardeners have been engaged and sent to employers in India and Burmah, and many boys are constantly being trained in the gardens.

"The already magnificent botanical collection belonging to the Society is being almost daily added to, and a new botanical garden has been laid out and maintained.

"A very extensive correspondence on botanical, arboricultural, agricultural, and horticultural subjects has been kept up for the purpose of diffusing information; and the monthly *Proceedings* of the committee have been regularly printed and distributed to members of the Society, other similar bodies, and to persons interested in the various subjects to which they refer.

"Publications on economic plants and their culture, and catalogues of plants and garden and other requsites have been obtained from, or voluntarily sent by the publishers and added to the Society's library (which, though limited, forms a much used source of information on arboricultural, agricultural, and horticultural subjects), or sent to persons requiring them.

"Botanical specimens are given freely, whenever asked, to local professors and lecturers, and scientific visitors, and the Botanic Garden is believed to be of great service to the students of the various botanical classes.

"The Society acts, and is largely employed, as an agency through which persons at a distance obtain supplies of fruit, avenue, shade, and other trees, plants, and seeds, and annually obtains and forwards to all parts of India, and often abroad, large quantities of grafted Mango and other trees, and seeds of many useful plants, particularly Inga dulcis, Casuarina, Cotton, Tobacco, Senna, forage plants, Maize, and other cereals.

"The Society is often honoured by references from Government and the Board of Revenue for information on horticultural and kindred subjects; and is frequently able to be of use to commissioners, collectors, and other authorities in distant provinces.

"Details of the Society's more important work will be found in the monthly *Proceedings* which are regulary supplied to Government; and concise statements thereof are published in the annual reports.

"The increasing interest of the natives in the objects of the Society, and their marked success in imitating its European supporters, may be gathered from the number of prizes won by them at the Society's annual shows as detailed in the lists annexed to the annual reports; while the sale-books show that if the natives do not join the Society as members in such numbers as is desirable, they contribute handsomely to its support by being large purchasers of seeds, plants, &c.

"The extensive and increasing work done by the Society is carried on by an unpaid officer, for pure love of the work, in his hours of leisure from the onerous duties of an important public office, and that the work so done is the work of the State."

—— MALVASTRUM CALYCINUM.—This is the Malva calycina of the *Botanical Register*, t. 297, vol. iv. It is a native of the Cape of Good Hope, and should not be trusted out in the open air throughout the average British winter. The flowers are nearly 1½ inch in diameter, of a pleasing rosy-pink colour. Well grown in the cool conservatory it attains a considerable size, and flowers very freely, making a thoroughly showy ornamental plant. It was received at Kew under the name of Malva fragrans, a species which is now placed under Malvastrum, and which is totally distinct from M. calycinum.

—— TACHIADENUS CARINATUS is a handsome Gentianwort, originally introduced into this country from Madagascar by the Rev. Mr. ELLIS, to whom our gardens were first indebted for so many rare and curious plants, amongst which may be mentioned the two species of Lattice-leaf, Ouvirandra, and that wonderful Orchid Angræcum sesquipedale. Tachiadenus carinatus was, however, probably soon lost to cultivation, and the credit of its reintroduction is due to Messrs. VEITCH. It has beautiful rich purple flowers of considerable size, and is well worth a place in the most select collection of warm-house plants. It is now in flower at Kew.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending July 16, issued by the Meteorological Office, London:—The weather has been generally cloudy and cold. Severe thunderstorms have been experienced in almost all districts, and in several instances the accompanying rainfall has been very heavy. The temperature has been below the mean in all parts of the kingdom, the deficit over Ireland and in most of the English districts being as much as 4° or 5°, and in Scotland and the north of England 2° or 3°. The maxima, which were recorded during the earlier days of the period, varied from 71° to 72° over the greater part of England, but elsewhere they were no higher than from 66° to 68°. The minima were generally registered on the 15th or 16th, and were unusually low for the season. In the "Midland Counties" and in the east of Scotland the thermometer fell to 39°, in "England, S.," to 40°, and in most other districts to 41°, 42°, or 43°. The rainfall has been a trifle less than the mean in "Scotland, E.," and "England, N.W.," and about its normal value over central and north-eastern England, but elsewhere a decided excess is reported. Bright sunshine, which has been more equally distributed than of late, has varied from 43 per cent. of the possible duration in "England, N.W.," and 39 per cent. in "Scotland, W.," to 30 per cent. in the "Midland Counties" and "Ireland, N." Depressions observed:—Barometric pressure has again been comparatively high and steady over the southern parts of our area, while over our islands, Denmark, and Scandinavia depressions—generally small and ill-defined—have followed each other in quick succession. The winds most prevalent during the first part of the period were between S. and W. in direction and moderate to fresh in force, but on the 13th a fresh westerly or north-westerly breeze had appeared on our northern coasts, and subsequently became general in all districts.

—— GARDENING APPOINTMENTS.—Mr. J. MURDOCK, lately Gardener at The Heys, Leek Wooton, Warwick, as Gardener to A. H. WELCH THORNTON, Esq., Beaurepaire Park, Bishopstoke, Hants. Mr. MURDOCK was Gardener at The Heys for over ten years, and on leaving, in consequence of a change of proprietorship, was presented with a handsomely bound volume of CHISHOLM'S *The Hemispheres* by the members of the Leek Wooton Reading Room.—Mr. J. CLEARE, lately Foreman at Stoke Rochford, as Gardener to Lord SUDELEY, Toddington, Gloucestershire.

PLANTS IN FLOWER.

Epipactis rubiginosa.—This is a very pretty Orchid, native of the United States, and is now flowering very freely in a damp peat bed in association with E. gigantea, E. multiflora, and other hardy Orchids. The following description, taken from a nice tuft, will serve to identify the plant:—Leaves at the base ovate or ovate-oblong, the upper ones more or less lanceolate, closely resembling those of Cypripedium parviflorum. Flower-stems from 9—12 inches high, racemose, with from six to twelve flowers; bracts from 1—1½ inch long, lanceolate; pedicels shorter than the ovary, and like the latter dark brown, and covered with small glandular hairs; sepals 6—8 lines long, 1½—2 lines wide, ovate-lanceolate, brownish-purple; petals rather shorter, ovate-oblong, white, tinged with purple; labellum horizontal, scoop-like, longer than the sepals, 3-lobed, the terminal one much the largest, subcordate, copiously undulate or fringed, white with a central yellow blotch; the lower part of the lip white, veined with purple. This is certainly one of the numerous Orchids amenable to cultivation without any protection, and a most interesting and pretty one it is. Shade and moisture in a compost of peat, leaf-soil, and sand are its chief requirements. *T.*

Alströmeria aurea.—This is one of a very numerous genus, and it is quite hardy. Several others will stand in sheltered spots, but this will thrive in exposed as well as favoured situations. Many tufts are now crowded with flowers quite exposed to wind and sunshine. It is an extremely pretty plant, with rich emerald-green foliage, and large cymose heads of deep orange-brown flowers 8—9 inches across, with deeper coloured veining. Most serviceable are these flower-heads for decorative purposes, as the individual flowers are erect and upon stiff pedicels, and there is ample space between the flowers for the introduction of other flowers or small Fern fronds, when they are very charming. The majority of gardeners, whose utmost exertions are frequently over-taxed in finding a sufficient quantity and variety of flowers for cutting, are not even aware of the existence of this and a host of other plants invaluble for the purpose. *T.*

Campanula Portenschlagiana.—A very pretty dwarf tufted species, with acutely lobed leaves, and short-stalked flowers, produced in such profusion as almost to hide the greenery; the flowers are comparatively large for such a small-growing plant, more open than those of the pusilla series, of a pleasing blue. In my opinion it is one of the best of the dwarf bell-flowers, either for the rockery or warm border. It is readily increased by division or cuttings. *T.*

Campanula pulla is another little gem with very dwarf leaves and slender flower-stalks, from 2—4 inches high, bearing solitary drooping bell-shaped flowers of a deep rich purple colour, but in the coloration it varies materially, as I have seen every shade from deep purple to pale blue, and botanical authors tell us there is a pure white variety; indeed, we are in possession of a plant sent us as pulla alba, from the Tyrol, but which has not gratified us with even one flower this season, so with the patience of a parent one must await full development; it is worth something to see the plant look happy. *T.*

Campanula Raineri.—This is by no means a common species. A friend of mine the other day inquired if I would like a "clump" of Campanula Raineri. Of course I would. But after the trouble incident thereto it was nothing more than C. turbinata; and I am sorry to say that the latter is generally sold for C. Raineri, which is, however, very different. Although in the flower bearing a striking resemblance to the flower of C. turbinata, it is much dwarfer, and not nearly so free-growing; the leaves are much smaller, and very different in form; the flower-stems are much shorter, and bear leaves quite up to the flower—in fact, clothed with small tomentose leaves, while in C. turbinata the flower-stalk is nearly naked, having only two or three small leaves upon it. The form of flower differs slightly, and is much larger in proportion to the sizes of the two plants. A very curious fact about the two is that while slugs devour most greedily C. Raineri, they leave untouched a plant of C. turbinata close to it. The subject of this note is very rare, and requires a well-drained position upon the rockery in light, rich, porous soil, where it will not fail to establish itself. *T.*

Asteriscus maritimus.—This is not quite hardy, coming as it does from the South of Spain; but it should be treated as a hardy plant through the summer, and I mention it because it is particularly showy upon the rockery from the present time onwards; my plants are just becoming covered with flowers. It has a spreading habit, producing a multitude of axillary capitula, 2 inches or more across, both the ray and disc florets bright yellow; the rays being even and spreading, the flower has a very circular outline, and is very serviceable in a cut state, lasting a long time. As well as being very useful for the rockery, this plant will make an excellent groundwork for beds in a warm, dry position, as it is evident it enjoys such a place. Cuttings taken in early autumn root freely in a cold frame, and the young growth of spring will root even more freely if placed in gentle warmth. *T.*

Scabiosa graminifolia.—This is a very pretty and scarce Scabious, with narrow silvery foliage, and numerous lavender-blue capitula on peduncles about 9 inches or rather more high. Of tufted growth, the foliage is extremely pretty, especially in combination with the soft tint of the flower heads. I have now a large plant, quite 18 inches through, and it is, and will be for some time, very pretty. A more robust species is S. caucasica, with larger leaves, and flower-heads 3 or 4 inches in diameter, of a brighter blue than the last, and very durable. This is one of my greatest favourites either for the border or rockery, while it is so very nice for cutting. It is easily raised from seed, procurable from Mr. W. Thompson, of Ipswich. *T.*

Scilla maritima, or as some prefer to call it, Urginea maritima, is now in flower in the cool division of the economic-house at Kew. It is not a particularly showy species, but is of some commercial importance, its large bulbs being known in medicine as squills. Quantities of the dried bulbs are imported into this country from Malta and other places in the Mediterranean region. In medicine these are used as a diuretic in certain forms of dropsy, and also as an expectorant in coughs. Fresh squills are very acrid, causing irritation, and even vesication of the skin—in very large doses the principle acts as an acrid poison.

Mirabilis multiflorus.—This very fine herbaceous plant was raised from Californian seeds by that successful introducer of new and rare outdoor garden plants, Mr. W. Thompson, of Ipswich. It forms a compact bush about 18 inches high, has dark green leaves, and handsome bright purple flowers. In the *Botany of California* this same plant, figured in the *Botanical Magazine*, t. 6266, is referred as a doubtful form to M. multiflorus var. pubescens, but differing from that in being more glandular pubescent, and also in the form of the leaves and fruit. In California the flowers of M. multiflorus remain open from 4 o'clock in the afternoon until 9 o'clock in the morning. Now in flower in the herbaceous department at Kew.

Œnothera Youngii.—Most Œnotheras are either rather tender, or shortlived, or lose themselves by continually running away from the spot in which they are planted. These characters make the genus troublesome to cultivate. There are, however, two or three exceptions. The species known as Œ. Fraseri or Œ. fruticosa—names which are generally used indifferently, whether rightly or not—is so hardy and healthy that it will bear any amount of rough usage, submitting to be chopped in pieces with a spade, and flowering freely in any soil or situation. Œ. Youngii is a far superior plant to it, and though not quite so easy to increase, may be multiplied sufficiently for any garden by careful division of the roots. The flowers are larger, brighter in colour and more freely produced; the stalks are slenderer and bright red; and the plant has less tendency to become coarse, seldom exceeding 2 feet in height. Being so similar to Œ. fruticosa, it makes that plant superfluous in my garden; but considering differences of soil and climate, I wish no one to take my advice on these matters without growing the plants to be compared side by side, and judging for themselves. Another little Œnothera, of the easiest cultivation, producing abundance of little yellow flowers through the summer, and seldom exceeding 1 foot in height, is Œ. pumila. It may be cut to pieces as freely as Œ. fruticosa, and seems to like the treatment. *C. Wolley Dod, Llandudno.*

Œnothera Fraseri.—The note on Œ. speciosa by "T.," at p. 40, suggested to me that this species is worthy of at least equal praise, and ought to be grown in every collection of herbaceous plants. They are both natives of North America, and therefore quite hardy. We had large masses of it in our garden at Loxford Hall, but owing to the plants being moved during the very cold weather we had last March, some are dead, and the rest are rather weakly. It likes deep rich light soil, in which it will grow 2 feet high, and produce its deep yellow flowers in great masses. I fancy this is the hardiest of all of them. One of the showiest plants in our border at present is the red-coloured form of Achillea millefolium. It grows very freely in any soil, but favours a deep rich loam, where the deep green finely divided leaves set off the umbels of bright red flowers to the best advantage. It continues in flower from May until quite late in the season. Arnebia echioides has made very good growth, and is flowering freely this year. I fancy this plant does not stand well out-of-doors during the winter. It is described in one book on herbaceous plants as being "a handsome border plant, not easy to keep." I lift the plants in the autumn, pot them, and protect them in cold frames for the winter, and plant out again in the spring. There is no difficulty in keeping it, or to grow it well in this way; but when grown under glass greenfly attacks it and speedily cripples the plants. *J. Douglas.*

Linaria cymbalaria major.—This is much superior to the normal form, but, like it, is one of the easiest plants to grow, and is excellent to cover old walls, or to trail over masses of rock. It is also a good pot-plant, and is now flowering freely with us.

L. alpina is also very pretty. It is a small-growing plant with purple flowers, marked with red on the lip. It is well adapted for rockwork, and is perennial, but flowers freely the first year from seeds. *J. Douglas.*

MR. SCHNEIDER'S ORCHIDS.

In the cultivation of Orchids, more than most things, it often happens that beginners pay for their learning by more or less of the plants they attempt to cultivate failing to grow so well at first as when longer acquaintance with them has been acquired. But there are exceptions, of which the nice collection of these plants formed recently by Mr. Oscar Schneider is an example. Some four years have elapsed since a beginning was made; the plants now fill four medium-sized houses, and are altogether in excellent condition. It is well to mention here that the right course was taken at the commencement by the erection of houses of the right description, affording plenty of light alike by their construction and the equally important matter of position, by their being away from any objects which interfere with the light, such as trees and other buildings, the baneful influence of which near plant-houses can never be too often urged. It is needless to say that Orchids are not likely to be well grown, even in the best adapted houses, without skill and attention, but suitable structures are half the battle, for all the knowledge and care it is possible to give the plants in dark, indifferent houses will never give results approaching those which are attainable where the places in which they are located are equal to their wants. The collection here is strongest in the intermediate and the cool sections of the family; much the greater portion have been acquired as imported, and no better evidence need be forthcoming of what can be done in a short time with imported plants than is afforded by the quantities of Cattleyas, Dendrobiums, Odontoglossums, and others, especially the first-named, which are pictures of healthy vigour, forming masses of roots that lay hold of the potting material like Brassavolas, the bulbs and leaves as stout and thick as if growing in their native country, and, as a matter of course, flowering proportionately. Amongst a number of plants of that most variable of Cattleyas, C. Mendeli, in bloom, was a beautiful delicate coloured variety, in which the large orange blotch on the lip was combined with the faintest suffusion of purple, setting off the broad, pure white sepals and petals to advantage. Of C. Trianæ there are many excellent examples, some of which, only imported twelve months, are as strong and fully established as if they had been as many years in the country; C. exoniensis, C.

Schilleriana, C. Wallisii, C. Eldorado splendens, C. Warneri, C. Mossiæ, C. bulbosa, C. Warscewiszi, C. Dayana, and most of the popular species, many of which were in bloom. Especial note must be made of C. superbiens, a plant which many find a difficulty either in getting to grow at all, or, if it succeeds for a time, having a disagreeable habit of getting out of condition. There are several examples here, four years imported, during which time they have gone on increasing in strength until the bulbs have attained a thickness almost equalling those of stout examples of C. Skinneri. They are grown in baskets suspended over the path, close to the roof, on the south side of a span-roofed house, standing ends east and west. Nothing could surpass the healthy condition they are in, with every promise of retaining their vigour. They flower twice a year. Mr. Holmes, the gardener here, may well be congratulated on his success with this charming but ticklish species.

In Dendrobiums, which thrive beautifully, were a couple of plants of D. Falconeri, only imported last year, and yet as full of flowers as this lovely and distinct species is often met with where it has been a number of years in the country. Amongst quantities of plants of the various genera that bloom about this time was the scarce Oncidium phymatochilum, and the distinct-looking Cyrtochilum stellatum, with its star-shaped straw-coloured flowers, possibly more remarkable for the few who succeed in blooming it than for the individual beauty of the flowers, which, although pretty, are not equal to many Orchids; but it may be looked upon as no bad test plant, as, where found to bloom regularly, it is where the general treatment is such that a continued healthy existence of those associated with it may be reckoned on. Another species that does not succeed with every one, Brassavola Digbyana, is in fine health, a moderate-sized specimen having three very strong scapes. Here, too, is the Dove-plant, Peristeria elata, with seven spikes; this also requires plenty of light and enough air for a time daily during the growing season to dry the atmosphere of the house fairly, for although it may be grown so that the bulbs get as large as big Turnips, still, if it is at all coddled with a continuously over-moist atmosphere whilst growing all the drying and pinching possible will not cause it to bloom.

Cypripediums thrive well, having clean stout healthy foliage indicative of the ability the plants possess to flower freely. The collection includes most of the best species and also varieties, of which this fashionable family now number so many. There is likewise a nice lot of Odontoglots which also give evidence of their liking the treatment to which they are subjected. Many of the spring-flowering species were in bloom; among these may be named O. crispum, O. Pescatorei, O. triumphans, and O. radiatum. Masdevallias include the best species and varieties of the handsome as well as the curious flowered section. Amongst Lælias, which in common with the rest give unmistakable signs of their excellent condition, may be named L. anceps, which forms bulbs of the right description—stout and thick. Orchids, like other plants, do the best where those collectively interested are fond of them, and take a real interest in their wellbeing; it is evident that here both employer and gardener conjointly are actuated by this feeling, the result of which is to be seen in the excellent condition of the collection. *B.*

FRUIT NOTES.

James Veitch Strawberry at Birdhill.—This is an excellent time to arrive at a concensus of opinion as to the largest and best Strawberry for general purposes. There are many large collections in this locality, and with most of them for miles around I am acquainted. Making every allowance for difference of aspect, culture, soil, and general method of treatment, for the general garden crop this Strawberry I conclude to be one of the largest, if not the largest, heaviest cropper, and among the best flavoured, and in this respect superior to President, Marguerite, and Vicomtesse Héricart de Thury. Mr. Laxton's I have not yet seen. I have weighed nine, taken promiscuously in Mr. Gough's garden at Birdhill, near this town, and they have turned the scale at 1 lb. I am sure I might have found heavier. *W. J. Murphy, Clonmel.*

Pear Doyenné de Ramegnies.—The *Bulletin d'Arboriculture* publishes a coloured figure of this Pear, which was raised by M. Norbert Bouzin, of Ramegnies-Chin lez Tournai. The fruit is symmetrically Pear-shaped, with a short stalk; skin olive-brown, russetty; flesh fine, buttery, vinous. October and November.

HOME CORRESPONDENCE.

Sander's Orchid-Pan. — The Orchid pan, for suspending, has been a great favourite ever since its introduction, as by using it dwarf plants, which cannot be grown on blocks, can readily be brought near to the glass and yet receive the requsite amount of moisture which could not be retained by them were they grown on blocks. But two objections have been repeatedly urged against the Orchid pan—the first and most important being that the three wires for suspending, which were attached to the rim of the pan, brought together at the top and turned over to form the hook for suspending, were always in the way, and that wherever tender leaves touched them (and it was impossible to prevent their doing so) they were injured; the second objection was that freely imbibing Orchids in the growing season got dry too soon. To remedy both these defects Mr. F. Sander has devised a new kind of hanger which is extensively used in his large Orchid-

Fig. 15.—Sander's Orchid-pan.

houses at St. Albans, and of which we herewith give an illustration (fig. 15). The hanger is composed of a single rod with a hook at the top and with a disc of zinc the size of the bottom of the pan at the other end; the rod is passed through the hole in the bottom of the pan, which slides down it and rests firmly on the zinc disc, as on a round table. The disc is concave on the upper side and convex on the lower, so that it retains water under the Orchid pan as it were in a shallow saucer. This is of great service in hot weather, and when such an arrangement is not desirable the insertion of a small piece of crock between the disc and the pan allows the water to pass off in the usual way. In Sander's Orchid-hanger it will be seen there is but one rod, and that being in the middle of the pan it is useful as a stake to fasten anything to which might require it, and as the plants always have a tendency to hang over the side of the pan such a position is the only one in which it could be placed to be out of the way. It is very cheap, we understand, which is another thing in its favour. We have for our illustration pushed the rod down to separate the disc from the bottom of the pan.

Boxes for Sending Plants by Post.—This is becoming a more important subject than ever to gardeners. Country postmasters have been directed to inquire of those whose correspondence is extensive what use they are likely to make of the parcel post. My reply, when asked, was, that it depended upon the way in which the post used my parcels. My past experience of sending plants by post has been anything but favourable, but for some reason boxes posted abroad generally arrive in a far better condition than similar boxes posted in England; and if I have an offer of any choice little plants I generally beg they may be sent by railway, preferring to pay the carriage to risking their being smashed. No box which I know is proof against the terrible ordeal involved in delivering the letter-bags whilst the train is running. Tin boxes come quite flattened; paper boxes, made in Liverpool expressly for the purpose, are often broken; and cylindrical chip boxes, bound with tin hoops, arrive in two compartments, split across the middle. I do not say that it is always so, but the proportion is large enough to be very annoying. Miniature hampers succeed best, and are light, and their contents may either be wrapped in oiled paper or packed in damp sphagnum, of which the wet will not come through the wicker-work. If these hampers could be made as cheap as boxes of wood or paper they would no doubt be more generally used. But with a little care in arrangement, and if enclosed in air-proof material, plants travel well by post without any box at all. I had several packets of Eritrichium and choice kinds of Androsace sent in letters of ordinary size from the Alps last autumn, many of which are now flourishing, and include some of the finest pieces of A. glacialis I ever saw in cultivation. Mr. Harpur-Crewe sent me others in the same way from the Pyrenees, which are doing equally well. As a contrast to this I have had plants sent less than 100 miles, which have arrived as dry and as dead as hay for want of some air-proof cover, whilst others have been burnt to charcoal by being packed in wet grass which has fermented, instead of damp moss, which never ferments in quantities small or large. I certainly shall do all I can to encourage railway company plant carriage in preference to postal, until I find that more care is taken of packets sent by post than is done at present—at least, by English post-office authorites. *C. Wolley Dod, Edge Hall, Malpas, July 14.*

Hardy Orchids.—I am glad to observe that hardy Orchids are attracting some little attention, and Mr. Webster is doing good service in bringing them under the notice of your readers. A few years ago I began to cultivate these, commencing with Orchis foliosa, the handsomest of the tribe. Two clumps of three crowns each were purchased and planted in a partially shaded and moist bed specially made up with a considerable admixture of peat and leaf-mould. Now they are handsome clumps, each with twenty spikes. This species delights in a deep moist loamy soil. In the same bed there were planted upwards of two dozen other sorts, principally Ophrys, Orchis, and Serapias, purchased last summer from a grower in Italy. The number of tubers received of some of the species was considerable, two dozen in several instances. One half the larger lots were planted in a comparatively dry bed, containing a large proportion of peat, the ordinary soil of the garden being a light loam—the other half, together with all the smaller lots, being planted in the moist bed. The result has been that in the dry bed, nearly every tuber grew and flowered well, but the moist bed was almost a total failure. Among these, however, there were none of our common strong growing sorts, such as Orchis maculata, O. mascula, O. bifolia, &c., which will thrive in almost any soil. I give the result of my experience for the benefit of any one who may wish to cultivate this class of plants, and I shall be glad to give the name of the grower in Italy of whom they can be purchased at a moderate price to any one who desires it. So far as I know only a few of the sorts can be obtained in this country. *P. Neill Fraser, Murrayfield, Edinburgh.*

The Potato Disease.—Mr. Horsefield is, without purposing so to be, an amusing correspondent. He first sounds an alarm with respect to the possible appearance of the Potato disease, quotes fully Mr. Jensen's proposals for the protection of the Potato crops from disease; and having done so, as he states, for the benefit of new readers, boldly declares that he does not believe in that which he has so carefully reproduced for the benefit of others. But he bases his scepticism of the value of protective earthing, not upon any fair test of its merits, for no test has yet been offered, but simply upon the fact, that seeing what he takes to be the disease in the American Beauty of Hebron, gives the plants protective earthing, and finds no benefit. But is it really the Potato disease from which his Beauty of Hebron is suffering? It appears to be the case that this early American kind is almost everywhere suffering this year from the same affection which some few years since was found in another American kind, and of the same family as the Early Rose. This affection is seen in stunted growth, speckled, rusty-looking leafage, and presently its final disappearance. It is

noteworthy that this affection is not contagious, for whilst plants here and there have died away, the others have grown and remain healthy as ever. It is doubtless remembered that considerable discussion arose over the nature of this form of disease at that time—if disease it be—and it was called by some a new disease; by others it was attributed to the effects of the Peronospora spores that had lain dormant in the seed tubers. Others yet again attributed it to the eating of the stems by grubs and wireworms; and, still further, it was attributed to injury from cold whilst the shoots were yet in a tender condition. What seems most probable is that the family of American Potatos to which the Hebron and the Rose belong is a peculiarly tender one, though I may add that I have found in a lesser degree similar features in the Queen of the Valley, an allied variety, also this year. The spring was not at all a warm one, or favourable to Potato growth; indeed, though the tops now, as a rule, look so robust and healthy, the tubers were very late in starting, and as the early winter was mild, and promoted spindling on all these precocious American sorts, no doubt the shoots which started after planting were weaker and tenderer than usual on many sets; and hence, what with the coldness of the ground, and the check to growth found in the low temperature of the air, these early tender Potatos suffered so far as to render them incapable of development, and they have died. That the ordinary disease has nothing to do with the affliction seems evident from the fact that the seed sets have been found to be quite firm and sound. Whenever the fatal black spot is seen on the foliage we shall be assured that the real disease is at hand, and that will not take one and leave one, but will soon make a clean sweep of every plant. *A. D.*

Herbert's "Amaryllidaceæ."—In the *Gardeners' Chronicle* of July 7, under the title of "Botanical Meetings," it is mentioned that at a meeting of the Lancashire Association of Botanists, held at our Free Reference Library, attention was especially called to the above well-known and valuable work as having been "recently acquired at the suggestion of one of our number." Please let me mention that more than two years ago, surprised at the work being absent from the chief library of the Dean's adopted city I personally called the attention of the authorities to the subject; also that, in November last, as the work had not then been procured, I inserted in the *Manchester City News* an enquiry as to where I could see the book, and especially alluded to its absence from the Athenæum and the Free Reference Libraries—both of which would, one might suppose, have long possessed it. When but a lad I read of the work in London's *Gardeners' Magazine*, and for (*heu fugaces!*) forty years have longed to see it. *H. B. Biden, Sale, Cheshire.*

Herbaceous Garden at Kew.—This garden would benefit by more intercourse with the herbarium department, where the correctness of the names given to specimens is above suspicion, though this is far from being the case in the growing specimens. In fact they label things with the name under which they receive them. Could not this be remedied? *Cultivator.*

Yellow Corn Kale, or Mild Mustard.—I cannot very well tell with how much labour I tried to extirpate this weed in green and grain crops, gardens, and wherever it appeared. There are two varieties here—one with rough foliage and firm tap-root, that takes some trouble to hand-pull. The name in the vernacular (Irish) is *Preshaughwé*, and there is a firm conviction in the minds of many farmers and gardeners that the seed will remain in the ground for ages, and when exposed to the air at once, winter or summer, vegetates "right off." Would some of your readers who may have thought over the matter kindly say if this is so? Others maintain that winds or birds distribute it. It would save much trouble and expense, too, if any one could suggest a less troublesome or expensive remedy than hand-pulling. I have seen parties in corn fields lop off the head when nearly ripe with sickles. *W. J. Murphy.*

Seedling Figs.—A correspondent ("W.") of the *Gardeners' Chronicle* sent some seedlings of the common Fig to the Editor, who forwarded them to me, together with the following note:—"I have read Mr. W. B. Hemsley's notes, &c., on the Fig, at p. 22. With regard to seedling Figs perhaps I may be allowed to mention that I am not unfamiliar with them, at least of one variety—the White Marseilles. I enclose you a few specimens. They are very small, and escaped the fingers of the garden boy, who, unfortunately, weeded the border where some hundreds were growing of much larger size. I have no doubt this crop of seedling Figs sprang from the contents of a dry earth closet which was applied to the border, under glass, as a top-dressing. Has Mr. Hemsley examined any second-crop fruit of the White Marseilles for fertile seeds? When grown under glass, the second or autumn crop of fruit rarely drops, and being grown and matured under the influence of more light and heat, the development of the fruit may be more perfect." The plantlets sent are, it would seem, undoubtedly seedlings of the common Fig; but their earth closet origin does not prove that they proceeded from Figs of English growth, yet I suppose, from his communication, that "W." is of opinion that they did. Of course nothing short of a direct experiment would be conclusive I have not had an opportunity of examining any of the second-crop fruit of the White Marseilles variety. There are two or three questions to answer, namely—Are perfect male and female flowers found in the same fruit (receptacle) of any variety of the edible Fig? Do English-grown Figs produce seeds capable of germination? If so, are the embryos the result of sexual fecundation, or are they adventitious? The presence of perfect male flowers is not in itself sufficient to answer the last question. If it be true that when male and female flowers are present in the same receptacle they are not functionally active at the same time, and that the females have passed the receptive condition before the males are fully developed, then it would be necessary for fertilisation that some agent should convey the pollen from one receptacle to another. *W. B. Hemsley.*

The Bracken (Pteris aquilina).—This beautiful native Fern is so well known that it may seem unnecessary to call the attention of your readers to its merits, but that is not by any means the case, as but very few are aware of its great value as a decorative plant for the embellishment of the flower garden and pleasure grounds. Having recently had the pleasure of looking through the gardens at Munstead Park, near Godalming, the residence of Mrs. Jekyll, I was delighted with the effect produced by the aid of this Fern in the grounds there. Here "feathery Brackens fringe the rocks." Yes, and the beds and paths too; fine breadths of it interspersed with stately groups of Mullein and white Foxgloves, large bushes of Sweet Brier, now covered with blossom; groups and single specimens of the Birch and Scotch Fir, single and double Furze, masses of Poppy, of red Foxglove, Alströmeria, Lilies, Scotch Roses, and Delphiniums of every shade of the most dazzling blue and purple. These are principally the materials used to produce garden scenery of surpassing beauty—materials that are within the reach of almost all who have a garden to beautify. But what struck me most particularly in these gardens was the very clever but apparently simple manner in which commonplace things are employed, with such fine effect, to show up and heighten the beauty of the natural features of the place, especially the liberal manner in which the Bracken is used, and the prominent position it holds as a decorative plant—a, position as here demonstrated, it so richly deserves. *H. H.*

Thrum-eyed Primroses.—If I am right, that it is an accepted theory that thrum-eyed Primroses and Polyanthuses, especially the old blue Polyanthus, do not bear seed, I can testify to the contrary, as I have seedlings germinating from seeds of the old blue Polyanthus as well as from other thrum-eyed Polyanthuses and Primroses. *Max Leichtlin, Baden-Baden.* [The theory—fact rather—is, not that thrum-eyed flowers do not bear seed, but that on the average they do not produce so many or such good seedlings in the long run. Ed.]

Free Trade or Fair Trade.—I beg to send you a Dutch bulb catalogue, with a notice from the grower offering gentlemen's gardeners a bribe of 20 per cent. on all accounts of £20 and upwards, &c., goods carriage-paid. The said catalogue was sent to a gentleman's gardener in this neighbourhood and handed to me. *J. C.* [Comment on the morality of this system of trading is superfluous. Ed.]

Grape Growing at Clovenfords.—The Vines at the Tweed Vineyard are again in splendid condition, the various houses containing very fine and remarkably even crops of fruit. The long corridor devoted to the (much abused by some) Duke of Buccleuch is simply perfection, the bunches being of good size, and the berries very large. In all the other houses the crops are equally fine. Mr. Thompson at one time grew soft-wooded plants largely, but the houses that were used for that purpose are now devoted to the culture of Orchids, and well they are grown. Vandas, Aërides, and Saccolabiums are growing luxuriously, Cattleyas and Lælias also; the cool Orchids, especially Odontoglossums and Masdevallias, are all well cared for. Noticeable also in one of the houses is a fine plant of Anthurium Scherzerianum Knightii, very bright in colour, with enormous spathes. This is one of the finest varieties I have ever seen. Should any one be near Clovenfords let me advise him to visit this well kept establishment, and I am sure he will be more than gratified with his visit. *A. O.*

Florists' Flowers.

Herbaceous Calceolarias.—Generally speaking, seeds of herbaceous Calceolarias are sown in July, but some growers, and they not among the least successful, say, sow in June: the main reason assigned being that a sowing made in this month produces the quickest, strongest, and most robust plants. That is undoubtedly a very satisfactory reason indeed. Calceolaria seeds germinate quickly, and to a very great extent simultaneously, that is, presuming the seed to be new and good. Sowing is a simple process—clean well drained pans or pots, a good free, rich, firm, and yet porous soil, used sufficiently moist as not to require water—the seeds distributed evenly and thinly, for the grains are exceedingly minute; and when this is done they should be covered with a mere dusting of fine earth. Then, when placed in a cool place with a pane of glass over each, and shaded if necessary, the seedlings will begin to appear through the ground in nine or ten days. A successful grower of the Calceolaria stated that he prefers the moist shady part of a vinery, as the position for the seed pots.

Beyond this point cultural directions are scarcely necessary, for it is a topic touched upon by most writers on floriculture. This, however, can be stated with much truth — the seedling Calceolarias are far too much coddled and drawn in a young state, and then the plants become weakly, and very often do not get back to a vigorous state again. One authority on the cultivation of the Calceolaria puts forth a timely caution to growers when the plants are ready for their first transplanting from the seed-pots—"There is a singular fact about Calceolarias at this stage of their growth that is well worth bearing in mind. With many objects it is a safe rule to use the robust seedlings and throw the weakly ones away. That practice will not do in the case of Calceolarias, or some of the most charming colours that can grace the conservatory or greenhouse will be lost. The strongest seedlings generally produce flowers in which yellow largely preponderates. This can easily be verified if the plants are kept under separate numbers. But it must not be inferred that because the remainder are somewhat weaker at the outset that ultimately they will not make robust plants. It is our practice to prick off from each pan about three times, and to do this with the shortest possible intervals."

It is during autumn and winter that the cultivator of the Calceolaria finds some difficulty in managing the plants; many have to grow their plants in a crowded house mingled with other subjects, and they are rarely satisfied with the result. It is not to be wondered at. If they have to be wintered in a house containing other plants it is best to give them one end of it, and that end where they will obtain plenty of light both at the top and sides. If severe frost threatens care must be taken that the plants are properly protected from harm. There is no doubt that Calceolarias are best wintered in a frame, where plenty of air can be given in mild moist weather, and fire-heat applied when it is wet, cold, and frosty. In such a position the plants can be fumigated readily and with ease, which is a great advantage. If the plants can be brought safely through the winter the after cultural requirements are straightforward enough.

And now the question arises—Have we made any substantial advance with the herbaceous Calceolaria during the past ten years? On the whole there is no doubt that some appreciable gain has resulted, though it is not so marked and so decided in character as it was in the previous ten years. It must needs be so with popular flowers that have reached a certain degree of development; after that the progress made is much more gradual.

When in Reading in May last I inspected a batch of herbaceous Calceolarias at the Portland Road Nurseries of Messrs. Sutton & Sons. The plants filled a large house, and they had been raised from seed taken from carefully fertilised flowers of the previous year. Altogether there were about 200 specimens growing in 6, 10, and 12-inch pots, all of the most robust habit of growth; the largest plants nearly a yard through, with just a few slight stakes to support them here and there. There was no attempt at tying out as for exhibition purposes, a natural spreading, yet erect habit was

perceptible in all. A close examination of these plants showed that they could be arranged in three divisions :—1st, those having erect trusses of blooms, that is, the flowers standing out in a horizontal position; 2d, those with drooping flowers, the trusses of being scarcely so symmetrical in appearance as the first division ; and thirdly, a division with a distinct and pleasing branching habit, the plants broad at the base, sending forth strong shoots laden with fine trusses of flowers. The flowers on this batch were mainly self-coloured—crimson, pink, yellow, maroon, bronze, creamy-white, brown, amber, magenta, &c. Self-coloured Calceolarias of deep hues of colour are generally fine and striking. Many of the flowers were two-coloured or parti-coloured, and they varied in the spot ; some were large, others like small punctures of colour, and many were marbled and laced in natural patterns hard to describe. Even some of the prevailing fashionable colours in dress were found in these Calceolarias ; there was the strawberry-squash in a lively and attractive form. We have no doubt there is greater density and endurance in many of the colours, and this is being attained, and can be more largely secured by careful fertilisation.

The seeds of these plants were sown in June and July of last year, raised in an old spent hotbed, and pricked off as soon as large enough on four consecutive occasions. This is a necessary process, as the plants of strongest constitution, such as brown and yellow, will be in the van of rapid growth, and can be grown on for early blooming ; the second and third batches will be of slower growth and choicer quality, deserving, and they should have, extra attention. As a rule, the later plants do not grow vigorously until the new year, when they dash ahead if carefully grown, but bloom later than the first batch.

One sometimes sees Calceolarias in such a poor condition that it must be the result both of bad management and unsuitable soil. In cultivating this flower, good drainage, sweet fibrous loam and leaf-soil, with the addition of sand, are indispensable. A successful grower has stated that manure is not needed n the young stage of growth, and is best employed in ia liquid state to established specimen plants.

Over-potting must be avoided as much as neglect in potting soon enough, and over-crowding should never occur. It is much better to have a few well grown plants than a large number of ill-conditioned ones. Fumigation should always be done when the plants are making their growth, as it is then aphis do so much mischief. And at the last potting more loam should be used than in the earlier stages of growth, and the soil should be pressed more firmly about the plants, taking care to leave space enough for top-dressing. As soon as the flower-buds appear it is a good plan to thin out the crowded leaves so that air and smoke at the time of ventilating can penetrate the entire plant ; the plants should be kept as cool as the season will allow, giving air on all necessary occasions, in winter opening the lights on the side opposite to that from which the wind may be blowing. Drip from the roof of house or pit must be avoided, hot sunshine and cold draughts of air are also injurious. Slugs do much damage at times, and in common with other noxious vermin should be hunted out and destroyed.

More than thirty years ago Mr. Henry Major, a noted grower of Calceolarias in his day, wrote as follows :—"I know no family of plants in which so many distinct varieties may be produced without perplexity or confusion, nor one in which so many decided improvements have been made as regards form, markings, and richness of colour. And still much remains to be done ; and I think we ought to be particularly careful, while we aim at perfection, not to discard for some trifling defect new, rich, and distinct varieties until decidedly better flowers in the same class are produced. Up to the present time attention to form has prevailed almost to the exclusion of beauty and richness of colour in the markings. Form is undoubtedly a great desideratum, but beauty and richness of colour are, in my opinion, at least its equals, and neither should prevail to the total exclusion of the other." But in these days, when it is the fashion in some quarters to ridicule the florist as a narrow-minded, prejudiced, Old World animal, there is much reason to fear everything is put before form ; and in this respect Calceolaria raisers are degenerating. Having secured so much let the quality of form be once more insisted upon, and so get rid of many of the flat, flabby, and flimsy flowers that so greatly disfigure some of the collections in these days of advancement. *R. D.*

The Cineraria.—Nearly everybody admires the large masses of Cinerarias to be seen at our exhibitions, and also in our greenhouses early in the year, and those who are anxious to possess well-grown plants should see to them during the summer and autumn. The plants exhibited by Mr. James, of Farnham Royal, and which were the subjects of so much admiratioo, were obtained from seeds sown in July. I like to sow the seeds earlier than this. To obtain good plants in 8-inch pots, we sow our first lot in April. The seeds sown in July will produce plants to flower in 6-inch pots, and these are large enough and early enough for some purposes.

In most large gardens a succession of flowers is more important than a blaze of beauty for a limited period. We have Cinerarias in flower from the first week in the new year until the end of May ; and we manage in this way :—The first batch of seedlings sown in April are grown in two ways. One portion of the plants are allowed to flower in 6-inch pots, and are not stopped ; these, of course, flower earliest. Another set are potted on into 8-inch pots, and are stopped when the flower-stem has grown a few inches. Yet another sowing is made about the end of June, or early in July. The named varieties must, of course, be propagated by dividing the plants, or by offsets from the roots. In many places the pressure of work is over for the season, and time can be spared to give that attention to plants of this kind that their merits deserve. In hot dry weather greenfly is one of the most troublesome pests, but it is not alone, as thrips also attack them. These, of course, must be destroyed on their first appearance, and fumigating with tobacco-smoke is the best and cleanest way to get rid of them. The potting of the plants must also be attended to as required. If they become pot-bound it takes several weeks before the plants make a start, and they never do nearly so well as those that have not received any check at all. By far the best place in which to grow the plants is a low span-roofed pit ; and if the lights can be removed from the roof entirely, so much the better. The plants are benefited by abundance of air, but it is not well to expose them to all sorts of weather. A gentle shower of rain does them good, but heavy rains would be injurious ; high winds would cut the large leaves to pieces ; so that it is necessary to have the lights convenient to place over them. Our earliest plants are now ready to be potted into 6-inch pots, and the latest ones to be potted off into small 60's. The soil ought to be light and rich ; decayed and dry cow manure is the best.

The Calceolaria. — This plant requires very similar attention to that for the above. The seeds may be sown at the same time, and the plants be potted on and grown the same way. This subject is even more liable to be attacked by greenfly ; frequent fumigationsa as a preventive answers best. The old-fashioned practice of propagating named varieties from cuttings is out of fashion, because the plants are not grown to name, but are raised annually from seeds. There is less trouble attendant on the culture of Calceolarias from seeds than there is in keeping up a stock from cuttings ; and seedlings generally produce the finest plants. The soft brittle leaves shrink from too much exposure to the sun ; therefore if the house is an exposed one a slight shade is necessary in hot sunshine. A good plan is to grow the plants in frames behind a north wall, or in low pits with a north exposure during the summer months. In winter a heated span-roofed pit is best, but the plants dislike artificial heat even more than Cinerarias do, and they are less liable to be injured by frost. We sow the seeds at the same time as we sow the Cinerarias. They are very small, and must not be covered too deeply—just a very thin sprinkling of sand will be sufficient. The seed-pots ought not to be exposed to the sun before the seeds vegetate, else they may be dried up and injured. A good strain of seeds ought always to be obtained ; the difference between the price of good and bad varieties of seeds ought not to be taken into account when purchasing. Of course all the great seed firms fancy they each have the "best strains ;" and doubtless they are careful to obtain or grow good strains only. Some of them are able to show the plants from which the seeds are saved growing in their own nursery-grounds ; so that for the expenditure of half-a-crown for seeds the purchaser can make sure of the best varieties in existence. *Jas. Douglas.*

Notices of Books.

My Home Farm. By Mrs. J. Hill Burton. (Longmans, Green & Co.)

This useful little book, by the accomplished widow of the Scotch historian, reminds us pleasantly of *Our Farm of Four Acres*, which was justly popular five-and-twenty years ago. There is much of the same shrewd practical advice with details of the writer's personal experience. Mrs. Burton's adventures with her two farm servants, both so excellent in every way, except when drunk, are instructive enough, She says, "The vice is so completely the curse of our country, that any one of exceptional powers found in a humble position may be suspected to be a victim to it." It would be going out of our province to review at length Mrs. Burton's opinions as to the management of horses, cows, poultry, and pigs ; but what she says about making a profit from market gardening is, we fear, only too true in many cases. "By sending superfluous vegetables to the market, I could always sell them at whatever might be the market price. A cartload of vegetables and a dozen bunches of flowers brought me from 10*s*. to 15*s*. That twice a week, would seem worth having. But for that sum one had to have two men, or man and boy, at the market before six in the morning, along with the pony with the loaded cart. At least the half of the previous day was spent by both man and boy in collecting and packing the vegetables for market, and at least one-half of the day on which they went to market elapsed before they could set to any other work. The money value of one day of two men, a horse and cart, cannot be estimated at less than 10*s*. : in most places it will cost more. I therefore calculated that the market price of vegetables at our distance from the town did little, if at all, more than pay for their transport ; that I had nothing at all for the vegetables themselves, and did better, therefore, to use them either for house or animals."

We can recommend *My Home Farm* as a readable and sensible book.

—— *Köhler's Medizinische Pflanzen.*—Under this title Mr. G. Pabst is publishing a series of coloured quarto plates of medicinal and economic plants, with descriptive text and references in German. In the first part are good figures of Laurus nobilis, Citrus vulgaris, C. Limonum, and Juglans regia (Walnut).

Reports of Societies.

Royal Caledonian Horticultural : *July* 11.—The midsummer show of this Society took place in the Waverley Market, Edinburgh. Favoured with the most lovely weather, the market was constituted the fashionable promenade for the *élite* of Edinburgh society during the forenoon and afternoon, while in the evening the vast building was thronged with orderly crowds of the working classes. As to the show in itself no comparison can be made with an exhibition of last year, for the simple reason that none was held at this period, the Society contenting itself with concentrating its efforts upon the International display which took place later in the season. But it may be said that one could hardly conceive anywhere a more interesting or, indeed, of a finer horticultural exhibition. There was plenty of stuff, it was of the best quality, it was admirably staged, and it was placed before the judges in the freshest, neatest, and most artistic manner. The side spaces were adorned with a row of Conifers and of variegated Hollies and Golden Yews, the latter exhibited by Messrs. Ireland & Thomson. Down the centre of the hall was a series of spacious tables furnished by the leading nurserymen of the city, with a circular platform in the centre neatly festooned with greenery and bloom, in which was placed the band. Flanking this central bank were the exhibitors' tables, and the plants and flowers were thereon artistically grouped. The vast semi-circular space at the west end of the market was, as usual, set out by the Lawson Seed and Nursery Company with a collection notable for its size and excellence. A general assortment of Conifers in tubs and pots formed an admirable background to a half-moon table adorned with groups of plants illustrative of tropical, semi-tropical, and temperate plant life. Palms and Ferns and Eucalypti, for instance, rose above numerous choice specimens of Caladiums ; these were intermingled with Dracænas, while the foreground was lit up with Gloxinias, Begonias, and Pelargoniums.

On another table a most effective show of herbaceous plants was made, in full and profuse bloom, and another was taken up with a unique collection of the foliage of all the varieties of our variegated deciduous trees—a feature which found general approval for its novelty and excellence. Messrs. R. B. Laird & Sons, Royal Winter

Gardens, furnished a table whose chief feature was the lordly specimens of Palms, Dracænas, Screw Pines and Yuccas, while colour was given to the lower stages by a profuse display of Pelargoniums and Begonias. Beyond the hand stand was the admirable collection of Messrs. Thomas Methven & Sons, Leith Walk Nurseries. The prominent plants here were Tree Ferns, Palms, and a tall specimen of the Araucaria excelsa; while Crotons, Ferns—including several very nice examples of the Todea superba—Hydrangeas, Pelargoniums, and Lobelias were grouped with very telling effect. Messrs. Dicksons & Co., Pilrig Nurseries, were no less worthily represented by a first-class collection arranged by an artistic hand. Standing clear above a mass of colour afforded by Roses, bouquets of white, yellow, blue and red-purple Violas, Fuchsias, Begonias, and Pelargoniums were gigantic specimens of Himalayan Rhododendrons, including the massive Falconeri and Countess of Haddington; and the space between was neatly filled in with Palms, Pines, Bananas, and Tree Ferns. From Mr. Robertson Munro, Abercorn Nurseries, came a handsome table of old favourites in the shape of herbaceous and rock plants, all in bloom. The Royal Botanic Gardens had a table furnished with botanical rarities, which appealed to scientific visitors. These rarities included a complete collection of Sundews and other carnivorous plants, and a selected variety of economic tropical plants.

Competitive exhibits were divided into two classes—those staged by nurserymen, and those by gardeners and amateurs. Taking the nurserymen's class in the outset, we were struck with the tables of plants for effect. Here the 1st place was by universal acclamation accorded to Messrs Ireland & Thomson, Craigleith Nurseries. There could be no question as to its super-excellence, whether the plants, their value or their condition be regarded. If anything to our mind there was too great crowding of the plants, which marred the individual beauty of many of the finest; but this is a fault—if fault it be—when effect is considered, borrowed from London, where massing is more studied than the art of grouping individuals for subsidiary effective decoration. The specialties of the collection were undoubtedly the Orchids, Ixoras and the Nepenthes. Among the latter we noted a grand specimen of A. Veitchii, with leaves 3½ feet long — introduced two years ago; A. Mastersiana, introduced last year, with pitchers 11½ inches long and 7½ inches in circumference; and A. Hookeri. Of the Orchids the best were Cattleya Mossiæ, with its beautiful purple lip; C. Warneri exquisite in the rich deep maroon of its lip; and C. Mendeli, lighter than the last-named in its upper petals.

There was a fine lot of Masdevallias, in capital bloom, and the best of the Dendrobiums was last year's introduction, D. Dearei, with pure white flowers; also two or three specimens of the Bee Orchis in characteristic flower. The Cypripediums were especially good, the most notable being C. Lawrenceanum, very beautiful in the markings of the upper petals; and C. Stonei, with its characteristic long tails. Odontoglossums were in variety; and of the Anthuriums the newest was A. Warocqueanum, with leaves 3½ feet long. This splendid collection embraced a fine lot of nicely flowered Ixoras, Heaths, Crotons, decorative Palms, Stephanotis, &c. The same firm were 1st for four Palms, their specimens including Kentia Fosteriana—an intermediate-house variety from the South Seas, 10 feet high—and a very fine Phœnix rupicola.

Honours for table plants were divided between Mr. J. Sutherland and Mr. M. McIntyre, but there was nothing especially striking in their collections. Messrs. Ireland & Thomson carried the day with their Dracænas, good young well coloured plants; while Messrs. Dicksons & Co. were 1st with a couple of splendid tall and graceful Tree Ferns. The Lawson Seed and Nursery Company maintained their ancient renown for their Conifers.

Perhaps the most striking competition among the nurserymen from the point of view of the general public was that for Roses. Growers from the North of Scotland, from the South of England, and from Ireland were represented, and seldom has such a magnificent display of the queen of flowers been seen anywhere—never before in the capital of Scotland. For the best forty-eight blooms there was the keenest tie between two such reputed growers as Mr. H. Dickson, of Belfast, and Mr. C. Turner, of Slough, and the judges hung long over the award. Finally the premium was given to the Irishman, mainly on the ground of the size and symmetry of his flowers, though it was admitted that, if anything, the Slough lot carried the palm for richness of colour. It would be invidious to pick out any special variety for special notice, but to judge from the verdict of the crowds of ladies and gentlemen who surrounded the stand all day long, it might be argued that the dark varieties were the favourites. For the best twenty-four blooms Mr. Turner had again to lower his colours to Messrs C. Bunyard & Co., Maidstone, Kent. Their lot was scarcely inferior, if at all in some individual blooms the superiority was admitted—to Mr. Dickson's; while Mr. Turner's 2d prize two dozen exhibited form, comeliness, and colour, which, in most competitions, would have carried them to the front rank. Mr. Dickson was again 1st for the best twelve distinct sorts sent out since 1880, but he was run close by D. W. Croll, Broughty Ferry. The latter gentleman comes from a later district, and we daresay that, had the show been two or three weeks later, both he and Messrs. Crocker & Sons, Aberdeen, who were unplaced, would have given the veteran Irish grower a harder pull for leading honours.

Beginning our notice of the gardeners' exhibits with the Roses, it may be said that these collections were creditable in the extreme. Of course, in size and uniformity, and in depth of colour, they fell far short of such notable professional growers as Dickson, Turner or Bunyard, yet this much must be conceded, that any show would have had credit with the forty-eight blooms with which Mr. R. Fergusson, Clermiston, carried off the 1st prize. The flowers were large and handsome, and if not so close as might be, yet rich in colour, and staged in fine order. Mr. Parlane's (Helensburgh) 2d prize lot was unequal in merit. For twenty-four Roses, Mr. Kirk, Alloa, was 1st with a couple of dozen, less even in quality than Mr. Fergusson's, but containing some gems. The last named gentleman was 2d in this class with twenty-four smaller blooms than his other lot, but in some respects more compact and of heavier cloth. Mr. Shiach, Lauriston Castle, was 1st for the best dozen blooms; only one in the lot could be reckoned of second-class quality. The Tea Roses were very good. We do not remember to have seen a finer display of plants by gardeners than that for the best furnished table, 20 feet by 5 feet, effect being reckoned the primary consideration. The first premium deservedly fell to Mr. Jas. Grosart, Oswald Road, Edinburgh, for a table which for easy artistic arrangement beat that of Messrs. Ireland & Thomson. The leading plants were a Dæmonorops in the centre flanked by a pair of Cocos Weddelliana, and among those which gave character to the groups of less height were the Orchids. These embraced a particularly fine Cattleya Mossiæ, an Odontoglossum vexillarium, with twelve blooms of a delicate rose and white; a Lælia purpurata, an Oncidium Krameri, bearing however, only one flower so like a butterfly as to deceive a bird. Among the other plants which went to make up a most effective decorative group were Gloxinias, Dracænas, Cockscombs, intermixed with Maidenhair and other Ferns. The 2d prize was accorded to Mr. A. Paul, Edinburgh, for a table not so crowded as the first and therefore giving more scope for the display of the individualities, so to speak, of the plants. The default of the table was the lack of flowering stuff—the eye demanded more colour to be satisfied with due effect.

For a single Orchid Mr. J. Paterson, Millbank, was awarded the premium, his specimen being a remarkably cleverly done Disa grandiflora, with sixteen grand rich scarlet flowers, with the upper petals beautifully striped. Mr. A. Paul was 2d, with an Odontoglossum vexillarium Klabochianum, with about fifty flowers, white and pink in colour. Many thought that this was the better plant of the two, but no doubt the judges took into account that Mr. Paterson's Orchid demanded more skill in rearing and bringing into bloom. Mr. Paul, however, was an easy 1st for four Orchids, his specimens being Odontoglossum superbum, O. vexillarium, O. Skinneri, and Lælia purpurata. For two Orchids Mr. J. Curror, Eskbank, came 1st, with an Oncidium macranthum nicely grown, and an Aërides virens profusely flowered. There was a remarkable table of Cycads, the 1st prize going to Mr. R. Grieve, Falcon Hall, for a tall and beautifully grown specimen of the circinalis variety. But Mr. Grieve had to play second fiddle to Mr. J. Paterson for four Palms, the last-named excellent grower's specimens being both large and of the newer sorts.

Mr. Paul carried the honours for Caladiums and Achimenes, and he was equally strong in exotic Ferns. A pleasing display was that of Ferns, both tropical and British; and in addition to the gentlemen named Mr. J. Leyden, Mr. A. Anderson, and Mr. J. Cumming, St. Roque, were well to the front with gigantic specimens. There was a sparsity in the show of greenhouse plants, but what were forward were of good quality. Mr. A. Paul again carried leading honours for six stove and greenhouse plants, his lot embracing an Anthurium Scherzerianum with a score of spikes; a good Lælia purpurata, and a Clerodendron coccinea in luxuriant blossom. Mr. J. Paterson was to the fore for the brace of greenhouse plants, which were a large, excellently trained Erica Shannoniana, one mass of splendid bells; and an Aphelexis macrantha, also covered with well developed flowers. Mr. A. Scott, Carbery Tower, carried the day for four and six foliage plants, which included a Croton, Palms, Cocos, Dracænas, and a Pandanus Veitchii. The whole class was excellent. In the class for two foliage plants some surprise was expressed that the 1st prize went to Mr. George Kerr, Glencairn, for two exquisitely marked Coleus, but there could be no doubt as to these exhibiting the best cultural art, though some imagined that other exhibitors had finer—certainly they had costlier plants. Mr. J. Paterson occupied his wonted 1st place for Cape Heaths, and it need only be said that they were perfect in management and in flower. Of the minor classes it may be stated that there was a large and on the whole a fine display of Lilies, Fuchsias, Heliotropes, Pelargoniums, and bouquets.

Considering the season of the year the show of fruit was superb—equal, indeed, to anything that may be seen in ordinary years at the September exhibition. For the collection of fruit Mr. George Johnstone, Glamis Castle, was an easy 1st with a magnificent lot, which included Black Hamburgh and Black Alicante Grapes, which for finish, size of berry and bunch quite came up to anything he has ever produced; capital Peaches and Nectarines, Figs, and a Pine, which was the only weak fruit in the collection. Mr. T. Boyd's 2d prize lot comprised a Melon, a basket of Strawberries, a bunch of Bananas, a Queen Pine (small), and two bunches of Grapes deficient in colour. For one Pineapple Mr. D. Murray, Culzean Castle, was 1st, with a good-sized Queen. Mr. George Johnstone carried the palm for two bunches of Black Hamburgh Grapes, exquisite in bloom, and no less excellent in size of berry and bunch. For blacks of any other sort Mr. T. Boyd was 1st, with a brace of Madresfield Court, well finished; Mr. Dow's 2d being Muscat Hamburghs, scarcely forward enough. Mr. Dow was, however, 1st for whites with a couple of bunches of Muscats, in all respects first-class excepting an immaturity of bloom. Mr. McKinnon, Melville Castle, and Mr. A. Young, were 1st and 2d, the former for Peaches and the latter for Nectarines, the Peaches being especially fine; Cherries were good, the Strawberries unusually fine, Figs ripe and luscious, and Melons, if small, of good flavour. There was a highly creditable show of vegetables. (*From a Correspondent.*)

Ipswich and East of England Horticultural.—At last the spell is broken, and the misfortune that always seemed to follow the Ipswich and East of England show exists no longer, for on Tuesday, the 10th, instead of the usual wet, the weather was splendid, and the Rev. H. A. Berners, the enthusiastic Hon. Secretary, who has laboured so hard and so long to build up the Society on a sound basis, must have rejoiced to see his persevering efforts crowned with success, as they now are, for the entries were exceedingly numerous, the company great, and the exhibition, in the opinion of all, the best ever held in the place. The site chosen for the *fête*—in Christchurch Park—was a most excellent one, as it lies on the crest of very high dry ground, partly surrounded with magnificent Limes, and interspersed with them or other noble trees, which afforded the much desired shade and cool air for the visitors and tents, and thus enabled the people who thronged to see the show to enjoy it to the full, which they seldom do under ordinary circumstances, when the atmosphere of marquees is so close and stuffy, that all, except the strongest, are glad to beat a hasty retreat and get where they can breathe freely again in the open. There could be no complaints, however, of this kind on the occasion referred to, as the tents were not only cool, but very commodious, especially that in which the Roses and stove and greenhouse plants were staged, which was of huge dimensions, so that all could pass freely in and out, and promenade without inconvenience or discomfort.

The park itself is immediately contiguous to the town, and though not of great extent is one of the most picturesque and diversified it is possible to find, as the land seems pitched about abruptly and naturally, and the timber, though large and old, is in the rudest of health. Some of the trees are remarkable for their gigantic proportions, the Oaks, Limes, and Spanish Chestnuts—more particularly one of the latter—being specially noticeable owing to the peculiar swelling out towards its base, where it measures quite 40 feet round, and there are others that have strangely contorted trunks, and singular twists of the stems. What added so much to the glory of the exhibition was the Roses and the splendid fruit brought from afar, many of the well known leading men in the country were there, as will be seen when the names of Cant, Paul, and Prince are mentioned among the nurserymen, and the Revs. Foster, Melliar, Page, Roberts, Pemberton, Mr. D. T. Fish, and Mr. G. Palmer as amateurs; while the chief struggle in the pomological department was carried on between Mr. Bethell, of Sudbourn, Mr. Blair, of Shrubland, and Mr. Allan, of Gunton Park, so that each had foemen worthy of his steel.

Taking the fruit first it is not too much to say that three better collections could hardly be staged, and the competition was a very close one, and would have been even more so had Pines been excluded, as they really ought to be, to place non-growers on a more equal footing when they measure their strength. As it was Mr. Bethell won the premier award, Mr. Blair, gr. to Sir G. Broke, Middleton, coming in 2d; and Mr. Allan, gr. to Lord Suffield, 3d. Mr. Bethell had superbly finished Peaches and Nectarines, a rich looking, highly coloured Melon, very fine black and white Grapes, Figs, Strawberries, and a Pine. Mr. Blair had a similar lot, as had also Mr. Allan, but no Pine, his Black Hamburgh Grapes being simply perfect, as were likewise those he showed in the class for three bunches, where he was an easy winner. The 1st prize for Peaches was carried off by Mr. W. Beer, with very rosy and large Hale's Early, Mr. Allan coming 2d with well ripened Noblesse. For six Nectarines Mr. Allan was 1st, Mr. Spooner, gr. to C. Norman, Esq., Mistley Court, 2d; and Mr. Rushmere, gr. to Sir C. Rowley, 3d. Strawberries were well represented, Mr. Allan having some extraordinary Dr. Hogg, with which he came in 1st for the heaviest thirty-six, beating a dish of the large coarse Myatt's Surprise. For the best collection Mr. Tebenham, gr. to Lady North, was placed 1st, and Mr. Allan 2d, with a smaller lot of very fine fruit. In the class for flavour the good old British Queen stood at the head. Mr. Blair scored a 2d with the same sterling variety. Excepting the fine very large Bigarreau Napoleon Cherries contributed by the last-named gentleman the exhibit of this fruit was poor, but Raspberries and Currants were just the reverse.

The competition in the plant department was not so strong or close, and Mr. Bethell scored an easy victory in both classes for eight and four, in the first of which collections he had very fine plants of Bougainvillea glabra, Clerodendron Balfourianum, Stephanotis floribunda, Dipladenia Brearleyana, Azalea Hendersoni, and Ixora Williamsi. Messrs. Gilbert, of Ipswich, came in 2d, their best plants being a very large Erythrina Cristagalli, Stephanotis floribunda, and Croton Johannis. Mr. W. Sheppard, gr. to G. Packard, Esq., was placed 3d, the most telling specimens in his collection being a huge bush of the large showy Chrysanthemum Alice Crausse, densely flowered; and a well-bloomed Allamanda Hendersoni. In the class for fine-foliaged plants Mr. Bethell was again 1st, showing Dracæna amabilis, Kentia Belmoreana, Croton angustifolius, and Cissus discolor; the Messrs. Gilbert running a good 2d, a big Phormium tenax Veitchii being the most notable plant of their four. For six exotic Ferns the order was reversed, the Messrs.

Gilbert being declared the winners, but they were closely pressed by Mr. Bethell, who had among his a grand plant of Davallia Mooreana in the perfection of health. The premier prize for a group of plants, arranged in a space 12 feet by 4, was secured by Mr. Chenery, gr. to D. H. Booth, Esq., who had a very serviceable lot; and in the same class the Messrs. Gilbert had to be content with second honours.

In the cut flower department all interest seemed centred in the Roses, of which there was a magnificent display, a row of boxes running along each side of the centre table in a very long tent. The division between was made with green baize, which formed a good background, but it would have been much better if a line of Maidenhair Ferns had been used in its stead, as the delicate tint of their fronds would have softened and toned down the bright colours in front. The prize for forty-eight was hotly contested, and the collections of Mr. B. Cant, of Colchester, and Mr. F. Cant, of the same place, were so close that the judges had much difficulty in deciding, but finally the coveted award fell to the first-named gentleman. The stand of forty-eight contributed by Mr. Frank Cant appeared to improve as the day wore on, and seemed faultless throughout the whole lot, as they were then perfect in finish and colour. The Messrs. Paul & Son, of Cheshunt, who were 3d, seemed to have been unfortunate in the carriage of theirs, as they had evidently suffered in the journey, or from the weather before they were packed. In the amateurs' class for thirty-six Mr. G. Palmer, gr. to Captain Powell, of Drinkstone, proved the victor, beating the Rev. H. T. Frere and the Rev. A. Foster Melliar, who generally shows in fine form. The Rev. J. H. Pemberton was quite unapproachable in the twenty-fours, showing a splendid box of flowers of great substance of petal, with a rich play of colour. The Rev. Page Roberts had also a good lot in this class, and was 2d. In the twelves the Rev. J. H. Pemberton was again to the fore, beating the Rev. H. A. Berners, who, however, had several very fine blooms. The most attractive exhibit in the tent was Mr. B. Cant's box of twelve sorts, three trusses of each, and a beautiful lot they were, as were also those of Mr. F. Cant and the Messrs. Paul, who came in 2d and 3d. Tea Roses appear special favourites with the ladies, and no wonder, as they are of a more useful size than perpetuals, and their tints are delicate and lovely, besides which their scent is delicious. Messrs. Paul, though worsted in the other classes, were 1st for these, showing a splendid dozen, which were greatly admired. The chief prize for the best stand of cut flowers for table decoration was won by Mr. Palmer, of Drinkstone. For a bridal bouquet Mr. Bethell was 1st, with an exceedingly choice one, made up principally with Lapageria alba, Stephanotis, Gardenias, and Pancratium; Mr. Palmer coming in 2d with one composed chiefly of Eucharis, Tabernæmontana, and Gardenias. Messrs. Gilbert were to the fore with a most tastefully made ball-room bouquet, in which Orchids were freely used, and the same with the one of Mr. G. Palmer's which was awarded the 2d prize.

Herbaceous cut flowers were well represented, and the stands, though far too crowded, contained many fine things, and showed plainly what magnificent subjects many of them are for decorative purposes either indoors or out; and the wonder is that plants bearing such a wealth of floral beauty should have been allowed to drop so much out of cultivation as they have, for whether growing in borders or cut they are equally striking. Instead, however, of exhibiting them on small stands, such as used for Dahlias or Asters, they ought to have treble the room, or be put in separate vessels of water, and named, so that each bunch could stand out and be seen distinctly, displayed in which way there would be nothing to equal them in a show. In the class for twenty-four the Messrs. Gilbert were 1st, having in their collection three fine varieties of Alströmeria, Delphiniums Brilliant and Beauty of Peyrony, Dianthus hybrida multiflora, Geum coccineum flore-pleno, Campanula persicifolia alba, Catananche bicolor, Gaillardia Richardi, Prunella grandiflora, and Centaurea montana alba. Mr. J. Buxton, who was 2d, had also a capital lot, in which the lovely pure white old Lilium candidum figured conspicuously, but this stand lost much of its interest and usefulness to visitors through not being named. In the stands for twelve, S. Westhorp, Esq., took the 1st, and F. T. Cobbold, Esq., the 2d prize.

Vegetables were not shown in such abundance as on previous occasions, but for the special prize offered by Messrs. Rands & Jeckel there was a good competition, the 1st award falling to the lot of Mr. Bethell, and the 2d to Mr. Lever, gr. to F. T. Cobbold, Esq. The sorts of Peas exhibited consisted mainly of Magnum Bonum, Telegraph, Telephone, and Stratagem, the first-named lots all having fresh-looking pods of very large, sweet and succulent, deep green Peas.

Twickenham Horticultural: *July* 10.—Thanks to Sir John Astley's kindness this popular suburban Society was enabled to hold its summer show in the beautiful grounds of the Orleans Club, and this, the third time of asking, proved a success, as the show was good, the day delightful, and the attendance excellent. As usual at suburban and metropolitan shows there were some good trade groups, and these are always interesting, as they include many choice things and often novelties that would otherwise not be publicly seen. Of this character was the beautiful piece of Dendrobium superbiens, the flowers of an unusually deep rosy-mauve hue, shown in the capital group of plants put up by Messrs. Jackson & Son, of Kingston, who also had several very fine Odontoglossum vexillarium, good Ericas, &c. Messrs. Hooper & Co., Twickenham, and Mr. W. Brown, of Richmond, had charmingly arranged collections; Mr. Laing, of Twickenham, a good mass of gay plants, and Messrs. Veitch & Sons put up a large collection of superb cut Roses. Mr. Bates, gr. to J. E. Meeks, Esq., Paulett Lodge, Twickenham, grouped a fine lot of decorative plants also, but being an active member of the committee he does not show in the competitions.

The usual decorative mixed groups were a telling feature, and were admirably done, Mr. Munro, gr. to Lady John Chichester, Twickenham, having a very effective arrangement — Mr. J. Parsons, gr. to T. Twining, Esq., of the same place, coming next, with a very pretty group. Six admirable stove and greenhouse plants in flower came from Mr. Hinnell, gr. to F. A. Davis, Esq., Surbiton, who had superb examples of Erica ventricosa, Bothwelliana, and tricolor Wilsoni; Phœnocoma prolifera Barnesi, very good; Aphelexis macrantha rosea, a fine Darwinia fuchsioides, and a big Aërides odoratum. Mr. Munro had the finest lot of foliage plants in huge Seaforthia elegans and Areca Verschaffelti, large Dracænas Youngii and Baptisti, well-coloured Crotons majesticum and Regina, both good. Six grand pans of Achimenes came from Mr. Swallow, gr. to J. J. Flack, Esq., Twickenham, one of which, the pure white-flowered Margarita, was about 3 feet high, and nearly as much through. It is grand masses of flowering stuff of this kind that are so much needed at many shows. Mr. Morrell, gr. to J. S. Rutter, Esq., Richmond, had six capital Fuchsias in Baroness, Mrs. Marshall, and Albert Memorial, whites; and of reds, Lord Beaconsfield, John Gibson, and Galatea. The best six Begonias in competition for Messrs. John Laing & Co.'s prizes came from Mr. Munro, and were dwarf, admirably grown, and very large-flowered plants.

There was a large competition in the fruit and vegetable classes, and in the former section Mr. Munro was a good 1st with six fine dishes, his Black Hamburgh Grapes and Gross Mignonne Peaches being exceptionally good. With three bunches of good Madresfield Court Grapes Mr. Thompson, gr. to Mrs. Wells, Hounslow, was an easy 1st in that class, Mr. Munro having small but capitally finished Hamburghs, Mr. J. Coombs, gr. to Sir H. Meux, Sheen House, had in Muscat of Alexandria, of excellent finish, the best white Grapes, Buckland Sweetwater being also in good form. Mr. E. Lake, gr. to E. Ascherson, Esq., Haversham Grange, had the finest dish of Peaches in grand fruits of Noblesse, Violette Hâtive coming in 2d; and in the Nectarine class the kind of the same name, from Messrs. Waite, of Esher, and Heckle, of Twickenham, were superbly coloured. James Veitch Strawberry came 1st and 2d in that class, and Hero of Lockinge was both 1st and 2d in the Melon class. Mr. Thompson had a superb dish of Trophy Tomatos, and Sutton's Victory of Manchester and Carter's Model were the best Cucumbers.

There was a large number of the customary table decorations, some very pretty, some otherwise; some sixty bunches of wild flowers set up in bewildering sameness by children, and, not least, a truly superb show of cut Gloxinias in boxes of twelve bunches: the 1st prize lot, staged by Mr. Warwick, of Hampton, was such a splendid lot of flowers as to evoke the highest admiration. The cottagers also made a brave show.

Ealing Horticultural: *July* 11. — This annual exhibition was held in the beautiful and most convenient grounds of the Royal Indian Asylum, and the weather being delightfully fine the attendance was enormous. The district, including as it does the immense parishes of Ealing, Acton, and Hanwell, with their teeming population, is so wide that outside help is little encouraged, but some liberal open prizes are offered for cut Roses, which always bring a first-rate competition; indeed, the flowers staged at Ealing were as good as well could be. In the class for twenty-four trebles Mr. C. Turner, coming with fresh-cut flowers from Slough, was a good 1st, with superb blooms. We just noted as very charming A. K. Williams, most brilliant in colour; Harrison Weir, Alfred Colomb, Camille Bernardin, Countess of Rosebery, Marie Baumann, and Charles Lefebvre amongst rich-coloured flowers; and Baroness Rothschild, La France, Maréchal Niel, Madame Laurent, Duchesse de Morny, and Françoise Michelon, light kinds. Mr. G. Prince, of Oxford, came 2d, with a strong lot of flowers, and of diverse kinds were charming blooms of Lord Macaulay, Louis Van Houtte, Sénateur Vaisse, Mons. E. Y. Teas, Captain Christy, Mdlle. Marie Finger, &c. Mr. Rumsey, of Waltham Cross, was 3d; and Mr. Piper, of Uckfield, 4th.

A new open class for Tea Roses was equally filled, Mr. Prince coming 1st with a superb lot of blooms. His dozen comprised Alba rosea, Maréchal Niel, Souvenir de Paul Néron, Marie Van Houtte, Madam Lambard, Comtesse Nadillac, Niphetos, Catherine Mermet, Innocente Pirola, Souvenir d'un Ami. Mr. Piper came 2d, and Mr. Turner followed. A truly splendid lot of Roses came from Messrs. E. Lee & Sons, Ealing Nursery, and included a wondrous variety of good kinds. Specially fine were the blooms of Magna Charta, rosy-pink; Mabel Morrison, Mdlle. Annie Wood, Countess of Rosebery, Duke of Connaught, Pierre Carnot, and others. From Messrs. Veitch & Sons also came a beautiful lot of flowers that commanded the fullest admiration. The local classes were also wonderfully well filled, and Ealing folks have never seen there a finer display of the queen of flowers. Mr. Hudson, gr. to H. J. Atkinson, Esq., Gunnersbury House, was placed 1st amongst several competitors, with twenty-four bunches and twelve bunches of greenhouse flowers, and also occupied the same position with a brilliant box of twenty-four bunches of large-flowered Pelargoniums. With cut hardy flowers Mr. R. Dean and Mr. G. Simpson were placed equal 1st, both having some beautiful Delphiniums, Œnothera Fraseri, and, in the former stand, spikes of the Nettle-leaved Campanula with double white flowers, were much admired. There were large quantities of Sweet Williams, Antirrhinums, and other cut flowers, and the dinner and drawing-room stands were varied and more or less elegant. Specially charming was a stand dressed solely with wild flowers and grasses, sent by Mrs. Hayward, of Ealing—a few blooms of the blue Cornflower, Buttercups, Ox-eye Daisies, wild Roses, and some grasses, making up a pretty arrangement. Stands dressed with garden flowers were mostly too heavy—Roses, especially large dark flowers, always unfit for epergnes, making the arrangement lumpy. A tendency to largely over-dress with Ferns and grasses is a common fault on the part of lady decorators. Some very elegant stands set up by Mrs. Hudson, but not in competition, secured well merited admiration. Fruit was shown in good form, and it may be anticipated that Mr. Hudson, who is always strong in every department, was 1st with six dishes, having superb Madresfield Court and Foster's Seedling Grapes, good Queen Pine, handsome seedling Melon, Lord Napier Nectarines, and splendid Black Circassian Cherries. Mr. Chadwick, gr. to E. M. Nelson, Esq., Hanger Hill, came 2d with good Hamburgh and Buckland Sweetwater Grapes, Royal George Peaches, &c. Mr. Hudson was 1st with two bunches of black Grapes, his Madresfield Court being perfect. Mr. Baird, gr. to C. A. Daw, Esq., Ealing, came next with fine but not fully coloured Black Hamburgh. With two bunches of white, however, Mr. Baird was a good 1st, having a superbly finished bunch of the Duke of Buccleuch, berries of great size and clear skin; and a hardly less meritorious bunch of Buckland Sweetwater. Mr. Hudson was placed 2d with fully finished Foster's Seedling, but was an easy 1st with Black Circassian and Bigarreau Napoleon Cherries. In two classes Mr. Chadwick had the finest two dishes of Strawberries in Eleanor and Dr. Hogg—Mr. Stone, gr. to W. Mead, Esq., coming 2d with fine President.

The plant tents were filled almost to crowding with a grand display of stuff, foremost amongst which must be placed the large foliage plants and Ferns, from Gunnersbury House—Mr. Hudson, on this occasion, almost excelling himself. His six Ferns included a majestic Dicksonia antarctica, a truly monster Gleichenia flabellata, some 8 feet through, and perfect in form; Davallia bullata, of great size; Lomaria gibba, Nephrolepis tuberosa, and Alsophila capensis, all very fine specimens. His six stove and greenhouse plants included a truly grand Alocasia metallica, about 7 feet through, and superbly done, perhaps one of the finest ever seen; a gigantic Croton undulatus, a good Bougainvillea glabra, and a charming specimen Asparagus plumosus, 5 feet across, and not more than a year old. Six smaller but truly superbly grown Ferns came from Mr. Smith, gr. to T. Nye, Esq., Ealing, and included a fine Davallia Mooreana, Adiantum formosum and A. gracilis, &c. Mr. Smith had the finest four Fuchsias—gigantic pyramids, and Mr. Wright, gr. to G. Greenfield, Esq., Hanwell, also had capital specimens, the latter taking 1st place in single specimens with a grand Mrs. Marshall—Mr. Smith coming 2d with Try Me Oh, and Mr. Chadwick 3d with Marie Cornillessen. In the group class some beautiful arrangements were put up. Mr. Hudson was, as usual, 1st. The best single flowering plant came from Mr. Barber, gr. to C. Brown, Esq., Gunnersbury, and was a splendidly flowered Clerodendron Balfourianum. Very great indeed was the competition in the many plant classes, and we cannot afford space to notice one-tenth of the exhibits. Very material help was given to the show by the grand groups of plants sent by Messrs. C. Lee & Sons, whose hardy ornamental foliage plants have been previously noticed in these pages; by Mr. C. Turner, who put up two dozen fine show Pelargoniums, making a glowing bank of colour; by Messrs. Fromow, of Turnham Green, whose arrangement was exceedingly beautiful, as becomes this rising firm; and by Mr. Howell, of Hammersmith, who had boxes of tricolor Pelargoniums, &c. One huge tent, to the contents of which we cannot further refer, was exclusively occupied by the cottagers, who make a marvellous display of their garden products, making about 350 separate entries. A number of classes were filled solely by single-handed gardeners, and all the open class vegetables, besides a capital competition for the prizes offered by Messrs. Carter & Co. for three of their fine Peas. The nature of the clerical work incidental to a show of this kind may be gathered from the fact that there was a total of about 1500 entries.

Edinburgh Botanical: *July* 12.—The Society met in the class-room, Royal Botanic Garden, W. B. Boyd, Esq., President, in the chair.

The following communications were read:—

I. Obituary Notice of the late John Sadler, by Professor Bayley-Balfour. Emeritus Professor Balfour, who appears to have recovered in great part from his late illness, stated the loss he felt from the decease of Mr. Sadler, both as a botanist and as a friend. Professor Dickson also followed in a similar strain.

II. On the Progress of Open-air Vegetation at the Royal Botanic Garden, for June, by Mr. Robert Lindsay, Curator. During last month the weather was very favourable for open-air vegetation, the much-desired rain commenced to fall in earnest on the 17th, although there were several slight showers before that date. Since then heavy showers have been frequent, and of that genial kind so much required; the ground is now thoroughly moistened, but with the warm weather and sunshine experienced no excess of rain has yet occurred. The lowest readings of the thermometer during the month were—on the 4th, 40°; 5th, 39°; 8th, 35°; 16th, 40°; 17th, 38°; 21st, 38°; while the highest morning readings were—on the 8th, 60°; 15th, 60°; 23d, 60°; 28th, 62°; 29th, 60°

30th, 62°. The foliage of deciduous trees, such as Plane, Lime, Oak, Service, Spanish, and Horse Chestnut, &c., are thoroughly developed and remarkably clean and perfect, owing greatly to the scarcity of the usual insect pests, such as aphis, caterpillars, red-spider, &c., which often disfigure their leaves so much. Even Roses, which are peculiarly subject to attacks of aphis, are, so far, almost free from this enemy. Probably the lateness and dryness of the spring has had something to do in arresting the development of these pests.

Amongst plants which have flowered unusually well this season Rhododendron hirsutum and R. ferrugineum (the Swiss alpine Rhododendrons) may be mentioned; large bushes 4 to 5 feet wide have been completely covered with bloom. In the rock garden 255 species and varieties of plants came into flower during the month, as compared with 173 for the corresponding month last year, making a total of 701 for the season, as against 666 at the same date last year. Among the most effective of those which flowered were the following:—

Aster alpinus	Linnæa borealis
Arenaria laricifolia	Libertia grandiflora
Aquilegia glandulosa	Linaria alpina
Aciphylla squarrosa ♂ ♀	,, origanifolia
Campanula turbinata alba	,, pallida
,, barbata	Meconopsis nepalensis
Cathcartia villosa	,, copper-coloured sp.
Craspedia Richei	Orchis maculata superba
Cacalia alpina	,, foliosa
Chrysobactron Hookeri	Onosma tauricum
Dianthus alpinus	Pratia littoralis
,, neglectus	Veronica Guthriana
Erica cinerea vars.	,, rupestris nana
Gaultheria carnea	Vicia argentea
Helonias asphodeloides	

III. Report on the Vegetation in the Garden of the Royal Botanic Institution, Glasgow, from April to June, by Mr. Robert Bullen, Curator. During April the thermometer had been at the freezing-point three times, and below it seven times, the lowest reading being 29° on the night of the 26th ult. The lowest reading for last year was 26° on the night of the 15th of the same month. This has been the most favourable season for seed sowing for many years. The number of hardy plants in bloom was far in excess of those of those of last year. During May the thermometer was once at the freezing-point, on the night of the 6th, when the temperature fell to 31°. The lowest reading during May of last year was 33°. Vegetation this year generally compared favourably with that of the same period. The lowest night temperature for June was 36° on the nights of the 7th and 19th. The lowest day temperature was 55°, on the 7th, and the highest 72°, on the 30th. All, except the very hardy kinds of vegetation, are considerably retarded, the flowering of most of our native annuals, biennials, and perennials, as well as those of foreign growth, being a fortnight behind time. Very few of the plants in bloom at this season last year, which was by no means an early one, are now blooming. There has been a singular immunity from the severe thunderstorms which have done great damage to fruit and other crops in many parts of the country.

IV. On the Occurrence of Foliage-leaves in Ruscus (Semele) androgynus, with some Structural and Morphological Observations, by Professor Dickson, with microscopic illustrations.

V. Miscellaneous Communications:—

a. The President mentioned that he had in his garden a large tuft of Rubus arcticus which was producing dozens of ripe fruit, which were about the size of a small Raspberry, yellowish-white in colour, but tinged with pink. The flavour was excellent, having a slight after-taste of Vanilla.

b. P. N. Fraser, Esq., showed a plant of Polystichum lonchitis, found by him in 1879. At the time it struck him as being a peculiar variety, as its fronds were perfectly smooth, which character it still retains, but this year all the fronds are beautifully crested. A plant of it which he presented to the Edinburgh Botanic Garden was also shown, with the fronds crested in the same manner, after having remained for four years with fronds undivided. Both plants are very healthy, and it is curious how they should become so finely crested at the same time. He also showed a specimen of Trillium erectum var. declinatum, about 3 feet high; and Primula luteola, the same height, having the stem slightly fasciated.

c. From the Garden plants of Ruscus androgynus, with true leaves and cladodia, were shown, to illustrate Professor Dickson's paper; as were also several other species of Ruscus, Callixene, Luzuriaga, Myrsiphyllum, Bomarea, Alströmeria, &c. Microscopic preparations of roots, leaves, and branches of Rusci were exhibited in the laboratory. A number of plants in pots were exhibited from the garden, among which were Dionæa muscipula, Habranthus pratensis, Crassula Bolusii, Campanula Portenschlagiana, C. barbata alba, Potentilla alchemilloides, Pratia angulata, Silene acaulis, Thymus micans, Polygonum jcapitatum, Meconopsis nepalensis, &c.

Scottish Horticultural Association. — The ordinary monthly meeting of this Association was held in the Hall, 5, St. Andrew's Square, on Tuesday, the 3d inst., Mr. Robertson Monro, President, in the chair. The Secretary communicated a paper by Mr. J. R. Brown, of the Ayr Nursery, on "The Nursery as a School for Young Gardeners." Mr. Brown pointed out the great educational advantages to be acquired in a nursery, and strongly advised every young gardener to spend a portion of his time in some nursery where he would gain an insight into the business.

Mr. Wm. Wilson, Chapel-on-Leader, exhibited a white Lobelia named Miss Hope. Mr. M. Chapman, Easter Duddingston Lodge, exhibited a collection of herbaceous flowers. Mr. J. Gray, Eglinton Castle Gardens, exhibited spikes of Foxgloves, old Scotch Rockets, and a white Viola named Mrs. Gray. The border from which the Rockets were taken is 283 feet long, 6 feet wide, and contains over 1200 plants. Messrs. Thomas Methven & Sons exhibited a collection of Pæony flowers. Messrs. Todd & Co. exhibited flowers of Lilium longiflorum. The Secretary presented to the library a copy of Simpson's *Improved Pruning and Training of Fruit Trees.*

Hull Botanic Gardens Flower Show.—The first floral exhibition ever held at Hull was formally opened by the Mayor (Mr. Alderman Leak) on Wednesday, the 11th inst. The President, A. K. Rollit, Esq., LL.D. (to whose endeavours the creditable state of things was mainly due), laid down a very hopeful prospect for the gardens, and stated that one of the first things necessary would be to increase the number of subscriberrs from the 700 at present enrolled up to 1000 at least. The gardens were very neat, and the beds and borders very gay and well kept, the even greensward and smooth walks affording a good promenade for the large company assembled. The three principal large tents were pitched near the band stand, the one communicating with the other in a very convenient manner. The whole arrangement of the show left nothing to be desired, and the size and quality of many of the exhibits were quite up to the standard of our best exhibitions, a very interesting feature being a large quantity of economic plants, sent by the President, A. K. Rollit, Esq. The schedule was very extensive, comprising almost everything, from exotic Orchids to cottagers' produce, and in most of the classes there was a good competition. A special cup, given by G. Bohn, Esq., Vice-President, to the most meritorious exhibitor, was taken by Mr. James Cypher, of Queen's Road Nursery, Cheltenham, who brought out many of his large specimens in his usual good style, securing 1st prize in most of the large classes, his six Orchids being particularly fresh and nice, viz., Disa grandiflora, with twenty blooms; Dendrochilum filiforme, eighteen spikes; Dendrobium Dearei, two fine spikes; Aërides Lobbii, fine dark variety; Odontoglossum citrosmum roseum, with eighteen flowers on a spike; Masdevallia Harryana, with eighteen flowers. Mr. Cypher also obtained a First-class Certificate for Dendrobium Dearei, and another for a nicely bloomed plant of Cattleya Gaskelliana, which was greatly admired. Some very fine exhibits also were sent by Messrs. A. Wilson, W. H. H. Broadley, M.P., J. C. Padman, and R. Simpson. The exhibition lasted three days, and was declared a success. (*From a Correspondent.*)

Variorum.

THE DERIVATION OF "SWEET WILLIAM."—With reference to Mr. H. Friend's remarks on Dr. Prior's suspicious explanation of the name "Sweet William," I beg to adduce the following passage from an able essay on flowers in the *Quarterly Review* of July, 1863. Speaking of the small red-pink Dianthus prolifer, the writer says:—"This is perhaps the original 'Sweet Saint William,' for the word 'Saint' has only been dropped since days which saw the demolition of St. William's shrine in Rochester Cathedral. This, however, is but a conjecture; and we must be content to remain uncertain whether the masses of bright flowers which form one of the chief glories of old-fashioned gardens commemorate St. William of Rochester, St. William of York, or, likeliest of the three, St. William of Acquitaine, the half-soldier, half-monk, whose fame was so widely spread throughout the South of Europe." *St. Clair Baddeley, in the "Athenæum."*

PEPPER AND BETEL-NUTS IN SUMATRA.—In a recently issued report from Sumatra, Consul Kenoedy, reviewing the character and government of the Achinese, draws attention to the growth of Pepper in the country, upon which a tax of a dollar per picul (which equals about 133 English pounds) is levied in certain districts. Good in quality as the Sumatran Pepper is said to be, it is nevertheless a fact that some sorts are much superior to others; thus, at one of the small ports now closed, Punta Raja, the Pepper obtained is of special excellence, owing perhaps to some peculiar qualities in the soil or climate of the valley where it is grown, while the Pepper from the west coast is distinguished from that of the east coast by the circumstance that it will keep better, on which account the west coast chiefs often hold it back until a rise in price favours the seller. Except an unascertained, but not considerable, quantity of the west coast Pepper which finds its way to Padang for transhipment to Europe, all the Acheen Pepper is brought for disposal to Penang, where it is sold to dealers who purchase for the European and other markets. In former times, before the war, a few American sailing vessels, and now and then an Italian or French ship, visited the Sumatran coasts to collect Pepper, which they took direct home, but this branch of trade has now been abandoned, and Penang is the almost exclusive market for the Sumatran Pepper crops. Before the war a considerable number of Achinese native-rigged craft existed, which used to bring Pepper for sale to Penang, taking back piece goods in exchange; but these vessels have ceased to exist, and hence the purchase and export of Pepper is carried on exclusively on the Sumatran side of the Straits by a few European dealers and some Chinese. The Pepper imported from Acheen into Penang comes only to a very trifling extent from Great Acheen, the bulk of the industry being scattered up and down the east, west, and north coasts. In the table of exports generally from all Acheen to Penang the first item in the list is Betel-nuts (Areca catechu). This product is exported chiefly from the north coast of Acheen, and in addition to the quantity mentioned in the tables, which amounts to 6,506,783 piculs in 1882, 2083 tons were sent to the Coromaodel coast. The exportation of Betel-nuts, in fact, fairly holds its own as a flourishing branch of commerce, but if the export should appear more favourable in one year than in another it must be remembered that the crops may vary in quantity according to the weather, and also that a diminution of population, by diminishing the local consumption, tends to raise the amount available for exportation. A village may shrink from 2000 to 500 souls, but the Betel trees which the villagers planted remain.

CANNED FRUIT TRADE IN SAN FRANCISCO.—In a report from San Francisco, under the head of "Canned Fruit and Vegetables," it is stated that this industry has vastly increased during the past few years, and promises still larger development. In the city of San Francisco and Oakland there are eight large canning establishments, and in other parts of the State there are a few large and many small ones. About a year ago the city canners entered into a combination for the protection of their several interests, forming an incorporated company. They selected one of their number as the sole purchaser of all the fruit and vegetables required by their canneries, and this was strictly adhered to all through the year, and worked satisfactorily. It is estimated that these canneries pack over three-fourths of all that is packed in the State, and that more than half the fruit grown in the State is packed by them in the canneries in San Francisco and Oakland belonging to them. In the exchange before referred to the following is given as the result of the year's packing, all the quantities being in pounds:—Apricots, 3,087,740; Asparagus, 115,050; Beans, 89,109; white Cherries, 543,458; dark Cherries, 288,689; Currants, 475,321; Gooseberries, 102,418; Grapes (Muscat), 923,588; Grapes (Isabellas), 24,337; Peaches, 2,763,781; Bartlett Pears, 2,216,484; Peas, 1,006,524; Damsons, 187,816; Egg Plums, 294,892; Golden Drop Plums, 141,014; Blue Plums, 153,509; Prunes, 151,390; Gages, 518,088; Raspberries, 60,132; Strawberries, 11,943; Tomatos, 5,844,031; Quinces, 246,613; Blackberries, 412,798; Apples, 1,448,210.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JULY 18, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
July	In.	In.	°	°	°	°	°	°	°		In.
12	29.40	—0.42	63.0	55.5	7.5	57.8	— 4.6	53.6	86	S.W.	0.74
13	29.56	—0.26	70.2	53.5	16.7	59.7	— 2.8	52.5	77	W. : S.W.	0.00
14	29.70	—0.12	63.5	52.0	11.5	56.0	— 6.6	52.9	89	W.	0.38
15	29.74	—0.08	63.0	48.1	14.9	53.0	— 9.7	41.2	65	W.	0.07
16	29.98	+0.17	60.7	44.5	16.2	53.6	— 9.1	42.9	67	N.W.	0.00
17	29.84	+0.03	62.5	52.5	10.0	56.1	— 6.6	48.9	76	W. : W.N.W.	0.00
18	29.75	—0.05	62.2	50.3	11.9	56.7	— 5.9	44.9	62	N.W.	0.00
Mean	29.71	—0.10	63.6	50.9	12.7	56.1	— 6.5	48.1	75	W.	0.69

July 12.—Dull day; rain from 12.30 P.M. till 7 P.M. Fine at midnight.
— 13.—Fine and bright, and cloudy alternately. Fine night; cloudless.

July 14.—Dull day mostly, sun shining at times. Thunderstorms from 12 P.M. till 1 P.M., and from 4 P.M. till 4.30 P.M.
— 15.—Dull and cloudy. Thunderstorm at 6 P.M. Fine and cloudless at midnight.
— 16.—Fine day, but dull. Fine night.
— 17.—Dull day; cold wind. Fine night.
— 18.—Fine day; dull cold wind. Fine night; slightly misty.

LONDON: *Atmospheric Pressure.*—During the week ending July 14 the reading of the barometer at the level of the sea increased from 29.90 inches at the beginning of the week to 29.93 inches by 9 A.M. on the 8th, decreased to 29.82 inches by 9 A.M. on the 9th, increased to 29.95 inches by midnight on the same day, decreased to 29.55 inches by 3 P.M. on the 12th, increased to 29.78 inches by midnight on the 13th, decreased to 29.73 inches by 3 P.M. on the 14th, and was 29.81 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.79 inches, being 0.14 inch lower than last week, and 0.21 inch lower than the average of the week.

Temperature. — The highest temperature in the shade in the week was 76°, on the 8th; on the 12th the highest was 63°. The mean of the seven high day temperatures was 70°.1.

The lowest temperature in the shade in the week was 52°, on the 14th; on the 8th the lowest was 58°.2. The mean of the seven low night temperatures was 55°.5.

The greatest range of temperatures was 17°.8, on the 8th and 10th; the smallest was 7°.5, on the 12th. The mean of the seven daily ranges was 14°.6.

The mean temperatures were—on the 8th, 64°.4; on the 9th, 63°; on the 10th, 61°.8; on the 11th, 62.°1; on the 12th, 57°.8; on the 13th, 59°.7; and on the 14th, 56°; of these the first two were above their averages by 2°.4, and 0°.9; the rest being below by 0°.4, 0°.2, 4°.6, 2°.8, and 6°.6 respectively.

The mean temperature was 60°.7, being 3°.6 below last week, and 1°.6 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 144°, on the 8th. The mean of the seven readings was 125°.7.

The lowest reading of a minimum thermometer placed on grass, and fully exposed to the sky, was 45°.5, on the 14th. The mean of the seven low night temperatures was 47°.8.

Rain.—Rain fell on four days, to the amount of 0°.83 inch.

ENGLAND: *Temperature.*—During the week ending July 14 the highest temperatures were 78°.6, at Cambridge, 77°.8 at Nottingham, and 76° at Blackheath; the highest, at Bristol, was 69°, at Liverpool 69°.4, and at Bolton 69°.5. The general mean was 72°.9.

The lowest temperatures in the week were 45°.8, at Bolton, 46° at Hull, and 46°.4 at Wolverhampton; the lowest temperature at Preston was 54°, at Brighton 53°.2, and at Plymouth 52°.9. The general mean was 49°.8.

The greatest ranges of temperature in the week were 31°.6, at Cambridge, 29°.5 at Nottingham, and 29° at Hull; the least ranges were 14°.8, at Plymouth, 17°.4 at Bristol, and 17°.5 at Preston. The general mean was 23°.1.

The mean of the seven high day temperatures was highest at Nottingham, 74°, at Cambridge 73°.2, and at Hull 72°; and was lowest at Liverpool, 64°.6, at Bolton 65°, and at Bristol 65°.4. The general mean was 68°.9.

The mean of the seven low night temperatures was highest at Plymouth, 56°.1, at Preston 55°.7, and at Blackheath 55°.5; and was lowest at Wolverhampton, 51°, at Bolton 51°.3, and at Hull 51°.7. The general mean was 54°.2.

The mean daily range of temperature was greatest at Nottingham, 21°.1, at Hull 20°.3, and at Cambridge 20°.1; and was least at Plymouth, 9°.8, at Liverpool 10°.3, and at Bristol 10°.4. The general mean was 14°.7.

The mean temperature was highest at Nottingham, 61°.6, at Leeds 61°.4, and at Cambridge 61°.3; and was lowest at Bolton, 56°.2, at Liverpool 57°.6, and at Wolverhampton 58°. The general mean was 59°.6.

Rain.—The largest fall was 1.09 inch at Leicester, 0.89 inch at Truro and 0.83 inch at Blackheath and Bolton; the smallest falls were 0.19 inch at Sheffield, 0.26 inch at Nottingham, and 0.33 inch at Bradford. The general mean fall was 0.61 inch. Rain fell on every day in the week at Plymouth.

SCOTLAND: *Temperature.*—During the week ending July 14 the highest temperature was 74°, at Aberdeen; at Greenock the highest temperature was 68°. The general mean was 70°.8.

The lowest temperature in the week was 45°, at Glasgow and Greenock; at Dundee the lowest temperature was 48°. The general mean was 46°.5.

The mean temperature was highest at Dundee, 59°.9; and lowest at Aberdeen, 58°.2. The general mean was 58°.9.

Rain. — The largest fall was 1.70 inch, at Greenock; and the smallest was 0.85 inch at Edinburgh. The general mean fall was 1.23 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

BALSAMS: *W. Hendre & Sons.* Your strain appears to possess all the good qualities of the best type of double flowers. Those before us are of good size, well filled out, and of good substance. The mottled purple and mottled red flowers, the scarlets, and pure whites, are in every way first-class.

BEGONIAS: *J. H. H.* The flowers had all fallen off when they reached us, so that we could make nothing of them.

BEGONIA SEEDLING: *Polesden.* Not so good as many double varieties that have been exhibited, but no doubt very pretty on the plant. Though of not much commercial value, we should not destroy it.

BOOKS: *Student.* The last edition of the *Treasury of Botany* (Longmans) will probably meet your requirements. — *B. B.* Hunter's *Manual of Bee-Keeping.* (Bogue).

CALIFORNIAN PRIMULAS: *H.* 1, yes; 2, Watson's *Botany of California*, 2 vols., 4to.

CALVARY CLOVER: *A. R.* The specimen sent to us, and figured by us, was considered at the time to be Medicago Echinus, but according to the books that species is, like M. hystrix, Italian. Boissier has a M. Galilæa, which may be the true plant, but any spiny-podded Medic will do.

CRYSTAL PALACE ROSE SHOW.—We omitted to state in our report that the 3d prize in the nurserymen's class for twenty-four single blooms, at the late Crystal Palace Rose Show, was won by Messrs. Hugh Low & Co., of Clapton, with Roses grown in their new nursery at Bush Hill Park, Enfield.

FIGS: *U. T. S.* The causes that lead to the casting of the fruit of Figs are not clearly ascertained; some varieties, and especially those that are growing grossly, are more subject to do so than others. Dryness at the roots will sometimes cause them to do so.—*A. A.* We know that Fig trees have been raised from seeds in this country, but there is no proof of any having been raised from seeds ripened in this country.

HEATING: *A. B.* If your houses are stoves, or are used for forcing purposes generally, you could economically work them from one boiler; but if there are cool-houses or pits, it is more satisfactory to heat those separately, as a single boiler that can heat all of the structures in the cold season consumes too much fuel to perform the little work required of it in the summer, when the cool divisions require no artificial heat. If the one-boiler system suits your needs, by all means have a duplicate set alongside in case of accident, or to supplement the other in extraordinarily severe weather.

HYDRO-SULPHATE OF LIME: *W. G.* The remedy you suggest is not a safe one to recommend for use when the Vines are fruiting, and we advise you to be cautious yourself. The proportion of one part to 200 is quite strong enough, and may be applied with safety to anything not intended for consumption. If you do apply it to Grapes, it should be syringed off within a quarter of an hour.

NAMES OF PLANTS: *Harewood.* Anagallis platyphylla.—*John Earl.* Hartwegia purpurea.—*C. W.* Bryum argenteum.—*K. & S.* Gentiana saponaria.—*J. Rose.* Lychnis chalcedonica, propagated by division in early autumn. — *John Guy.* A garden variety of Oleander which we cannot name.—*G. H.* An Allamanda, not recognised. — *C. W.* Lactuca muralis, and Crepis virens. The moss next week.—*G. J. L.* Eryngium amethystinum. — *W. B. G.* Gnaphalium luteo-album. — *R. N.* 1, send when in flower; 2, Lysimachia vulgaris.—*J. Phillpotts.* Dendrobium chrysotoxum.—*H. B., Sevenoaks.* 1, Veronica longifolia; 2, Lychnis chalcedonica; 3, Lythrum salicaria; 4, Spiræa Douglasii; 5, Malva moschata; 6, Campanula latifolia.—*H. J. Ross.* We cannot quite match your plant, but it appears to be a poor state of Gladiolus gracilis or G. recurvus.—*C. Dimmick & Son.* Hymenocallis macrostephana.—*S. F. & Co.* Spiræa aruncus.—*W. H. P.* Tilia parvifolia.—*W. F. Gunn.* 1, Triodia decumbens; 2, Bromus sechalinus; 3, Polypogon monspeliensis.—*G. H. W.* Lathyrus sativus.—*Alpha.* 1, Nephrodium filix-mas, crested var.; 2, Campanula muralis; 3, C. isophylla; 4, Spiræa ariæfolia.—*De B. C.* A garden variety of Pisum sativum.—*W. W.* 1, 2, 3, Trifolium medium; 4, Lolium perenne; 5, Trisetum flavescens; 6, Luzula campestris; 7, Anthoxanthum odoratum; 8, Agrostis vulgaris.

ONOCLEA SENSIBILIS: *C. M. O.* It has no other claim to the specific name beyond the fact of its speedily withering when cut.

PELARGONIUM DUCHESS OF ALBANY: *J. Lewis.* Your Regal variety appears to be a very nice one, but the flowers not having been gummed, had fallen to pieces when they reached us, and we can say no more.

PELARGONIUM SPORTING: *J. Y.* There is nothing novel in a zonal Pelargonium sporting, but some varieties—Vesuvius, to wit—are more addicted to it than others.

POMEGRANATE. *G. P.* Suppose a leathery dark crimson funnel, an inch or more in length, the edge indented with five pointed lobes, and suppose a little globe of crimson petals filling up the mouth of the funnel, and you will be able to form some idea of the general form of a Pomegranate flower. Is this what you mean by describing a flower in mild terms?

STEPHANOTIS: *J. S.* Nothing unusual in strong, well-grown plants.

TASMANIAN TREE FERNS: *F. W. Dennis.* Advertise them, or offer them to some of the nurserymen who deal in such plants.

TWIN-ROSE: *T. Pope.* Not at all an uncommon occurrence in double flowers.

VEGETABLE MARROW: *J. Green.* An ordinary case of adhesion of the fruit to the stem. Not at all an uncommon occurrence in the Cucurbitaceæ.

VINES: *H. P.* We cannot detect any trace of Phylloxera, or of any other insect. The rootlets are all killed, either by too much bottom-heat, or too strong doses of manure.

VINE SHANKING: *U. T. S.* Very probably the roots have got into too rich soil.

WEED ON LAWN: *W. T.* The Self-heal (Prunella vulgaris). We can only advise you to fork out as much as you can in the autumn, and encourage the grass to grow by dressing the lawn with nitrate of soda at the rate of about 100 lb. to the acre.

*** All communications intended for publication should be addressed to the "*Editor*," and not to the Publisher or to any member of the staff personally. The Editor would also be obliged by such communications being *written on one side only of the paper* and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

☞ FOREIGN SUBSCRIBERS sending Post-Office Orders are requested to send them to the Publisher of this journal, 41, Wellington Street, Covent Garden, and to make them payable to William Richards, at the post-office, Drury Lane, London, W.C.

CATALOGUES RECEIVED.

E. H. KRELAGE & SON, Haarlem — Dutch Flower Roots, &c.

THOMAS METHVEN & SONS, 15, Princes Street, Edinburgh—Dutch and other Flower Roots.

L. SPÄTH, 154, Köpnickerstrasse, Berlin—Dutch Bulbs, &c.

COMMUNICATIONS RECEIVED.—W. F. G.—S. Cock.—J. May (Retinospora).—P. Fry.—W. B. G.—W. H.—E W. & S.—Doulton & Co.—J G B.—T. S. J.—J. Y.—J. G.—T. S.—H. L. C.—P. W.—John Jefferies & Sons.

Markets.

COVENT GARDEN, July 19.

[THE subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. ED.]

HEAVY supplies still to hand. Currants lower. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	12 0–24 0	Ficus elastica, each	1 6– 7 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Foliage Plants, various, each	2 0–10 0
— (common), dozen	6 0–12 0	Fuchsias, per dozen	6 0–12 6
Begonias, per doz.	6 0–12 0	Hydrangea, per. doz.	9 0–24 0
Bouvardia, doz.	12 0–18 0	Lilium longiflorum, per dozen	18 0–42 0
Calceolarias, dozen	4 0– 9 0	Liliums, various, per dozen	12 0–30 0
Cockscombs, doz.	4 0– 9 0	Lobelias, per dozen	3 0– 6 0
Coleus, doz.	3 0– 6 0	Marguerite Daisy, per dozen	12 0–24 0
Dracæna term. doz.	30 0–60 0	Mignonnette, doz.	4 0– 6 0
—viridis, per doz.	12 0–24 0	Myrtles, per doz.	6 0–12 0
Erica, various, doz.	12 0–36 0	Palms in variety, each	2 6–21 0
Euonymus, various, per dozen	9 0–18 0	Pelargoniums, scarlet, per dozen	2 6– 9 0
Evergreens, in var., per dozen	6 0–24 0	— decorative, doz.	6 0–18 0
Ferns, in variety, per dozen	4 0–18 0	Spiræa, per dozen	8 0–12 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Mignonette, 12 bun.	6 0– 9 0
Arum Lilies, per doz.	3 0– 6 0	Marigolds, 12 bun.	2 0– 4 0
Bouvardias, per bun.	1 0– 1 6	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 0
Canterbury Bell, bun.	1 0– 2 0	Pelargoniums, 12 spr.	0 9– 1 0
Carnations, 12 blms.	1 0– 3 0	— zonal, 12 sprays	3 0– 6 0
— 12 bunches	3 0– 0 0	Pinks, 12 bunches	2 0– 6 0
Cornflower, 12 bun.	1 6– 4 0	Primula, double, bun.	1 0– 1 6
Dahlias, 12 bun	6 0– 8 0	Pyrethrum, 12 bun.	3 0– 6 0
Delphinium, p. bun.	0 6– 1 0	Roses (indoor), doz.	2 0– 6 0
Eucharis, per doz.	4 0– 6 0	— (outdoor), 12 bun.	3 0– 6 0
Eschscholtzia, 12 bn.	2 0– 4 0	— coloured, doz	3 0– 8 0
Gardenias, 12 blms.	3 0– 6 0	Spiræa, 12 bunches	6 0–12 0
Heliotropes, 12 sp.	0 6– 1 0	Stephanotis, 12 spr.	1 6– 3 0
Lapageria, white, 12 blooms	3 0– 6 0	Stocks, 12 bunches	4 0– 9 0
— red, 12 blooms	1 0– 3 0	Sweet Peas, 12 bun.	3 0– 6 0
Lilac (French), bun.	4 6– 7 0	Sweet Sultan, 12 bun.	4 0– 6 0
Liliums, 12 bun.	12 0–18 0	Tropæolum, 12 bun.	1 0– 2 0
Marguerites, 12 bun.	6 0– 9 0	White Jasmine, bun.	1 0– 1 6

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Cherries, ½-sieve ..	4 6– 9 0	Lemons, per case ..	15 0–20 0
Currants, Black, ½-sieve	4 0– 4 6	Melons, each ..	2 0– 3 6
— Red, ½-sieve ..	3 0– 5 0	Peaches, per doz. ..	6 0–12 0
Figs, per dozen ..	2 0– 3 0	Pine-apples, Eng., lb.	2 0– 3 6
Grapes, per lb. ..	1 0– 3 0	— St. Mich., each	3 6–10 0
Gooseberries, ½-siv.	2 6– 3 3	Strawberries, per lb.	0 3– 0 9

VEGETABLES—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 4 0	Horse Radish, bund.	4 0– ..
Asparagus (Sprue), per bundle ..	2 6– ..	Lettuces, Cabbage, per dozen	1 0– ..
— English, bund...	3 6– 8 0	— Cos, per dozen..	1 6– ..
Beans, Fr. grown, lb.	0 4– ..	Mint, green, bunch..	0 6– ..
— Jersey, per lb...	0 6– ..	Mushrooms, p. baskt.	1 0– 2 0
Beet, per doz. ..	1 0– ..	Onions, per bunch ..	0 6– ..
Cabbages, per doz...	1 0– 2 0	— Spring, per bun.	0 6– ..
Carrots, new, p. bun.	1 0– ..	Parsley, per bunch..	0 4– ..
Cauliflowers, English, dozen ..	2 0– 3 0	Peas, English, quart	1 0– ..
Celery, per bundle ..	1 6– ..	Radishes, per doz. ..	1 6– ..
Cucumbers, each ..	0 6– 1 0	Rhubarb, per bundl.	0 6– ..
Endive, French, per dozen	2 0– ..	Small salading, pun.	0 4– ..
Garlic, per lb. ..	1 0– ..	Spinach, per bushel	3 6– ..
Herbs, per bunch ..	0 2– 0 4	Sweet Potatos, lb. ..	0 6– ..
		Tomatos, per lb. ..	1 0– ..
		Turnips, new, bun.	0 4– ..
		Vegt. Marrows, each	0 4– 0 9

POTATOS.—Jersey Kidneys, 5s. to 7s.; Rounds, 5s. to 6s., per cwt.; Kent Kidneys, £7 per ton; Myatt's £6 per ton.

SEEDS.

LONDON: *July* 18.—In the absence of business there is no variation to be noted in the value of any description of farm seeds. New Trifolium and Trefoil, although offered at comparatively moderate rates, fail to meet with buyers. Advices from Ireland speak very favourably of the prospects of the grass seed crops. In feeding Linseed the tendency is upwards. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday Wheat sold more readily, and prices ruled from the extreme of the preceding Monday's rates to 6*d.* advance. Indian Wheat showed the most improvement. Flour supports late value more steadily, but was not quotably dearer. Barley, with a moderate inquiry, brought steady value. Oats were firm, at 3*d.* to 6*d.* above the rates current on Monday se'nnight. Maize sold slowly, at 6*d.* decline on the week. Beans were about as last reported, and foreign Peas rather easier.—On Thursday Wheat was firm, and 6*d.* over Monday's rates was in some cases obtained. In flour the tendency was rather in favour of the seller. There was not much passing in Barley, Beans, or Peas, but all were fairly firm. Maize was quiet, and Oats found firm market, a fair amount of business being concluded at fully Monday's currency.—Average prices of corn for the week ending July 14:—Wheat, 42*s.* 2*d.*; Barley, 29*s.* 2*d.*; Oats, 24*s.* 1*d.* For the corresponding period last year:—Wheat, 48*s.* 5*d.*; Barley, 26*s.* 5*d.*; Oats, 25*s.* 3*d*

CATTLE.

At Copenhagen Fields on Monday the supply of cattle was scanty. Canadians sold at 5*s.* 4*d.* to 5*s.* 8*d.*; Danish at 4*s.* 8*d.* to 5*s.* 4*d.*; and Swedish at 4*s.* 6*d.* to 5*s.* per 8 lb. The general tone of the trade was slow, in consequence of the stiff prices required. There was a very good market for small sheep, and rather higher rates were obtained. Lambs sold irregular, but not currently dearer. Calves met a moderate demand. Quotations:—Beasts, 4*s.* 6*d.* to 5*s.* 4*d.*, and 5*s.* 8*d.* to 6*s.* 4*d.*; calves, 5*s.* to 5*s.* 10*d.*; sheep, 5*s.* 8*d.* to 6*s.* 2*d.*, and 6*s.* 6*d.* to 7*s.*—On Thursday beasts sold slowly at about the above quoted prices. Sheep were firmer at rather better quotations. Lambs were dull and drooping, and calves and pigs were quiet.

HAY.

Tuesday's Whitechapel Market report states supplies were good, and trade rather dull at the following prices:—Prime Clover, 105*s.* to 120*s.*; inferior, 60*s.* to 70*s.*; best meadow hay, 70*s.* to 90*s.*; inferior, 40*s.* to 50*s.*; and straw, 30*s.* to 40*s.* per load.—On Thursday the supply was rather short, and trade steady. Best hay and straw were dearer.—Cumberland Market quotations:—Superior old meadow hay, 84*s.* to 96*s.*; inferior, 70*s.* to 76*s.*; new, 70*s.* to 80*s.*; superior old Clover, 112*s.* to 120*s.*; inferior, 84*s.* to 98*s.*; new, 70*s.* to 100*s.*; and straw, 38*s.* to 43*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that supplies have been good and the demand steady, as follows:—Cherbourg flukes, 7*s.* to 8*s.*; ditto round, 6*s.* 6*d.* to 7*s.*; Jersey kidneys, 7*s.* to 8*s.*; ditto round, 7*s.*; Kent kidneys, 10*s.*; and Essex shaws, 7*s.* per cwt.—The imports into London last week were:—4928 packages from Jersey, 90 Bordeaux, and 18 from Seville.

COALS.

The following are the prices current at market during the week:—Ravensworth West Hartley, 14*s.* 9*d.*; Walls End—Hetton, 18*s.*; Hetton Lyons, 15*s.* 6*d.* and 16*s.*; Lambton, 17*s.* 6*d.*; Wear, 15*s.* 6*d.* and 16*s.*; Caradoc, 18*s.* 3*d.*; East Hartlepool, 17*s.* 3*d.*; South Hartlepool, 16*s.* 3*d.*; Thornley, 17*s.*; Tees, 18*s.* 3*d.*

Government Stock.—Consols closed on Monday at 99½ to 99⅝ for delivery, and 99 11/16 to 99 13/16 for the account. Tuesday's closing figures were 99 7/16 to 99 9/16 for delivery, and 99⅝ to 99¾ for the account. The final quotations of Wednesday and Thursday were 99⅝ to 99¾ for delivery, and 99 13/16 to 99 15/16 for the account.

Amortiser.—Amortiser.—Amortiser.

To HOP and FRUIT GROWERS, FLORISTS, MARKET GARDENERS and OTHERS.

STEVENS AND CO.'S AMORTISER INSTANTLY DESTROYS Hop Flea, Green Fly, Caterpillar, and every kind of Blight. Fruit Growers, Florists, more especially Rose Growers, will find this preparation invaluable, as one application causes INSTANT DESTRUCTION of all INSECT PESTS. For Hothouse, Greenhouse, and other Plants it is equally valuable, and is guaranteed not to injure the most delicate bloom or foliage. We have a Special Preparation of the Amortiser for Watering the Ground which Instantly Destroys Slugs, Wireworms, Caterpillars, Grubs, &c. When ordering state which preparation is required. Sample Cans, 4½ gallons, 3*s.* 6*d.*, tin included. Special Quotations for Large Quantities.

Orders received at 67, High Street, Borough, London, S.E.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1*s.*, 3*s.*, & 10*s.* 6*d.*

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

GISHURSTINE, for dry feet and boot comfort, is much used by Gardeners, Farmers, Ladies, Sportsmen, and Shore-waders; is sold by Nurserymen and Oilmen, with testimonials and directions for use, in boxes, 6*d.* and 1*s.* each. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), London.

FLORAL GUM.

This Gum is guaranteed to effectually secure the petals of flowers from falling. It is easily applied—dries instantaneously—and leaves no stain on the blossom.

Universally approved of by the leading Florists and Growers.

(*See Testimonials*)

"18, Westbourne Grove, W., June 18, 1883.

"GENTLEMEN,—We have much pleasure in testifying to the excellence of your Floral Gum, which we have used for some years. It fixes the petals of flowers without injuring or staining them.—Yours faithfully," JAS. H. POUNCE AND SONS."

"Messrs. HAWES & CRISP."

CRYSTAL GUM .. 2*s.* 0*d.* pint. 3*s.* 6*d.* quart. 12*s.* gallon
OPAQUE ,, .. 1*s.* 6*d.* ,, 2*s.* 9*d.* ,, 10*s.* ,,
Sample Bottle of either kind sent post-free for 1*s.* 3*d.* in stamps.

HAWES & CRISP,
103, 105, 107, QUEEN'S ROAD, BAYSWATER, W.

PURE WOOD CHARCOAL
FOR
VINE BORDERS, FRUIT TREES, STRAWBERRIES, ROSES, FLOWER BEDS, POTTING PURPOSES,
AND GENERAL HORTICULTURAL PURPOSES.
HIRST, BROOKE, AND HIRST, Manufacturers, Leeds, Yorkshire.

NETTING for Fruit Trees, Seed Beds, Ripe Strawberries, &c.—TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 2*d.* per yard, or 100 yards, 16*s.*; 4 yards wide, 4*d.* per yard, or 50 yards, 16*s.* NEW TANNED NETTING, suited for any of the above purposes or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard. TIFFANY, 5*s.* and 6*s.* per piece of 20 yards.—EATON AND DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

ARCHANGEL and PETERSBURG MAT MERCHANTS and IMPORTERS.—All the usual kinds at reduced rates. Sacks and Seed Bags, new and second-hand, of every description. Raffia Fibre, Nettiog and Tiffany, Tarpaulins, Rick-covers, Horse-cloths, Ropes, Lines, and Twines. Price LIST on application to J. BLACKBURN AND SONS, 4 and 5, Wormwood Street, London, E.C.

RICK CLOTHS, GARDEN NETTING, &c.—RICK CLOTHS, TARPAULINS, SACKS, and every requisite for Farm purposes. Illustrated Catalogues post-free. Can be obtained of HENRY VAN AND CO., 17, Tooley Street, London, S.E., who also supply GARDEN NETTING, 2 yards wide, 1½*d.*; and 4 yards wide, 3*d.* per yard. SCRIM CANVAS, 1 yard wide, 3*d.*; 1½ yard, 4½*d.*; and 2 yards, 6*d.* per yard. TIFFANY, 38 inches wide, in pieces of 20 yards each, at 3*s.* 6*d.* per piece.

TIFFANY and SHADING for Protection for Flowers and Fruit.—A special manufacture in 36, 38, 40, 45, 54, 60, and 72 inches wide, and NETTING at wholesale prices, in all ordinary widths. Sample and particulars on application to
J. BLACKBURN AND SONS, 4 and 5, Wormwood Street, London, E.C.

For Conservatories and Greenhouses.

THE NEW CANVAS SHADING, sold by BENJAMIN EDGINGTON, will defy the action of all weather. Protect your Fruit Trees. Tanned Netting. Protect your Children from the Sun. By Her Majesty's Royal Letters Patent. A new Summer-house, 9 feet 9 inches in diameter, 9 feet high, can be erected or taken down and placed in any position in five minutes. Price £3. This new contrivance can be seen erected at
BENJAMIN EDGINGTON'S, 2, Duke Street, London Bridge, E.C.

RICK CLOTHS—RICK CLOTHS.

Before purchasing, send for Samples and Prices to JAMES T. ANDERSON, who can supply a splendid article at a low price.

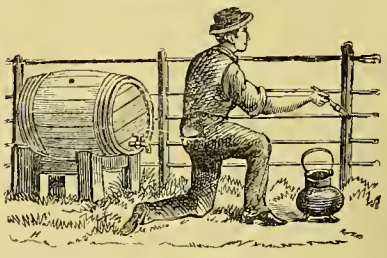
JAMES T. ANDERSON,
149, COMMERCIAL STREET, LONDON, E.

TANNED NETTING.—2 yards wide, 1½*d.* per yard; 4 yards wide, 3*d.* per yard; 2 yards wide, 10*s.* per 100 yards; 4 yards wide, 20*s.* per 100 yards.
NEW TWINE NETTING, 1-inch mesh, 1 yard wide, 2*d.*; 2 yards wide, 4*d.*; 4 yards wide, 8*d.* per yard.
W. CULLINGFORD, Forest Gate, E.

Oil Paint No Longer Necessary.

HILL AND SMITH'S BLACK VARNISH, for Preserving Ironwork, Wood or Stone.

(*Registered Trade Mark.*)



This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in Casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"*Piercefield Park, June* 21, 1876.—Sirs,—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, WM. COX."

CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

Large illustrated CATALOGUE of Fencing, Hurdles, Field and Entrance Gates, &c., sent free on application to
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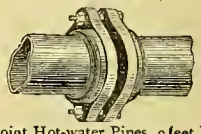
THE CENTRAL IRONWORKS COMPANY, HORTICULTURAL BUILDERS, ENGINEERS, and IRON MERCHANTS, 252, Waterloo Road, London, S.E. Manufacturers' Prices with Catalogues on application, for Hot-water Pipes and Connection, all sizes; also Boilers and Fittings, all Sizes—Wrought and Cast-iron. All other Descriptions of Goods for Horticultural Requirements in Stock.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, HORTICULTURAL BUILDINGS and HOT-WATER APPARATUS MANUFACTURERS.

Plans and Estimates free.

THOS. W. ROBINSON,
DENNIS PARK IRONWORKS, STOURBRIDGE.

The "Expansion Joint."



The Best and Quickest Made.

4-in Expansion Joint Hot-water Pipes, 9 feet long, 4*s.* 3*d.* each.
4-in. Socket Hot-water Pipes, 9 feet long, 4*s.* 6*d.* each.
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HOSE.

PATENT RED-RUBBER GARDEN HOSE.

Stands severe tests of Government Departments, thus proving superiority of quality. Lasts four times as long as ordinary Indiarubber Hose, Lighter in Weight, Greater in Strength, and Cheaper in the long run than any other Hose for Garden Use.

A correspondent writes:—"I have had a length of your Red-Rubber Hose in use nine years, and it is now as good as ever."

Private Customers Supplied at Trade Prices.

Sample and Price of
MERRYWEATHER & SONS,
63, Long Acre, W.C.; and Greenwich Road, London, S.E.

REGISTERED TUBULAR FLOWER STAKES, 2 feet, 3*s.* per dozen. PEA TRAINERS, 6 feet by 4 feet, 2*s.* 6*d.* each. SEED PROTECTORS, 3 feet long, 6*d.*; TRELLISING, from 2½*d.* square foot. HURDLES, from 3*s.* ARCHES, from 10*s.* POT STANDS, from 6*s.* HANGING BASKETS, from 6*d.* GATES, FENCING-NETTING, &c. Illustrated LISTS on application.
BROOKES & CO., 4, Cateaton Street, Manchester.—Estab. 1769.

BAMBOO CANES, for Nurseries and Gardens. Hundreds of tons in stock, from 1 to 4 inches in diameter, and up to 16 feet. The largest importer in England.
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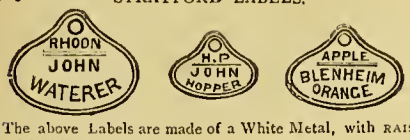
GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of
WATSON AND SCULL, 90, Lower Thames St., London, E.C.

Under the Patronage of the Queen.

J. SMITH'S IMPERISHABLE STRATFORD LABELS.



The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

Samples and Price Lists free.

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SILVER SAND
DIRECT FROM PITS.

For lowest price, write

HENRY WILKERSON,
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Orchid Baskets.

SIDNEY WILLIAMS' superior Octagonal Teak ORCHID BASKETS, with Galvanised or Copper Wire, from 6*s.* per dozen upwards. Send for new illustrated Price LIST to 23, Farringdon Road, London, E.C.

UNDER SPECIAL ROYAL PATRONAGE

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Inventors and Sole Proprietors of the "ORIGINAL"

STOCK-BREEDERS' MEDICINE CHESTS,

For all Disorders in Horses, Cattle, Calves, Sheep and Lambs,

And Inventors of the First Animal Medicines ever known as "Day's."

Price of Chest complete, including "Key to Farriery," £2 16*s.* 6*d.*, sent carriage paid throughout Great Britain.

CAUTION.—Beware of imitations, and see that the name, DAY, SON & HEWITT, is on all Bottles and Packets.

DAY, SON & HEWITT,
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AND WANTAGE, BERKS.

Rosher's Garden Edging Tiles.

THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

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Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by Post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.

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SILVER SAND, fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Stations. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries.

KENT PEATS or LOAM supplied at lowest rates in any quantities.

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N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

HORTICULTURAL SHEET GLASS,

21 oz. Foreign, of the following sizes, in boxes of 100 and 200 feet, 3ds and 4ths qualities always kept in stock:—

14×12	20×12	20×14	20×16	20×18
16×12	16×14	20×15	22×16	22×18
18×12	18×14	18×16	24×16	24×18

Stock Lists and Prices on application.

All descriptions of British and Foreign Glass can be obtained from

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GLASS, LEAD, OIL and COLOUR MERCHANTS,
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Can be obtained in all sizes and qualities of

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B. & Son have always a large stock in London of 20 in. by 12 in., 20 in. by 14 in., 20 in. by 16 in., 20 in. by 18 in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200-ft. and 300-ft. cases.

STONE EDGING for KITCHEN GARDENS or Walks under Trees, &c., 10 to 12 inches deep, 3 to 4 feet long, made from the best Yorkshire Flagstone; indestructible. Price, ready for laying, 1*s.* per lineal yard. Also Flags and Steps for Conservatories, Terraces, &c.—Address,
THE GREAT SLEAD QUARRY, Brighouse, Yorkshire.

TEN SILVER MEDALS AWARDED TO

JOHN MATTHEWS, THE ROYAL POTTERY, WESTON-SUPER-MARE, Manufacturer of TERRA-COTTA VASES, FOUNTAINS, ITALIAN BASKETS, BORDER TILES, GARDEN POTS of superior quality, from 1 to 30 inches diameter, stand the frosts, and seldom turn green; ORCHID, FERN, SEED and STRIKING PANS, RHUBARB and SEAKALE POTS, &c. Price LIST post-free. Sheet of Designs, 6*d.* Book of Designs, 1*s.*

ELECTRIC THERMOMETERS,

for CONSERVATORIES, GREENHOUSES, &c.

This Apparatus is most reliable for noting a rapid rise or fall of temperature from any cause, and giving timely notice of it by Bell to Gardener's house or elsewhere.

Houses fitted with ELECTRIC BELLS, BURGLAR ALARMS, LIGHTNING CONDUCTORS, &c.

Prices on application. Catalogue three stamps.

FRANCIS AND CO., Eagle Telegraph Works, Hatton Garden, E.C.

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B. W. WARHURST.
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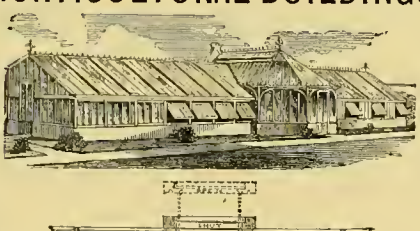
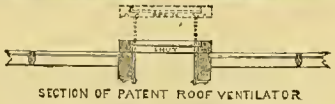
CATALOGUES FREE.
Manufactory, Victoria Works, Wolverhampton
LONDON OFFICES, 3, CROOKED LANE, KING WILLIAM ST. E.C.

RICHARDSON'S PATENT HORTICULTURAL BUILDINGS





SECTION OF PATENT ROOF VENTILATOR

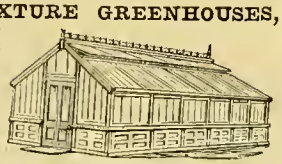
Hot-water Apparatus fixed in any part of the Kingdom and Guaranteed.

W. RICHARDSON & CO.,

Horticultural Builders & Hot-Water Engineers,

DARLINGTON.

TENANT'S FIXTURE GREENHOUSES,



made in lights and easily erected, lower part framed and panelled; painted two colours. Improved Ventilating Gearing for houses over 12 feet long. Glazed with 21-oz. Glass, and Painted 3 coats of good oil colour.

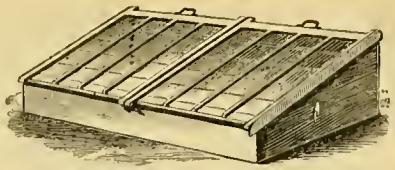
Specimen size, 12 feet by 8 feet, £25 3*s.* 6*d.* For brickwork, £20.

LEAN-TO HOUSES

for building against existing walls, similar to above, 15 ft. by 10 feet, £24, or for brickwork, £19. Portable Cucumber Frames, painted 3 coats, glazed 21-oz. glass. 2-light Frame, 6 feet by 8 feet, £3 4*s.* 6*d.* Cases 4*s.*, allowed when returned.

All the above Carriage Paid to nearest Railway Station.
Illustrated Catalogue free on application.

C. FRAZER, Horticultural Builder, Palace Plain, Norwich.



No. 75. MELON or CUCUMBER FRAMES.

CASH PRICES—Carriage Paid.

No. 1	.. ..	8 ft. long	..	6 ft. wide	..	£3 7 6
No. 2	.. ..	12 ft. long	..	6 ft. wide	..	4 17 6
No. 3	.. ..	16 ft. long	..	6 ft. wide	..	6 7 6

These Frames are 13 inches deep in front, and 24 inches deep at the back; the lights are 2 inches thick, with a strong iron strengthening rod, and one handle to each light. All painted four coats of best oil colour, the lights being glazed with best 21-oz. English glass.

BOILERS,

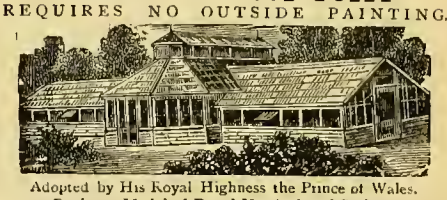
For heating all kinds of Horticultural Buildings.

NEW CATALOGUE NOW READY. FREE ON APPLICATION.

BOULTON & PAUL, NORWICH.

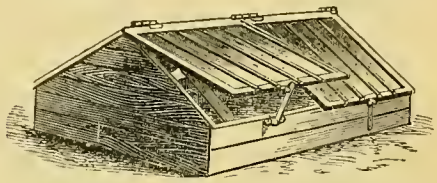
HELLIWELL'S PATENT SYSTEM OF GLAZING WITHOUT PUTTY

REQUIRES NO OUTSIDE PAINTING.



Adopted by His Royal Highness the Prince of Wales.
Banksian Medal of Royal Horticultural Society.
OLD ROOFS RE-GLAZED. OLD WOODWORK COVERED.
Plans and Estimates free of charge from

T. W. HELLIWELL,
Royal Horticultural Works, Brighouse, Yorkshire; and
8, Victoria Chambers, Westminster, S.W.



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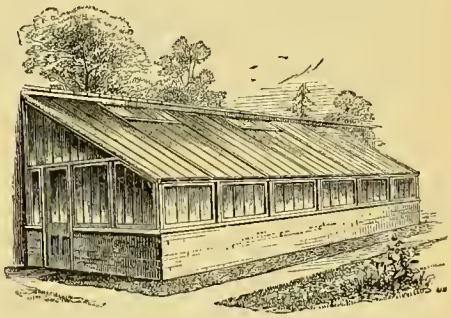

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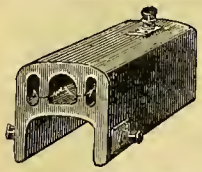

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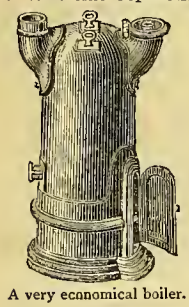

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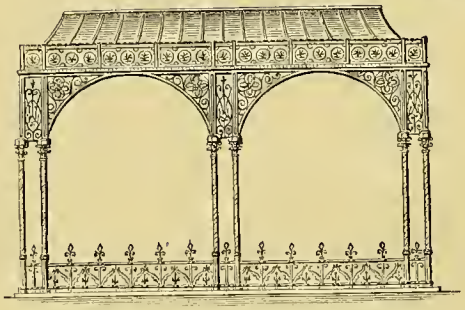

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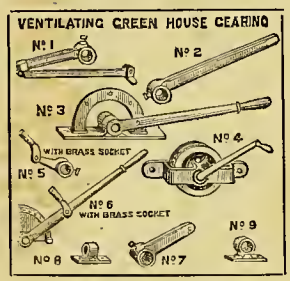

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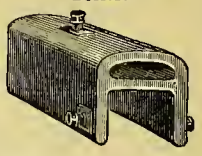

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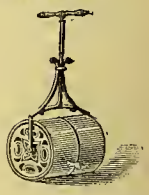

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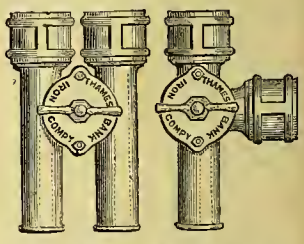

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THE

GARDENERS' CHRONICLE.

Established 1841.

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MR. J. C. STEVENS will include in his SALE by AUCTION, on THURSDAY NEXT, August 2, imported Plants of the above; also a plant of CATTLEYA SUPERBA SPLENDENS, in flower, fine variety.

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CATTLEYA MOSSIÆ and C. SPECIES.

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MR. J. C. STEVENS will include about 50 lots of the above in his SALE, on THURSDAY, August 9, from the Royal Exotic Nursery, Tooting.

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Established Orchids, &c.

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Preliminary Announcement.
LÆLIA ELEGANS.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., a very grand importation of LÆLIA ELEGANS. Further particulars will shortly appear.

On view morning of Sale, and Catalogues had.

Tuesday Next.
LÆLIA ELEGANS, VANDA SANDERIANA,
CATTLEYA GIGAS, IMPERIALIS SANDERIANA, vars.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, July 31, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., a splendid lot of imported masses of CATTLEYA GIGAS IMPERIALIS SANDERIANA, vars.; LÆLIA ELEGANS, fine imported specimens; CYPRIPEDIUM CONCOLOR, VANDA SANDERIANA, and other choice ORCHIDS, the whole in first-class condition.

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Tuesday Next.
IMPORTED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their large Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, July 31, at half-past 12 o'Clock precisely, CATTLEYA BOGOTENSIS, C. PERCIVALIANA, ODONTOGLOSSUM, new species, O. ALEXANDRÆ, O. PESCATOREI, O. VEXILLARIUM, and other valuable ORCHIDS, by order of Mr. F. Sander.

On view morning of Sale, and Catalogues had.

Tuesday Next.
ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, at half-past 12 o'Clock precisely, about 150 lots of ESTABLISHED ORCHIDS, from various collections, including several rare and valuable species, together with a few lots of ORCHIDS in FLOWER.

Enville Gardens, Stourbridge.
About 5 miles from the Stourbridge Stations.
IMPORTANT SALE OF CHOICE PLANTS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the Countess of Stamford and Warrington to SELL by AUCTION, on the Premises, as above, on WEDNESDAY, August 1, at 2 o'Clock precisely, a large quantity of beautifully grown ORNAMENTAL FOLIAGE PLANTS for the Stove and Greenhouse, including handsome Tree Ferns, which embrace some of the finest examples of Dicksonia antarctica ever offered, several stately Palms, Ixoras, Crotons—many fit for exhibition, Anthuriums, well-grown Caladiums, fifty specimen Eucharis, splendidly furnished plants, in fine condition, &c.

On view the day prior to the Sale. Catalogues of Mr. GREEN, on the Premises; or of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, London, E.C.

N.B.—A wagonette will meet certain trains on the day of Sale, to convey intending purchasers to the Gardens. (See Catalogue.)

Friday Next.
CATTLEYA MENDELLI.
CATTLEYA SANDERIANA.
CATTLEYA GASKELLIANA.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, August 3, at half-past 12 o'Clock precisely, very splendid importations of CATTLEYA MENDELLI, SANDERIANA, and GASKELLIANA, together with a fine consignment of ODONTOGLOSSUM ALEXANDRÆ, and other ORCHIDS.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Dutch Bulbs.—Trade Sales.

MESSRS. PROTHEROE AND MORRIS beg to announce that they have made special arrangements for very extensive consignments of DUTCH BULBS of the best quality during the ensuing season.

The FIRST SALES will take place at their Rooms on AUGUST 20, 23, 27, and 30, and will consist of lots made up particularly for the Trade and other large buyers.

Gentlemen desirous of receiving Catalogues throughout the season can have a regular supply on application to the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C., and enclosing twelve stamps.

London.

FOR SALE, a FLORIST and NURSERY BUSINESS, with an extensive connection in Landscape Gardening and Jobbing. There are two Nurseries, held at the low rental together of £65, and well situate, in the midst of a fashionable Residential District, only 4 miles from the City and West End. Returns £4000 per annum. Books open for inspection. Owner retiring, and will sell the whole concern at a reasonable offer, about £2500, which includes Greenhouses, Lease, Goodwill, the immense and varied Stock in Trade, Horses, Carts, and everything complete.

Apply to Messrs. PROTHEROE AND MORRIS, 8, New Broad Street, London, E.C.

Investment.—Important to Orchid Growers.
15 miles from London.

FOR DISPOSAL, a small and easily worked HORTICULTURAL BUSINESS—proprietor wishing to devote his whole time to another Business in which he is engaged. Capital opening for Growing Orchids.

Apply to Messrs. PROTHEROE AND MORRIS, 8, New Broad Street, E.C.—(Folio 5865.)

FOR SALE, SIDCUP HILL NURSERY, Foot's Cray, Kent. Established over fifty years, and widely famous for the culture of Ferns. In consequence of the death (without issue) of the late Mr. Robert Sim, the Stock, Leases, Business Structures, &c., of this Nursery are to be immediately disposed of.

For particulars apply to Miss SIM, at the above address.

INVESTMENT.—A most comfortable, newly erected MODERN RESIDENCE, at Twickenham, close to the Station and the river Thames—Dining-room, 24 × 18; Billiard-room same size, two other Reception-rooms, seven Bedrooms, Stabling, Grounds half an acre in extent, tastefully laid out; fine Orchid and Plant-houses, with all modern improvements. The whole most suitable to a Gentleman with a taste for horticulture. Price, £2300.

Address, D., Messrs. Pottle & Son, Royal Exchange, who will give cards to view.

TO BE LET, ON LEASE, a good JOBBING and LOCAL BUSINESS, upon favourable terms.

Apply to Mrs. G. SMITH, Tollington Nursery, Tollington Park, Hornsey Road, N.

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

TEA ROSES, fine plants, in 5-inch pots—Maréchal Niel, Gloire de Dijon, and others—50s. per 100.
BOUVARDIAS, nice bushy plants, in 48-pots, best kinds, including Alfred Neuner, price 40s. per 100.
W. JACKSON, Blakedown, near Kidderminster.

Roses on Own Roots.

CATHERINE MERMET, GLOIRE DE DIJON, ISABELLA SPRUNT, RÊVE D'OR, &c.
Strong plants, 12 in. to 15 in. high, 7s. per dozen, carriage paid.
MAIRIS AND CO., Weston-in-Gordano, Bristol.

To the Trade only.—10,000 Maidenhair Ferns.

MESSRS. PERKINS AND SONS are now offering a very fine lot of ADIANTUM CUNEATUM, in 72's, at 20s. per 100. Sample plant per post (to intending purchasers) sent on application. 1s. per 100 package.
Warwick Road and Park Nurseries, Coventry.

KNIGHTON
(LEICESTERSHIRE)
FLORAL and HORTICULTURAL SHOW,
August 2.
To be held in the Grounds of T. Fielding Johnson, Esq., Brookfields, Knighton.

Open Class. Entries close July 30.
Entrance Fee, 5s.

PLANTS (not less than 8 varieties), Flowering, Foliage, or both.—1st Prize, £3 3s.; 2d, £2 2s.; 3d, £1 1s.

ROSES (not less than 12 trusses), Distinct Varieties.—1st Prize, £2 2s.; 2d, £1 1s.

COLLECTION of FRUIT.—1st Prize, £1 1s.; 2d, 10s. 6d.

CUT FLOWERS (12 Varieties).—1st Prize, £1 1s.; 2d, 10s. 6d.

Entries to be sent to
Mr. E. S. STONE, or Mr. G. E. BOUSKELL, } Hon. Secs.
Knighton, Leicester.

SEEDLING FOREST TREES, &c.—Nurserymen visiting the North are respectfully invited to call and inspect stock of above at the Monifieth Nurseries, near Dundee. W. P. LAIRD AND SINCLAIR.

For Sale.

D. STEWART, Ferndown Nurseries, Wimborne, Dorset, has for Sale a quantity of good Fruiting ORANGE TREES, in large pots and tubs, 3 to 5 feet stems, and heads from 3 to 5 feet through. Price about 10 guineas per pair.

Now in Full Bloom.

JOHN LAING AND CO.'S TUBEROUS BEGONIAS, Gold Medal Collection, are the grandest floral display in the kingdom. Show houses freely open to Visitors.
Railway Stations—Catford Bridge, 5 minutes' walk; Forest Hill, 15 minutes to Stanstead Park Nursery, Forest Hill.

CATALOGUE, new and descriptive.—Alpines and Hardy Perennials, comprising 2000 species. Post-free on application.—STANSFIELD BROTHERS, Southport.

HYACINTHS. — HYACINTHS. — In harvesting our Hyacinths some time ago we were astonished to see the bulbs looking so grand and healthy this season. We really do not think to have had such a fine crop this last four years. Therefore we recommend our Customers to order at once to secure the very best stuff. Special offers for large quantities.
SEGERS AND CO., Bulb Growers, Lisse, near Haarlem, Holland.

Notice.—Inspection Invited.

THOMAS S. WARE has much pleasure in informing his numerous patrons and all others interested in HARDY PLANTS, that a large portion of his Collection is now in flower, including the following:—

PINKS, a grand collection, including Mrs. Sinkins, the finest white ever sent out; PICOTEES and CARNATIONS, including Gloire de Nancy, and all of the best leading varieties; grand collections of PENTSTEMONS, POTENTILLAS, and DELPHINIUMS. LILIUMS are in fine condition—thousands of such grand varieties as colchicum, pomponium verum, pardalinum, pumilum, Humboldtii, Parryi, californicum, parvum, giganteum, pardalinum, Washingtonianum, and many others, are either in full bloom or will be in a few days; as well as many other BULBOUS PLANTS, CYPRIPEDIUM SPECTABILE, ORCHIS HIRCINA, O. FOLIOSA, and a host of other first-class HARDY PLANTS and BULBS.
Hale Farm Nursery, Tottenham, London.

BULB SEASON, 1883.

GENTLEMEN, GARDENERS, and Others, by ORDERING IMMEDIATELY, may obtain the FINEST BULBS at strictly WHOLESALE PRICES.
Write for PRICE LIST to THE CITY FLOWER, SEED, and BULB DEPOT, 162, Fenchurch Street, and 80, St. Paul's Churchyard, London, E.C.

EIGHTY THOUSAND CLEMATIS, in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants.
Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Primulas — Primulas — Primulas.
Fourteenth Year of Distribution.

WILLIAMS' SUPERB STRAIN, 1s. 6d. per dozen, 10s. per 100.
CINERARIAS same price. Package and carriage free.
The above are quite equal to those I have sent out in previous years. Cash with order.
JOHN STEVENS, The Nurseries, Coventry.

Special Offer of Spring

BROCCOLI and CELERY PLANTS, viz.: Carters' Champion, Cattell's Eclipse, Early White, Late White, Brimstone, Veitch's Autumn Giant CAULIFLOWER, and other Autumn BROCCOLI, 5s. per 1000.
100,000 Red and White transplanted CELERY, 7s. 6d. per 1000.
100,000 ditto, from seed bed, 5s. per 1000.
Strong and well rooted. Post-office Orders must accompany all orders from unknown correspondents. Delivered free on rail.
W. YIRGO, Wonersh Nurseries, Guildford.

CHADBURY EARLY CABBAGE SEED.—This seed has been grown by careful selection for sixteen years, and planting the stems where the produce would not be likely to be affected by Bees. It is liked by the Evesham gardeners, who are good judges of what pays them best, and is recommended to Farmers as a safe crop to plant—selling the Cabbages if they can grow them early enough and good enough—feeding them off by sheep if they cannot. Price 7s. per pound in small quantities; 5s. 6d. per pound for 20 lb. and upwards For Cash only. Apply to
Mr. RANDELL, Chadbury, near Evesham.

AQUILEGIA GLANDULOSA
(Grigor's, guaranteed True).
Fine young plants of the above beautiful Columbine, to bloom next spring, 30s. per 100, or 6s. per dozen. Also Seed, just gathered, at 2s. 6d. and 5s. per packet, from
JOHN GRIGOR AND CO., The Nurseries, Forres, N.B.
The Trade supplied at Wholesale Prices.

To the Trade only.
E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, Holland. The Wholesale CATALOGUE (No. 365A) of Dutch Flower Roots and Miscellaneous Bulbous and Tuberous-rooted Plants for 1883-84 is now ready, and may be had free on prepaid application by Nurserymen, Florists, and Seedsmen.

EARLY FORCING BULBS.
EARLY WHITE ROMAN HYACINTHS.
DOUBLE ROMAN and PAPER-WHITE NARCISSUS.
B. S. WILLIAMS
Begs to announce that he has received his usual annual consignments of the above bulbs. As they are invaluable for early forcing, early orders are solicited, which will have prompt and immediate attention.
The Bulbs are unusually fine this year.
VICTORIA and PARADISE NURSERIES,
Upper Holloway, London, N.

GARDEN REQUISITES.
COCOA-NUT FIBRE REFUSE.
4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s; sacks, 4d. each.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; sacks, 4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton, 26s. per ton; in 2 bushel bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.
SPHAGNUM MOSS. 8s. 6d. per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Free Price LIST.—H. G. SMYTH, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

12-oz. Sample Packets, free by post, 12 stamps.
FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per Truck. Sample Bag, 5s; 5 Bags, 22s. 6d.; 10 Bags, 45s. Bags included. Fresh SPHAGNUM, 10s. 6d. per Bag. SILVER SAND, Coarse or Fine, 52s. per Truck of 4 tons. Red Sandstone ROCKWORK, £5 per Truck of 4 tons. GRAVEL, good colour, 25s. per Truck of 6 tons.
WALKER AND CO., Farnborough Station, Hants.

COCOA NUT FIBRE REFUSE, 1s. per bag, including bag. Truck-load, 25s., free on rail, Uxbridge, G.W.R. Order accompanied by remittance will insure prompt attention.
J. H. VAVASSEUR AND CO., Cocoa-Nut Fibre Mills, Uxbridge, Middlesex.

COCOA NUT FIBRE REFUSE, newly made, as supplied to the Royal Horticultural Society and principal Nurserymen in England, in sacks at 1s. 3d. each, or 15 sacks, 18s.; 30 sacks, £1 5s., sacks included. Truck-load, loose, 30s.; fifteen bags or more and truck-load free on to rail. Post-office order or cheque with all orders will oblige. Established 1872.—J. STEVENS AND CO., "Greyhound" Yard, and 132, High Street, Battersea, S.W.

Important Discovery.
For Cleansing Plants from Aphides and all Parasites—To Prevent American Blight, and all kinds of Scale, &c., and for Washing all Hard-Wooded Plants, always use
HUDSON'S SOAP.
A ¼ lb. Packet to 3 Gallons of Water.
A strong solution thickened with clay makes an effective Winter Dressing.
Testimonial.
"Coton Hall Nursery, Shrewsbury, July 28, 1880.
"We find Hudson's Soap a very useful Winter Dressing for all kinds of Fruit Trees; both as a preventive and cure against American Blight and all kinds of Scales. We also use it for Camellias, Azaleas, Rhododendrons, and all kinds of Hard-wooded Plants. We have much pleasure in presenting you with this testimonial, and remain, yours truly,
(Signed) "JOHN JONES AND CO."
REMARKABLE DISAPPEARANCE!
of all DIRT from EVERYTHING
BY USING
HUDSON'S EXTRACT OF SOAP.

Amortiser.—Amortiser.—Amortiser.
To HOP and FRUIT GROWERS, FLORISTS, MARKET GARDENERS and OTHERS.
STEVENS AND CO.'S AMORTISER INSTANTLY DESTROYS Hop Flea, Green Fly, Caterpillar, and every kind of Blight. Fruit Growers, Florists, more especially Rose Growers, will find this preparation invaluable, as one application causes INSTANT DESTRUCTION of all INSECT PESTS. For Hothouse, Greenhouse, and other Plants it is equally valuable, and is guaranteed not to injure the most delicate bloom or foliage. We have a Special Preparation of the Amortiser for Watering the Ground which Instantly Destroys Slugs, Wireworms, Caterpillars, Grubs, &c. When ordering state which preparation is required. Sample Cans, 4½ gallons, 3s. 6d., tin included. Special Quotations for Large Quantities.
Orders received at 67, High Street, Borough, London, S.E.

SILVER MEDAL-1881. BRONZE MEDAL-1881.
To Her Most Gracious Majesty Queen Victoria.
To His Royal Highness the Prince of Wales.
For Beautiful Flowers and Fruits
USE CHUBB, ROUND AND CO.'S PATENT
COCOA-NUT FIBRE REFUSE
By CHUBB'S PATENT PROCESS,
As supplied to all the Royal Gardens and Principal Nurseries of Europe.
GUARANTEED ABSOLUTELY PURE. FREE FROM ANY FOREIGN INTERMIXTURE. Manufactured on the premises from the famous "Laguna" Cocoa-Nut Husks, and can only be obtained from us direct. This article is not to be confused with so-called Cocoa-Nut Fibre Refuse, sold by dealers and others at ridiculously low prices, and dear in the end. Amongst numerous Testimonials and extracts from scientific writers, to be seen at our works, we hold the following:—From Mr. CHARLES PENNY, Head Gardener to H.R.H. the Prince of Wales: "The Gardens, Sandringham, February 28, 1883.—I must say your Cocoa-Nut Fibre Refuse is far superior to any I have ever tried; in fact, it is simply perfection; and the use of your Fibre for so many purposes in Horticulture is a thorough boon. Make what use you like of this letter." Useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bulbs, Mushrooms, Bedding-out Plants, &c.
DESTROYS ALL SLUGS AND INSECTS.
An elegant Bordering to Flower Beds. Combines warmth and cleanliness with valuable antiseptic and deodorising properties.
MOISTENS IN HEAT. HOLDS HEAT IN COLD WEATHER.
Terms, strictly cash with order. Prices as follows:—Sacks, 1s. 6d. each; 10 sacks, 13s.; 15 sacks, 18s.; 20 sacks, 23s.; 30 sacks, 30s. (all sacks included). Truck-load, free on rail, £2. Limited quantities of P. M. SPECIAL QUALITY, Granulated, in sacks only, 2s. 6d. each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from the Manufacturers, CHUBB, ROUND & CO.,
Fibre Works, West Ferry Road, Millwall, London, E.

Thomson's Vine and Plant Manure.
Manufactured by the
LIVERPOOL HORTICULTURAL COMPANY
(JOHN COWAN), LIMITED,
The Vineyard and Nurseries, Garston, near Liverpool,
and Sold by them and all Nurserymen and Seedsmen.
This is the Manure used to produce the splendid Grapes grown by Messrs. WM. THOMSON & SON, Cloveafords.
For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

GARDEN REQUISITES.
PEAT, LOAM, SILVER SAND, PREPARED COMPOST, RAFFIA FIBRE, TOBACCO CLOTH, &c.
Quality equal to any in the Market.
(All Sacks included.)

PEAT, best brown fibrous	4s. 6d. per sack.
" best black fibrous	3s. 6d. "
" extra selected Orchid	5s. 0d. "
LOAM, best yellow fibrous	1s. per bushel (sacks included).
PREPARED COMPOST, best ..	
LEAF MOULD	
PEAT MOULD	
SILVER SAND (coarse) . ..	1s. 3d. per bushel.
RAFFIA FIBRE, best only	10d. per lb.
TOBACCO CLOTH, finest imported..	8d. per lb., 28 lb. 18s.
" PAPER, finest imported	10d. per lb., 28 lb. 21s.

COCOA-NUT FIBRE REFUSE (see special advertisement).
Terms, strictly Cash with order.
CHUBB, ROUND & CO.,
WEST FERRY ROAD, MILLWALL, LONDON, E.

Certain Sudden DEATH
to all Grubs, Aphis, Lice, Red Spider, Thrips, Mealy Bug, Caterpillars, &c.
Perfectly Harmless } to the Hands and Skin, but will cure Ring-worm and all Diseases produced by Parasites.
FIR TREE OIL
(SOLUBLE) INSECTICIDE
A combination of Hydrocarbon Oils made Soluble in Water. For destroying ALL INSECTS and PARASITES that infest Trees and Plants, whether at the Roots or on the Foliage. It cures Mildew and Blight on Fruit or Foliage, and a weak solution Kills all Vegetable Grubs, Turnip Fly, &c. Cleans Grapes from Mildew or Mealy Bug without affecting the bloom; and, thickened with a little clay, makes a good winter dressing. Destroys Lice and Fleas on Animals. Sold by Seedsmen and Chemists, 1s. 6d., 2s. 6d., 4s. 6d. a bottle. Per gallon 12s. 6d., or less in larger quantities. Each bottle bears the Inventor's Trade Mark (a Cat's Head) and full directions for use. *Manufactured by*
E. GRIFFITHS HUGHES, Manchester.
Wholesale from all the London Seed Merchants and Wholesale Druggists.
NEW YORK: RÖLKER AND SONS,

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1s., 3s., & 10s. 6d.
AMERICAN BLIGHT on APPLE TREES CURED by rubbing a wet hard Painter's brush on Gishurst Compound, and working the lather into the infected part.
GISHURSTINE, for dry feet and boot comfort, is much used by Gardeners, Farmers, Ladies, Sportsmen, and Shore-waders; is sold by Nurserymen and Oilmen, with testimonials and directions for use, in boxes, 6d. and 1s. each. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), London.

FLORAL GUM.
This Gum is guaranteed to effectually secure the petals of flowers from falling. It is easily applied—dries instantaneously—and leaves no stain on the blossom.
Universally approved of by the leading Florists and Growers.
(*See Testimonials.*)
"18, Westbourne Grove, W., June 18, 1883.
"GENTLEMEN,—We have much pleasure in testifying to the excellence of your Floral Gum, which we have used for some years. It fixes the petals of flowers without injuring or staining them.—Yours faithfully, "JAS. H. POUNCE AND SONS."
"Messrs. HAWES & CRISP."
CRYSTAL GUM .. 2s. 0d. pint. 3s. 6d. quart. 12s. gallon
OPAQUE " .. 1s. 6d. " 2s. 9d. " 10s. "
Sample Bottle of either kind sent post-free for 1s. 3d. in stamps.
HAWES & CRISP,
103, 105, 107, QUEEN'S ROAD, BAYSWATER, W.

PURE WOOD CHARCOAL
FOR
VINE BORDERS, FRUIT TREES, STRAWBERRIES, ROSES, FLOWER BEDS, POTTING PURPOSES, AND GENERAL HORTICULTURAL PURPOSES.
HIRST, BROOKE, AND HIRST, Manufacturers, Leeds, Yorkshire.

SILVER SAND
DIRECT FROM PITS.
For lowest price, write
HENRY WILKERSON,
LEIGHTON BUZZARD.

ELECTRIC THERMOMETERS,
for CONSERVATORIES, GREENHOUSES, &c.
This Apparatus is most reliable for noting a rapid rise or fall of temperature from any cause, and giving timely notice of it by Bell to Gardener's house or elsewhere.
Houses fitted with ELECTRIC BELLS, BURGLAR ALARMS, LIGHTNING CONDUCTORS, &c.
Prices on application. Catalogue three stamps.
FRANCIS AND CO., Eagle Telegraph Works, Hatton Garden, E.C.

Rosher's Garden Edging Tiles.
THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.
Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.
Illustrated Price Lists free by Post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety. Slates, Cement, &c.
F. ROSHER AND CO., Brick and Tile Merchants.
See Addresses above.

SILVER SAND, fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Stations. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries.
KENT PEATS or LOAM supplied at lowest rates in any quantities.
F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

TEN SILVER MEDALS
AWARDED TO
JOHN MATTHEWS, THE ROYAL POTTERY, WESTON-SUPER-MARE, Manufacturer of TERRA-COTTA VASES, FOUNTAINS, ITALIAN BASKETS, BORDER TILES, GARDEN POTS of superior quality, from 1 to 30 inches diameter, stand the frosts, and seldom turn green; ORCHID, FERN, SEED and STRIKING PANS, RHUBARB and SEAKALE POTS, &c. Price LIST post-free. Sheet of Designs, 6d. Book of Designs, 1s.

GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of WATSON AND SCULL, 90, Lower Thames St., London, E.C.

BAMBOO CANES, for Nurseries and Gardens. Hundreds of tons in stock, from 1 to 4 inches in diameter, and up to 16 feet. The largest importer in England. P. B. HARKIN, Dutton Street, Liverpool.

REGISTERED TUBULAR FLOWER STAKES, 2 feet, 3s. per dozen. PEA TRAINERS, 6 feet by 4 feet, 2s. 6d. each. SEED PROTECTORS, 3 feet long, 6d.; TRELLISING, from 2½d. square foot. HURDLES, from 3s. ARCHES, from 10s. POT STANDS, from 6s. HANGING BASKETS, from 6d. GATES, FENCING, NETTING, &c. Illustrated LISTS on application. BROOKES & CO., 4, Cateaton Street, Manchester.—Estab. 1769.

UNDER SPECIAL ROYAL PATRONAGE

DAY, SON & HEWITT,

Inventors and Sole Proprietors of the "ORIGINAL"

STOCK-BREEDERS' MEDICINE CHESTS,

For all Disorders in Horses, Cattle, Calves, Sheep and Lambs,

And Inventors of the First Animal Medicines ever known as "Day's."

Price of Chest complete, including "Key to Farriery," £2 16s. 6d., sent carriage paid throughout Great Britain.

CAUTION.—Beware of imitations, and see that the name, DAY, SON & HEWITT, is on all Bottles and Packets.

DAY, SON & HEWITT,
22, DORSET ST., BAKER ST., LONDON, AND WANTAGE, BERKS.

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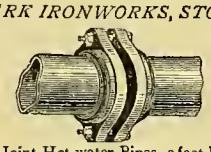

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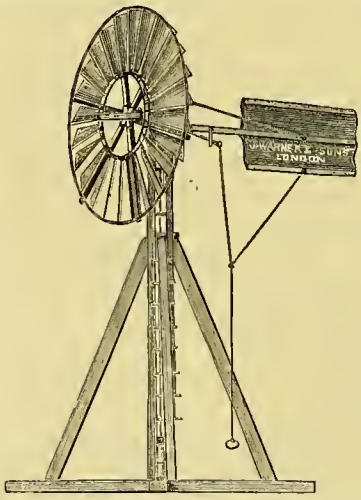

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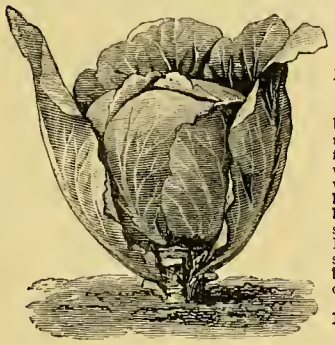

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THE
Gardeners' Chronicle.
SATURDAY, JULY 28, 1883.

FLORAL FIREPLACES.

IN winter we are all ready to confess the seat of comfort is around the fireplace, and we offer on the shrine of the domestic deity whole holocausts of black diamonds, or lay at its feet the produce of our slow-growing Oaks or umbrageous Beeches. It is true the dwellers in towns have for so long a time been deprived of the latter offering that the odour of the incense, with its wreath of delicate blue smoke, must be almost forgotten. In country vicarages and remote farmhouses such fuel is still in favour, but however we worship our fire god during the colds and damps of our many months of winter, we are apt to neglect the shrine, or, at best, treat it with easy indifference, as soon as the bright sunshine and soft breezes of summer woo us to the garden and the pleasure grounds.

"When the Devil was sick, the Devil a monk would be;
When the Devil was well, the devil a monk was he."

is exemplified in minor matters every day; the care, the trouble, the expense we lavish on the domestic fireplace as soon as we no longer require its services are forgotten; we treat it, as we are all too apt to treat the humble friend who has known and helped us in adversity. Poor friend, and poor fireplace: if we cannot bring the former to share the warmth diffused by the sun of prosperity, the latter shall not be totally ignored, even during this season of sunshine. Let no cynic suggest that the reason may be that, in this most certain-to-be-uncertain climate of ours, we may need its services even during the dog-days. We will still believe that its use shall be reserved for the winter months; but that is no reason why we may not make it useful and ornamental too during summer.

Of all parts of the sitting-room the fireplace best lends itself to a display of cut flowers, and we think it is but seldom utilised for such a purpose. We have often had a garden on the hearth, by massing Ferns and other plants in pots, and filling up the interstices with moss; but what we may term floral fireplaces are more at the command of dwellers in town, and they serve to utilise many of the flowery treasures of our shrubbery borders, those blossoms of which we might say, as Lady Jane does of herself, in *Patience*—"Not beautiful, massive."

Our sitting-room fireplaces are of that date (the transition time between the open hearth and the modern grate) when evidently beauty was not taken into account—comfortable enough, forsooth, when a good coal fire is diffusing its genial warmth, and a blazing wood-log is emitting its cheerful flames, but of which no amount of blacklead, be it ever so lustrous, can make a pleasing object when empty. As for all the farrago of tissue-paper, and gold and silver tinsel, we abhor it; nor can we bring ourselves to admire the stiff chromo screens that in many households do duty for the old-fashioned apron. Curtains may be useful on occasions, but if heavy and closed they

are apt to stop the draught up the chimney to the detriment of the atmosphere of the whole apartment; if light and flimsy they become a nuisance, being blown about every time a door or window is opened. With our floral fireplace handsome curtains, drawn to either side and gracefully looped, would be an additional charm, as they would disguise the inelegant form of the mantelpiece, and, by only showing the floral arrangement, suggest all sorts of ideas of a continuance and wealth of flowery treasures, of which they only permit an *échantillon*, or tiny sample, to appear. If only we had the command of a Whistlerian dictionary we might discourse in musical terms of harmonies, symphonies, nocturnes, and fantasies in all colours, and all shades of colour; but failing so grand a resource, will confine ourselves to describing one or two arrangements which have been successful features in the floral decorations of the rooms this season.

Many flowers are decking the garden and even the field long before we could dream, even in the sunniest of springs, of denying ourselves the comfort of a fire; therefore there need be no lack of blossoms for our floral decorations at the right time; and all we have to do is to find the right flowers for the right place. As a basis we line the bars of the grate with the freshest and greenest of moss obtainable, we put this in so thickly that the iron bars are quite covered; the fender and fire-irons are cleaned and put away for the summer. On the hearthstone we place a layer of moss, fresh and green, but dry, of course, right up to or rather just under the fireplace itself. The groundwork being made, the floral accessories can be added according to the means at command. One of the handsomest we had in the spring was composed of Pæonies and Gueldres Roses; these, rising from the rich deep green of the moss, looked very handsome, and lasted for more than a fortnight: the receptacle was a common preserve or marmalade jar, filled, of course, with water. In the moss, or under it rather, on the hearthstone, we placed shallow dishes that the moss covered, with one or two Gueldres Roses, and a few sprays of Honeysuckle, Rhododendron, or Weigela rosea; any one of these will do, but a mixture of many blossoms does not look well.

One of the happiest arrangements we ever made was formed of Nasturtiums and the autumn foliage of the Virginian Creeper. It was very effective, combining every shade, from pale yellow to the deepest orange, even crimson; we merely mention this to show that the readiest and commonest—if by common is understood the most abundant and handy materials—are those which prove most useful. Foxgloves we have employed largely. They grow in abundance in the woods about our neighbourhood, and all along the hedgerows. Gorse also in early spring is handsome. The Hawthorns, both scarlet and white, are beautiful, although the scent is somewhat overpowering. Wild Roses, gathered while in bud, form a beautiful decoration, especially if combined with Honeysuckle or wild Clematis.

The handsome flowers of the wild Flag, in combination with Myosotis palustris, or wild Forget-me-Not, is exceedingly pretty, and the flowers flourish almost as though rooted. It involves a slight amount of trouble, but it is advisable to change the water every three or four days. Some lumps of charcoal may be placed in it to advantage. Where the centre piece is formed of large and small flowers, as the Iris and Myosotis, the latter alone should be placed in the shallow dishes. *Matka.*

Polypodium vulgare, var. trichomanoides.—This new hardy Fern has unquestionably the most elegantly subdivided pinnules of all hardy Ferns, rendering the fronds all but equal in their beautiful appearance to those of Todea superba. It is evidently a free grower, and destined to hold a prominent place in collections of hardy Ferns.

New Garden Plants.

MAXILLARIA IRRORATA, *n. sp.**

This plant is one of my older acquaintances, made two or three years ago, come October, 1883. It was grown and flowered by Sir C. W. Strickland, Hildenley, Malton, who informed me that it was like Maxillaria venusta, yet it had thinner and narrower bulbs and leaves. Origin: Messrs. Stevens' big rooms, within the last twelve months, hence it may have not appeared before August, 1879. I felt so puzzled at the flower, which looked like a shortened caricature of Masdevallia grandiflora, that I expressed a wish to Sir C. W. Strickland that he would watch the future development of the curiosity. It would, however, appear to have flowered only during this gentleman's frequent absence from home. Finally the plant comes afresh from the garden of the Right Hon. J. Chamberlain, M.P., Highbury, Moor Green, Moseley, Birmingham, grown by Mr. E. Cooper.

The peduncle is not quite a span high, and covered with very distinct broad vaginæ (sheaths). The bract is still wider, and is not equal in length to the stalked ovary. The flower is white, washed, bordered and blotched with purple; lip ochre above, anterior lobe darker ochre, with two purple spots underneath, and a purple margin. A transverse callous bar before the base of the anterior lobes, and the whole disc between the side lobes is covered with a mealy substance, the result of the hairs having been dissolved (I have found 1852 amylar grains in such cellules—a fact even now apparently unknown to our leading anatomists, who universally do not care for botany, viz., knowledge of plants). The column is ochre in front, and has a purple crest over the anther. The curious circumstance is that the sepals do not reach an inch in length. It is probably from the Western Andes. *H. G. Rchb. f.*

Cattleya Schröderiana, *n. sp.*†

Baron J. H. W. Von Schröder, The Dell, Egham, has just flowered this new and curious Cattleya. I had it through the kindness of Mr. Harry Veitch. It was imported and sold by Mr. F. Sander, and proves to be a most distinct and splendid plant, having the habit of Cattleya bulbosa, Lindl., and C. dolosa, Rchb. f., not of Walkeriana, Gard., nor of nobilior, Rchb. f. To be short, it would be Cattleya dolosa if it had not sticklike bulbs and a lip nearly of Cattleya Aclandiæ. That lip has the smallest basilar auricles possible, and a long equal claw (not broader at the base and tapering as in Cattleya Aclandiæ).

The bulb at hand is nearly 4 inches high, with two distinct and distant joints within, furrowed, nearly equally thin, not at all thick, two-leaved. Leaves very stout, oblongo-ligulate acute, 4 : 1½. Peduncle two-flowered. Ovaries light purple with dark spots. Sepals ligulate acute. Petals oblong acuminate, broad. Lip partly described above, ending in a transverse oblong apiculate blade. Whole flower fine saturate purple, with a mauve hue, equalling that of a good Lælia majalis. Column narrow, though stout, light purple, with a white dorsal line, not at all boat-shaped, as in the species just named. It is a very great satisfaction to dedicate such an excellent Orchid novelty, as they now-a-days appear but at very distant intervals, to such an excellent amateur as Baron Von Schröder. *Rchb. f.*

* *Maxillaria irrorata*, n. sp. — Gregi Maxillariæ grandifloræ, Lindl.; pedunculo bene vaginate; bractea ampla ovarium pedicellatum non æquante; sepalo impari elliptico, sepalis lateralibus triangulis obtusis latis, tepalis ligulatis obtuse acutis; labello tripido; lobis lateralibus obtusangulis antrorsis; lobo antico triangulo recurvo undulato brevi; carina transversa ante basin lobi antici; disco inter lobos laterales farinosos ex pilis solutis; anthera cristata. *H. G. Rchb. f.*

† *Cattleya Schroderiana*, n. sp.—Ex aff. Cattleyæ bulbosæ, Lindl., et dolosæ, Rchb. f.: pseudobulbo cauliformi costato diphyllo; foliis oblongis acutis, pedunculo bifloro in pseudobulbo foliato terminali; sepalis linearibus lanceis, tepalis oblongis acutis; labelli auriculis in basi minutis, unque late lineari, lamina antica, transversa oblonga cum apiculo; columna æquali subangusta. *H. G. Rchb. f.*

Æchmea (Platyæchmea) Barleei, *Baker, n. sp.**

This is a very distinct new species of Æchmea, which was sent to Kew in 1877 by His Excellency Governor F. P. Barlee from British Honduras, which this summer has flowered for the first time. It is the first species of the group with distichous inflorescence that has been brought into cultivation, but although several of the bracts are large and brightly coloured, the individual flowers are too small for it to be worth much as a garden plant.

Acaulescent. Leaves eight or nine in a rosette, lorate-ensiform, with an ovate dilated base 5 or 6 inches broad and a lamina 2 or 3 feet long, horny in texture, pale green, 2 inches broad at the middle, deltoid-cuspidate at the apex, thinly white-lepidote, especially on the back; the lower prickles of the margin crowded, ⅙—¼ inch long, the upper ones growing gradually smaller. Peduncle central, erect, about a foot long, the bright red lanceolate scariose bracts 2—3 inches long. Panicle erect, ½ foot long, with a furfuraceous rachis, the branches short and spreading, the upper ones simple, the lower compound. Flowers alternate, spaced, arranged distichously 4—6 on the simple branches. Bracts green, deltoid cuspidate, acute, ¼ inch long, equalling the calyx. Calyx ¼ inch long, the acute deltoid sepals as long as the white-furfuraceous globose-trigonous tube. Corolla pale yellow, the petals twice as long as the calyx-segments, their lamina oblong. Style and stamens shorter than the petals. *J. G. Baker.*

INSECTS INJURIOUS TO FRUITS.

Under the above title Mr. William Saunders has published what appears, so far as we have been able to test it, to be a most useful book on the insects injurious to fruit trees in North America. The title by no means conveys an idea of the scope of the work, for the insects that injure the roots, trunks, branches, and leaves of fruit trees are systematically treated, as well as those that attack the fruits themselves. The work is based on personal observation, yet it embodies the discoveries of the leading entomologists of North America, and it is specially indebted to the reports of C. V. Riley, J. H. Comstock, and other State Entomologists. It is illustrated with 440 woodcuts, a large proportion of which are new, while the origin of others is faithfully recorded in the preface. This praiseworthy explanation not only does justice to the labours of others; it likewise adds to the authority of the book itself.

The author is a Canadian, and the Editor of the *Canadian Entomologist*; and this book, which is exceedingly well got up, is published by Lippincott, of Philadelphia and London. Although not a citizen of the States he seems to have been none the less liberally treated by the officials, who permitted him to have electrotypes of numerous cuts which have appeared in various reports to the Commissioner of Agriculture. In the arrangement of his matter the author has considered the wants of persons not possessing a knowledge of the classification of insects. Thus he begins with the insects injurious to the Apple tree, treating first of those which attack the roots, then successively those which attack the trunk, branches, and leaves, and finishing with those which attack the fruit. A short account is given of the life-history of each insect, without any technical detail, but sufficient, with the help of the woodcuts, for all practical purposes. This is followed by the best known remedies in each case.

The author is also careful to make the reader acquainted with friendly insects which prey upon injurious ones, and thus deserve the fostering attention of the fruit-grower. A similar work for this country is much needed, and if it included the insects that attack other crops so much the better. It is popular, without being trashy. We may add that many of the insects are either identical with our own or so closely allied that much of the information is equally useful to the practical man in this country.

* *Æchmea* (*Platyæchmea*) *Barleei*, Baker, n. sp.—Acaulis: foliis 8—9 dense rosulatis coriaceis lorato-ensiformibus 2—3-pedalibus pallide viridibus dorso præsertim tenuiter albo-lepidotis aculeis marginalibus inferioribus crebris magnis superioribus sensim minoribus; pedunculo centrali subpedali; bracteis primariis paucis lanceolatis splendide rubris; floribus in paniculam laxam semipedalem dispositis, ramis brevibus patulis strictis distichis, superioribus simplicibus, inferioribus trifurcatis; bracteis ultimis parvis viridibus deltoideis cuspidatis; sepalis deltoideis ovario æquilongis; petalis pallide luteis sepalis duplo longioribus; genitalibus inclusis.

RUSCUS ANDROGYNUS.

THE following is an abstract of a paper "On the Occurrence of Foliage-leaves in Ruscus (Semele) androgynus, with some Structural and Morphological Observations," read by Professor A. Dickson at the June meeting of the Edinburgh Botanical Society :—

Dr. Dickson exhibited specimens of this plant, from his garden in the country, showing well-developed foliage-leaves springing from the root-stock, with ovate or lanceolate-ovate blade, and long petiole. In the largest leaf the blade was 6 inches long, by about 3½ at its greatest breadth, and the petiole about 5 inches long. The production of foliage-leaves in Ruscus has not, Dr. Dickson believes, been hitherto observed; and in the present case the predisposing cause of their appearance has probably been the confinement of the plant in a flower-pot, and consequent weakening of the growth of the aërial stems.

The occurrence of such leaves in a plant so highly specialised as Ruscus, where the leaf-functions are, in ordinary circumstances, performed exclusively by expanded cladodes, is of great interest; and it can hardly be doubted that if the development from the seed could be examined we should find foliage-leaves constantly present, just as in some other highly specialised forms we see a more generalised or ordinary development in the young state. For example, the development of bipinnate leaves in the seedlings of phyllodineous Acacias, where in later life the leaves are all developed as phyllodia; of ternately compound leaves in the seedling Furze (Ulex), where in later life the leaves are simple and much reduced, the leaf-function being mainly performed by the green branch-thorns; and of a few genuine foliage-leaves succeeding the cotyledons in Sciadopitys, where in later life the leaf-organs are all reduced to scales, and the leaf-function is performed by cladodial needles.

As regards their structure the foliage-leaves of Ruscus androgynus resemble ordinary leaves. The stomata are developed almost exclusively on the morphological lower surface, and the phloëm elements of the fibro-vascular bundles are directed towards that surface. In the cladodes, on the other hand, the stomata are developed almost exclusively on the morphological upper surface, this being righted by a twisting of the cladode at its base, just as in the leaves of the Chilian Amaryllids, Alstrœmeria, Bomarea, and Leontochir, and the (also Chilian) Liliaceous genus Luzuriaga, where there is a similar development of the stomata on—so to speak—the wrong surface, which is righted by a subsequent twisting of the leaf-base. In the cladodes of Ruscus racemosus there is a similar stomatic development accompanied by twisting at the base of the organ. In the cladode of Ruscus androgynus, and also in that of R. racemosus, the phloëm elements of the fibro-vascular bundles are directed towards the morphological upper surface; and this also holds good for the barren cladodes of R. Hypoglossum, which has got the stomata equally developed on both surfaces; and in Myrsiphyllum asparagoides, which has the stomata exclusively on the morphological lower surface. In Ruscus aculeatus (with stomata equally developed on both surfaces), the direction of the fibro-vascular elements does not seem to be very constant. Usually, the phloëm elements are uppermost; but sometimes especially in the smaller veins, the xylem and phloëm are directed obliquely to the surfaces, or have even the reverse position.

The direction of the phloëm elements towards the morphological upper surface of the cladodes of R. androgynus, R. racemosus, R. Hypoglossum, and Myrsiphyllum asparagoides Dr. Dickson considers of much significance in connection with the question of the cladodial nature of the phylloid needles of Sciadopitys and the "squama fructifera" of Conifers, in both of which the phloëm elements are similarly directed towards the morphological upper surface.

Microscopic illustrations of the principal points connected with the foregoing were exhibited, along with sections of roots of R. androgynus from various gardens, showing some remarkable variations. Among other peculiarities of this root may be mentioned the development of a second, and in some cases of a third layer of endodermal cells, with the characteristic U-like thickening outside the pericambium.

That the position of the fibro-vascular elements has a morphological rather than a physiological significance is proved by the fact that in the twisted leaves of Alstrœmeria, Bomarea, and Luzuriaga the position of these elements is exactly as in ordinary leaves (viz., the xylem to the morphological upper, the phloëm to the morphological lower surface), while in the aforesaid cladodes, whether twisted, as in R. androgynus and R. racemosus, or not, as in R. Hypoglossum and Myrsiphyllum asparagoides, these elements have the reverse position.

MR. JENSEN AND THE POTATO DISEASE.

IT is much to be hoped that the protective systems will be extensively tried this year, for all appearances point to a severe visitation of the Potato disease. Having received several communications upon this subject from Mr. Jensen during the past few months, and having his permission to make them public, I take the present opportunity of doing so. It is needless for me to describe over again his system of culture, beyond stating that it mainly consists of giving the Potatos a second or protective moulding when the first disease blotch is seen upon the foliage, in such a manner that the uppermost tubers have at least 5 inches of earth over them, at the same time bending the top so that they hang over the furrows in a half-erect manner; the object being to protect the tubers by a layer of earth from the spores of the parasitic fungus which causes the disease. When moulded up in the ordinary way the covering of earth over the uppermost tubers is not, as a rule, more than 1½ or 2 inches.

If the disease be due to the spores falling from the foliage and being washed through the ground to the tubers, we should expect to find those tubers nearest the surface more diseased than those deeper in the ground. The fact that the uppermost tubers suffer more from the disease is well shown by three examples given by Mr. Jensen :—

	I.	II.	III.
Uppermost tubers, per cent. diseased ..	82	49	49
Intermediate tubers, per cent. diseased ..	30	30	17
Lowermost tubers, per cent. diseased ..	3	8	12

Examples I. and II. were near Copenhagen; III., near Paris. In this last case the soil was very clayey, and the Potatos set very shallow, so that the lowermost had only 3 inches of earth over them.

As showing the value of protective moulding some of Mr. Jensen's experiments are very striking. The following were some of the results obtained last year :—

	Common moulding.	Protective moulding.
	Per cent. diseased.	Per cent. diseased.
Copenhagen	27	1
,, ...	29	0 5
,, ...	22	0
,, ...	45	0
,, ...	38	0
,, ...	24	0
,, ...	64	0 3
,, ...	45	0
,, ...	58	0
Fredericia	18	0.3
Hverringe	12	1
Borup	75	1

These results speak for themselves; but as they were obtained abroad, in Denmark (where they seem to be able to manage the Potato disease better than we do here) it is interesting to know that Mr. Samuel D. Shirriff tried the protective moulding in Scotland, last year, and found that while Potatos grown in the ordinary manner had 29 per cent. diseased, those grown with the protective moulding had only 8 per cent. affected. This was a very satisfactory result, but not equal by any means to Mr. Jensen's. How was this? Is the disease more difficult to deal with in Great Britain than in Denmark? This by no means follows, for when the Scotch Potatos were lifted it was found that the uppermost tubers had only about 3 inches of earth over them! To obtain the full benefit of this system at least 5 inches of earth covering is required in the first instance, which, in the course of time, settles and consolidates into 4 inches; so that if the Scotch Potatos had been moulded an inch higher they would have, to say the least, been on an equal footing with the Danish, and would, doubtless, have been as free from the disease.

Any cause which breaks the continuity of the earth covering of the tubers renders them more liable to disease. Thus the presence of an earthworm at a Potato root renders it more liable to have its tubers diseased than it would otherwise be. An examination of 600 Potato roots at Hverringe was made by Mr. H. Dreyer, for Mr. Jensen. It was then found that the average number of diseased tubers in the roots without earthworms was 22 per cent.; with one worm at each root, 35 per cent.; with two worms at each root, 46 per cent.; with three worms at each root, 58 per cent.; with four worms at each root, 71 per cent.

The foregoing remarks are especially interesting to the practical Potato grower, but it is worth while to notice some of the experiments that have been made by Mr. Jensen in support of his views. To begin with, it was certainly news to most of us in this country to hear that the spores (conidia) of Peronospora infestans could penetrate the comparatively tough skin of the tuber and produce the disease. We had hitherto looked upon the disease in the tubers as being caused by the mycelium passing down the stem into the tubers. But the direct infection of the tubers seems to be well known to Continental botanists as far back as 1876. De Bary in his paper upon this subject in the twelfth volume of the *Journal of the Royal Agricultural Society*, p. 251, speaks of applying fresh "conidia to the terminal eyes of a tuber," and adds, "By this process infection can be obtained with great certainity." The following, however, are the results of three experiments performed by Mr. Jensen. On September 21, 1881, some Potatos were dug and divided into two lots. Next day, one lot was brushed with a diseased Potato top, and the other not in any way interfered with; both lots were then covered with damp sand. Twelve days afterwards they were examined with this result:—brushed tubers, 152, diseased, 114; unbrushed, 154, diseased, 6. It may be remembered that last year, in a note I sent to the *Gardeners' Chronicle*, I stated that I had repeated this experiment on a smaller scale, and found that all those tubers to which the conidia were applied became diseased, while all the others remained perfectly healthy. If any one wishes to see this for himself, it should be remembered that the Potatos must be freshly dug, for if their skins have once become dry the chances are they will resist the disease.

Fortunately the conidia in a few days lose their power of germination, else we should be unable to lift our Potato crop without exposing the tubers to the disease-spores, but this can be safely done, and "after sickness" avoided by either waiting till all the foliage is destroyed, or, if we cannot wait so long as this, by cutting off the tops and removing them a week before the Potatos are lifted. But granting the fact that the tubers are infected directly by the conidia, does it follow that a comparatively thin layer of earth has the power of filtering out and retaining the spores so as to shield the Potatos from their enemies? Mr. Jensen has performed numerous experiments showing, not only that this is the case, but also the relative values of various thicknesses of earth, as well as of various kinds of soil.

To demonstrate the power earth has in arresting and retaining the spores a cylindrical tube was taken, fitted at the bottom with a perforated plate. In this tube was placed a layer of earth 1 inch thick, which was compressed to ¾ inch, to represent the consolidation which naturally takes place in the moulding of Potatos; water was poured into the top of the tube containing spores, estimated by counting the number in a drop, and employing the requisite quantity to the number of 30,000. It was found that about 28,000 of the spores were retained by the earth, for only 2000 ran through. The experiment was repeated, using, however, 5 inches of earth compressed to 4 inches. It was then found that out of the 30,000 poured in at the top only one or two ran through.

To test the spore-retaining power of various kinds of earth six flower-pots were employed, in each of which fifteen Potatos were placed. In three pots the Potatos had a covering of 1½ inch of earth given them; in the other three they had a covering of 5 inches. Water containing spores was poured into the pots upon the earth, little by little, to represent rain until

it equalled a rainfall of 1 inch per hour. The following was the result :—

Diseased.

	1½-inch earth covering.	5-inch earth covering.
I. Good earth	15 (all)	0
II. Coarse sand	12	0
III. Fine sand	10	0

—showing plainly enough that an even 1½ inch of sandy soil has considerable power of retaining spores, while 5 inches of earth or sand affords complete protection to the tubers. The experiment was varied by using a box divided into three compartments, which were filled with good earth, peat, and sand respectively. Fifty Potatos were placed in each compartment, twenty-five at the bottom, so as to have a covering of 4 inches of earth, and twenty-five near the top, having a covering of 1½ inch. Water containing spores was poured upon the surface of the earth in each compartment. Three experiments were performed with the following results :—

	Earth covering 1½ inch.	Earth covering 4 inches.
	Diseased tubers.	Diseased tubers.
Good earth	21	2
,, ...	14	2
,, ...	11	1
Peat	12	0
,, ...	15	0
,, ...	14	1
Sand	8	1
,, ...	6	0
,, ...	3	2
	104	9

Showing that of 225 Potatos covered by 1½ inch of the above mentioned varieties of soil, 104 became diseased, while of 225 covered by 4 inches only nine were affected.

The views of Mr. Jensen upon the influence that temperature exerts over the Potato disease in connection with its geographical distribution are very interesting. It may be stated at once that he agrees with De Bary in considering that the disease is kept alive by the mycelium hybernating and not by the agency of resting-spores. Amongst his reasons for this view, are :—1. Because as a general rule Potatos sown after Potatos the preceding year are not more severely attacked by the disease than when they follow other crops. This he has found to be the case in a great number of instances (some hundred), although it is contrary to what is commonly thought in this country. 2. The date at which the Potato disease first appears in any year depends, not entirely upon the amount of rainfall, which of course exerts a powerful influence, but greatly upon the quantity of infected Potatos planted in spring. Last year, for instance, in England, France, and Denmark the disease appeared very early, and in Denmark at least was very severe.

Tubers attacked very early in the season will, as a general rule, be rotten at the time of lifting, and consequently the disease will have died in these tubers. The "after-sickness" will be less, because the foliage, and with it the fungus upon it, will have disappeared at the time of lifting in such years than when the disease has commenced later. Hence fewer Potatos having the disease in a hybernating state in them will be planted, and consequently the disease will have fewer starting points in the following year. We may, therefore, expect the disease will not be very early this year in its appearance in England, Denmark, and Western Europe, unless the weather be very rainy, which will, of course, favour the rapid spread of the disease. Two very early outbreaks of the disease never occur in successive years. There is, upon the contrary, a tendency for the first appearance to alternate between a late and early date ; as, however, the weather has a great influence, this is not always so observable as it otherwise would be. In Denmark during the last twenty-three years the general outbreak has been eight years early, nine years late, six years medium. Of the eight early years it has been seven times after a late year and once after a medium ; of the nine late years it has been four times after a medium and five times after an early ; of the six medium years it has been twice after an early, and three times after a late, and once after a medium.

Thus we see two very early outbreaks have never followed one another, but a year that should be early may be late or medium from want of rain. The above has reference, of course, to the time when the disease is so general as to have been observed by farmers and Potato growers generally.

As a rule, it is, as before stated, only in those Potatos which are infected late in the year that the fungus hybernates, those which are attacked early in the year perish entirely. This year Mr. Jensen found only about 10 per cent. of diseased tubers which were sown in his garden produced affected shoots bearing conidia. The presence of conidia was detected upon the shoots a few days after they had appeared above ground, and for the last six weeks he has had the disease well developed in his garden, while it has not appeared in the gardens of his neighbours. As showing the rate at which it has spread from the diseased plant, he finds that till now it has not advanced more than a yard in ten days.

Now, if the outbreak of the disease was dependent upon resting-spores, the fact of two early outbreaks not following each other would not have been observed ; on the contrary, an early outbreak one year would be most likely to be followed by a slight attack in the next year.

A much more important question, however, or rather series of questions, concerning the influence of temperature has been engaging Mr. Jensen's attention, which includes the following :—1. Where has the disease come from ? 2. Why did it not appear earlier in Europe and North America than about the year 1840 ? 3. What is the distribution of the disease throughout the globe ? In what regions can it never appear ? What hitherto uninvaded regions will by-and-bye be visited by it if the importation of Potatos from infested countries be not prohibited ? 4. Are there any means of rendering the outbreak late and sporadic in infected countries, and perhaps even of stamping it out altogether in the course of a few years ?

During the last year Mr. Jensen has been studying the relationship existing between the temperature and the disease, and he is at present engaged in preparing a memoir on the subject, in French, in which these questions will be dealt with fully. Concerning the origin of the disease, Mr. Jensen believes it to have commenced in the Cordilleras in the northern part of South America, where it has existed from remote antiquity—as long indeed as the Potatos themselves. The fungus was imprisoned within those hills by the hot air which for hundreds of miles surrounded them on all sides. When the Potatos were introduced into North America and Europe the parasite was separated from its host, for, under ordinary circumstances, neither the mycelium nor the spores can be sent through the torrid zone without losing their vitality. This separation between parasite and host lasted till about 1840, *i.e.*, about 300 years. The employment of steamers (for before 1840 the number of steamers was but very small), the great guano traffic which sent many ships to the kingdom of the Potato foe—the employment of ice perhaps—for by the means of ice the Potato fungus can be sent anywhere,—all these circumstances were favourable to the transmission of the disease to the temperate countries of the northern hemisphere ; in fact it is simply warmth that for 300 years separated the fungus from its host. The same separation can with complete certainty be effected now in the course of a few hours by means of an elevated temperature applied to the seed Potatos without injuring their growing power in the least. To make the process practical, Mr. Jensen employs a comparatively high temperature ; but with a lower temperature the same result can be obtained, only it requires to be applied for a longer time. Certain precautions are necessary to prevent injury to the Potatos, but these can be easily met by a suitably constructed apparatus which Mr. Jensen has devised. These discoveries have been communicated to the *Société Nationale d'Agriculture de France* The distribution of the disease is more dependent on the mean maximum temperature in summer than on the mean day temperature, hence the disease does not go so far south in continents as on islands. Speaking generally, the disease does not exist in continental lowlands in the northern hemisphere to the south of the fortieth parallel of latitude ; the disease does not exist in tropical countries where the mean temperature amounts to 25° C. (77° Fahr.) for any considerable time during the year. It is not found in mountainous districts within the tropics, except under very rare circumstances, because its introduction to such places is very difficult. It probably exists in all countries with a temperate or cold climate in the northern hemisphere where Potatos are grown. It may be found in temperate climates in the southern hemisphere. It is not found in Australia, although in many parts of that quarter of the world it would thrive if introduced.

Respecting the influence of an elevated temperature upon the development of Peronospora infestans, I have only one word to add, and that is to draw attention to the way in which it thrives upon outdoor Tomatos in this country compared to those grown under glass.

In conclusion, I may say that the above is collated from various papers and circulars of Mr. Jensen and from private letters written to me. I only wish he had found some one better able to express his views and place the result of his labours in a more lucid manner before the British reader. *Charles B. Plowright, July* 22.

TUBEROUS BEGONIAS.

The magnificent display of these beautiful plants at the Royal Horticultural Society's Gardens, South Kensington, on Tuesday last, while presenting a variety of form and colour pleasant to behold, also served to mark the great improvement which careful cross-fertilisation and good cultivation have effected in them, and to give the public an opportunity of seeing what really good tuberous Begonias are. In nine gardens out of ten, perhaps, where these plants are grown, the stock is composed of the poorest and weediest varieties of the old strain, many of them not good enough to name, having been imported from the Continent as mixed seedlings in the early days of tuberous Begonia growing, and are in many places still grown, although they are not now worthy of the room they occupy. Let us hope that the show of Tuesday last may open up a new era in their history, and that many who saw them there may in consequence replenish their stock with things more worthy of their attention than those they now possess.

The place of honour was, of course, occupied by Messrs. John Laing & Co., of the Stansted Park Nurseries, who staged probably the finest group that ever was brought together, composed of many hundreds of plants of the finest quality, and occupying a space about 50 feet in length. Years of attention to this class of plant has been given by this firm, almost the whole of one of their nurseries being devoted to them. It is, therefore, not surprising that they should distance all competitors, but as a reward for their perseverance they occasionally produce novelties startling even to themselves and to the most learned in Begonias. A case in point was to be met with in the middle of their group in their new production, Stanstead Surprise, a variety with dark crimson flowers, of perfect form, and measuring 6½ inches in length and 6 inches across, and which, for showiness, certainly surpasses all in its class. The female flowers of this variety are large and round, and the whole plant of good habit. This received a First-class Certificate.

Amongst a bewildering lot of grand things in this group were also New Colour, cream, overlaid with primrose ; Countess of Rosslyn, bronzy-orange (also certificated) ; A. G. Soames, maroon-crimson ; J. Walters, orange-vermilion ; Mrs. Morgan, pure white ; Golden Queen, bright yellow ; Miss Warren, and Consul Darlington, very fine in form and colour ; Novelty, dark scarlet, a mass of bloom ; Robert White, rose, a very round flower ; Miss Turner, creamy-rose (certificated) ; Nymph, pure white, margined rose ; the Hon. and Rev. R. T. Boscawen, glowing deep crimson ; Mrs. Anson, very fine rosy-salmon (certificated) ; Black Douglas, intensely dark carmine-crimson ; Ball of Fire, fiery scarlet ; Lady Trevor Lawrence, with large orange-yellow flowers, tipped with Indian red, very distinct ; and Dr. Masters, a fine dark red-crimson. The above are all single varieties.

Among Messrs. Laing's doubles were Davisii fl.-pl., very neat and bright ; Canary Bird, canary colour ; Formosa, like a double red Hibiscus, with a white centre ; Juarezi, a distinct semi-double scarlet, like a miniature Cactus Dahlia ; Sir Garnet, dark orange-scarlet ; and scarlet Button-hole, a flower with shell-like petals very evenly arranged. Above Messrs.

Laing's group hung a large basket of the variety Magenta Queen, sending forth on all sides a perfect avalanche of blooms. Let it not be said that the excellence of Messrs. Laing's Begonias is due to the use of some special manure; such is not the case, they use only in potting a compost of turfy yellow loam, leaf-mould, and silver-sand; and they are inclined to attribute a great deal of their success to their abstaining from mixing manures with their potting stuff. All the stimulant their Begonias receive is a little weak liquid manure prepared from cow-dung, and that is not applied until the plants are rooting and growing strongly.

Fig. 16.—Plagiolirion horsmanni.

The next group in importance was made up of plants brought from the Society's Gardens at Chiswick; all were well grown, and some of the seedlings showed good qualities—the double Zenobia, a fine red; Rose Von Castilien, double light rose; and Graziella, a fine double Primrose, being particularly fine.

Mr. Coppin, of the Rose Nursery, Shirley, Croydon, brought some very fair plants, many of them being ordinary seedlings. The varieties Rêve d'Or, yellow; Esther, a double form of the old Dr. Masters; President Garfield, orange-scarlet; and Midas, a scarlet, with round female flowers, were, however, very good.

Among the amateurs the best grown plants were staged by Mr. J. Child, gardener to W. Bell, Esq., Garbrand Hall, Ewell. Only nine plants were brought and entered "not for competition." Mr. Child deserves great credit for the manner in which he has grown these plants, some of them being equal in effect to a show Azalea. His best plants were Maude Churchill, a large yellow, with 220 blooms open; Miss Bertha, a grand reddish-salmon with flowers standing well out; a fine dark scarlet seedling; Lælia, a great mass of crimson blooms; and Golden Gem. Mr. J. Tong, gardener to J. S. Law, Esq., South Lodge, Southgate, had the best dozen in competition, his best plants being Stanstead Rival, a light crimson, of perfect form; Mrs. Sheppard, a fine white, and some good seedlings. The next best were contributed by Mr. J. Weston, gardener to D. Martineau, Clapham Park, whose Ettie Weston, orange, and Mars, dark scarlet, were very good.

Many of those who saw the display of Begonias on Tuesday last, no doubt, asked themselves the question, What class of plants could one cultivate to produce such a brilliant display at this time of year? The question is difficult to answer, but certain it is that many who are now in trouble with scraggy New Holland plants in small greenhouses or trying to grow stove plants in houses not warm enough for them would do well to give a corner to the grateful and easily cultivated tuberous Begonia.

PLAGIOLIRION HORSMANNI.

By the favour of Mr. Fred. Horsman, of Colchester, we are enabled to give a reduced copy (fig. 16) of a coloured sketch of the new Columbian bulbous plant which Mr. Baker described at p. 38. Plagiolirion Mr. Baker makes a new genus, about intermediate between Eucharis and Eucrosia, and the first described species has the bulb, leaves, and white flowers of Eucharis, but the flowers are much smaller, and the segments much narrower.

THE POTATO CROPS OF 1883.

SCOTLAND.

Aberdeen.—Potatos seem to be a very valuable crop this season, and all are from ten to fourteen days later than usual. No disease as yet. *R. Farquhar, Fyvie Castle Gardens, July* 24.

Banff.—Potatos are everywhere looking healthy and promising in this district, no disease having as yet been observed. *J. Webster, Gordon Castle, July* 24.

Berwick.—Potatos are yet extremely healthy, and a large breadth is planted in this locality. Champion is the favourite variety, being unsurpassed at table and resisting disease as much as any variety known here, especially where it is allowed room to grow. The early crops are perhaps a little later than usual. *W. Fowler, Mertoun, St. Boswell's.*

Dumbarton.—Fine crop, but late. No disease. *A. Scott, Auchendennan, July* 24.

Dumfries.—Early and second early varieties are an average crop, and of good quality. Late varieties look well in the haulm, and, with a little more sun, promise a good return. There is no disease in this district as yet. *J. Smart, Raehills Gardens, Lockerbie, July* 24.

East Lothian.—The Potatos we have been using from the garden (Myatt's Kidney, the old Ashleaf, and Smith's Early) all turned out a good crop free from disease, and excellent in quality. The other varieties look very healthy. Field crops look promising everywhere about here. *L. Dow, Newbyth, Prestonkirk, July* 24.

Forfar.—Potatos are all looking extra well in both the gardens and fields. An unusually large acreage has been planted in this district this season, no doubt on account of the very high prices realised last season. There are no signs of the disease as yet. *G. Johnston, Glamis Castle, July* 23.

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Lanark.—The crops, both in gardens and fields, are healthy and luxuriant. The Champion Potato is now largely grown in fields in this locality, and it seems to resist disease better than any other sort in general use. There is a great breadth of Potatos planted this year throughout the surrounding country, the improved prices of last spring having induced the farmers to plant more largely. *A. Turnbull, Bothwell Castle, July* 24.

Midlothian.—The crops in this district are very good, in fact above the average, and if the rain would only stop at this date we should have a heavy return. *Charles Johnston, Dalhousie Castle Gardens, July* 24.

Perth.—The crops have looked well up to now; but I notice that the disease is commencing on the haulm, owing to excessive rains. *P. W. Fairgrieve, Dunkeld, July* 23.

Stirling.—The Potato crop generally has a promising appearance, the Champion variety specially. *Maurice Fitzgerald, Dunmore Gardens, July* 23.

Sutherland.—Early sorts are turning out well. There are no signs of the disease at present, but late rains are causing rather too much growth in the haulm. *D. Melville, Dunrobin Castle, July* 23.

ENGLAND.—NORTHERN COUNTIES.

Cumberland.—The Potatos look very well, and the early sorts are a full crop, and of good quality. The blight has not appeared in this district yet, and should it not do so a full crop of the late varieties will be the result. *J. Hammond, Brayton, Carlisle, July* 23.

Westmoreland.—Both the early and late crops look very promising.—*Wm. A. Miller, Underley Gardens, Kirkby Lonsdale, July* 23.

Yorkshire.—The Potato so far is good in crop, very good in quality, and quite free from disease. On Friday night and Saturday, July 21, 2½ inches of rain fell, with the thermometer at 40°. If we do not get bright, warm weather after such a downpour disease, I fear, will set in on the early sorts. *W. Culverwell, Thorpe Perrow, Bedale, July* 23.

—— Ashleaved varieties of all kinds are turning out good crops. No disease up to the present. Late Potatos looking well. *James Fowler, Harewood House, Leeds, July* 24.

—— The Potato crop in this district is looking very promising. No appearance of disease at present. *Robert C. Kingston, Brantingham Thorpe, Brough, July* 24.

—— The Potato crops both in the gardens and in the fields are looking very promising, with every prospect of producing heavy crops if only the disease keeps off. Owing to the unfavourable planting time, and the cold weather we have had more or less of since, kidneys are rather late in coming into use. They are now, however, plentiful and cheap. *Michael Saul, Stourton Castle, July* 24.

Lancashire.—Early kidneys suffered a little at one time from the want of rain, which affected the size of the tubers to some extent, but second early and late sorts are looking most luxuriant, and can hardly fail to yield heavy crops. In fields and in gardens they are making enormous tops, and are blossoming more freely than I have seen them for years past. *F. Harrison, Knowsley, Prescot, July* 23.

—— Early varieties have produced very fair crops. Late ones promise very well, and up to the present I have not seen any trace of the disease. *A. Jamieson, Haigh Hall Gardens, Wigan, July* 24.

—— Early Potatos are turning up well, and late varieties are very vigorous and healthy in growth. There are no signs of the disease as yet. *H. Lindsay, Huntroyde Park, July* 23.

MIDLAND COUNTIES.

Cheshire.—Early and late sorts are both good crops. Large quantities are grown in this neighbourhood for the Liverpool, Manchester, and Pottery markets; up to this date they look well, and are free from disease. *Robert Milne, Vale Royal Gardens, Northwich, July* 24.

—— The early Potatos are good crops, not heavy, but clean and regular. Late crops are very promising, but inclined to grow to haulm too much. We find the disease amongst the early Potatos, though not to a great extent. *T. Selwood, Eaton Gardens, Chester, July* 24.

Notts.—Early Potatos are plentiful, but not so large as usual, this we attribute to the small amount of really warm weather. There is no appearance of disease at present. Field Potatos are looking very well, and if a favourable autumn follow, a heavy crop is expected. *A. Henderson, Thoresby Park, Ollerton, July* 24.

—— The last fortnight has been wet and cold, conditions which have not suited Potatos on our cold, stiff soil. Early sorts are neither so early nor so fine as usual, but they are free from disease. Disease was reported a fortnight ago a few miles from here in some cottage gardens. Most Potatos have more flower than I have observed for some years past. *Richard Carr, Welbeck, July* 23.

Shropshire.—Early sorts I have never known to be better, both in quantity and quality, and they are free from disease at present. I find Veitch's Ashleaf a good early cropper, and of fine quality, followed by Myatt's Prolific, three weeks later than the former when planted at the same time. Of Sutton's Prize-taker I cannot speak too highly, it being a heavy cropper and of excellent quality. Late varieties in the field are looking remarkably well. *Richard Milner, Sundorne Castle, Shrewsbury, July* 23.

—— Early sorts are a full average crop, good in quality, and so far quite sound. Later varieties are very promising, more especially a sub-variety of Magnum Bonum, selected by an enthusiastic clerical amateur in this neighbourhood. This is a vigorous, distinct-looking sort, with fine smooth broad foliage, and is said to be a better cropper and six weeks earlier than Magnum Bonum. Field Potatos of all sorts look remarkably well, and there is every prospect of a very full crop. *James Louden, The Quinta, Chirk, July* 23.

—— Excellent, and so far free from disease. *A. S. Kemp, Haughton Hall, Shifnal, July* 23.

Stafford.—Early varieties are turning out clean and good crops, and nearly free from disease. Some of the cottagers are complaining of finding a few dseased, where thickly planted, but I have seen none; late crops are looking well, being strong and healthy. *W. Bennett, Rangemore, Burton-on-Trent, July* 21.

—— The crops never looked better; my own excell all that I have seen here for the past five years. The disease has not made its appearance yet, but we want warmer weather. *W. Ward, Little Aston Gardens, Sutton Coldfield, July* 23.

—— I do not recollect ever having seen the Potato crops look better than they do here at present. *Wm. Davidson, Sandon, Stone, July* 23.

Leicester.—The crops are good at this place; I have not seen any diseased ones as yet. The quality is also fine, but if the wet weather continues much longer the disease will make an appearance among late ones. *James Maclean, Beaumanor Park, July* 24.

—— At present healthy, and the early kinds prolific. *Wm. Ingram, Belvoir Castle, July* 23.

Warwick.—Potatos are turning out a heavy crop, and free from disease. Hammersmith and Gloucester Kidneys have been the best among early varieties, and now we are lifting Webb's Surprise, which is an immense cropper and a good table Potato. Later varieties promise well. *R. Greenfield, The Priory, Warwick, July* 23.

—— Potatos are looking very well, and early varieties are yielding good crops. I have not seen or heard of any signs of disease. *E. Cooper, The Gardens, Highbury, Moseley, July* 24.

Northampton.—All vegetable crops are looking well, and I never saw the Potatos looking better. There is no sign of the disease yet. *Edmund Cole, Althorp Park Gardens, July* 23.

Huntingdon.—Early Potatos are very abundant and of good quality, but rather late in ripening. I have not heard of any diseased tubers, though I have seen a little of the disease in the haulms within the last few days; the wet, dull weather is favouring its development. Field crops and late varieties promise a plentiful and good supply. *W. Kennedy, Kimbolton Castle, July* 24.

Beds. — The crops are looking well, but the disease has made its appearance in places. Sunshine and dry weather will now be very beneficial. Over an average crop and very good in quality. *Geo. Ford, Wrest Park, Ampthill, July* 24.

Oxford.—Ashleaf and other early sorts gave crops of fine tubers without spot or blemish. Second and late varieties promise wonderfully well, with no sign of disease at present. *J. Watson, Nuneham Park Gardens, Abingdon, July* 23.

—— The Potato crops here, both in the garden and field, are looking exceedingly well, and I have found no sign of the disease at present. *Thos. Buckerfield, Shirburn Castle Gardens, Tetsworth, July* 24.

—— The Potato crops round here look promising. Garden varieties are turning out clean and well. *Benj. Hope, Middleton Park Gardens, Bicester, July* 24.

Bucks.—At the present time Potatos look very promising; a little disease is, however, visible on the haulm, but we have not found any trace of it among the tubers which have been lifted. *Geo. T. Miles, Wycombe Abbey Gardens, July* 23.

—— The crops with us are in splendid condition, and there is no appearance of disease, but I fear the wet weather will bring it. This has been a very fine season for vegetables generally, everything being good. *Thomas Bailey, Shardeloes, Amersham, July* 23.

Herts.—Potatos are turning out remarkably clean and good, Regents in the fields look very promising. I have heard that the disease has put in an appearance in the neighbourhood, but we have none here. *Geo. Merritt, The Hoo Gardens, Welwyn, July* 24.

—— Potatos look exceedingly well, and give promise of an abundant crop of fine quality. *R. Thompson, Gorhambury, St. Alban's, July* 23.

EASTERN COUNTIES.

Lincoln.—My "Wilson's Early" is harvested, a full crop of fine tubers; Myatt's are now in, and are really good in quality. Late crops are looking well, Magnum Bonums and Champions especially. No disease at present. *R. Gilbert, Burghley Park, July* 23.

—— Early Potatos are good but small; no disease yet. Late sorts are looking well, but fine weather is much wanted, or I fear the disease will soon make its appearance. *Thomas Vinden, Harlaxton Manor, Grantham, July* 24.

Suffolk.—The early crops have been abundant and good in size and quality. Later crops are looking most promising, and up to the present there is no appearance of disease. *T. Wallis, The Gardens, Orwell Park, Ipswich, July* 24.

Essex.—All our Potatos planted on newly trenched ground have failed. *J. Douglas, Great Gearies, Ilford, July* 21.

SOUTHERN COUNTIES.

Berks.—I never saw the Potatos look so well. All the early kinds are turning out good crops of fine quality, and quite free from disease. I, however, saw a patch or two diseased last week in some cottage gardens, and I am afraid if this weather continues it may spread. *James Tegg, Bearwood, July* 23.

Middlesex.—Potatos, so far (July 23) are looking well, indeed all the breadths of late robust kinds are exceptionally healthy, and have improved under the recent rains, as previously the soil had become dry, and the crops were in danger of giving out. Whilst the crops also are almost everywhere late, there seems fortunately so far to have been absence of disease, though the spell of cold weather—including at times some truly cold nights—has told upon the leafage of many of the earlier sorts, and there is rust or speck on it that, without wearing any virulent aspect, seems to be disease. That such very low temperature with cold winds and storms must, if long continued, tell disastrously upon the exotic Potato plant, there can be no doubt, but, with the exception of the unusually late tubering, and suffering here and there from drought, Potato culture so far this year has been all *couleur de rose. A. Dean, Bedfont.*

—— The early Potatos are turning out very well. The late kinds are looking well; no signs of disease at present. *John Woodbridge, Syon Gardens, Brentford.*

—— The crop generally is looking well; early kinds, such as Veitch's and Myatt's Early Ashleaf Kidneys, are very good, and scarcely any diseased tubers have been found amongst them so far. Should the present weather, however, continue much longer I fear we shall have a large proportion of diseased tubers at taking-up time. *T. P., Stanmore, July* 23.

—— Up to the present time the crops have looked well. After trying a good many sorts we find nothing better (taken as a whole) than Myatt's Prolific. Late kinds suffer so much from disease that we have given up growing them. *J. Willard, Holly Lodge Gardens, Highgate, July* 23.

Surrey.—Remarkably healthy, and the fields in full bloom are quite a picture. They are also very good in flavour this year. *W. Denning, Combe Lane, Norbiton, July* 23.

SURREY.—Very good, and quite free from disease. *H. C. McRae, East Horsley Towers, July* 23.

KENT.—The haulm is looking strong and well, and there is every prospect of a heavy crop; but the disease has just made its appearance—I observed it for the first time on the 17th, in a piece of Early Rose. *John Charlton, Tunbridge Wells, July* 21.

—— Potatos are excellent; late varieties are looking remarkably strong and healthy. *R. Gray, Chevening, Sevenoaks, July* 23.

SUSSEX.—I observe symptoms of the disease on the leaves of the American Rose, but not in any of the Ashleaf kinds, nor in any of the late sorts. *J. Rust, Eridge Castle, July* 23.

—— The Potato blight is showing itself in a very bad form—so much so that every one is taking up the crop. In some cases good sound tubers and a large crop have been stored. Veitch's and Myatt's Ashleaf, also Sutton's Reading Russet, Prizetaker, and Fiftyfold have been very good with me. *S. Ford, The Gardens, Leonardslee, Horsham.*

—— The crops are excellent, but the disease is appearing in the tops. I have not seen any in the tubers at present. All other vegetable crops are good. *F. Rutland, Goodwood, July* 23.

—— Potatos are looking strong and well everywhere, but the disease has shown itself in many places during the past fortnight, though I do not hear of the tubers being affected much at present. Many persons are taking them up. The crops are excellent in quantity, but not first-class in quality; there has been too much wet of late. *G. Breese, Petworth, July* 23.

HANTS.—The crop is a good one in quantity and fine in quality, and all the early kinds are free from disease. Late sorts look very promising and free from disease about here. *Wm. Smythe, The Gardens, Basing Park, Alton, July* 24.

—— In field and garden Potatos could not possibly look better, and the quality of the early varieties is superb; at present there is not the slightest appearance of the disease, and if we can but keep free of this I shall be safe in predicting that this year will be notable for cheap and good Potatos. The kinds most generally grown hereabouts are the old Ashleaf types and Lapstone for earlies, and for main crops Scotch Champion, Magnum Bonum, and Reading Hero; both the latter kinds are rising in favour, but the former has been so badly diseased the past two seasons that it is fast losing popularity. *W. Wildsmith, Heckfield Place, Winchfield, July* 23.

—— Early sorts are a good crop and fine in quality, but during the last few days the disease has made its appearance. Late sorts look well. *Thomas Myles, The Gardens, Appley Towers, Ryde, July* 23.

—— Throughout this district the Potato crop is an excellent one, and the disease was considerably later in making its appearance, in fact most of the early varieties are sufficiently ripe to be dug up out of danger; the weather is just as favourable for its development as it possibly could be. So far the main crop, or late varieties, are free free from it. *F. Thirlby, Broadlands, Romsey, July* 24.

WILTS.—With us, and so far as I know in this district, the Potato crop is an excellent one, the ground being full of large tubers, which as yet are perfectly free from disease. The following, among many others, are varieties that cannot be too well known or extensively grown in the garden:—International Kidney (a truly grand Potato), Vicar of Laleham, Sutton's Reading Russet (an immense cropper), Sutton's Early Border, Schoolmaster, and Woodstock Kidney. *H. W. Ward, Longford Castle, Salisbury.*

—— There is every prospect of a good crop of both early and late sorts, and although a few diseased tubers have been found amongst some of the early varieties there is, comparatively speaking, little cause to complain on this point; by the time this appears in print the greater part of the crop of our early varieties will probably have been dug up and stored away. *J. Horsefield, Heytesbury, July* 23.

—— The crops in this neighbourhood are wonderfully good, and the quality excellent. Very few diseased tubers have been found. *Thos. King, Devizes Castle, July* 23.

DORSET.—The Potato crops are very promising, but the disease is just making its appearance, and I fear the wet weather will bring it on very severely. Many acres of Potatos have been planted around here this season. *C. Hazel, Leweston House, Sherborne, July* 23.

WESTERN COUNTIES.

HEREFORD.—The crops are promising well, and early kinds are free from disease. *R. Abbey, Holme Lacey Gardens, Hereford, July* 24.

WORCESTER.—Potato disease first appeared this season about June 30, Defiance Kidney being the first to show it, otherwise early kinds are turning out well and good in quality, and late crops look highly satisfactory up to date. *William Crump, Madresfield Court, Malvern, July* 24.

—— All the Potatos are looking very well, and show no signs of disease. We find the Covent Garden Perfection and Veitch's Ashleaf good early sorts. The field sorts grown about here are principally Champions and Magnum Bonums. *Geo. Westland, Witley Court, July* 24.

GLOUCESTER.—The Potato crops in this district never looked more promising. The early crops are enormous, and good in quality. The disease has appeared within the last few days. Magnum Bonum and the Scotch Champion are free from disease as yet. *J. Sowray, Highnam Court, Gloucester, July* 24.

MONMOUTH.—I never saw the Potato crops looking better than they do here now, both in gardens and fields. I have seen no signs of the disease, but hear it is in this neighbourhood. We are digging Veitch's Ashleaf, excellent in every way, and all other kinds appear equally promising. *Thomas Coomber, Hendre Park, July* 24.

SOMERSET.—The crops around here are the best we have had for many years, the quality excellent, and the quantity enormous. No trace of the disease has at present come under my notice, and the haulm both in garden and field looks all that can be desired. *J. Austen, Ashton Court Gardens, Bristol, July* 23.

—— Over average, and very good. *W. J. Rowley, Kingsweston, Taunton, July* 23.

DEVON.—Potatos are looking well everywhere. Early varieties have yielded crops of first size and quality. Disease is making its appearance in places, we purpose drawing up the whole of the haulm on its appearance, and scatter lime over the whole ground. I have not seen or heard of it in the tuber up to the present. Beauty of Hebron ranks as one of the very best for early work, and Sutton's Magnum Bonum maintains the foremost position as the best for field work and general use for the winter and spring supply in this district. *D. C. Powell.*

—— The crops in this neighbourhood are very fine. Kidneys large and good. With regard to late sorts there is every appearance of a good crop; the haulm is strong and looking vigorous, and up to now very free from disease. *A. Ayson, Oxton House Gardens, Kenton, July* 24.

—— A fine crop, and there is no disease. *F. Geary, Eggesford Gardens, July* 23.

WALES.

GLAMORGAN.—Potatos promise to be heavy crops, but the late rains have caused excessive top growth on the late varieties that bodes ill for their resistance of the disease when it sets in. Curl is rather prevalent, especially on such sorts as Triumph, Trophy, Beauty of Hebron, and other tender American sorts; and in such cases a few diseased tubers are to be seen. Field crops are looking well, and early Kidneys are turning out clean and good. *Ralph Crossling, Penarth Nurseries, July* 23.

MONTGOMERY.—The Potato crops are very healthy at present. *W. Lee, Powis Castle Gardens, Welshpool, July* 24.

PEMBROKE.—The early varieties were a good clean crop, but a little later than usual. The second earlies are a very heavy crop, and the tubers are large and clean grown. The late crops also look exceedingly well. The first spots of disease were observed on the 12th inst., but it has made but little progress so far in spite of the apparently favourable weather for its development. *G. Griffin, Slebech Park, July* 23.

IRELAND.

CAVAN.—The crops look very promising throughout the county, and if the disease does not set in the yield will be an abundant one. Early sorts are turning out well, both as regards quantity and quality; no signs of the disease as yet. *W. J.*

CLARE.—The crops here never looked better; I don't hear a single complaint, nor is there any appearance of the disease as yet. *William Wilson, The Gardens, Dromoland Castle, July* 24.

DERRY.—The crops are remarkably good, but we want drier weather. *William Fleming, Palace Gardens, July* 23.

FERMANAGH.—The crop promises to be a very good one; all that is wanted is sun and heat to ripen the crop. Very little disease in this neighbourhood as yet. *William Magee, Florence Court, Enniskillen, July* 24.

KILDARE.—The early crops have been very fine, and so far are free from disease, although for the past fortnight we have had an abundance of rain, with frequent thunderstorms, &c. The late crops, which are principally Champions, are looking remarkably well. I believe the cultivation of the Potato has much improved during the past few years, and that growers now recognise the necessity of early planting and of frequently changing their seed—two golden rules hitherto little practised in this country. *Philip Wadds, The Gardens, Moore Abbey, July* 23.

CHANNEL ISLANDS.

JERSEY.—The Potatos were cut down in many places in April by sharp frosts—a very unusual occurrence here; but the crop has proved an abundant one. *Edward Pond, The Vineries, July* 23.

STREET PLANTING IN CALCUTTA.

THE following extract from a letter of Mr. C. B. Clarke may interest some readers of the *Gardeners' Chronicle*:—"I give you a list of the trees planted in the street on the east side of Tank Square, Calcutta (there are more than a hundred species of trees and large shrubs around the tank):—

Michelia champaca	Anthocephalus Cadamba
*Calophyllum Inophyllum	*Mimusops Elengi
*Pterospermum acerifolium	Millingtonia hortensis
*Melia Azadirachta	*Tectona grandis
Cedrela Toona	Grevillea robusta
*Cassia Siamea	*Ficus benghalensis
*Poinciana regia	*Ficus religiosa
*Albizzia odoratissima	Casuarina equisetifolia
*Lagerstrœmia Flos-Reginæ	

With the exception of the Poinciana, Grevillea, and Casuarina, these are all Indian trees; and all those marked with a * are in flower at the time of writing."

Some idea of the aspect these trees present when in flower may be obtained in the "North" Gallery, Royal Gardens, Kew, where paintings of nearly every one will be found.

Respecting the temperature Mr. Clarke writes:—"Our shade thermometer rose to 98° to 102° daily by April 7, and has been somewhat higher ever since. It is said to be the hottest season since 1869. The nights are just so hot that at 4 A.M. the perspiration streams over your ribs." *W. B. H.*

PROGRESS IN LILY CULTURE.

WHAT were the Lilies of which Tarquinius Superbus knocked off the heads with his walking stick in the palace garden at Rome, because they grew taller than the surrounding plants? Perhaps L. candidum and L. chalcedonicum; for, though white Lilies were the favourites for decoration at banquets, red Lilies are also mentioned by Roman writers. But whatever they were, it is hardly likely that the royal gardener succeeded in growing them 5 or 6 feet high; and had Tarquin lived in these days he would certainly have been required to leave his cane at the gardener's lodge, before being admitted to walk in our gardens, where Lilium auratum grows 8 feet high, and L. pardalinum 10 feet.

It is not, however, tall and rank growth that should be aimed at in growing Lilies; it is amongst those with the most succulent stalks and vigorous leaves that mischief is likely to happen. After a warm and genial June, the dog-days are ushered in by cold rains—more frequently indeed in Cheshire than by fine weather—progress is checked, especially in the Japanese Lilies, which are altogether unused to such a climate; a small brown spot appears on the side or near the point of the flower-bud, and after that you may dredge with flowers of sulphur till the whole bed is yellow, but those beds will never produce a presentable flower.

The practice of growing Lilies together in beds especially prepared for them, different mixtures of soil being made according to the requirements of different kinds, has been generally recommended, and much may be said in favour of it, for the soil which is best for such kinds as L. colchicum and the varieties of L. Martagon, would be too strong to grow—for instance, the very pretty Lilies belonging to the L. elegans group; but I am coming more and more to the belief that many Lilies do quite as well or better in the mixed border, if it is well drained and the soil good. The surrounding herbaceous plants give them just the shelter they want; they get also a greater variety of situation, and one learns more in this way about their likes and dislikes, and they often grow finest in the most unlikely spots. Sometimes, when they have been planted for two or three years and quite forgotten, a splendid head of L. Humboldtii or L. colchicum will assert its right to be seen, and quite eclipse all the other plants in the border.

Most of the L. auratum here have now been three or four years in their place, and are permanently established. They perhaps represent the number

originally planted in the proportion of one to ten, but they will now begin to increase. To get a stock of this plant requires patience and perseverance. Those who buy a hundred bulbs when they begin to be imported, say in September, and plant them out, and find that at the end of a year nearly all are dead, should not on that account abjure the cultivation of L. auratum. They should recollect that these bulbs were dug up when in flower, encased in a ball of clay, and sent a voyage of 10,000 miles, to be replanted in a climate and soil quite different to their own. The wonder is, not that so many fail, but that any succeed; those that live to the third year may be expected to do well. But we may expect the market soon to be well stocked with bulbs raised from seed ripened in England. I am sceptical about acclimatisation of plants, as the word is generally understood; but it is certain that these bulbs will come to our gardens from the nurseries in which they have been raised from seed with many more chances in their favour. A dozen which I bought last autumn raised from English seed have a clean and healthy look in every leaf which I never saw from imported bulbs in their first season.

But I am far from thinking that L. auratum is the most desirable of garden Lilies; its large flowers are too much at the mercy of the weather: several American Lilies are better suited to these stormy dog-days. The most easily cultivated of them here is L. pardalinum and its varieties, of which the tallest grow 10 feet high, bearing about fifteen flowers in a pyramid. They delight in pure peat, but do not require it, though they grow less vigorously in ordinary soil. The finest variety is that known as californicum, which seldom grows more than 5 or 6 feet high, and bears larger and fewer flowers. I have a spike this year with twelve flowers, the greatest number I ever saw. The petals of this variety are recurved, so as to meet in a pyramidal point; the centre of the flower has a glossy white appearance, and the upper part of the flower is bright red—much brighter than the typical pardalinum. L. canadense does not flourish nearly as well in the same soil, and hardly makes any increase. L. Humboldti grows and flowers magnificently; the same plant, however, does not flower well every year, and they are liable sometimes to be attacked by spot before the flowering is quite completed. This Lily seems to do equally well in the peat beds, and in the mixed soil of a well drained border, but best of all in a bed sheltered with lights from winter rains, about which I must say a few words.

Mr. Elwes in the introduction to his *Monograph* of the Lilies, recommends a covered bed of this kind. The size of mine is 20 feet by 12 feet, and I find it very successful. The lights are removed during warm and rainy weather in spring, but put on again to protect the Lilies when in flower. Here L. Krameri thrives, for which my outdoor soil and climate are two wet. Several forms of Washingtonianum, which also perish out-of-doors, have flowered or are flowering beautifully. L. Humboldti keeps its foliage green and its stalk healthy to the opening of the last bud, of which each plant bears many, my largest spike having fifty-four flowers and buds. Another beautiful Lily, L. Hansoni, does well under glass, though it fails to flower well out-of-doors, in spite of vigorous growth, because the buds show so early as always to be damaged here by May frosts. L. Leichtlini, L. Parryi, L. parvum, all do better under shelter here than out-of-doors; so do the longiflorum group of European Lilies, besides Martagons, of which all the varieties seem to like strong soil and do well everywhere in this garden. L. monadelphum, or colchicum (if it may be called European), is one of the best. It does decidedly better in the mixed border, and in strong loam, than in the peat Lily beds. I tried planting some with a shovelful of ground bones mixed in the soil, and these, whether *post* or *propter hoc*, have the finest heads, numbering up to twelve and fourteen flowers.

Three years ago I bought a very shabby-looking, dried-up lot at one of Stevens' sales for about 2*d.* each. It proved one of the best gardening investments I ever made; the bulbs all recovered, and contained all the varieties figured in Mr. Elwes' *Monograph*. This Lily ripens seed in abundance, and it comes up readily. A writer in the *Gardeners' Chronicle* (p. 75) tells us that the seedlings make flowering plants in three years. I wish he had told us how it is done, as I know horticulture can do great things, and there is such a thing as getting two years' growth out of one; but Mr. Elwes says it takes ten years to flower this Lily from seed, and I have seedlings three years old which do not seem to be half way to flowering. This seed makes its first year's growth underground.

The varieties of L. elegans which like a light, warm soil do fairly well here, only on raised very sandy beds; but there is a class of Lilies, which I have supposed to be hybrids between L. elegans and L. croceum, which do well here, and, indeed, wherever I have seen them tried; and for the decoration of mixed beds in our English climate cannot be too highly recommended. They make very large heads of yellow or crimson or dark orange flowers, flowering in June, and growing 3 feet high or more. Mr. Elwes says he cannot make out the parentage of these, which are raised, some in Japan, some in Holland or Germany. I think Mr. Ware refers them to L. davuricum; in other catalogues they appear as varieties of umbellatum. But a full Lily catalogue has now become as intricate as a *Bradshaw's Time Table*, and requires as much education to understand. All the varieties of L. tigrinum do badly in the damp climate of my garden, often turning brown and going off before flowering, unless treated to raised beds, like L. elegans. L. candidum, L. chalcedonicum, and L. pomponium do tolerably well; the former best amongst the Gooseberry bushes in the kitchen garden. L. chalcedonicum often has its buds injured here by late frosts, to which it is not accustomed in its native country. L. testaceum thrives everywhere. As for L. giganteum, I think its cultivation will not be difficult where the soil is deep and not too heavy, and the situation sheltered. It ripens seed so abundantly, and is with patience so easily raised from it, that many hundreds of thousands of flowering bulbs are likely to come into the market in two or three years, and probably at a reasonable price. A flowering head of it is a fine sight in a shrubbery, but many who have small gardens will think the room a plant takes for four years before flowering hardly compensated by one fortnight's display. In conclusion, I would advise all to plant Lilies according to the room at their disposal, and after two or three years to report progress. *C. Wolley Dod, Edge Hall, Malpas, July 21.*

SARCOPODIUM DEAREI.

Under this name the plant represented in the accompanying figure (fig. 17) was recently exhibited at South Kensington by Lieut.-Colonel Deare, of Englefield Green, near Egham. Whether it is a published name we have not ascertained. The genus Sarcopodium is not retained by Mr. Bentham, some of the proposed species being referred to Dendrobium, and the rest to Bulbophyllum. Our plant is clearly allied to Bulbophyllum Lobbii. We append an imperfect description.

Pseudobulbs ovate, somewhat compressed, glabrous; leaves petiolate, oblong, acute, channelled, dark green; flowers solitary on peduncles arising from the base of the pseudobulbs; dorsal sepal oblong, acute, olive-yellow, with purple spots; lateral sepals spreading, yellow, with lilac stripes; petals narrow, reflexed; lip movable.

Fig. 17.—Sarcopodium dearei.

ZENOBIA SPECIOSA, VAR. PULVERULENTA.

This is a hardy shrub that every one goes into raptures over, and yet which few grow—why, it would be hard to say. It is of dwarf habit with leathery ovate leaves covered with a glaucous bloom, and not unfrequently, especially in the young state, flushed with pink. The numerous flowers are borne in racemes, and are in general form and colour like those of the Lily of the Valley, but larger. The plant is a native of North Carolina, growing in swampy places, but in this country a peat bed, or a light loamy soil suits it very well. It is easily propagated by layers. We do not know if any one has attempted to

force it, but if not, it would be well worth the trial. The green-leaved forms, Z. speciosa and Z. speciosa nitida, are handsome, but the variety pulverulenta here figured (fig. 18) is so much superior and so distinct in every way that it is much to be preferred for cultivation.

The genus Zenobia is close to Andromeda, so close that it is a matter of suprise that it should be retained. The differences as given by Bentham and Hooker reside in the corolla, which is bell-shaped in Zenobia, globose urceolate in Andromeda; in the anthers, which are prolonged into long slender tubes in Zenobia, while they are blunt in Andromeda. The seeds of Zenobia are, moreover, cubical, while those of Andromeda are compressed. For the specimen whence our illustration was taken, we are indebted to Mr. Maurice Young, of Godalming, whose love for plants has led him to retain many of the old favourites temporarily neglected by the caprice of the day.

Fig. 18.—Zenobia speciosa, var. pulverulenta. (see p. 108.)

FORESTRY.

The Re-afforesting of Ireland.—The following valuable contribution, from the pen of Viscount Powerscourt, to the literature of a subject which is attracting much attention, appeared in the *Times* of Saturday last:—

For some time past recommendations have been brought forward by Dr. Lyons, M.P., and other gentlemen as to planting the waste lands of Ireland, with the view of utilising mountain sides and parts of the country which are almost valueless for agricultural purposes, and are so covered with rocks and at so considerable an elevation above the sea level that it would never repay the outlay of reclaiming them sufficiently to enable them to be made use of for tillage.

As I have executed some works of this kind, on what is, for Ireland, a somewhat extensive scale, I am anxious to lay before the public the result of my experience, although I know that what I have done is not at all to be compared to the immense plantations formed in Scotland by the late Earl of Seafield and others.

My work was carried out to a large extent by Mr. Charles France, who was then my forester, and who is now in the employment of the Earl of Mansfield at Scone Palace, but since he left it has been completed by other hands.

The first plantation which I undertook, of any extent, was on a mountain opposite Powerscourt House, in the county Wicklow, where I enclosed some 350 acres as an addition to an older plantation, and planted it principally with Larch and Scotch Fir at an elevation of from 600 feet to 800 feet above the sea. I then took in about 200 acres of another mountain at about the same elevation, looking, like the first, to the south and south-west.

I will not go into details as to these plantations, except to say that they are thriving well, especially the first one, out of which I have been cutting poles for some years, because I was so much encouraged by their success that I undertook a similar operation on a larger scale, and the method was the same in each case. Before planting it was necessary to enclose the ground, and I employed a gang of about seven or eight men and some boys to build dry walls of the granite stone so plentiful on the ground round the sites of the intended woods. In the former cases the walls were built about 5 feet to 6 feet high, including a rough coping, the outer face of the wall being built perpendicular or with a slight batter inwards at the top, with the coping projecting some 6 inches to 10 inches outwards, to prevent sheep jumping up, the inner face being left quite rough next the wood. The country round is so much fenced with stone walls that there was no difficulty in finding men accustomed to that kind of work. They lifted and rolled the larger stones which they found nearest with crowbars till they formed a rough line for the lower part of the wall, some of the stones weighing several tons, and then blasted and chipped the faces of them, afterwards building up the remainder to the required height, at so much a perch, by contract.

In the larger plantation, to which I intend more particularly to refer, it took seven years to build the wall round it, and it lies on the south-west side of the valley of Glencree, and embraces, at a rough guess, about 700 acres. It is about 2 miles long, by the road which runs along it at the bottom, and varies in width, being in some places about a mile wide. The upper boundary is determined by the shape of the hills, as it was useless to plant above a certain level.

In this, as in the other cases to which I have referred, I had very little drainage to do, merely deepening and straightening the small natural streams running down the mountain so as to prevent the water spreading over the ground and soddening it. This plantation is at an elevation of some 500 feet at the bottom to 800 feet at the top above the sea.

In the wall were placed, at the points where the streams ran down the hill, openings in the wall filled with iron gratings slung on chains with the bottoms loose, so that stones and gravel brought down by the winter floods should pass through and not stop up the waterways. The wall of the plantation was built from 6 feet to 7 feet high, as I had intended it to form an addition to the deer park at some future time. The cost of this wall was 11*s.* a perch of 7 yards, and there are about 1266 perches of it, so that the cost may be put at about £700 in round numbers. I am

not very sure about the extent of the wood, as it has never been surveyed, but I think I am rather under than over stating it at 700 acres Irish.

Dr. Lyons, M.P., in his descriptions of planting operations, mentions the expense of digging holes for the trees, but this is not at all necessary, except for some special specimens, or for plants of a large size likely to be blown over by wind, and it is much better not to use large plants. The plan adopted by me was notching, as practised in Scotland—viz., each planter, with a notching spade made on purpose, cuts the surface like a cross, or in the shape of the letter T, and turns up the soil by reversing the spade; a boy follows him and puts a plant into the hole, and the planter, holding the plant upright with his left hand, treads down the notch again on each side of the stem with alternate feet.

This is all that is required with plants—say from 9 inches to 15 inches in height—the best size for planting; and a man can plant much firmer in this way, which is the great secret of the success of a plantation, as the plants are not liable to have their roots shaken by the wind as in the loose soil of a newly-made hole or pit. With very large plants pits are necessary—that is, plants of from 3 feet to 4 feet high, but it is better to reject such plants and put in smaller ones, which will soon catch up the larger ones, as I have seen myself, in the first few years, although, if the large plants are firmly put in, in a few years it will not be easy to tell the difference.

The plants were put in at about 4 feet apart—say, 4000 to the Irish acre.

The late Lord Lovat told me that latterly he never planted nearer than 5 foot apart, and with ordinary care to exclude and keep down rabbits I am sure that is near enough. The plants were as nearly as possible per acre:—2000 Larch, at, say, 20*s.* per 1000, £2; 1500 Scotch Fir, at, say, 15*s.* per 1000, £1 2*s.* 6*d.*; 500 Spruce, at, say, 15*s.* per 1000, 7*s.* 6*d.* Cost of planting per acre, 12*s.* 6*d.*; cost of enclosing, 11*s.* 5*d.*—total, £4 13*s.* 11*d.*

But for the purpose of this plantation I established a nursery of about 6 acres at Powerscourt, and purchased from Scotland and from Messrs. Francis & Arthur Dickson, of Chester, seedlings of one year, at from 2*s.* to 3*s.* per 1000. These were laid in the nursery, and twice transplanted before they went out on the hill. Those that I purchased as 2-year-old seedlings cost about 8*s.* per 1000 for Larch, and 5*s.* per 1000 for Scotch Fir and Spruce, and these were only kept one year in the nursery before being planted out.

I purposely placed the nursery in the highest and most exposed place I could find in the demesne, about 550 feet above the sea, so that the plants did not feel the difference of climate on being planted out on the hill. This plantation was commenced in 1869, and the number of plants turned out of the nursery annually for the nine years it took to complete it was from 300,000 to 400,000.

There is nothing allowed for cost of drains in the above estimate, as the hillsides not being very damp, and very little of it being level, very little drainage was required, but where there was not a sufficient fall, and wet places occurred, ordinary surface drains were made about 2 feet wide at top, and 18 inches deep, costing, say, one penny per yard. The rocky nature of the soil and the steep acclivities made the cost of planting rather more than would have been the case in more level situations, as the ground not being accessible by carts the plants had to be carried a considerable distance on men's backs.

The plants were laid in the nursery for two years in succession at a cost of about 10*d.* per 1000, and by that means and by the process mentioned above as to their purchase better rooted and more robust plants were turned out than could have been done by any other method. Besides ordinary trees—that is, Larch, Spruce, and Scotch Fir—I planted about half the wood with Oak, Willow, Poplar, Ash, and Alder, after the Firs had been in about two years, putting the hardwood from 12 feet to 20 feet apart all over it, and on the lower and western parts of it I put in some 5000 or more Douglas Fir, from 2000 to 3000 each of Thuia gigantea, Cedrus Deodara, Pinus insignis, Cupressus Lawsoniana, Picea nobilis, Araucarias, and other kinds of the rarer Coniferæ. There is also a considerable sprinkling of Pinus Laricio, which I consider to be perhaps the most valuable of the recently imported foreign Conifers. It grows much faster than Scotch Fir, and becomes timber in an incredibly short space of time. I have already cut specimens of this tree of my own planting, which were from 35 to 40 feet high, with proportionate girth. These Conifers in this wood are thriving, and already form lovely specimens. This I attribute to the virgin soil, as all trees appear to do much better where the land has not been formerly cultivated. All these I raised from seed in my own nursery, and they grew there so fast that I had to work very hard for several winters to get them all planted out before they became too large to be moved safely. All these trees had to have holes dug for them, and I superintended the placing and planting of them all myself, and now I pay an old man to keep cutting away the surrounding Larch, &c., from each plant, to prevent their laterals being injured by overcrowding. During the first year after each section was planted, the progress of growth was, of course, very inconsiderable, and I find that I may say that for the first two years trees in that locality make little or no growth, but merely establish themselves in the soil; but after that time, during the third and fourth years, they make from 16 to 20 inches, and in the older trees I have frequently measured the year's growth at from 3 feet 6 inches to 4 feet. It is now nearly fourteen years since I began this plantation, and the older part has been twice thinned, and there are Larches in the first planted portion which, if measured to the extreme point, would be very little short of 30 feet high, and the average height is not less than 20 feet in the oldest part of the wood. There are trees, several of them to an acre, girthing 20 inches at 4 feet from the ground.

Early thinning is requisite, and that has, no doubt, served the trees much. The second thinning has cost little or nothing, as the sale of the Larch bark has covered the expense.

The progress of the Scotch Firs is as satisfactory, for, although they have not made the same height as the Larch, they look strong and healthy. The future thinnings will be confined very much to the Scotch Firs, so that the ultimate crop may be chiefly Larch and the choicer kinds of Conifers.

On the higher parts the growth has not, of course, been so rapid, but still it is fairly satisfactory. On the portion which has been twice thinned the trees stand now at an average distance of 8 feet apart, say 1000 trees per Irish acre, and if we value them at 3*d.* each, we have £12 10*s.* per acre as the present market value. I do not think this too high, taking the average girth of the Larch at 10 inches at 6 feet from the ground.

For the first twenty years in that district it may be prudent to assume that no return whatever will be derived from the plantation; the thinnings up to this time do not more than cover the cost of cutting and the interest on the first cost. But after a lapse of, say, twenty-five years from the time of planting it is a moderate estimate that, for thirty to forty years, an annual return of 8*s.* per acre may be obtained, and, at the age of forty to forty-five years, the crop left standing cannot be worth less than £50 per acre.

No doubt many causes may supervene to affect the value of the plantations, such as variety of soil and situation, and the demand for timber at the time it is cut; but if anything like the present rate of growth is maintained for the next twenty years, £50 per acre will be a low estimate. In giving the cost of planting, I may state that I intentionally caused larger and more expensive plants to be used in some places on account of the rank growth of herbage; but on land with more Heath, and where the plants have to be brought from a public nursery, smaller trees might be used, and this would reduce the cost of planting by, say, 30*s.* an acre. I mention this because some writers on the subject have estimated the cost at a very high rate.

Planting of similar tracts of land in Scotland can be done for from 20*s.* to 30*s.* per acre, and there is no reason why this should not be done in Ireland, except for the rank growth of the grass. The hillside should, however, be burnt before planting the trees. I think it was Lord Longford who stated that land could be reclaimed for agricultural purposes at less cost than planting, but at such high elevations and on such steep acclivities this would, in my opinion, not repay the outlay.

There is a main road in course of formation from end to end of this wood, which is now 2600 yards long, but it is not finished, and when it is so it will be rather over than under 2 miles long. There were only five or six years consumed in the actual filling of the whole ground with trees, and the other three or four years mentioned above were taken up in refilling places where the plantation had partially failed on account of bad seasons, and in planting the hardwood, which was done separately, after the Fir and Larch had been put in.

I should state that this last and largest wood which I have made looks to the north and north-east, and that it has thriven quite as well as the former ones with a more sheltered exposure.

The small streams which run down through it will be very useful in a few years to turn a turbine for sawing up the timber, and I left a small piece of land alongside the largest stream for a site for a sawmill and timber yard in the future.

Orchid Notes and Gleanings.

Work in the Houses.—During cool weather, such as we are now getting, it will be necessary to keep the fires in connection with the warm houses going steadily, as at no season are the plants more susceptible to sudden changes of temperature than when they are making their young growths. This treatment must be maintained, when there is an absence of solar heat, till the plants have completed their growths. Some of them will now be approaching this stage, especially the earliest Dendrobiums, and this will necessitate giving them a change of treatment. When they are free from mealy-bug there is no better place for ripening up Dendrobes than a vinery where the fruit is in the last stage of ripening. The gradually increasing ventilation and dryness of atmosphere in the vinery will just suit these plants, but on no account should they be introduced into fruit-houses if they are infested with the bug, as this would lead to almost endless labour, and perhaps the destruction of crops of fruit of far more value than the Dendrobes. Before removal from their growing quarters the plants, if infested with thrips, should be lightly fumigated a couple of evenings in succession. The later batches of this genus must now receive every encouragement to get their growths well developed before the autumn sets in, as growths made by any of the spring-flowering Dendrobiums at that season are of little value for producing flowers the following season. The Thunias will now require less water than during the flowering stage, and a slightly reduced temperature and a sunny position will tend to ripen their bulbs, so that the plants will pass through the winter season without being too susceptible to slight changes of temperature or other atmospheric conditions. Some of the terrestrial Orchids, such as the Phaiuses and Calanthe veratrifolia, will be in full growth, and an occasional sponging over the leaves will keep them free from spider and other pests which soon disfigure the foliage of these species. An occasional dose of liquid manure at the roots will also add strength and vigour to the plants. Another terrestrial species that will now be commencing to grow is Peristeria elata, and, if it needs more root-room, should be potted before the young growths are much advanced. It is a free growing and liberal rooting plant that requires abundance of water while growing, and a long season of rest with scarcely any water at the root during the latter period. It will grow freely in a mixture of rough fibrous peat and loam in about equal proportions, giving good drainage and a liberal shift. It is a shy flowering plant when grown in too close an atmosphere. The Cattleya-house or an airy stove will suit it well. The Cœlogynes and other moisture loving species must receive an abundance of water at this season, and this must be continued till the growths are completed. *J. Roberts, Gunnersbury Park.*

Phalænopsis Sanderiana.—I have before me a generous present from Sir Nathaniel M. de Rothschild, Bart., M.P., forwarded me through Mr. F. Sander. It is the last inflorescence of this grand novelty that flowered at Tring Park, and bears six grand flowers and a ripe bud. You might call it a transfusion of Vanda teres in Phalænopsis amabilis. The fine sepals and glorious broader petals are light lilac, and at the same time all the nerves are of a much darker lilac, which is exceedingly charming. Even the lip is of the richest lilac underneath, adorned with rich orange above; and the tails ascend in beautiful flexures. Let us hope the inflorescence has been perpetuated by a skilful artist. I should have liked to see it submitted to the keen pencil of our excellent veteran, Mr. W. Fitch. As to the specimen it will be gratefully labelled and kept in my very stout packet of Phalænopsis. *H. G. Rchb. f.*

An Orchid with Elongating Pedicels.—The last part issued of the *Journal of the Linnean Society* contains a figure and description by Mr. W. B. Hemsley of an Orchid, Didymoplexis pallens, that possesses the singular faculty of elongating its pedicels, or separate flower-stalks, to an extraordinary degree after flowering. This Orchid is a slender, leafless, whitish, somewhat fleshy plant, from 3 to 6 inches high, terminating in a raceme of a few flowers, which are less than half an inch across, and borne on pedi-

cels shorter than themselves. It is a native of India, having been found in the Plain of Bengal and at Coorg, on the Malabar Coast of the peninsula; and also of Java. In both of the Indian localities it was found growing under clumps of Bamboos. It was originally described by William Griffith, about forty years ago; but he had plants in the flowering stage only. Since Griffith described it, it has been more or less perfectly redescribed and referred to four different genera; yet, according to Mr. Hemsley, the only person who had previously observed and recorded the fact that its pedicels elongate during the ripening of the fruit was the late Mr. Sulpiz Kurz. It would seem that this elongation takes place only after fertilisation has been effected, and then the separate pedicels grow, both in length and thickness, each one sometimes attaining double the size the whole plant was during the flowering stage. The figure represents two of the pedicels grown out in this remarkable manner. These pedicels are erect, and it is suggested that their use is to carry the seed-vessel above the continually accumulating decayed leaves and other vegetable matter in which the plant grows. There are many other plants the flower-stalks of which elongate after flowering, notably members of the Leguminosæ; but in these plants the object is quite the reverse—it is to enable the plant to bury its seed-vessels in the ground, where alone they come to maturity.

An Orchid more than a Hundred Feet High.—Among remarkable Orchids none is more so than Galeola altissima, Rchb. f., a native of Java, and originally described by Blume under the name of Erythrorchis altissima, though Dr. Reichenbach subsequently recognised in it a member of Loureiro's much older genus Galeola. It is remarkable not alone for the great height which it reaches, but also for its nature; and it is most remarkable in its nature, being one of those plants termed saprophytes, because they are supposed to obtain the greater part of their nourishment from decayed organic matter, instead of assimilating inorganic substances. Like the species of Vanilla, to which in other respects it is closely allied, it is of climbing habit, and it is probably equalled by some of them in the height which it reaches. Blume describes it as having a cluster of fleshy roots as thick as one's finger, from which slender, pale red, leafless stems ascend the trunks of trees to a height of 50 to 120 feet, emitting rootlets opposite the scales which replace the true leaves, and thus fastening themselves to their support. Throughout their entire length these stems (which are of a fleshy juiceless substance) are little thicker than a goose-quill, and they terminate in ample panicles of greenish-yellow and white unattractive flowers. Most plants of a saprophytal nature, or, in other words, those destitute of leaves, and having stems of some other colour than green, are content to blossom in the dense shade of a forest; but here is an instance of one carrying its flowers to the tops of tall trees. Even some of the species of the same genus are wholly terrestrial, notably G. Lindleyana, Rchb. f., originally described and figured as Cyrtosia (Erythrorchis) Lindleyana by Hooker and Thomson in Hooker's magnificent illustrations of Himalayan plants. This is a robust erect herb, 2 to 3 feet high, with stout deep red stems terminating in large panicles of showy yellow flowers. Altogether it is a very ornamental plant, and Sir Joseph Hooker sent a quantity of its seed to the Calcutta and Kew Botanic Gardens at the time when he collected it, but none of it germinated, or, if it germinated, it did not grow. It is noteworthy that this Orchid bears an enormous quantity of apparently good seed in large capsules about 6 inches long; and the elegantly winged seeds are comparatively large in an order where they are mostly very small and often exceedingly minute. G. Lindleyana grows in woods in the Eastern Himalaya, at altitudes of 5000—7000 feet, and is not uncommon near the Darjeeling Station. Probably the only way to introduce it into cultivation would be by taking the roots up with a quantity of the surrounding earth, and transferring the whole with as little disturbance as possible to a garden. There is also an Australian climbing species, G. cassythoides, that is not infrequent in the neighbourhood of Sydney, where it is said to climb up the trunks of trees and over rocks, forming stems at most about 12 feet in length. This is figured by Fitzgerald, who represents the flowers of a dirty pale brown, so that it can hardly be the same referred to in the following note in Kew herbarium respecting an Australian Orchid of certainly the same genus, of which, however, only seeds accompany the note:—"This magnificent Orchid was discovered by my son on the banks of the Twad River, and it has never been introduced into England. It climbs trees to a height of 20 feet, sticking to them like wax. The flowers, which are of immense size and of a most beautiful violet, yellow and brown colour, hang down in long graceful racemes; and their fragrance fills the air." To which is added a further note:—"As described by Mr. Guilfoyle, nurseryman, Sydney, New South Wales." This may be only an exaggerated description of G. cassythoides, and the immense flowers the inflorescence, which is certainly very large; whilst the colours, yellow, violet and brown, are probably all indicated in this species. *W. B. H.*

The Hardy Fruit Garden.

Continue to remove or stop all forerights and superfluous shoots on Apricots, Plums, and Pears, and keep the leading shoots of all wall trees closely nailed or tied in. Provide for the admission of light and air between the branches to effect the ripening of the wood. Remove any nails that come in contact with the fruit or likely to do so by the time it arrives at full size. To obtain well-coloured Peaches and Nectarines the fruit must be thoroughly exposed now, the foliage being carefully folded beneath the shoots or the twigs used for laying in the inner branches. Protect Morello Cherries with netting, also red and white Currants and late Gooseberries.

Thin out the suckers of Raspberries, and remove the old fruiting canes immediately the crop is finished. Plant out the runners of Strawberries prepared for beds from pots. In large gardens with plenty of space at command let the plants be inserted 15 inches apart in the row, and the rows (three to each bed) 2 feet 6 inches, with alleys 3 feet; but in lesser establishments, where quantity is required as well as quality, plant 1 foot apart and 2 feet from row to row, with 2 feet 6 inch alley. This system of planting thickly gives a yield almost equal to a thoroughly established bed the first year; and after the first time of cropping every alternate plant should be immediately removed. Cut off the runners on all plantations as they are formed, if not required for layering. All fruit for preserving should be thoroughly dry when gathered. *D. C. Powell, Powderham Castle, Devon.*

Grapes and Vineries.

The earliest houses, now that the fruit is cut, must have an abundance of air night and day, and plenty of clear water at the roots when the border is dry. Let the laterals grow out without stopping within reasonable limits. Houses in which ripe fruit is hanging must be kept as cool as possible by giving plenty of air on the front and back ventilators night and day, only closing them to keep out wet. Water the border when dry with clear water, giving sufficient to keep the borders plump and in good condition. Houses in which the fruit is colouring must not be kept at a lower temperature than 65° at night, with a rise of 10° by day, and during dull sunless weather not so much air will be required. On dull days do not damp the house down at all, and if the border is dry do not water it until a bright sunny day, when extra heat and air can be used to dry up the surface moisture. Late houses of Hamburghs in which the fruits are swelling must have liberal supplies of tepid manure-water at the roots, and be kept at a night temperature of 65°, with a rise of 10° by day. Give air early in the day, and close early in the afternoon; damp the paths and border several times weekly with weak manure-water while they are swelling, as the ammonia given off will benefit both fruit and foliage. Pull out any laterals that are not required, to prevent overcrowding, so that the foliage is fully exposed to the influence of sun and light. Muscats that are ripe can be kept as advised in my last Calendar; those that are ripening must be kept at a night temperature of 70°, with a rise of 10° by day; but if the weather is very dull and cold a few degrees lower will be better than excessive fire-heat. Keep the evaporating pans dry, and do not damp the paths or borders on cold sunless days; and give a little air from the front and back ventilators night and day; water the border when dry with clear tepid water at a temperature of 85°. Late varieties of Grapes must be kept at a night temperature of 65° to 70°, with a rise of 10° by day. Give the borders liberal supplies of tepid manure-water until they commence to colour, when clear water must be used. When they commence to colour a little air had better be left on all night. Any newly planted vineries with very strong growths, if this dull weather continues, must have a little extra fire-heat to induce the wood to ripen early, but do not let them get dry at the roots. Give them plenty of heat and air. The earliest pot-Vines for next year's fruiting must now have all the sun and light possible, to plump up the buds, and all the laterals pulled out, and plenty of weak manure-water at the roots. *Joshua Atkins.*

The Orchard House.

The trees in the earliest house will by this time have had the fruit gathered from them. If, as is not unlikely to be the case, red-spider has attacked the leaves, daily syringings will cleanse them. If the wood is quite ripe plenty of air ought to be admitted night and day, the trees to be well exposed to the sun. It is difficult when a house of any form is well filled with trees to place all of them near the glass; the best plan is to give the shy-setting varieties, such as Barrington, Exquisite, Walburton Admirable, &c., the best places. Some varieties, like Early York, Royal George, &c., set well even under unfavourable circumstances. At this season the wood will ripen well out-of-doors. It has a deeper colour, and is generally well furnished with fruit-buds. Any very gross shoots may still be stopped, although it is a mistake to stop any medium or weak growths after this date, as they do not start to grow again, and as almost every bud on such growths is a blossom-bud, there are no wood-buds to carry the sap onward, so that the fruit drops off prematurely, and the growth dies back to the base. Any of the stronger shoots that grow too long after this may be cut back in the winter, or any time after the leaves drop. In pruning back the wood of Peach and Nectarine trees cut to a triple bud; the middle bud is a leaf-bud when three of them are together.

The fruit will now be ripening in the late house, and syringing must be discontinued. This affords an excellent opportunity for the red-spider, which spreads over the trees like a blight, and speedily discolours the leaves. The only chance for the cultivator is to see that the trees are quite clean before the fruit arrives at the ripening stage. At this time the trees must be kept rather dry at the roots, or the fruit will not be of good flavour. The fruit should be gathered daily. A flat-bottomed basket should be taken into the house with a layer of cotton-wool in the bottom. Gather the fruit very carefully, and lay it on the cotton-wool, removing the basket very carefully to the fruit-room, or some cool place. Give plenty of air while the fruit is ripening, but if the weather is cold and dull, and artificial heat can be applied, it is best to do so; it helps to add flavour to the fruit, and also aids the ripening of the young wood. *J. Douglas.*

The Orangery.

In this department the work required to be done now is of the very simplest description. All that is necessary is to keep the trees growing freely, and in a clean healthy state. The fruit will be green, and swelling freely, in a moist atmosphere and night temperature of 65°. We dressed our trees this year with the same compost as we used for the Peaches and Nectarines, and it seemed to give them renewed vigour. The Orange tree likes rich composts and good loam of a tough fibrous character. This compost is better than light fibrous peat, or leaf-mould, or even these two mixed with loam. *J. Douglas.*

Sagittaria sagittifolia.—As seen in the wild state this is a handsome aquatic, not only from the large white flowers, but (amongst British plants) the unique and bold arrow-shaped leaves. The numerous deep purple or almost black stamens have the effect at a little distance of making the flowers appear two-coloured. Were it not for the evanescent nature of the flowers when cut, they would form an exceedingly chaste and welcome addition to the cut flower basket. Several fine spreading patches occur in the River Brent, Middlesex, and there is a figure of the species in *English Botany*, 84. Perhaps the double form is most frequently seen under cultivation, the flowers of which are pure white and more enduring.

APPOINTMENTS FOR THE ENSUING WEEK.

Tuesday,	July 31	Carnation and Picotee Show, at Royal Nursery, Slough. Sale of Imported and Established Orchids, at Protheroe & Morris' Rooms. Buckingham Horticultural and Floral Society's Show.
Wednesday,	Aug. 1	Sale of Exhibition Plants, at Enville Hall, by Protheroe & Morris
Thursday,	Aug. 2	Sale of Imported Orchids, at Stevens' Rooms.
Friday,	Aug. 3	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
Saturday,	Aug. 4	Great Summer Show at Westwood Park, Southampton (and on 6th). Great Summer Show in Sefton Park, Liverpool (and on 6th).

IN a short time GARDENERS, like other people who have the chance, will be ON THEIR TRAVELS. They will refresh themselves by relaxation from labour at home by observation of what is done elsewhere, and by friendly communion with their fellow-craftsmen. The value of all this is so generally recognised that it is quite superfluous to insist upon it. It may, however, be allowable to suggest that, in many cases, the most is not made of the annual holiday—we mean that not sufficient change is introduced into it. A gardener leaves his own vineries and flower-beds, and straightway visits other vineries and flower-beds. This is right enough so far as it goes. The observation of the same plants, or even of the same methods of culture, as practised at home, under slightly different circumstances and conditions, is calculated to afford, and does afford, valuable hints to the intelligent gardener. It enables him to divine the causes of his own success, and teaches him the source of his own failure. The friendly interest and sympathy engendered by such visits needs no pointing out. It is perhaps the most valuable result of the whole; but it must be felt, not read about.

Great as are the advantages of such visits as we have alluded to, it may be suggested that they should be varied by tours of inspection of a somewhat different character. A gardener coming to London, for instance, would naturally pay a visit to a flower show if there happened to be one at the time; and if we may judge from the remarks made to us, and the specimens sent to us by those gardeners who have few or very infrequent opportunities of seeing how things are done by the leading exhibitors, they would be somewhat surprised at the advance and progress that is being made. Such men would be better judges of progress than those of us whose lot it is to see most of the exhibitions as they occur. The London parks would afford abundant illustrations both of what to adopt and what to avoid, while the great nurseries and Chiswick must always prove a source of attraction to the cultivator. In all these places, however, the gardener will be more or less at home. He will see in practice—on a larger and better scale it may be, and with many modifications—the same sort of thing he is familiar with at home, or in the gardens managed by his friends and neighbours.

Let him wend his way to Kew, and he will get on different ground. It is very surprising to us that gardeners do not more frequently visit this, in its way, unrivalled institution, and more thoroughly avail themselves of its almost boundless resources. There is no sort of difficulty in the way. The gardens are open daily from noon till dusk, and even on Sundays they are open free to all from 1 P.M. Those gardeners who have special business, apart from mere lounging, or whose time is limited, may obtain tickets of admission at any hour on application at the Curator's office. One great thing for gardeners to remember is the special objects for which Kew exists. If they want to see bedding-out, or fruit forcing, or Odontoglossums with five spots instead of four on the lip, or Cattleyas with flowers 6¾ inches across instead of 6½, and so forth, they need not go to Kew—they will see better elsewhere. But if they wish to see the most extensive collections of plants ever got together—if they want to increase their knowledge of plants, and of the uses they may be put to—then they should visit Kew. If they want to form an idea of what plants are most suitable for particular purposes or particular places, then they will find Kew will supply them with an inexhaustible mine of information. Supposing the gardener is limited as to time, and cannot see the whole, as very few can do at one time—and supposing him to have no other special object to fulfil—we might suggest that he devote but little time to what is most popular perhaps—the show houses and the bedding-out arrangements — matters in which the ordinary gardener, it may be presumed, needs relatively little information. On the other hand, there are whole departments which are comparatively little seen of gardeners, but which positively teem with subjects of interest and instruction for them.

We need hardly do more in passing than mention the new rockery. In view of the growing taste for plants as distinguished from the formal counterfeit of the bedding-out system, a frequent inspection of the rockery and its contents becomes specially important. The herbaceous ground, too—a department not very popular with the general public — arranged as it is in the formal gridiron style, supposed, but erroneously, to be essential to a botanic garden — should be a special object of interest for the gardener. But above all we would commend to him a careful and thorough inspection of the collections of trees and shrubs, deciduous and evergreen, in the pleasure grounds; and we do so because, of all departments of gardening, this is the one in which, at the present day, least seems to be known by the average gardener, and the average employer too. It would seem incredible, did we not have daily proof of it, how very little knowledge there is among practical men of the copious resources at their disposition. In this way people go on planting the commonest things, good enough in their way, but affording no variety. They arrange shrubbery after shrubbery in such a way as to be almost uninteresting and monotonous as a bed of "Geraniums." We believe the main reason for this is that people do not know the wealth they really possess. Journalists may describe and figure specimens, as we have been doing for nearly half a century—they bring the matter under the notice of the public in the only way open to them—but all they can do in the way of indication and persuasion is futile compared with the actual inspection of the plants which we now advocate.

Much pains have of late years been devoted to getting together a large and illustrative collection of ornamental trees and flowering shrubs in the Arboretum at Kew. There are less difficulties in the way of securing a permanent and accurate system of labelling than in some other parts of the garden, so that the nomenclature is to be relied on with the more confidence. Of course in many cases the specimens are still young, and the trees have not attained their character; others again are clearly not at home in their position; but taking it all in all, we know of no more instructive place for the average gardener and forester (and the forester is as little *au fait* with the variety of trees at his disposal as the gardener) than the Arboretum at Kew. We are surprised that it should be so comparatively little visited by the class to whom it is calculated to be most specially useful, and hope that our suggestion as to one way of varying a holiday may prove acceptable and profitable.

—— THE WEATHER.—The common remarks of the ordinary conversationalist of late has been, "How cold it is." There is no great amount of originality found in such an observation, beyond the evident fact that it seems sadly out of place in the middle of July. But then the remark has been too truthfully apparent to be pleasant; there are some persons who are so preternaturally cool that they never feel the heat, and if a suffering perspiring Briton should suggest the trite, though commonplace observation, that it is hot, these exasperatingly cool people will assert that they thought it was rather cold than otherwise. Even the most hot-blooded being, however, could hardly have felt that the heat of the past week or two was oppressive, and the coolest of the cool might now and then have incontinently shivered. Such a change from brilliant summer weather to cloudy skies, rough winds, and cold driving storms, whilst certain to affect injuriously even well-hardened human beings, must inevitably operate most harmfully upon vegetation—the standing corn crops that need heat and sunshine to mature them not least; but specially upon all those tender or exotic plants, now so plentifully grown in our gardens, and upon the health of which we depend so materially for edible products and beautiful flowers. One by no means sentimental gardener, when invited to sympathise with others who feared bad results from the cold storms, said that they were capital for the winter stuff; but even winter stuff, useful as it may be, might be content to fight its way into growth and strength without needing the help of weather that is so full of harm to its garden allies. What is good for that, may be the reverse for many of its tenderer but not less important garden neighbours. Potatos perhaps suffer more from the cold winds than other vegetables, the leafage is tender, and, whipped and bruised, soon decays. But worse still, the low temperature checks growth and tubering, whilst also it can hardly fail to promote the spread of the disease. A warm summer would have given us a splendid Potato crop, but a few weeks of October weather falling into the midst of the growing season may convert promised abundance into certain scarcity.

—— DR. ALBERT VON REGEL, the son of Dr. REGEL, of St. Petersburg, as we learn from the *Gartenflora*, was in Bokhara at the end of January, and intended trying to push on to Badachschan. By February 12 he had reached Darwas, where he had collected four species of Gagea, Colchicum crociflorum, Crocus Korolkowi, a species of Corydalis, a genus intermediate between Ornithogalum and Rhinopetalum, and Colchicum luteum. He hoped to reach the more eastern part of Bokhara, where in the higher regions a good many new plants might be expected. The natives of Bokhara have made great advances in civilisation, and REGEL was enjoying the luxuries of a table and chair and tallow candles, and even snuffers! He states that they are beginning to build broad streets and plant them with trees. At Barpandscha, Afghanese in English military coats were seen.

—— COVENT GARDEN MARKET.—At a meeting of the Metropolitan Board of Works on the 13th inst. the Works and General Purposes Committee reported, with reference to a letter recently received from the Duke of BEDFORD, inquiring whether it is the wish of the Board to acquire Covent Garden Market as part of any general scheme for market extension. The committee recommended that his Grace be informed in reply that the Board, after carefully considering the matter, have arrived at the conclusion that it is not desirable for them to take any steps with a view to the acquisition of the market. The motion was agreed to.

—— INFLUENCE OF RADIATING HEAT ON THE GROWING PARTS OF PLANTS.—In the *Botanische Zeitung* JULIUS WORTMANN is publishing the results of a number of experiments to test the influence of radiating heat on the growing parts of plants. When the article is completed we propose summarising it.

—— THE FATHER OF FRENCH GARDENERS.—The French gardening journals announce the death of Mr. CHARPENTIER, head gardener at the Trianon Palace, Versailles, at the advanced age of eighty-seven years. He is described as the oldest of French gardeners, and as a hale, energetic man, who died in harness.

—— REMARKABLE FALL OF PINE POLLEN. — C. E. BESSEY reports the following circumstance in the *American Naturalist*: — In April of the present year, when he was gathering some water-plants from a prairie pond in Central Iowa, he noticed an abund-

ance of what turned out to be Pine pollen on the surface of the water. There are no native Pines in this part of the State, the only Pines being those planted for ornamental purposes. None of these, however, were in bloom, neither were the Pine forests of Minnesota, Wisconsin, Michigan and northward. For some days prior to the finding of the pollen strong south-easterly, south-westerly, and westerly winds had prevailed. Mr. BESSEY is of opinion that they carried the pollen, though how far it was carried he could not make out. However, he says it is certain that the distance could not have been less than three or four hundred miles.

—— ABNORMAL DEVELOPMENT OF AN APPLE. — In the *Revue Horticole* for July 1 there is a figure and description of a very unusual occurrence in a "maiden" Apple tree of the variety called Calville Blanc. The plant in question was one of a number budded in 1881, and the bud did not push until the following spring. It then grew vigorously, and in the axil of the third leaf of the shoot that proceeded from the original bud appeared a fruit. This fruit was perfect, and measured, when ripe, a foot in circumference; and the shoot, we are informed, attained a length of about 5 feet 6 inches. Probably this is not a solitary instance of such a production; yet it is an interesting fact, and worthy of record.

—— FRUIT TREES IN THE SUBURBS. — We are so apt, in speaking of the trees which grow fairly well in our midst, as well as in the parks on our outskirts, to suppose that scarcely any others are found to be growing and doing well within the same districts; and yet in the neighbourhood of Kensington fruits of various sorts succeed admirably, bearing good crops, and affording thereby much satisfaction to their possessors. At Moray Lodge, Camden Hill, we noticed some very nice healthy Apple and Pear trees bearing this season abundantly. It may interest some of our readers who may fortunately possess town gardens to know the names of the kinds growing there; these were Blenheim Orange, Dutch Mignonne, Beauty of Kent, Dredge's Fame, Bess Pool, Counsellor, and that leather-skinned long-keeper, Norfolk Beaufin. Others are grown, but these are the bearers this season. An attempt was made to grow the Ribston Pippin, but it has not been very successful, probably owing to the gravelly nature of the subsoil. But those who would like to try to grow this favourite kind would no doubt succeed by making a hole as large as the tree is likely to extend its roots, filling up with heavy soil, which should be heaped up to about 1 foot above the prevailing ground level. Of Pears seen at this pretty place we noticed, growing as espaliers, Citron des Carmes, Easter Buerré, Gansel's Bergamot, Napoleon, and Beurré Clairgeau. These were carrying very fair crops of perfect fruit, and the trees were making capital growth, thanks to the unusual warmth of the season. Although loaded with dust, and sooty to the touch, Currants, Raspberries, and Gooseberries were also carrying good quantities of fruit.

—— MIMULUS CUPREUS. — This bright little herbaceous plant is well adapted for a small bed, as well as for the rock garden, the colour, a bright orange-scarlet, rendering it a very telling plant for the former use. It does not exceed 6 inches in height, and the leaf-growth not more than 3 inches. It is propagated by division or seeds, which should be sown in the spring in very fine soil.

—— CLEMATIS JACKMANNI ALBA.—To quote a familiar phrase in the literary productions of inventors, promoters, and others, "a long-felt want" has been met at last. Far and away above all other Clematises for outdoor cultivation, stands the universal favourite C. Jackmanni—a variety that for hardiness, vigorous growth, and freedom of flowering, is unsurpassed, and for which a white counterpart has long been anxiously looked for. We had heard whispers that such a plant was in existence, but it was not until Tuesday that it made its appearance in public, and Mr. CHARLES NOBLE, its lucky possessor, must be congratulated on his acquirement of such a prize. Mr. NOBLE showed a good plant, and—dare we say it?—it was Certificated unanimously. So far as one could judge, it could not be distinguished from C. Jackmanni except in its blossoms. It flowers on the shoots of the current season's growth; its blossoms are mostly produced in pairs, one shoot bearing ten pairs and a terminal flower, and, as in Jackmanni, as soon as the first flower dies off a cluster of buds spring up in its place. The petals number four to six, and are faintly pink-tinted at first, becoming pure white with age. Clematis Jackmanni alba is the hardy climbing plant of the season, and anxious inquiries will soon be made as to when it will be sent out. Let us hope we shall not have long to wait.

E. S. DODWELL. (SEE P. 117.

—— LONDON ROSES.—This season has allowed the enthusiastic grower of Roses—and he must needs be an enthusiast who attempts the growth of this favourite flower in London—to reap the well-earned reward of his endeavours, the extra warmth, the comparatively cloudless skies, and the absence of much smoke, having combined to make this for him a season of Roses. His only regret will have been that the blooming season endured for such a span of time, owing to the same causes by which he attained his success. Hybrid perpetuals, Noisettes, and Bourbons, have competed in giving beauty to the Rose parterre. We saw at Moray Lodge arcades of Roses, notably Aimée Vibert, sheets of snowy whiteness, and many new and old kinds in beautiful condition. The Teas are perhaps the only kinds that give so little

satisfaction; but whether the winter cold following on imperfect wood ripening, the soil, or the "blacks" were too much for them the gardener, Mr. McElroy, dared not opine. To produce these good results amongst the Roses generally the gardener employs heavy loam and cow-manure every year, either as a top-dressing or for freshly planting them. We saw also the Rose grown as a pot plant with a fair measure of success at this place, and also as a wall plant.

—— Vegetation of Brazil. — Another fasciculus, the eighty-ninth, of the *Flora Brasiliensis* has lately appeared. It contains the first part of the Melastomaceæ, elaborated by Professor A. Cogniaux. This fasciculus consists of 204 pages and forty-eight plates, and is restricted to the tribe Microlicieæ. Considering the numerous beautiful members of this family, it is surprising that so few are met with under cultivation. The tribe Microlicieæ is composed mainly of quite small-leaved plants, many of them having the aspect of the Epacrideæ.

—— Genista Florida.—This handsome yellow-flowered Broom is well worthy of a place wherever choice shrubs are grown. It is a good plant either for the bolder parts of the rockery, where it is quite at home, or on the lawn, for which latter position its neat growth and bright golden blossoms make it very suitable. This variety flowers later than Brooms generally, and rather later than G. alata, the blooming season being from the end of June till the end of July.

—— Remedy for American Blight.—M. Bach, head gardener to Baron G. Rothschild at Chantilly, writes to the *Revue Horticole* respecting a method of destroying American blight on Apple trees. This method M. Bach recommends as being highly efficacious, and it is certainly simple enough. Two parts of water are added to one part of tobacco juice—just as obtained from the tobacco manufacturers—and a small quantity of alcohol is added. The reason for the addition of the latter (methylated spirit would no doubt do almost as well as pure alcohol, which is an expensive item) is that it dissolves the fatty matter with which the insects surround themselves, and this leaves them an easy prey to the action of the tobacco juice solution. Just before the buds burst last spring M. Bach syringed his affected Apple trees with the wash above-mentioned, taking care to wet thoroughly the places most severely attacked by the insect. The bark, which had assumed a whitish hue, soon changed to its normal colour under the influence of the insecticide. Although the first operation appeared sufficient, a second syringing was given, as an extra precaution, a fortnight afterwards. At the present time the Apple trees so treated are in perfect health, and perfectly free from American blight. Of course small trees and orchards of limited extent could be perhaps more economically treated by applying the insecticide with a brush.

—— Propagation of the Walnut. — The usual method of propagating the Walnut is from seed, and it is stated that the varieties usually come true this way; on the other hand, it is recorded that a sowing of seed of the variety Serotina yielded only 3 per cent. of the genuine variety characterised by its late flowering. Seed is the usual means of propagation, because the Walnut does not graft so readily as many other trees. The *Revue Horticole* publishes the particulars of a method successfully practised by a Mr. Treyve, and strongly recommended to those concerned in raising Walnut trees. The method is simple, and not new, except, perhaps, in its application to the Walnut. One-year-old seedlings are grafted in the ordinary way, close down to the root, and then potted and placed in a close frame in a propagating house, where the union is speedily effected.

—— Prunus Jacquemonti.—Under the name of Shálizán Almond, seeds of this pretty shrub were presented to the Royal Gardens, Kew, by Surgeon-Major Aitchison, who collected the plant in Afghanistan, and from these seeds a number of plants have been raised. As this is probably the first appearance of this interesting shrub as a subject cultivated in European gardens, a few words about it may not be out of place. Until Dr. Aitchison brought flowering specimens with him nothing but fruiting branches existed in herbaria; the ample material at his command, however, allowed a completed description to be drawn up, and this was published in his "Notes on the Flora of Afghanistan," which appeared in the *Journal of the Linnæan Society*. The Kew plants are compact bushes, with slender branched twigs clothed with small serrated leaves. In the work above mentioned P. Jacquemonti is stated to be an "extremely common shrub from Shálizán to Alikhél. When the fruit is ripe, and the bush is covered with it, which is usually the case, it forms a very pretty object in the landscape. It would be worth cultivating for ornamental purposes." The rose coloured flowers appear at the same time as the leaves.

—— A New Rose Stock.—In the *Journal des Roses* for last month its Editor calls attention to the value of Rosa polyantha as a stock. Pieces of the roots are used, just as is the case with several other Rose stocks. When grafted the plant should be placed in a tolerably warm house, where they soon begin to make a most vigorous growth. On April 15 last M. Bernardin describes a graft a year old which he saw at Lyons; it belonged to the variety Etoile de Lyon, and bore twenty flower-stalks. Rosa polyantha (multiflora of Thunberg) is a native of Japan, and has been in cultivation in this country for some time.

—— The Ismenes.—The Peruvian Daffodil, Ismene Amancæ, and the Sea Daffodil, I. calathina, are now in flower in the cool compartment of the T-range at Kew. Both are delightfully fragrant, handsome Amaryllids, worthy of general cultivation. The first-named species was introduced from Lima to the Botanical Gardens at Glasgow about 1839. In the *Botanical Magazine* I. Macleani, named in compliment to its introducer, is stated to be one of the plants so much celebrated by the Peruvians under the name of Amancæs. It adds:—"And so great a favourite is this flower with the people, that the plain at the foot of the mountains where it grows, near Lima, bears the same name; and one of the greatest festivals at Lima, called the 'Festival of the Amancæs,' is thus described by a late intelligent visitor." Here follows a long description of the feast, extracted from Stewart's *Visit to the South Seas*. The Ismenes require complete rest and drought during the winter months.

—— Darlingtonia californica.—The way in which this plant grows in a cold frame all the year round in Messrs. Backhouse's nursery at York, might well be taken as a lesson by those who attempt to cultivate it in heat. Planted out in sandy peat, where the copious waterings it receives can pass freely away, it luxuriates in a manner that is a pleasure to look upon. Although the plant dislikes fire-heat, naturally from the country whence it hails, it will bear a high temperature. The lights are kept close down without air whilst the sun is in full force on the plants, but are frequently taken completely off during showers, or on warm, dewy nights. Under such conditions, as a matter of course, the growth is not made quite so early as when artificial warmth is used, but the pitchers attain a large size, and are of the most beautiful colour.

—— The New Hardy Water Lily, Nymphæa alba var. rubra, is in beautiful condition in Messrs Backhouse's nursery, growing in a small tank, producing its exquisitely beautiful flowers freely. All the coloured illustrations of this plant which have appeared fail to give an idea of its beauty, and the rich golden-yellow of its large tuft of stamens contrasts admirably with the bright pink of the petals. There is not a garden in the kingdom that would not have an additional charm by the introduction of a receptacle in the shape of a miniature pond or tank wherein to grow this gem, as well as the white kind, along with other water plants that will withstand the climate, including the fragrant Aponogeton distachyon, Calla æthiopica, and other equally charming flowers.

—— Roadside Gardens.—In a pleasant book recently published, in which an American gentleman tells the story of a run through England and Scotland, the writer speaks of the delight experienced by the party of which he was the conductor with the English country custom of cultivating flowers in the cottage gardens, and which added so much to the beauty of the country and the enjoyment experienced by the party on their varied yet delightful excursion. The custom, it seems, is not found in some other countries—in Ireland, for instance; and knowing what we do of the contented prosperous condition of those English cottagers who delight in the cultivation of flowers, we could hardly commend to Irish patriots who really have the love of their country and its poor people at heart a more pleasing and civilising influence than is found in the common cultivation of flowers wherewith to beautify their gardens. The man who, like thousands of our own cottagers, can happily spend evenings in his little flower garden, will have none of those brutal and murderous inclinations which have made so many of the Irish peasantry a terror rather than a blessing. We owe this rural taste for flowers amongst the English working classes chiefly to two causes; first and oldest is the good influence exercised by the gardener of the wealthy resident in a rural district, who incites by his example, and, perchance, good nature, amongst his poorer neighbours by giving them of his spare garden stock, and now and then permitting visits to his well-kept gardens; and second, the stimulant to effort offered by local flower shows, which throughout rural England are giving encouragement to labourers and the cottagers of every grade to find in the cultivation of flowers both pleasure and profit. We also find in the clergy many powerful aids to the promotion of a love for flowers among those with whom but little of such love has previously existed. Seldom do we see the rural clergyman in a more excellent position than when he, himself an ardent lover of flowers, and filled with an intelligent knowledge of them, is occupied in making that knowledge and that love widely felt amongst his poorer neighbours.

—— Hedychiums Planted-out. — Hedychium venustum and H. coronarium, although not unfrequently seen under cultivation as greenhouse plants, for which their handsome foliage and deliciously scented flowers render them most desirable subjects, are seldom seen planted out-of-doors. Those who possess the plants, and have made use of them in their gardens, either planted-out in a clump on the lawn, with for instance a bordering of Caladium violaceum or C. esculentum, or planted in the border with the herbaceous plants, will most probably, this season, be well rewarded by abundant growth of foliage and fine blooms. In preparing the ground for planting, care must be taken to mix a good quantity of well decomposed manure; and a moderate portion of retentive loam may be incorporated with the staple soil, if that should be of too light a nature. In a dry season watering will occasionally be found necessary. The plants must be carefully lifted before the frosts set in, and be potted-up to stand under conditions of dryness in the greenhouse during the winter months. In the early spring they must be encouraged to start, by placing them in a stove or vinery at work. It may be stated that the perfume of the blossoms is very apt to cause headache, if the plants are kept in close dwelling rooms

—— Mr. James George has, we hear, resigned his situation as gardener to Miss Nicholson, Putney Heath, with a view to establishing himself in business at 10, Victoria Road, Putney, as a dealer in tobacco-paper and other articles usually included in the term "horticultural sundries." Mr. George was gardener to Miss Nicholson for about thirty years, 16 at Stamford Hill, and 14 years at Putney Heath, and during that time, in a quiet, unobtrusive way, has rendered good service to horticulture as a hybridist and raiser of new varieties of several popular garden plants. Mr. George's father was, we believe, a nurseryman and florist, and he himself may be said to have been born among flowers; hence it is hardly surprising that from boyhood upwards he has been fond of hybridising and raising seedlings. One of his earliest Pelargoniums was a scarlet, named Georgiana, noted in our number for November 13, 1847, as being "deep and rich-coloured," and "the trusses composed of about forty flowers;" but it was about the year 1867 that he took up the zonal Pelargonium with any degree of enthusiasm; and having since that time obtained sixteen First-class Certificates and put nearly 100 varieties in commerce through the agency of Mr. Turner, Messrs. William Paul & Son, Messrs. J. & C. Lee, the late Mr. Geo. Smith, Messrs. Cannell & Sons, Messrs. James Carter & Co., and Mr. Potten, he cannot be said to have been unsuccessful. The Ivy-leaved Pelargonium was taken in hand in 1870, and by crossing the old Ivy-leaved variety with pollen taken from zonals, Mr. George obtained some first-rate novelties, though he found it very difficult to get many plants to take the cross. Three of his seedlings obtained First-class Certificates, and nine have been put into commerce. His latest improvements with

this class are Dr. Masters and Future Fame, and which, independent of their fine quality as florists' flowers, are of considerable scientific interest, being, we believe, the first seedlings raised from hybrid Ivy-leaved varieties. Few of our readers, we suspect, are aware that it is to Mr. George that we are indebted for the dwarf strain of Tropæolums that have become so universally popular in our gardens; but such is the fact nevertheless. It was about 1861 that Mr. George first obtained the "break," and the two first varieties sent out were Tropæolum compactum coccineum and T. compactum luteum, these being distributed from the Wellington Road Nursery of Messrs. E. G. Henderson & Son. After these came the varieties King of Scarlets, The Moor, Luteum Improved, Orange Gem, and others, the names of which we do not remember. In 1875 Mr. George took the Abutilon in hand, and raised thirty-one varieties which have been sent out, and five out of which obtained First-class Certificates. His latest crosses have been between A. Sellowianum marmoratum and some of the varieties belonging to his own dwarf free-flowering section; and, so far as we know, Mr. George is the only hybridist who has obtained a cross between Abutilon and Hibiscus. In early life Mr. George was an enthusiastic Chrysanthemum grower, a member of the old Stoke Newington Chrysanthemum Society, and the winner of two of its silver cups for specimen plants. He also assisted in the establishment of the United Horticultural Benefit and Provident Society, of which he is now a trustee. Few men leave the gardening profession to go into business with such a "record" as Mr. George's, and his friends, we are sure, will heartily wish him the success that years of patient industry well deserve.

—— The Tertiary Flora of Australia.—Baron Ettingshausen has lately published a very interesting contribution to our knowledge of the tertiary flora of New South Wales and Tasmania. The fossil flora of Australia is of more than ordinary interest in comparison with the vegetation of the present epoch. Those interested in such matters will remember Unger's somewhat sensational *New Holland in Europe*, wherein he professes to show that the vegetation of the eocene period in South-eastern Europe was essentially composed of the same elements as the Australian vegetation of the present time. In the present work Baron Ettingshausen enumerates about 100 species of plants, a large proportion of which are referred to recent genera. Among those genera not represented in the recent flora we note Myrica, Betula, Alnus, Quercus (five species), Castanopsis, Salix, and Magnolia. Of genera represented in the present flora, but not characteristic of it, Tabernæmontana and Elæocarpus are noteworthy. Prominent among genera characteristic of the present flora are Eucalyptus (three species), Coprosma, Banksia, Ceratopetalon, and Pittosporum.

—— Stobæa purpurea.—A good patch of this showy Composite is a fitting ornament for any herbaceous border. The somewhat spiny leaves give it a Thistle-like appearance, but the large flower-heads with spreading flat rays, attaining a breadth of 3 or 4 inches, quite alter the character and general aspect of the whole plant. There are upwards of fifty species recorded from the Cape, although few of them have at any time been introduced to this country. The present one is probably the showiest, rejoicing in its pale purple rays and a deeper coloured disc, while a number of the species have yellow rays, and others no rays at all. It is stated to abound in the valleys of the Winterburg, growing by the thousand in masses, as if in artificially planted beds. A large profusely-flowered clump in the herbaceous ground at Kew testifies to its hardiness in our climate, and the freedom with which it extends itself by its underground rhizomes.

—— Lilium peregrinum.—When Mr. Baker published his *Classified List of all Known Lilies* in the *Journal* of the Royal Horticultural Society, he placed the subject of the present note as a subspecies under L. candidum, the common White Lily. Mr. Baker adds:—"Never seen in a wild state, and now apparently lost from cultivation, in this country at any rate." L. peregrinum differs considerably from candidum in its purplish stem, much narrower perianth segments, &c. On the whole it is not so handsome a plant as the White Lily, but would be sure of a welcome from all Lily growers. We recently saw L. peregrinum in good health flowering freely in Mr. Stevens' wonderful garden at Grasmere, Byfleet. Mr. Elwes in his *Monograph* gives the following information respecting the plant now under notice:—The variety called peregrinum by Linnæus, which is now seldom seen, was much grown on the Continent two centuries ago, under the name of Sultan Zambach, and is said to have come from Constantinople. Leonard Rauwolf, a German botanist and traveller of the sixteenth century, met with it in Syria. It is considered by M. de Cannart d'Hamale a distinct species, and is said by Professor D. Don to have the style triangular near the apex; but after examining living plants, I think Mr. Baker is quite right in placing it under the head of candidum. There is also a double form in cultivation, which possesses none of the beauty of the single one, and is, like the striped form, a curiosity of no merit.

—— Michauxia campanuloides is certainly one of the most stately and beautiful members of a family (Campanulaceæ) which contributes a large number of highly ornamental plants to our gardens. Its large white pink-tinted flowers have a certain superficial resemblance to some of the Passion-flowers, and their position and recurved petals certainly bring the Martagon Lily to mind. The species was introduced to this country from the Levant in 1787, and was shortly afterwards figured in the *Botanical Magazine*, tab. 219. At first it was treated as a greenhouse plant; probably the reason it is so seldom seen in gardens now is that our wet winters prove too much for it. The plant figured in the work just mentioned is described as having been—although in a small pot—nearly 6 feet high, branched almost to base, and loaded with a profusion of blossoms. All the species of the genus Michauxia are stated in books to be biennials, but a fine specimen now in flower in the charmingly situated vicarage garden at Pirford is—as we were informed by the Vicar, the Rev. Mr. Ridsdale—four years old. It must not be inferred, however, that the Michauxia is a perennial; what it is meant to assert is that sometimes the life of the plant extends to more than a couple of years; it never lives after flowering. Few plants are better worth attention for the decoration of the cool conservatory, and as pot plants they do not require particular skill or attention to secure success.

—— Senecio macrophyllus.—Of all the members of the enormous family of Composites which are now in flower in the herbaceous collection at Kew, this is certainly one of the most handsome. The Kew specimen is, however, far surpassed in size and beauty by a grand plant in the collection of Mr. Stevens, at Byfleet. This latter has glaucous green leaves between 2 and 3 feet in length, and nearly 1½ foot across, and a stout flower-stem about 7 feet in height, bearing a pyramidal panicle of golden-yellow flower-heads. Mr. Stevens received his plant under the name of Ligularia thyrsiflora, but there is no doubt that it is identical with Ligularia macrophylla—the Cineraria macrophylla of Ledebour's *Icones*. Ligularia is no longer kept up as a generic name, it is only used as the name of a section of the huge genus Senecio.

—— Eryngium Bourgati.—Perhaps the most showy of the different species of Eryngium now in bloom in Mr. Stevens' fine collection of herbaceous plants at Byfleet is the subject of the present note. It is a Western European species, being found in mountain meadows in the Pyrenees. It grows about 2 feet in height, and has deeper blue flowers and bracts than most of the other species of the genus. Mr. Stevens grew his plant under the name of E. Roylei, but a specimen from that gentleman compared with authenticated ones of E. Bourgati in the Kew Herbarium proved them to be identical.

—— Colutea arborescens.—It is rather to be wondered at that freer use is not made of this highly ornamental shrub in private gardens. Truly, we occasionally meet with it in the London parks and at Kew, where large bushes have been conspicuous from the abundance, if not profusion, of yellow bloom for some weeks back. Moreover, they are scarcely less attractive when laden with their large inflated and singular seed-pods, which bear a considerable resemblance to the old cresset or oil lamp of our ancestors. In the typical plant these are green, but in some of the varieties, especially C. arborescens media, they assume a deep bronzy-red colour, and lasting in perfection for some considerable time are thereby rendered doubly interesting. C. arborescens is figured in the *Botanical Magazine*, 81; and the variety media in Watson's *Dendrologia Britannica*, 140.

—— The Potato Crops and the Disease.—The reports on the Potato crop, furnished by our correspondents from all parts of the kingdom, and printed in another place, are almost, without exception, favourable; and in spite of the low temperature, associated with an unusually large rainfall, that has prevailed for some time, we are still sanguine enough, seeing that a favourable change in the weather has set in, to predict a heavy crop. Up to the present time we have received no report of a bad attack of the disease. The paragraph that appeared in last week's number of *Nature* on an "unknown form" of the Potato disease, apparently describes, as far as it goes, the disease described and illustrated in the *Gardeners' Chronicle* (n.s., vol. xiv., pp. 264-5, 1880) by Mr. Worthington G. Smith. We may be able to give some further information on this subject in a future issue.

—— Prinos glaber.—This is a pretty little evergreen shrub of compact habit, with small leathery glossy dark green leaves and clusters of white flowers borne in profusion in the axils of the leaves. It is the "glabrous Winter Berry" of Loudon's *Arboretum*, and the "Inkberry" (so called on account of its black fruit) of Dr. Asa Gray's *Manual*. It was first introduced to this country about 1759, and in all probability by Collinson, from whose garden at Mill Hill so many North American plants were first distributed. Bushes of the Inkberry at Kew were in fine flower a fortnight or more since, but in Mr. Stevens' garden at Byfleet others, occupying a position considerably more shaded, were in perfection a few days ago.

—— The Parcels Post.—So many of our readers are making preparations to take advantage of the new postal arrangements that we need make no apology for directing their attention to the rules and regulations which have been framed by the postal authorities for the working of this branch of the service, and which will be found at p. 122.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending July 23, issued by the Meteorological Office, London:—The weather has been generally cloudy, with frequent showers in the western and southern parts of the kingdom, and occasional heavy rain in the north-east. Thunderstorms occurred over many parts of Great Britain on the 21st and 23d. The temperature has been considerably below the mean in all districts, the deficit ranging from 4° in the south of Ireland and south in Scotland and the south and south-west of England to 8° over the Midland Counties. The thermometer has not reached 70° at any of our stations; in "Scotland, E.," 64° was the highest point recorded, in "Ireland, N.," 63°, and in "England, N.W.," 62°. The lowest minima, which were registered either on the 20th or 23d, ranged from 39° in "Scotland, E.," "England, E.," and the Midland Counties, to 45° in "England, S." The rainfall has been less than the mean in "Scotland, W.," and "Ireland, N.," but more in all other districts. In "Scotland, E.," and "England, N.E.," heavy continuous rain fell on the 21st, and the total amount for the week has been three times as much as the mean. Bright sunshine has been generally deficient. The percentages of possible duration have varied from 15 in "Scotland, E.," and 16 in the Midland Counties, to 40 in "Scotland, W." Depressions observed:—During the greater part of the week pressure has been highest to the westward and south-westward, and lowest to the eastward of our islands, and moderate or fresh north-west winds have therefore prevailed generally. On the 20th and 21st, however, a temporary interruption was occasioned by the complex area of low pressure which advanced towards our south-west coasts, crossed England, and finally passed away in a northerly direction over the North Sea. During its passage the winds were light and somewhat variable.

—— Gardening Appointments.—Mr. Thomas Denton, late Gardener to H. G. Bainbridge, Esq., Woodham Hall, Woking, Surrey, as Gardener to J. A. Strachan, Esq., Penrhyn Lodge, Surbiton, Kingston-on-Thames.—Mr. Wm. Hardy, late Gardener to the Earl of Enniskillen, and formerly at Vale Royal, Cheshire, as Gardener to Reginald Corbet, Esq., Adderley Park.—Mr. S. Smith, from Vale Royal, as Gardener to Sir George Russell, Bart., Swallowfield Park, Berks.

THE CALADIUM.

Those who are accustomed to visit many country flower shows cannot have failed to notice that at all of them classes are provided for Caladiums, and in most cases the plants are really well grown. The only fault I have had to find with them is that the same old sorts are exhibited over and over again. Such large growing foliage plants as the Caladium are not nearly so popular now as they were some years ago, yet there are few gardens without them, and in many gardens they would be better appreciated if some new, better, and more distinct sorts were introduced. They should be grown in the form of small plants to mix up with other stove subjects, where the high-coloured leaves of the Caladium show to the best advantage.

They are very easily grown, and yet as they are seen in many gardens, with the leaf-stalks drawn up so that the leaves will not stand erect without support, they do not leave a favourable impression of the Caladium as a useful decorative plant. In some cases the gardener is not to blame, as his means are too frequently very limited, and the plants have to stand in some out-of-the-way corners while they are starting into growth in the spring. Indeed, this is exactly where the first mistake in the cultivation of these plants is usually made, and no amount of attention subsequently will bring them into good form either for exhibition purposes or to show the rich and varied colours of the leaves to the best advantage. Caladiums require a season of rest during the winter—of decided rest—but the corms will not keep sound in a cool-house. The best way is to lay the pots on their sides in a temperature of 55° during the winter, and there they may rest until the end of February or early in March, when the corms may be turned out and potted, using good turfy loam, a little turfy peat, and some rotten manure, with some sharp sand to keep the compost open. Small plants may be potted in 3 or 4-inch pots, and they are exceedingly well adapted for mixing up with flowering or fine-foliaged plants in the stove.

Larger plants of course require larger pots, in proportion to their size; indeed, in some districts the great competition of rival gardeners has caused the plants to be grown to such a size that each of them requires a couple of strong men to place them on the exhibition stage. Plants like these are produced in 18-inch pots, and show what the Caladium can be grown to when space can be afforded to allow large specimens to develope themselves. Of course few gardeners can find room for such specimens, and no one need envy those who can. The plants while making their growth do not like exposure to the sun, but they ought to have as much light as possible, and the leaves should be near the glass. If they were close to the glass, and at the same time exposed to the direct rays of the sun, the leaves would be scorched and rendered unsightly. If there are too many leaves it is best to remove some of them, as a mass of small foliage does not add to the dignity of the plant.

Lastly, a selection of the best varieties is necessary. Some of the very old sorts may yet be grown in collections, such as Chantini, Chelsoni, Brongniarti, Max Kolb, Wightii, &c.; and who would be without the pretty little argyrites, or the larger-leaved Belleymei? But there are many recent introductions that have quite surpassed those good old sorts in general excellence. Candidum is the best of the white-leaved sorts. The effect of the foliage is similar to that of Belleymei, but it is as large again. Cardinale, a richly coloured variety which gained a First-class Certificate for Messrs. Laing, of Stanstead, in May last. Excellent is another distinct variety, with lighter markings. John R. Box has reddish-tinted leaves; there are two or three others in this way, but they cost more money and do not surpass it. Madame Alfred Bleu is distinct and pretty. Meyerbeer, a distinct and good variety, cannot be classed with the new sorts; nor Prince Albert Edward, a still more beautiful variety, which has large foliage, the midribs and larger venation of which are of a reddish-crimson colour. Princess of Wales and Princess of Teck have greenish-yellow foliage, and are pretty. Besides Cardinale Messrs. Laing gained First-class Certificates for two other new Caladiums, viz., Ornatum and Verdi, both distinct and pretty. *J. Douglas.*

HOME CORRESPONDENCE.

Campanula urticæfolia flore-pleno.—Amongst the many tall growing kinds of perennial Campanulas just now being mentioned, I don't observe any notice of this variety. It is a very robust hardy kind, and is known as the nettle-leaved; the spikes reach from 2 to 3 feet in height in good soil, and are covered with clusters of pure white flowers of beautiful form, each one including some three or four distinct bells, so that they are perfectly double, though apparently not so massive as are the double white flowers of C. persicæfolia. It came here from Mr. James Allen's garden at Shepton Mallet, with that truly beautiful hardy plant Œnothera Fraseri, which produces in such rich profusion flowers of the most pleasing shade of yellow to be found in a garden. Both deserve to be placed in the very front rank of hardy plants. I observe that without including the large turbinate section of Campanulas, the *Cottage Gardener's Dictionary* gives a list of over 120 hardy perennial kinds; there must be many of these—assuming they are really distinct—that are comparatively unknown in gardens. *A. D.*

A Nutmeg Gatherer.—Amongst some interesting specimens recently received at the Kew Museum from Timorlant, collected by Mr. H. O. Forbes, is an instrument such as is used in Banda for gathering Nutmegs. The instrument is made of split Bamboo, and forms a kind of basket of an oval form, with an opening on one side. At the upper part of this opening are two projecting prongs of hard wood, set pretty close together; at the opposite end is a light Bamboo handle. The whole apparatus is very light, and in gathering the Nutmegs while yet, of course, in

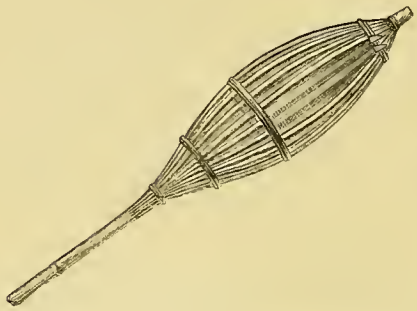

Fig. 20.—Instrument for gathering nutmegs.

their fruit, the instrument is pushed amongst the branches of the tree and the fruit caught between the two prongs of hard wood, previously described. By a jerk of the instrument the fruit is detached, and falls at once into the basket below. The contrivance is extremely simple, and does away with the necessity of erecting stages for the purpose of gathering the fruits, which is done in some countries. The simplicity of the contrivance, together with the ease with which the fruits are gathered by its aid would recommend the use of a similar instrument for gathering Apples or Plums in English market gardens or orchards. Some modifications for this purpose might be made; for instance, a sharp piece of steel might be inserted between the prongs, by which means the stalks of the fruits might be more readily cut. A soft pad might also be placed in the basket or cage to prevent the fruits bruising in their short fall.

Bog Plants.—I send a flower of the rare Parnassia nubicola, which is of less stiff habit than P. asarifolia, but, like it, there seems to be but one blossom on each stem; the flower stem is taller than that of P. asarifolia. Neither of these species equals in beauty the native Grass of Parnassus, with its bunches of bright golden balls; but they have the same curious movement of the stamens. Each petal of P. nubicola has a small fringe of hairs near the base at each side; can this be to prevent small insects from creeping in between the petals to get at the nectaries? Blossoms of another bog plant, Saxifraga diversifolia, are also sent. Its branched flower-stems are about 2 feet high, and the deep yellow flowers are effective. The pink and white forms of double Ragged Robin, Lychnis flos-cuculi flore-pleno, are peculiarly light and feathery; but though they like bog treatment they do not actually require it. They are now almost out of blossom. The wild Hypericum pulchrum, though not naturally a bog plant, is pretty enough to claim a place amongst good bog plants. It is about 1½ foot high, and bright with golden star-shaped blossoms about half an inch across. The Sweet Flag, Acorus calamus, has strongly scented leaves (when bruised), and is interesting from being quite unlike most Aroids in habit. But it is best to plant it in a pot before placing it in any bog bed devoted to choice plants, as it spreads quickly, and does much mischief. The common Musk, for the same reason, becomes a dangerous weed; but Harrison's Musk does not seem to have the same rapid growth of underground stems, and is a pretty bog plant, as is also the scarlet form of Mimulus cupreus. We completely failed in all attempts to grow Cyananthus lobatus till a small plant was put, by accident, into a watertight peat bed, a year ago. It is now nearly 1½ foot across, and has quantities of flower-buds. The great beauty of this blue flower, slightly resembling an Achimenes, makes it worthy of a place in the choicest collection. Care should be taken to prevent its blossoms being spoilt by slugs. Amongst bog Ferns, Lastrea Thelypteris, Osmunda Claytoniana (very bright green), and O. palustris may be especially mentioned. The last named kind is like a miniature O. regalis, about 1 foot high, with brown tinted foliage. There is a curious peculiarity in a plant of variegated common Rush. The flowering stems have no variegation below the bunch of blossoms. The yellow line at one side then begins and continues to the point. In stems without flowers the line of yellow is continued through the whole length of the stem. This difference seems constant in all the stems on the plant, specimens of which are enclosed. *C. M. Owen.*

Melon Growing.—Various are the ways of growing and managing Melons, but I never saw any more successfully treated, or better, than a house of plants at The Chantry, near Ipswich, where Mr. Hobson, the able gardener, has some in a forward stage that average five very large fruits each, which, perhaps, may not be considered by many an extraordinary crop, but what is of far more importance than that is the perfect finish of the Melons, and keeping the foliage green and fresh to the end without which flavour is sure to be absent. The plan Mr. Hobson pursues is to run his plants right up to and over the trellis as far as he intends them to go, when the point of the leader is nipped out, and no more laterals are allowed to issue from the main stem than he fruits, nor are the laterals left allowed to run, but are stopped, and every leaf therefore has room to stand clear of the others. The leaves were remarkable for size and texture, and looked so firm, green, and hard, as to bid defiance to red-spider or other insects, no traces of which could be seen on the plants, which were perfect in health, and appeared as if they wanted to break loose somewhere, that they might let off a portion of their pent-up vigour and strength. The bed on which the Melons referred to are growing is made up of dung and leaves over a hot-water tank, and on the fermenting material a ridge of stiff loamy soil is laid, in which the plants are planted, with their collars high, the slight mound being formed by strips of turfy loam run round, inside of which no water is ever poured, but the roots are kept with an abundant supply beyond, over which part a mulching is applied, and under this the surface is matted with feeders. In the pits, where they are planted after Potatos, the plants look almost equally well, but instead of being trained out over the ground they are on trellises, which bring the leaves up to within 6 or 9 inches of the glass, and thus give full play for the air above and below, besides affording the fruit a much better chance of getting sun and light, so essential for converting the crude juices into saccharine matter. *J. Sheppard.*

Chrysanthemum segetum.—As the wild variety, grown in the gardens at Gunnersbury Park, is written of as being of straggling habit of growth, I have doubted whether the kind there in cultivation is the true one, as, having seen it growing in fields in various places from time to time, I have never seen it exceeding a height of 15 inches, and always of a stout compact habit of growth. Perchance growth in a field, as, for instance, amongst Turnips, would admit of a more compact habit being shown than where sown perhaps thickly in a garden. Flowers of the single yellow coronaria type bear no inconsiderable resemblance to those of segetum, but the foliage and habit of the plants materially differ. Segetum in some soils is a most troublesome weed, and it seems odd to find it now being made of service as a garden flower. *A. D.*

Potato Disease: Protective Moulding.—I should be glad if you would allow me a short space in your columns for a reply to "A. D." (p. 85). In quoting briefly the proposals regarding protective moulding, the extract from vol. xviii., p. 38, was given, as is clearly stated, "for the information" of those who might not have read it previously. Not a single word of recommendation—as "A. D.'s" remarks would imply—or its beneficial effects being mentioned, this being left for those who

may feel so disposed to find out by their own practice. To the incredulous question, "But is it really the Potato disease from which his Beauty of Hebron is suffering?" I would reply by saying that I shall be most happy to make "A. D." a present of a good supply of haulm, on condition of his paying the cost of carriage. I reiterate with emphasis that which I stated with regard to protective moulding at p. 54—viz., "I cannot bring myself to believe that we shall derive much benefit from it; of this, however, we shall be able to speak with more certainty in a few weeks hence." *J. Horsefield, Heytesbury.*

—— This afternoon I spent half-an-hour examining a field of Potatos at North Wootton. One single leaf affected with Peronospora was all I could find. It is the first time I have seen conidia this year on British Potatos. *Charles B. Plowright*, 7, *King Street, King's Lynn, July* 23.

Everlasting Peas.—Although they do not offer so much variety as the Sweet Pea, which affords many varied shades of colour, they are of great value for growing on the foreground of shrubs, or at the back of wide borders, where, if they have proper support, they form fine masses that are as bold and striking as they are useful for cutting from. For this latter purpose they have no rival, as there is no end scarcely to the supply they yield, and it may truly be said that one may cut and come again, for with established plants the stems are numerous, and they flower on every joint as they keep on elongating, which they do for several months in the year. Not only do these Everlasting Peas afford quantity, but there is quality in the bloom, as besides the white being very pure, the petals are of good substance, and the flowers are therefore very lasting in water. The purple is the stronger variety of the two, and it is said that the white reverts back to that colour, but whether it does so or not I am not in a position to state. If such a change does take place it goes to show that the white is simply a sport from the other, but it is more likely that the supposed metamorphosis occurs through the one outgrowing and killing the others, which can hardly be called the survival of the fittest, as the white, if not the most robust, is by far the more preferable kind of the two, and quite deserving of all the care and attention that can be bestowed on it. Although these everlasting Peas will grow in almost any kind of soil they yield the best results in that which is deep, for when they can send their roots well down dry weather does not distress them, and they are able to continue lengthening and branching out and producing bloom. The way to increase the plants is by division, and the right time to carry that out is during spring, just as they begin to start, as then there is no fear of the wounded parts rotting, instead of which they quickly heal over, and new rootlets are speedily formed. *J. Sheppard.*

The Bracken (see p. 86).—I quite agree with "H. H." as to the beauty of this plant when seen to advantage, at the same time I would caution any one against introducing it into any place where they wish anything else to grow, as when once it gets established in a soil that it thoroughly likes it becomes a perfect thicket about 6 feet high, and will kill everything before it that happens to be smaller in stature. Its underground stems also will fill the paths, beds, &c. near, and become a perfect nuisance. Wild gardening is all very well if the hobby is not carried too far, but a garden full of brakes will not satisfy any one. *W. H. Divers, Burghley.*

Orchard Houses.—The use of these is clearly exemplified in seasons like the present, when there is little or no stone fruit about in the open; but it is not so much costly structures that are needed as glazed sheds, which answer every purpose, provided they are only in sheltered positions, and large enough to contain plenty of air to prevent the internal temperature running up and down too quickly, which is sure to be the case if the structures are small. Not only is it essential that an orchard-house should be large, but to be successful it must be light, this being of the first and greatest importance, and therefore the less timber there is about it the better will it answer its purpose. Although as plain as it is possible for a building of this sort to be, there is one at The Chantry, near Ipswich, worth seeing just now, as the numerous trees in it are laden with fruit; and yet there is not a pipe in it, nor any means of applying heat to keep out the frost. Indeed, the great secret seems to be to let it in, as it is the retardation that brings about the happy result of an abundant crop, for by having the house wide open all the winter and spring the trees are kept back till late in the season, and when they come into bloom the weather is such, and the flowers are so strong that they seldom, if ever, fail to set. The only trouble Mr. Hobson appears to have under his system of management is thinning, the labour and time occupied in doing which this year must have been great, especially with the Plums, which set in dense clusters; and the Peaches and Nectarines are also very full up the entire length of their branches. The trees are not in pots, but planted out in rather stiff soil that is very firm and hard, which firmness checks growth, and, no doubt, has done much to keep the trees small and in the fertile state they now are. At or before this time the ground is mulched, and heavy waterings given, which are continued throughout the summer as often as is necessary to aid the swelling of the fruit and keep the plants in good health. As the trees are treated on the cool system, by having the house constantly open, they are not syringed till the sun begins to bear much power, but when they do get it the water is applied with force and their foliage well washed, which keeps it perfectly clean and free from red-spider. The wood throughout is thin, which not only aids it in ripening, but exposes the fruit to the solar rays, which give it colour and flavour. *J. Sheppard.*

M. Dallière's Winter Garden.—When at Ghent in the spring we obtained from our friend M. Van Hulle, a tracing of the ground plan of a winter garden which he designed, and which M. Alexis Dallière has had constructed in his nursery in the Faubourg de Bruxelles (fig. 21). The house is a ridge-and-furrow structure of four spans, about 40 feet wide and 60 feet long, with the roof supported by iron columns. It was erected for the cultivation of Palms, Cycads, and suchlike fine-foliaged plants, but

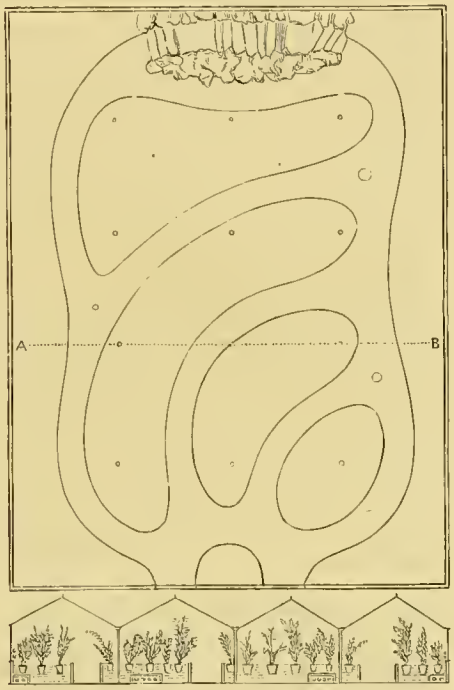

Fig. 21.—Mr. Dallière's Winter Garden.

instead of treating the interior as would be done in this country, M. Dallière preferred the gardenesque style, which is extremely picturesque, while, at the same time, being equally as economical in staging space as though straight stages had been used. The beds are raised about 2 feet high, with narrow walls along the side sof the path, and the plants, being plunged in tan, with light all around them, make a free and clean growth.

Sarracenias at Glasnevin.—There is a special interest in seeing the first plant of the first hybrid Sarracenia, S. Moorei (S. Drummondi × S. flava), still grown at Glasnevin, and about 2 feet high. It was exhibited by the late Dr. Moore at the Botanical Congress at Florence in 1874. Few people could have guessed that in less than ten years there would be such a number of varied and beautiful hybrids as are now to be found. At Glasnevin alone there are hundreds of hybridised seedlings from one to four years old, amongst which there will probably be many good new forms. These seedlings usually blossom the fifth or sixth year. Among the earlier hybrids is S. Popei, named after Mr. Pope, who has been for many years at Glasnevin, and who evidently takes as much interest in the culture of Sarracenias now as when the first successful attempts at hybridising them were made. Here, as elsewhere, every attempt to obtain a hybrid between any Sarracenia and the Darlingtonia has failed. The bright deep crimson colour of S. Chelsoni contrasts well with some of the lighter-coloured kinds; S. flava maxima has a dark-veined hood, and there is a form of S. variolaris with a beautiful rose-coloured tint in the transparent part of the pitchers, which is very effective. *C. M. O.*

Sweet Bay at Milverton.—At Mr. Randolph's, at Milverton, 7 miles west of Taunton, there are three trees of Laurus nobilis, L., one of which I have measured. It rises with four trunks, the girth of which is—No. 1, at 1 foot from the ground, 3 feet 3 inches; at 5 feet, 2 feet 10 inches. No. 2, at 1 foot from the ground, 4 feet; at 5 feet, 3 feet. No. 3, at 1 foot from the ground, 2 feet 6 inches; at 5 feet, 2 feet 1 inch. No. 4, at 1 foot from the ground, 3 feet 10 inches; at 5 feet, 3 feet. Before the cold winter of 1881 these trunks were 40 feet high; they are now a few feet shorter. They all rise from the same root, and are every year loaded with ripe berries. The other two trees are nearly as large. As there is probably no other of equal size in these islands, or anywhere short of Portugal and the Mediterranean, I have thought it worth recording in your *Chronicle. R. C. A. Prior.*

E. S. DODWELL.

As co-Honorary Secretary of the Southern Section of the National Auricula Society, and also of the National Carnation and Picotee Society, Mr. Dodwell, whose portrait we publish on p. 113, is as well known in the South of England as in the Midland districts, where he resided for so many years. His name is a household word among florists all the world over, and, like many another man whose good fortune it has been to contribute to the lists of florists' flowers varieties that will be grown for years to come, he is much more widely known by reputation than in person; and many will look upon our portrait of this distinguished florist with feelings of gratitude as well as of interest. A man of great energy of character and almost invincible determination, Mr. Dodwell has for a period of thirty years been a prominent figure in the ranks of florists, and he is as greatly respected and admired as he is widely known.

From his boyhood Mr. Dodwell had a keen delight in Nature. In imparting some recollections of his early life Mr. Dodwell writes:—"A severe attack of scarlatina in my eighth year quite broke up my health—never robust; and for three years I was the victim of the then orthodox and merciless medical practice. The miserable patient, however, was not cured, and did not die; and so, after three years of experiment, I was given over as incurable, and left to the charge of a loving mother's care. A beneficial change was soon apparent. Soon, instead of lying helpless in my cot or invalid's chair—in which on every favourable occasion I was drawn out for change of air—I was able to sit up, and then, leaving it for a brief while, wander in the sheltered nooks and sunny glades to which I had been taken; and grass, and leaves, and flowers were to me a source of never-failing delight and repose. My grandfather, in a wing of whose house I was born, was the possessor of a fine orchard, and, for the locality, a superior garden. Here, regularly in the season, came a village worthy well versed in the cultivation of fruits and flowers, to prune and train and propagate as the time demanded and the subject required. I watched his work with attention and an ever-increasing interest, and soon was permitted to call a little plot of garden mine. So began my love for the garden and delight in the beauties of Nature. With the partial re-establishment of my health I went again to school, and then, soon after I had reached my fifteenth year, was placed in London—a post in a large commercial house having been given me by a gentleman of high standing and repute in the City." Such, then, began the weakness of constitution which has remained to Mr. Dodwell until this day, and that love for flowers which he will never lose until his life shall have run its course.

How Mr. Dodwell pined for home and his plot of garden ground can be imagined. The work of the counting-house kept him employed twelve hours daily, and when it was over there was but little leisure. But he found compensation for his loss of country life in becoming a member of the City o London Literary and Scientific Institution, then at its zenith, and in its reading-room, library, discussion and music classes found a source of interest and information which has served him to good purpose throughout a useful life. Before Mr. Dodwell was twenty-one years of age he was made chief clerk to the house, and having experienced indications that his health would not long sustain the strain laid upon it, in 1844 he exchanged his position for one of

a similar kind in the then largest manufacturing house at Derby. There was renewed his work in the garden. Mr. Dodwell commenced to form a collection of Carnations and Picotees; he visited Mr. Charles Turner, then in business at Chalvey, to see the best flowers grown; and later at the Royal Nursery, Slough. Here, in his new sphere of labour, he sought to stir up floricultural aptitudes, and finding the exhibition at Derby at that time limited to the proprietors of a few florists' flowers he recommended its expansion and the reconstitution of the existing Society upon an open basis, and was elected its Honorary Secretary—the late Duke of Devonshire kindly accepting the office of President.

For a few years the Society struggled against adverse influences, but patience and perseverance prevailed, and before seven years had passed the Midland Horticultural Society was known as one of the most successful of provincial associations—successful, that is, in the skill and note of its leading exhibitors. "The institution of the Society," writes Mr. Dodwell, "and its work brought to me a host of friends, now, alas! mostly passed over to the majority, whose genial recognition and kindly sympathy will ever remain amongst my most prized remembrances. Some few, indeed, remain, though in some cases, like myself, the force and vigour of life has much abated, and it is a most grateful satisfaction to me to know there is no diminution of their kindly sympathy or genial regard; whilst of my friends and following of a younger generation who have come forward and filled the vacancies in our ranks, I feel I cannot too gratefully speak of the honours they have so spontaneously and voluntarily heaped upon me."

Of Mr. Dodwell's work as a cultivator it may be stated that his business engagements at Derby permitted no leisure for competition outside the Carnation and Picotee. Of his success as a seedling raiser we may speak with more freedom. By working on a well-known and recognised law of physiological development, previously to some extent unthought of by workers in the same field—the law of selection of parents—from the first a success attended his efforts, which even to this day he regards as surprising. And the success which has come to him in these later days has simply enlarged and extended that surprise. Let it not be thought that Mr. Dodwell is in any degree oblivious of or thinks lightly of the efforts of his friends and friendly competitors in this sphere of work; and it may be safely assumed that no one knows better, and no one, we are sure, rejoices more over the great and glowing results they have attained. May we not say of raisers generally, that any sense of mere selfish gratification is lost in the more human and generous thought that they are working for the common good, and that success is valued in that it imparts an added delight to their fellow men. "I have been ever sensible," writes Mr. Dodwell, "that the work I have been permitted to do has been limited in its scope, and appraised by the favour and sympathy of too partial friends at a value far beyond its desserts. None the less am I indebted to those of my friends, and none the less shall I omit to declare that I have worked with my whole might; I have reverenced and respected my work, admitting and proclaiming the insignificance and fallibility of the individual. I can admit neither insignificance nor unworthiness in the pursuit. I feel, to adopt the language of the late Rev. George Jeans, 'it is elegant, instructive, scientific, and prolific of gratifying results.

Twice in the course of his long floricultural life Mr. Dodwell has had conveyed to him the sense of his friends and fellows on the value of his work in that form in which, operating on his pocket, is said by cynics to be the most conclusive evidence of an Englishman's opinion—first in 1854, and then again in 1881, when from broken health Mr. Dodwell was necessited to take rest and relief in a purer air than at Clapham. On the first occasion advantage was taken of the annual exhibition of the National Carnation and Picotee Society at Derby, on August 8, when there was a large gathering of florists, and particularly of those interested in the Carnation and Picotee. The chair was taken by the late Mr. John Edwards, and the presentation was made by the late Mr. John Frederick Wood, the Editor of the *Midland Florist*; and among other things he said, "Years ago, before he knew Mr. Dodwell, he (Mr. Wood) used to visit Derby as a judge, and though his friends were then in earnest—they heartily desired to present their flowers worthily before the public—he must say their exhibitions were very insignificant. Earnestly as they strove there was a want—and a very large want—always perceptible. There was a want of arrangement—a want of effect; in fine, there was a want of a master mind. Mr. Dodwell came amongst them, a total stranger; he had no ordinary difficulties to surmount, but with unflagging energy, indomitable perseverance, and unconquerable pluck—choosing always to do that which was right, and to oppose that which was wrong—he had steadily pressed on until Derby, from a fourth or fifth-rate position, might proudly say her exhibitions gave place to none in the provinces." Undoubtedly in the qualities ascribed by Mr. Wood to Mr. Dodwell we have the key to the position Mr. Dodwell holds amongst his fellows, for they are qualities which create confidence and command respect. The strict discipline of business which long practice made part and parcel of himself was of incalculable advantage and value in the organisation and conduct of societies such as Mr. Dodwell has led, and which we hope he may still continue to lead.

As a raiser of Carnations and Picotees, Mr. Dodwell's work extends over a considerable number of years. While resident at Derby he was most successful with the Picotee, and produced the following varieties:—

Red-edged.—Mary, light.

Purple-edged. — Alfred, heavy; Mrs. Turner, heavy; Amy Robsart, light; and Mrs. Bayley, heavy.

Rose-edged.—Fanny and Minnie.

This list may not include all the Derby-raised flowers, but all the foregoing were considered very fine in their day, and proved of great value to exhibitors.

Carnation, S.F., John Bayley was raised at Derby; it was one of the best of its class, and can be found in some collections to this day.

The following Picotees were raised by Mr. Dodwell when living at Clapham a few years ago:—

Red-edged.—Blanche and Hilda.

Purple-edged.—Edith.

Rose and Scarlet-edged.—Daisy.

It is since he has resided at Oxford that Mr. Dodwell has scored his greatest triumphs as a raiser, and especially with the Carnation. In a list issued recently by him appears the following, illustrating his activity as a producer of new varieties:—

Carnations: *New Scarlet Bizarres.* — Alfred Hudson, Master Stanley, Tom Power, Tom Brown, Caractacus, Dandy, and Smike.

Older Varieties.—Arthur Medhurst, Ben Simonite, Charles Turner, Edward Adams, Fred, George, George Rudd, Harry Turner, James McIntosh, John Hines, Jim Whittaker, Job Matthews, Little John, Philip Thomas, Raynor Johnson, Rembrandt, Robert Lord, Thomas Bower, Titian, and William Syms.

New Crimson Bizarres.—A. D. Southgate, Marguerite, Millie, Miss Henderson, Mrs. Barlow, T. S. Ware, and Tom Foster.

Older Varieties.—Dr. Cronin, Faust, Gracilis, Harrison Weir, H. K. Mayor, Jack Bunsby, Mrs. Gorton, Rev. F. Tymons, Robert, Shirley Hibberd, Squire Dodwell, Squire Llewelyn, Squire Penson, Stanley Hudson, and Thomas Moore.

New Purple Flake.—Mayor of Oxford.

New Scarlet Flakes.—Harry Matthews, Samuel Brown, and Scarlet Keet.

Older Varieties.—Bayley Junior, Friar Tuck, John Ball, Mr. Allen, Mr. Porter, Richard Gorton, Thomas Tomes, William Mellor, and William Laing.

New Rose Flakes.—Madge Wildfire and Miss Erskine Wemyss.

Older Varieties.—Mrs. Anderson, Mrs. Home, Mrs. Matthews, and Mrs. Tomes.

Picotees, New Purple-edged.—Florence Agnes and Olive Mary.

Older Varieties.—Lizzie Tomes and Tinnie.

Red-edged.—Elsie Grace and Winnifred Esther.

Rose-edged.—Julia and Miss Gorton.

It is with Carnations Mr. Dodwell has proved so eminently successful as a raiser, and his productions appear to outnumber those of all other contemporary raisers put together, and he has by no means completed his work. The record of his achievements may be extended yet over not a few years.

The love for flowers, and an irrepressible desire to improve them, is with Mr. Dodwell no mere sentiment—it is as a living faith which must find expression in good works. He may be said to have translated into fitting words the most earnest expression of his highest floral aspirations when, in 1881, he received the handsome testimonial of regard from his floral brethren to which reference has been made, and quoted from one of the most eminent of modern writers the following passage:—"Flowers, besides being beautiful in themselves, are suggesters of every other kind of beauty, of gentleness, of youthfulness, of hope. They are evidence of Nature's good nature—proofs manifest that she means us well, and more than well; that she loves to give us the beautiful in addition to the useful. They neutralise bad with good, beautify good itself, make life livelier, human bloom more blooming, and anticipate the spring of heaven over the winter of the grave. Their very frailty and the shortness of their lives please us because of this their indestructible association with beauty, for while they make us regret our own like transitory existence, they soothe us with a consciousness, however dim, of our power to perceive beauty, therefore of our link with something divine and deathless, and of our right to hope that immortal hopes will have immortal realisations."

A GENERAL INDEX TO THE *BOTANICAL MAGAZINE.**

A want long felt and expressed by horticulturists is a general index to the published figures of plants, based upon the limitations of the genera of plants in the most recent standard works. Of course, such an index could only be prepared by a competent botanist, and at best it could only embody the ideas of the botanists whose writings were selected as the authority for the definitions of the genera; but it could nevertheless be made very useful. Taking the *Botanical Magazine* to illustrate our meaning. The first volume was published in 1787, so that it has been in existence nearly a century, and commenced when the classification of plants was in its infancy. Scarcely a tenth of the genera now admitted were then known; and the limits of many of the genera adopted were some wider and some narrower than those commonly accepted at the present time; and while numerous new genera have been founded for plants unknown to Linnaeus and his contemporaries, many of the Linnean genera have undergone considerable modification. Thus the genus Epidendrum included species belonging to about fifteen of the more distinct genera of epiphytic Orchids. The Linnean genera were not equally comprehensive in all classes; yet it will be easily understood that the general conception of a genus was very different to what it is now, though then, as now, botanists did not all agree as to the limits of genera. To the trained botanist this presents little difficulty, but to those unacquainted with botany, to whom a name represents so much, the apparent contradictions in the names of plants are very perplexing.

We have entered into these particulars in order to show how far the Editor of the present work has fallen short of producing as useful an index as might have been produced, partly because he disregarded the sound advice offered him by qualified persons, and partly because he has misconceived the duties of an index maker. We do not assert that the present index is useless. It will have its use, doubtless; but the Editor, through his ignorance of botanical literature, has singularly over-rated its importance. Let us examine his preface, which opens with a justification for the index in question. He says:—"Many otherwise valuable books with imperfect indexes, or none, are actually useless to the student, who rarely has sufficient leisure to turn over all their pages to search for the information he requires; these remarks apply especially to books of the class of *Curtis' Botanical Magazine* and *Sowerby's Botany*, both of which are without general indexes: the Editors of the former have published an index to the first forty-two volumes, then, passing over the next twenty-eight volumes, an index to volumes lxxi.—lxxxvi., and finally, an index to volumes lxxi.—xcvi. Mr. Quaritch, who has rendered so much service to lovers of books, by his valuable catalogues of books, with their complete indexes, published an index to volumes liv.—lxx., so that on the completion of the cviith volume, to ascertain if a particular plant is illustrated it may be necessary to search through three indexes and twenty-two single volumes, or without

* *General Index to the Latin Names and Synonyms of the Plants Depicted in the first Hundred and Seven Volumes of the "Botanical Magazine," to which is added a Short List of Popular Names.* Edited by Edmund Tonks, B.C.L. London: B. Quaritch. 1883. 8vo, pp. 263.

Mr. Quaritch's index, which is not contained in the publisher's issue, thirty-nine volumes."

Mr. Tonks is apparently not only innocent of the existence of Pritzel's admirable *Iconum Botanicarum Index*, but he has not taken the trouble to ascertain the truth respecting the published indexes to the *Botanical Magazine* itself. With regard to *Sowerby's Botany*, if he means the third edition, that is still incomplete. It is true that ten years have elapsed since the eleventh volume was published, but we have reasons for knowing that another volume is in active preparation. We are now, however, more particularly concerned with the indexes to the *Botanical Magazine*. Firstly, the following indexes have been published in the form of supplements to the various volumes of the magazine named. Volume xlii. contains an index to volumes i.—xlii.; volume lxiii., volumes liv.—lxiii.; volume lxxiv., volumes lxiv.—lxx.; volume lxxxvi., volumes lxxi.—lxxxvi.; and volume xcvi., volumes lxxi.—xcvi. Independently of the foregoing, Curtis himself published, in a separate form, an index to volumes i.—liii., or the whole of the first series, so that the various Editors between them have published general indexes from time to time including all the volumes up to the ninety-sixth; and four of these, it will be seen, embrace the ninety-six volumes. Had Mr. Tonks known this he perhaps would not have expressed surprise at the publisher's declining to publish the present index, except at the compiler's expense. Furthermore, there are three indexes in existence that include the ninety-six volumes, namely, Curtis' index to volumes i. — liii.; Quaritch's to liv.—to lxx.; and the index in the ninety-sixth volume to volumes lxxi.—xcvi. Mr. Tonks' index carries us eleven volumes further, and has the advantage of being in one; yet those botanists who have kept their Pritzel posted up will have no use for it; and amateurs, as we have already stated, want an index to guide them to the figure of a given plant through the name by which it is universally known at the present time. Thus, Eranthis hyemalis (t. 3) appears only under the name of Helleborus hyemalis —a name under which one would be very unlikely to look for it. Felicia tenella appears as Aster tenella; Tolpis barbata as Crepis barbata; and numerous other plants are figured under names equally obsolete.

If, instead of enumerating the ante-Linnean synonyms, Mr. Tonks had given the modern names, he would have earned the gratitude of amateurs and botanists alike. But Mr. Tonks was clearly unaware that the difference between his work and that which a competent botanist would have produced could be so very great, or he would not have made the light-hearted reference to it he has, in his preface, in the form of a rejoinder to the advice proferred him by the Editor of the *Botanical Magazine*. Throughout this short preface is of a somewhat vituperative character. We are well aware that the *Botanical Magazine* is by no means free from typographical errors, and the compiler of the index was quite within his province in correcting such errors; but he could not resist the temptation to go further. He finds fault with the want of uniformity in gender and in adjectival terminations; and he particularly singles out the derivatives in which the Greek affiix ειδής is employed, objecting that they are made to terminate indifferently in "es," "eus," and "is," as thyrsoides, thyrsoideus, and arctotidis (*sic!*). We admit the want of uniformity, and we are not so sanguine as to expect to find it in a serial that has been running through several generations; yet we should expect a gratuitous censor to be able to distinguish such a genitive form as the preceding from ordinary nominative terminations. *H.*

ALPINE PLANTS.

Mr. Meyer's Collection of Alpine Plants, at Champel, near Geneva.—On a rockery about 30 yards long, Mr. Meyer, who has only quite lately turned his attention to alpine plants, has brought together nearly a thousand species of a more or less alpine character, or inhabitants of rocky localities. Owing to the construction of his rockery, or to its situation, or perhaps to its aspect, Mr. Meyer has been in the highest degree successful; and this collection is certainly at the present time the most complete and especially the best cultivated of any that we have in the neighbourhood of Geneva. The rockery occupies the highest part of the country, and runs north and south—that is to say, it has an eastern and a western slope. On the one side it is skirted by a grotto containing a running spring, and on the other, a few yards below, by a large pond of water; consequently the atmosphere is always, to a certain extent, charged with moisture, which favours the growth of the plants. The rockery is picturesque in form, and relieved by narrow paths leading from the outside to the inside. It is veritable rockery, practically combining and associating the artistic and agreeable; and it is wholly constructed of limestone, partly from the Jura, slightly impregnated with iron, and partly from Salève.

There are parts quite dry and barren, and fully exposed to the sun, where Mr. Meyer cultivates various species of Sedum and Sempervivum. Elsewhere are humid hollows of peat or sphagnum, sheltering such plants as Andromeda polifolia, in superb condition; Allium victoriale, Carices, Chrysosplenium alternifolium, Empetrum nigrum, Fritillaria Meleagris, Gentiana Pneumonanthe, Gladiolus segetum, Lysimachia longifolia, L. verticillata, Lycopodium Selago (which I very much doubt Mr. Meyer being able to keep for several years), Osmunda regalis, Parnassia palustris, Saxifraga Hirculus, S. autumnalis, Salix repens, S. herbacea, S. reticulata, S. pyrenaica, Swertia perennis, and various other plants. In dry shady places, and in clefts of the rock, we find a large number of Saxifrages, various species of Silene, as S. Pumilio and S. Elizabethæ, Reseda glauca and R. complicata, species of Primula of the Auricula type, of Phyteuma, Campanula Vanneri (planted on shaded slopes), C. garganica, C. muralis, C. Portenschlagiana, C. celtidifolia, C. sarmatica, C. Raineri, C. pusilla fl.-pl., C. pulla, C. Zoysii, C. lactiflora, several species of Alsine, and so on. In sheltered nooks there is quite a collection of hardy Cacti, including Opuntia Rafinesquii, O. alpina, and A. cormiata, which are not otherwise protected in winter. Generally the nooks are flat and deep, and well separated from each other. Herein we find, in colonies of three, four, six, or more, nearly all the plants that bedeck the turf of our meadows and mountains. Drainage is effected by means of coke or small stones; and the earth used is a composition of leaf-mould and peat mixed with sand. These nooks are so filled with flowers that the whole rockery looks, at a distance, like an immense bed of flowers. Among the prettier of these alpine plants I may mention Achillea nana, with whitish hoary foliage, and pretty silvery-white flowers; Adenostylis alpina, and A. albifrons, Androsace villosa, A. chamæjasme, A. Laggeri, A. cæspitosa, and others; Anemone vernalis, A. albana, A. baldensis, A. alpina, A. montana, &c.; Anthyllis montana, Artemisia glacialis, A. nana, A. argentea, A. suavis, A. mutellina, and A. pedemontana, Arctostaphylos officinalis, Aquilegia alpina, Arabis scopolina, A. collina, A. bellidifolia, A. Halleri, A. stricta, A. lucida, &c.; Astrantia major, A. minor, A. helleborifolia, and A. gracilis; Azalea procumbens —always difficult to acclimatise and bring into flower; a large number of species of Aster, Aubrietia, Armeria, Cyclamen, and Ferns; several species of Cypripedium (which I do not succeed with in the botanic garden, in consequence, I suppose, of the humidity of our atmosphere), in admirable health.

There are also some fine specimens of Dracocephalum, which are exceedingly effective; a collection of twenty-two species of Dianthus, including both alpine and rock species; various species of Erigeron, Draba and Erica; Eryngium alpinum, E. glaciale, and E. Bourgati; eight species of Genista; ten species of Gentiana, all alpine and Tyrolean; a very fine collection of Erodium and Geranium, among others G. argenteum and G. cinereum, placed in dry situations, fully exposed to the sun, where they are splendid. There is also a rich collection of Hieracia, which, however, Mr. Meyer intends removing from the rockery, because they overrun it too freely, and are difficult to eradicate from a place that suits them. Among the species of Iberis, I. jucunda is very conspicuous, and fully merits the title of one of the prettiest of rock plants. Linaria hepaticæfolia adorns every cleft in the rocks, and the shady part near the spring. Then there are enormous tufts of Selaginella helvetica in full fructification; Mazus Pumilio, Thymus lanuginosus, Herniaria glabra, Paronychia argentea, various species of Sedum, and other trailing and tufted plants clothe the sunny side of the rocks. Here and there little alpine shrubs rise above the other vegetation, adding to the picturesqueness of the effect. Lonicera alpigena, Lithospermum petræum, Juniperus alpina, J. Sabina, various species of Hypericum, Ononis Natrix, O. rotundifolia, Daphne cneorum, D. alpina, D. Fortunei, D. Blagayana, D. collina, and D. laureola; several species of Rosa and Rubus, and the alpine Rhododendron, are representatives of this element.

Among the twenty-three species of Primula on this rockery there are some, such as P. Clusiana, P. intermedia, and P. graveolens, which we have rarely seen so fine. Among the seventy species of Saxifraga there are likewise some very remarkable ones, though there is not one that we do not find in the list of Stansfield's collection, certainly the richest in existence. The same may be said of the collection of Sedum and Sempervivum. A very pretty plant, which cannot be too strongly recommended to cultivators, is Scutellaria alpina, which is very effective. The genera Viola, Veronica, and Senecio, are strongly represented. But a plant that particularly interested me was Swertia pyrenaica, which I saw for the first time.

Among plants not indigenous in Switzerland, Mr. Meyer has a large collection of eastern and southern species flourishing on his rockery. He has also a great variety from North America and the mountains of Asia. All these plants succeed and flower wonderfully well, generally speaking much better than they do in the Botanic Garden. What is the reason of this? In the first place I think altitude has something to do with it, for Champel is the highest point of our immediate neighbourhood. I believe, too, that Mr. Meyer's dry and well drained rockery, exposed to a much brighter light than we get at The Bastions, is more advantageously situated and better arranged than ours in the Botanic Garden. The seeds of alpine plants ripen quicker and better than with me. Further, the ground is more fertile, for it is there where the Cedar of Lebanon is of which I wrote in the *Gardeners' Chronicle* last year, and which bears more cones than any other in Geneva. The ground around this Cedar is covered with its seedlings, and the walls of the neighbourhood are also furnished with them. I never saw such a number of young plants of this tree.

Around his great rockery, and below the road that surrounds it, Mr. Meyer has constructed a vast flat rockery, which half encircles it. This is furnished with a selection of the most diverse and beautiful herbaceous plants. Among them are various species of Mertensia, Arnehia echioides, Antirrhinum, divers Iris, a collection of species of Lilium, Pentstemon, Digitalis, Chelone, &c., together with a rich assortment of bog plants, such as Ledum, Kalmia, Andromeda, Erica, &c. *H. Corevon, Botanic Garden, Geneva.*

Notices of Books.

Plant Life. By Maxwell T. Masters, M.D., F.R.S. Bradbury, Agnew, & Co.

This forms one of "The Handbook of the Farm Series," edited by Mr. J. Chalmers Morton. Its object is to give a brief account of the life history of a plant from birth to death. It comprises separate chapters on the food of plants and the use they make of it, on growth, sensitiveness, development, multiplication, decay, and death. One chapter is devoted to the discussion of the "battle of life," as waged by plants, and in which opportunity is taken to summarise some of the results of the gigantic experimental work carried on by Messrs. Lawes and Gilbert for so many years. Another section is devoted to certain inferences and suggestions for the consideration of practical cultivators, based on what has preceded. More than this it would not be fitting for us to say; we may, however, be permitted to remark that though primarily addressed to farmers, it is, so far as its scope allows, equally well suited for gardeners who wish to know something of the inner life of the plants they grow.

Frog and Grubs.—A friend of mine, who loves flowers, gardening, and Nature generally, and has done good service to natural history, fed a medium-sized frog, a few days ago, with six good fat larvæ of the daddy-long-legs (of which we have a pest in these parts), and this after an earthworm, which he was literally tucking in when found. He "pouched" the sixth grub as smartly as he did the first, "and still he sighed for more." For gardeners the moral of this little story is obvious. A robin in my own garden feeds himself and family largely on these "varmint." Do animals feeding on "such small deer" derive pleasure from internal wriggles? *T. Hamett Harrisson, in the "Field."*

Reports of Societies.

Royal Horticultural: *July* 24.—What with the display of Carnations and Picotees organised by the Southern section of the Society which exists for the encouragement of the cultivation of these flowers, a report of which follows; a very remarkable exhibition of tuberous Begonias, made by Messrs. John Laing & Co. and others; a few good new plants, including the gem of the season so far—a white Clematis Jackmanni; some superb specimen Orchids, from the collection of Sir Trevor Lawrence; interesting collections of Lettuces and Cabbages; and a first-rate lot of Potatos, shown in competition for prizes offered by Messrs. Sutton & Sons, a capital little show was made up, but we regret to say it was not patronised by many visitors.

Floral Committee.—Present: G. F. Wilson, Esq., in the chair; Messrs. J. McIntosh, H. Cannell, J. Wills, J. Dominy, J. Hudson, J. James, H. Eckford, J. Cutbush, J. Laing, G. Duffield, S. Hibberd, H. Ridley, and H. Turner. From a cultural point of view the grandest things exhibited at this meeting were two specimens of the rare Necklace Orchid, Renanthera Lowii, from Sir Trevor Lawrence. The plants were from 2—3 feet high, perfect in foliage, and bearing one six and the other four spikes of flowers, the longest of which measured nearly 7 feet. Also from Burford Lodge came a well grown example of Grammatophyllum Ellisii, with two immense spikes of flowers; a specimen of the beautiful but difficult to grow Dendrobium M'Carthiæ, with eleven spikes of lovely flowers; a small plant with two flowers of the new and rare white-flowered Angræcum Scottianum, figured in our number for July 31, 1880, p. 137; and handsome pitchers of Nepenthes sanguinea, holding 17 ounces, and N. Mastersii, holding 14 ounces, of water. For all these good things, except the Angræcum, Sir Trevor's gardener, Mr. Baxter, received Cultural Commendations; and the committee recommended that a Gold Medal should be awarded to the group. From the cultural to the decorative point of view is an easy stage, and here we must give the palm to Mr. Charles Noble's really valuable novelty, Clematis Jackmanni alba (see p. 113.) Next to this as a decorative plant must be placed Messrs. R. P. Ker & Sons' white variegated variety of Ficus elastica. Variegated India-rubber plants we have seen before, but not one in which the variegation is so bold and clear, or the green ground colour of so pleasing a shade. The Messrs. Ker seem to have secured a good strain, and, unless we are mistaken, it will take high rank as a commercial plant. Mr. T. S. Ware received a First-class Certificate for a pure lemon-yellow coloured variety of Lilium pardalinum named Warei. Even the stamens are yellow, and the plant differs also from the type as shown in being considerably dwarfer. Mr. Ware also exhibited and received a Certificate for the old purple Calochortus macrocarpus, and cut fruit bearing shoots of the native Actea spicata—the red-berried variety. Messrs. Veitch & Sons exhibited a white flowered variety of the Japanese Spiræa palmata, which was also certificated; and Mr. King introduced to public notice some more of his new Coleuses, Ellen Terry, a variety with deep crimson coloured stems, and large pretty leaves of a pea-green ground colour and crimson and white variegation; and Henry Irving, a remarkably effective plant, rich purple-maroon, boldly margined with golden-yellow, were both Certificated. Mr. Stevens sent from Trentham Odontoglossum eugenes, a supposed natural hybrid between O. Pescatorei and O. triumphans, having the sepals and petals orange-yellow, white in the centre and spotted with chestnut-brown, and the lip white, also spotted with brown and having a yellow blotch at the base. Mr. J. Child, gr., Garbrand Hall, Ewell, staged a very fine specimen of Cypripedium Stonei, the Garbrand Hall variety, and received a Cultural Commendation. Messrs. William Paul & Son exhibited cut blooms and plants of two hybrid Tea climbing Roses, the one red, the other rose-pink, and the latter sweetly scented. Of the handsome groups of new tuberous Begonias and the new varieties certificated, some more extended remarks than can be made in this place will be found at p. 104. Messrs. Cannell & Sons staged a small group of well-flowered plants of their fine strain of double-flowered Balsams; and Messrs. James Cutbush & Sons contributed an extensive assortment of Ivies, shown in small basketfuls of small plants—a useful and instructive contribution, for which they received a Silver Banksian Medal.

Prizes were offered for stove and greenhouse Ferns, Fuchsias, tuberous Begonias, and Gloxinias, but the Begonias took the palm. Mr. Child had the best Ferns; Mr. J. Tong, gr. to J. S. Law, Esq., Southgate, the best twelve Begonias; and Mr. Child the best Gloxinias.

The awards made were:—

First-class Certificates.

To Messrs. John Laing & Co., for Tuberous Begonia Miss Turner.

To Messrs. John Laing & Co., for Tuberous Begonia Mrs. Anson.

To Messrs. John Laing & Co., for Tuberous Begonia Countess of Roslyn.

To Messrs. John Laing & Co., for Tuberous Begonia Stanstead Surprise.

To Messrs. Veitch & Sons, for Spiræa palmata alba.

To Mr. T. S. Ware, for Lilium pardalinum Warei.

To Mr. T. S. Ware, for Calochortus macrocarpus.

To Mr. T. S. Ware, for Actæa spicata fructu rubro.

To Messrs. R. P. Ker & Sons, for Ficus elasticus albo-variegatus.

To Mr. King, for Coleus Ellen Terry.

To Mr. King, for Coleus Henry Irving.

To Mr. Z. Stevens, for Odontoglossum eugenes.

To Mr. C. Noble, for Clematis Jackmanni alba.

To Sir Trevor Lawrence, Bart., M.P., for Angræcum Scottianum.

Cultural Commendations.

To Mr. Baxter, gr. to Sir Trevor Lawrence, for Renanthera Lowii.

To Mr. Baxter, gr. to Sir Trevor Lawrence, for Grammatophyllum Ellisii.

To Mr. Baxter, gr. to Sir Trevor Lawrence, for Dendrobium M'Carthiæ.

To Mr. Baxter, gr. to Sir Trevor Lawrence, for pitchers of Nepenthes sanguinea and N. Mastersii.

To Mr. J. Child, for Cypripedium Stonei, Garbrand Hall variety.

Fruit Committee.—Present H. Webb, Esq., in the chair. Messrs. A. W. Sutton, J. Willard, J. Burnett, S. Lyon, T. Laxton, G. Goldsmith, R. D. Blackmore, L. A. Killick, S. Ford, P. Crowley, J. Smith, and J. Roberts. The best novelties shown at this meeting were a new Broad Bean and a new Tomato. The former, which came from Mr. Laxton, and bears the name of John Harrison, is the result of a cross between Mazagan and Aqua-dulce, grows 2—3 feet high, and bears long, well-filled, straight pods, almost down to the ground. The best addition that has been made to the Longpods for some time. The Tomato, Bowerman's Prolific, came from Mr. J. Bowerman, Basingtoke, a large smooth red, of excellent flavour, and stated to be a good cropper. Mr. Laxton also exhibited samples of a new Pea, British Lion, a second early blue wrinkled variety, growing 2 feet high, and from Omega crossed with Telephone. Beauty of Parterre is the name of a good sample of curled Parsley shown by Messrs. H. Cannell & Sons. Mr. Ford, Leonardslee, exhibited some ripe fruits of the Monstera deliciosa, and seedling Melons came from Mr. Ward, Longford Castle; Mr. Hughes, Eydon Hall, Byfleet; and Mr. Ford. A large wedge-shaped seedling Strawberry, named Duchess of Edinburgh, and said to have been raised between Sir J. Paxton and Oscar, came from Mr. D. Brown, Linthorpe, Middlesborough-on-Tees. Mr. Roberts, gr., Gunnersbury Park, showed three finely finished bunches each of Madresfield Court and Foster's Seedling Grapes, for which he was awarded a Silver Medal. Mr. Mortimer, gr., Purley Park, Reading, exhibited two or three brace of his seedling Purley Park Cucumber, which was considered a good market variety, and is to be grown at Chiswick. An excellent representative lot of Lettuces came from Messrs. Veitch & Sons, containing all the best known kinds in both classes, as well as a few that are seldom grown. Those among the Cos sorts that were in good condition were Veitch's Superb White, apparently a selected White Paris, a Paris Grey, and Paris Green. The sorts named Blood Red and Green Royal Winter are newer than the above-named, and are seemingly heavy, large sorts. Of Cabbage sorts, of which forty-three were shown, were some capital heavy and compact examples in Passe Partout, Large Normandy, Improved Spotted, Green Unctuous, Perpignaner, Brown Genoa, and Wonder.

The awards made were:—

First-class Certificates.

To Mr. T. Laxton, for Longpod Bean John Harrison.

To Mr. J. Bowerman, for Tomato Bowerman's Prolific.

In the competition for Messrs. Sutton & Sons' prizes for the best three heads of Cabbages, the 1st was awarded to Mr. W. Meads, The Gardens, Becket Park, Shrivenham, for Wheeler's Imperial; 2d, Mr. G. Summers, The Gardens, Sandback Park, Rotherham; 3d, Mr. H. E. Gribble, Cannon Hill, Maidenhead. In the competition for Messrs. Sutton's prizes for collections of early Potatos some excellent examples of most of the well-known popular kinds were shown, which proved that in the south of the kingdom the season had been not unfavourable to Potato culture. Mr. Ward, Longford Castle Gardens, Salisbury, 1st, with splendid examples of the following kinds—Early Border, Vicar of Laleham, Sutton's Prizetaker, Schoolmaster, International Kidney, Reading Russet, which weighed in the aggregate 31 lb. 11 oz.; 2d, Mr. Hughes, gr. to Col. Cartwright, Eydon Hall, Byfield, whose lot contained capital White Emperor and Wonderful, red kidney; 3d, Mr. F. Miller, gr. to J. T. Friend, Esq., Northdown, Margate; 4th, Mr. G. T. Miles, Wycombe Abbey. Messrs. Sutton & Sons' prize for the best dish of any round Potato was taken by Mr. W. Meads, with Henderson's Prolific; and for the best kidney by Mr. H. E. Gribble, Cannon Hill, with Cosmopolitan.

Messrs. Carter & Co.'s prize for the best six dishes of Tomatos was awarded to Mr. R. Phillips, gr., The Deodars, Meopham, Kent, whose lot contained Trophy, Perfection, Carter's Green Gage, Dedham Favourite, Vick's Criterion, and Large Red, which were without exception perfectly ripe and of a medium size.

The National Carnation and Picotee (Southern Section): *July* 24.—On this occasion the Southern growers were the only competitors, it being two or three weeks too early for any of the Northern men to be able to put in an appearance; but it was a very good and interesting exhibition; the flowers were numerous, generally of good size, fine in petal, pure in the ground, and well marked. In some of the classes there was a fine set-to between Messrs. Dodwell, Turner, and Douglas, the former scoring the best honours with Carnations, the two latter with Picotees. It is possible that if the show had been held a week later there would have been more competitors, and possibly this will happen at Slough on Tuesday next. There was a good representation of the various classes of flowers, and as a raiser Mr. Dodwell shone conspicuously in the Carnation classes. The rich self-coloured flowers were much admired by visitors; some of the Cloves were distinguished by singularly brilliant hues. The fancy Picotees make an attractive class, and all tastes found some gratification on this occasion.

Prizes were offered for the two best seedlings in each class of Carnations and Picotees. What awards were made were as follows:—Rose Flake: 1st, Rob Roy (R. Gorton), a new variety, of splendid quality, not yet sent out; 2d, Robin Hood (Dodwell), also very promising. C.B.: 1st, Thomas Moore, Jun. (Dodwell), an attractive variety. Purple Flake: 1st, Squire Whitbourn (Dodwell), a flower of fine properties. First-class Certificates of Merit were awarded to Henry Cannell (Dodwell), a very fine scarlet flake, remarkable for its superb glow of colour, shown by both Mr. Dodwell and Mr. Douglas; and to Rob Roy (Gorton), rose flake. A very large and interesting collection of blooms of Carnations, Picotees, and Cloves, comprising eight boxes of flowers, was shown by Messrs. James Veitch & Sons, Exotic Nursery, Chelsea; and First-class Certificates of Merit were awarded to two of the Cloves, viz., Royal Purple, a bright purple variety, of a very pleasing shade of colour and good petal; and Sir Beauchamp Seymour, orange-buff ground, flaked and edged with pale red. Messrs. H. Cannell & Sons also sent five boxes of Carnations and Picotees, not for competition. Mr. H. G. Smyth had a box of blooms of his fine carmine self, Mary Morris, of a striking hue of colour.

Carnations.—Twenty-four blooms, not less than twelve dissimilar varieties.—1st, E. S. Dodwell, Esq., Stanley Road, Oxford, with S. B. Edward Adams (Dodwell), a fine new variety; Robert Lord (Dodwell), a fine large smooth flower, rich in colour; James McIntosh (Dodwell), very brilliant and striking; and Fred (Dodwell). Crimson bizarres: Master Fred (Hewitt), full size, fine form, smooth and handsomely marked; James Merryweather and Rifleman (Wood). Pink and purple bizarres: Sarah Payne (Wood). Purple flakes: James Douglas (Simonite), and Sarah Payne, beautiful in this form. Scarlet flakes: Mrs. Carter (Dodwell), very fine; Stephen Brown (Dodwell), very fine; and Henry Cannell (Dodwell). Rose flakes: Sybil (Holmes), Delicata (Dodwell), John Keet (Whitehead), and Tim Bobbin (Dodwell). Equal 2d, Mr. J. Douglas, gr. to F. Whitbourn, Esq., Ilford, with S. B. Admiral Curzon (Eason), very fine in colour; Arthur Medhurst (Dodwell), Fred, and Edward Adams. Crimson bizarres: Horace K. Mayor (Dodwell), Squire Llewelyn (Dodwell), very fine; and William Skirving (Dodwell). Pink and purple bizarres: Sarah Payne. Purple flakes: James Douglas, Florence Nightingale, and Mayor of Nottingham (Taylor). Scarlet flakes: Sportsman and Henry Cannell. Rose flakes: Robin Hood, John Keet, Sybil, and James McIntosh. Equal 2d, Mr. Charles Turner, Royal Nursery, Slough, with S.B. George (Dodwell), Robert Lord, and Arthur Medhurst; C.B. William Skirving, E. S. Dodwell (Hewitt), a finely formed flower of excellent substance: and Rifleman; P. and P.B. Squire Penson (Dodwell), a magnificent flower, perfect in all its parts: Sarah Payne, and Squire Llewelwyn; P.F. Sir Garnet Wolseley (Dodwell), and Florence Nightingale; S.F. John Ball (Dodwell), Clipper (Fletcher), and Jupiter (Abercrombie); R.F. Rob Roy (Gorton), very fine, Jessica (Turner), John Keet, and Mrs. Bridgewater. 3d, Mr. H. Hooper, Bath; 4th, Mr. J. Hines, Ipswich. Five collections were shown in this class, duplicate varieties being present in each.

Twelve blooms of Carnations, dissimilar.—1st, E. S. Dodwell, Esq., with S.B. James McIntosh, Robert Lord, and Admiral Curzon; C.B. E. S. Dodwell and

Master Fred; P.P.B. Sarah Payne; P.F. Sarah Payne, Florence Nightingale, and James Douglas; S.F. S. Brown; R.F. Sybil and Mrs. Matthews, a finely formed flower of good parts. 2d, Mr. J. Douglas, with S.B. Admiral Curzon and Edward Adams; C.B. Mr. Barlow (Douglas); P.P.B. Squire Llewelyn and William Skirving; P.F. Sporting Lass, bright and effective, and Florence Nightingale; S.F. Clipper and Sportsman; R.F. Sybil and John Keet. 3d, Mr. J. Lackin, Oxford. 4th, T. Burnaby Atkins, Esq., Halstead Place, Sevenoaks; 5th, Mr. J. Hines; 6th, Mr. J. Buxton, Clapham.

Six blooms of Carnations, dissimilar.—1st, Master Stanley Dodwell, Oxford, with S.B. Ben Simonite (Dodwell), and Robert Lord; C.B. Mr. Carter (Dodwell), and Stanley Hudson (Dodwell); S.F. Mrs. Carter; P.F. Sarah Payne. 2d, M. Rowan, Esq., with S.B. Edward Adams and George; C.B. Squire Dodwell (Dodwell); and Squire Llewelyn; P.F. Mayor of Nottingham, and S.F. Annihilator; 3d, Mr. W. Meddick, Bath; 4th, Mr. W. Slack, Chesterfield.

Single specimens: S.B.—1st, Mr. C. Turner, with Philip Thomas (Dodwell), a fine smooth flower of excellent qualities; 2d, 3d, and 5th, Mr. J. Douglas, with Admiral Curzon; 4th, Mr. E. S. Dodwell, with James McIntosh. C.B.: 1st, Mr. C. Turner, with E. S. Dodwell; and 2d, with the same; 3d, Mr. E. S. Dodwell, with J. D. Hextall (Simonite); 4th, Mr. C. Turner, with Rifleman; 5th, Mr. James Douglas, with Thomas Moore, Jun. P.P.B.: 1st, Mr. C. Turner, with Squire Penson; 2d, Mr. J. Douglas, with Sarah Payne; 3d, Mr. E. S. Dodwell, with Sir Garnet Wolseley; 4th, Mr. J. Douglas, with Sarah Payne; 5th, Mr. E. S. Dodwell, with Sarah Payne. P.F.: 1st, Mr. J. Douglas, with James Douglas; 2d, Mr. E. S. Dodwell, with the same; 3d, Mr. J. Douglas, with Seedling No. 3; 4th, Mr. J. Douglas, with Florence Nightingale; and 5th, the same, with a seedling. S.F.: 1st, Mr. C. Turner, with Clipper; 2d, Mr. J. Douglas, with Sportsman; and 3d with the same; 4th, Mr. E. S. Dodwell, with Seedling; 5th, Mr. J. Douglas, with Sportsman. R.F.: 1st, Mr. E. S. Dodwell, with Sybil; 2d, Mr. C. Turner, with Rob Roy (R. Gorton); 3d, Mr. J. Douglas, with John Keet; 4th, Mr. J. Douglas, with Sybil; and 5th, Mr. C. Turner, with Rob Roy.

PICOTEES.—Twenty-four blooms, not less than twelve dissimilar varieties.—1st, Mr. C. Turner, with heavy red edges—Dr. Epps, Dr. Abercrombie (Fellowes), Picturata (Fellowes), Monarch (Turner), new, very promising; and Mrs. Norman (Norman). Light Red: Mrs. Bower (Bower); Heavy Purple Edge: Princess Dagmar (Balten); Light Purple: Her Majesty (Addis), Clara Penson (Willmer), and Mr. Tutton (Payne); Heavy Rose-edge: Louisa (Addis), Constance Heron (Fellowes), a large flower, heavily margined with bright scarlet; and Mrs. Rudd; Light Rose: Empress Eugènie (Kirtland), Lucy (Addis), and Daisy (Dodwell). 2d, Mr. J. Douglas, with H. Red E. J. B. Bryant (Ingram), John Smith (Bower), and Princess of Wales; L. Red E: Mrs. Bower, Mrs. Gorton, Violet Douglas (Simonite), and Thomas Williams (Fellowes); H. Purple E.: Olive Mary and Mrs. Chancellor (Turner); L. Purple E.: Ann Lord, Jessie, Her Majesty, Clara Penson, and Nymph (Lord); Heavy Rose E.: Mrs. Payne (Fellowes), Edith Dombrain, Royal Visit (Abercrombie), Constance Heron, and Miss Lee. 3d, Mr. E. S. Dodwell; 4th, Mr. H. Hooper; 5th, Mr. J. Hines.

Twelve blooms of Picotees, dissimilar.—1st, Mr. J. Douglas, H. Red J. B. Bryant, Princess of Wales; L. Red Ethel; H.P. Mrs. Chancellor, Zerlina (Lord); L.P. Mrs. Bower, Her Majesty, and Nymph; H. Rose Constance Heron; L. Rose Mrs. Aldcroft and Mrs. Payne. 2d, Mr. E. S. Dodwell, with H. Red John Smith, and Countess of Wilton; L. Red Winnifred Esther (Dodwell); H.P. Novelty (Matthews), and Muriel (Hewitt), a broad purple edge, smooth, and of good substance; H. Rose Mrs. Rudd, Edith Dombrain, and Mrs. Payne; L.P. Tinnie (Dodwell) and Jessie; L. Red Mrs. Gorton and Ethel. 3d, Mr. J. Hines; 4th, Mr. J. Buxton; 5th, Mr. W. Slack.

Six blooms of Picotees, dissimilar.—1st, Master Stanley Dodwell, with H. Red John Smith, H.P. Mrs. Niven, L.P. Alice (Lord) and Her Majesty, Rose Edith Dombrain, L. Rose Miss Wood; 2d, Mr. J. Lacken, with H. Red Countess of Wilton, H.P. Alliance, H. Rose Mrs. Rudd, L. Red Clara, L.P. Minnie, L. Rose Elegance; 3d, T. T. B. Atkins, Esq.; 4th, M. Rowan, Esq.

Single specimens.—Heavy Red: 1st, Mr. C. Turner, with Picturata; 2d, do., do.; and 3d, with Dr. Abercrombie; 4th, Mr. J. Douglas, with Princess of Wales; 5th, Mr. J. Douglas, with John Smith. Light Red: 1st, Mr. E. S. Dodwell, with Mrs. Gorton; 2d, Mr. C. Turner, with Clara; 3d, Mr. C. Turner, with Mrs. Bower; 4th, do. do.; 5th, Mr. J. Douglas, with Mrs. Gorton. Heavy Purple: 1st, 2d, and 4th, Mr. J. Douglas, with Mrs. Chancellor; 3d, Mr. C. Turner, with Zerlina; 5th, Mr. J. Douglas, with Olive Mary. Light Purple: 1st, Mr. C. Turner, with Ann Lord; 2d, Mr. J. Douglas, with Baroness Burdett Coutts; 3d, Mr. C. Turner, with Evelyn (Fellowes), pure white ground and broad smooth petals; 4th, Mr. J. Douglas, with Baroness Burdett-Coutts; 5th, Mr. J. Douglas, with Nymph. Heavy Rose E.: 1st, Mr. C. Turner, with Mrs. Payne; 2d, do., do.; 3d, Mr. J. Douglas, with the same; 4th, Mr. C. Turner, with Louisa; 5th, Mr. E. S. Dodwell, with Edith Dombrain. Light Rose: 1st, and 2d, and 4th, Mr. C. Turner, with Lucy; 3d, Mr. J. Douglas, with Mrs. Aldcroft; 5th, Mr. E. S. Dodwell, with L'Elegante. Yellow grounds: 1st, 2d, and 5th, Mr. J. Douglas, with Prince of Orange; 3d and 4th, Mr. C. Turner, with Janira, a heavy-edged variety.

Self, fancy, or yellow ground Picotees.—Twenty-four blooms: 1st, Mr. C. Turner, with Crimson Selfs Egyptian King, Robert Lord, flamed with maroon; Scarlet Whipper-in, flaked with crimson; Rufus and Matador, Rose Jessica and Rob Roy; Purple Elegant; White Duchess of Connaught and W. P. Milner; Pink Rosa Bonheur, very delicate and pretty; Yellow Lady Cathcart and Edith; Flaked Conqueror, Janira, Thomas Moore; Pale Lilac-Rose flaked with Maroon Arthur Medhurst; White-flaked Crimson and Enchantress. 2d, Mr. J. Lacken, Oxford; 3d, Mr. J. Douglas; 4th, Mr. H. Hooper; 5th, Mr. H. Catley, Bath. Class K, twelve blooms, selfs, fancies, or yellow grounds.—1st, Mr. E. S. Dodwell, with Crimson Mulatto, Scarlet Henry Cannell; Rose Mr. Southgate, and Mr. Dodwell; White The Bride; Purple Florence Nightingale; flaked Harlequin, Sarah Payne, Hewson Morris, Mrs. Carter, very fine; Titania, and Hector. 2d, Master Stanley Dodwell.

Twelve blooms of yellow ground Picotees, not less than six blooms to be dissimilar.—1st, Mr. C. Turner, with Janira, Bullion, Grandis, Coronation Plate, Lady Biddulph, and Flavia. 2d, Mr. H. Hooper; 3d, Mr. H. Cattley.

Specimen plants in pots, nine in bloom, the pots not to exceed 8 inches in diameter.—1st, Mr. C. Turner, with some capital examples, including Carnations Dr. Cronin, Jupiter, Miss Erskine Wemyss, and Guardsman: Picotees, Her Majesty and Dr. Abercrombie; Clove, Duchess of Connaught; Fancy Picotee, Lady Cathcart. 2d, Mr. J. Douglas, with Carnations Fred, Rose of Stapleford, Sarah Payne, George and Florence Nightingale; Picotees, J. B. Bryant, and Norfolk Beauty; Cloves, Bride and the Queen, both white. The premier Carnation was Squire Penson (Dodwell), P.P.B., a very fine flower, pure white ground, finely coloured, the marking very distinct; shown by Mr. C. Turner. The premier Picotee was Mrs. Gorton, (Simonite), light red edge, pure ground, a true scarlet edge, very pure in the ground—and it is difficult to get the ground pure in this class, as there is always a tendency to come with a yellow or fleshy tint; shown by Mr. J. Douglas.

Torquay Horticultural: *July* 18.—The annual Rose and summer show of this Society was held in the winter gardens under favourable circumstances in regard to weather and the other surroundings which tend to the success of such occasions. The entries were large, and, with few exceptions, the productions staged were exceedingly good, although, so far as one of the most interesting departments of the show was concerned, namely, the cut Roses, there was, as a result of an unpropitious season, some falling off in quality. The nurserymen had a very strong representation, and probably their stands would have been still more numerous but for the circumstance that another Rose show, with a rich prize-list, was being held on the same day in the North of England; but the amateur display was not so large as might have been desired and expected, bearing in mind the number of growers in the district, and the reputation which Torquay has as a Rose-growing centre. The exhibits were not viewed under the most agreeable circumstances, the air in the vast glazed building being unpleasantly warm, and the light too vivid. The well-known growers, Messrs. Curtis, Sandford & Co., had some exceedingly rich and perfect blooms, very much admired by all visitors. Mr. Robson, a successful floriculturist, was fortunate with a remarkably handsome collection of blooms, which were not for competition, but the merits of which received recognition at the hands of the judges by the award of a First-class Certificate. In almost every instance there was something which especially recommended the blooms which were shown, and the whole were characterised by strength of growth and purity of colour. One of the choicest trays was that of Messrs. Lucombe, Pince & Co., the subjects being Tea Roses (Niphetos), beautiful in their delicate structure and rare tone. Away from the Rose classes, Mr. Morton Sparke's collection of Orchids was exceedingly attractive. Among the contributions from nurserymen, Begonias were noted as very choice, and their beauty would lead one to suppose that they occupied a higher position in the opinion of horticulturists than seems to be the actual case. There was a nice assortment of Pelargoniums, and stove plants and Orchids generally were very good. There was a small show of fruit and vegetables, but the specimens were well grown, and universally of high quality. The well-laden stands of the nurserymen, occupied as they were with admirably chosen plants and flowers, contributed very materially to the general effect and success of the show. The following had large assortments:—Mr. W. B. Smale, Barton Nursery, Torquay; Messrs. Lucombe, Pince & Co., Exeter; Messrs. Veitch & Co., Exeter; Messrs. Phillips & Co., Torbay Nurseries, Torquay; and Mr. W. Burridge, Paignton. The attendance of visitors, especially in the evening, was remarkably good. *Torquay Times.*

HONEYSUCKLE.

FIRST a cloud of fragrance. Then one sees
Coronets of ivory, coral, and gold,
Full of luscious treasure for the bees,
In their hedgerow wreathage manifold
Clustering, or outswinging at their ease,
Watching in the bayfield those who hold
Scythe and rake, or overpeering bold
Dusty waylarers 'twixt roadside trees.

Honeysuckle-scented Summer Night!
Leaves above and dewy woods around,
Save the whirring nightjar not a sound,
Save the tender-burning stars no light,—
Thou hast hid thy lovers out of sight,
Bower'd, or wandering through enchanted ground.

William Allingham, in the "Athenæum."

PLANT PORTRAITS.

BILBERGIA THYRSOIDEA SPLENDIDA, *Revue Horticole*, July 1.—A magnificent Bromeliad, with club-shaped spikes of scarlet flowers, tipped with violet, and supported by large bracts of brilliant scarlet.

CAMPANULA JACOBÆA, Chr. Smith; Hook. f., in *Bot. Mag.*, t. 6703.—A very curious shrubby species, from the Cape de Verde Islands. The whole plant is more or less hairy, the leaves lanceolate; the nodding bell-shaped purple flowers, 1¼ inch long, are borne on long stalks, which, if the figure be correct, are in some instances opposite to the leaves—an unusual position in this genus. The plant is one of many Northern types growing in a tropical archipelago, and which indicate the former existence of a land communication with Madeira and the Azores.

CARAGUATA FIRSTENBERGIANA, Kirchoff and Wittmack, *Garten Zeitung*, 1883.—A tufted Bromeliad, with long linear lance-shaped leaves and dense elongated spikes of rose-pink bracts, enveloping flowers of a bluish colour. Ecuador.

ERANTHEMUM BORNEENSE, Hook. f., in *Bot. Mag.*, t. 6701.—A stove shrub, introduced from Borneo to Messrs. Veitch's establishment by Mr. Curtis. It has broadly lanceolate leaves, and terminal clusters of irregular white flowers.

GREVILLEA PUNICEA, R. Br.; Hook. f., in *Bot. Mag.*, t. 6698.—A New Holland shrub, with rigid, hairy shoots; leaves subsessile, lanceolate; flowers scarlet, in spreading tufts at the ends of the branches. Hort. Kew.

IMPATIENS SULTANI, Hook. f., *Illust. Horticole*, t. 488.

SAXIFRAGA MARGINATA, Sternberg; Hook. f., in *Bot. Mag.*, t. 6702.—A Grecian species, with small tufted oblong-acute leaves, studded with deposits of lime, and erect cymes of white flowers.

TORENIA FLAVA, Hamilton; Hook. f., in *Bot. Mag.*, t. 6700.—This is the T. Bailloni of recent publications.

Obituary.

THE deepest regret has been felt throughout South Germany at the death of Dr. GUSTAV HEYER, Professor of Forestry at the University of Munich, who was accidentally drowned while making a flying professional excursion to Fürstenfeldbruck, in the neighbourhood of the Bavarian capital. He was regarded as the most eminent authority in Germany on all matters connected with trees and forestry, and was universally beloved for his modest, cheerful character, and his amiable and benevolent disposition. He was fifty-seven years of age. He was the type of a practical scientific man who will not allow devotion to his own special pursuits to blind him to the usefulness of other studies, or ignore the advantages that come from breadth of training. He was born in 1826 at Giessen, where his father was Professor. His University course was so successful that in 1853 he became Extraordinary Professor of Forestry, and four years later Ordinary Professor. In this position his reputation rose so quickly and so high that pupils flocked to him from every part of Germany, and even from foreign countries; and it is no exaggeration to say that in connection with forestry he occupied in the eyes of his countrymen a position analogous to that held by Liebig towards scientific agriculture. In 1868 the Prussian Government induced him to accept the direction of their newly-founded Academy of Forestry at Münden, which he speedily brought into the front rank of technical educational institutions. While at Münden he published his *Handbook of Forest Economy, as a Matter of State Concern.* It is looked upon as one of the most important works on the subject. In 1875 he received most tempting offers to become head of the Forest section of the Academy of Agriculture at Vienna, but he refused. In 1878, at the instance of the Bavarian Government, he accepted the Professorship of Forestry at the University of Munich. He had been an enthusiastic advocate of University education for foresters, and he saw the advantages his new position would give him for developing the *status*, so to say, of his profession. At Munich his reputation grew year by year, keeping pace with the esteem with which he was universally regarded. His special service is perhaps, that he founded a school of students who pursue the science of forestry according to the same methods which are employed in the other sciences of experiment and observation. *The Times.*

THE INLAND PARCELS POST.

THE Inland Parcels Post will commence on Wednesday, August 1, on and from which day parcels not exceeding 7 lb. in weight will be received at any post-office for transmission between places in the United Kingdom.

In order that a packet may go by parcels post it must be tendered for transmission as a parcel, and should bear the words "Parcels Post," which should be clearly written in the left-hand top corner.

Every post-office will be open to the public for parcels post business on week days during the same hours as for general postal business. No parcels post business will, as a rule, be transacted in England or Ireland on Sundays, Christmas Days, and Good Fridays; nor in Scotland on Sundays and Sacramental Fast Days.

The following are the principal conditions and regulations:—

The size allowed for an inland postal parcel will be—
Greatest length .. .. .. 3 feet 6 inches.
Greatest length and girth combined .. 6 feet.

For example—

A parcel measuring 3 feet 6 inches in its longest dimensions may measure as much as 2 feet 6 inches in girth, *i.e.*, round its thickest part; or—

A shorter parcel may be thicker; thus,—if it measure no more than 3 feet in length, it may measure as much as 3 feet in girth, *i.e.*, round its thickest part.

The rates of postage will be,—for a parcel:—

Not exceeding 1 lb. in weight	3*d.*
Exceeding 1 lb. and not exceeding 3 lb. ..	6*d.*
,, 3 lb. ,, ,, 5 lb. ..	9*d.*
,, 5 lb. ,, ,, 7 lb. ..	1*s.*

No parcel will be accepted which weighs more than 7 lb., or is not sufficiently paid. The postage must, in all cases, be paid in advance, and by ordinary postage stamps, which must be affixed by the sender before tendering a parcel for transmission by parcels post at a post-office.

Posting of Parcels.—Parcels must not be posted in a letter box, but must be taken into a post-office and handed over the counter. Care must be taken that every parcel bears a clear address. If a parcel be posted in a letter box it will not be forwarded by parcels post, but will be treated as a letter, or as a book packet if it can pass under book post regulations. The address of a parcel must be clearly written, either on the outer wrapper or on a separate address label securely fastened to the parcel; and the necessary stamp or stamps, to pre-pay the postage, must in all cases be placed (as in the case of letters) close above the address.

Forbidden Articles; Treatment of Perishable and Dangerous Articles; and Parcels which must be Refused.—Parcels which bear on the outside any writing or drawing of an indecent or offensive nature, or within which any contents of a like nature may be observed, and parcels containing gunpowder, cartridges, lucifer matches, or anything explosive or liable to sudden combustion, bladders containing liquid, live animals, grossly offensive or filthy matter, and anything in a condition likely to injure other parcels, or any officer of the post-office, are prohibited. If any such parcel be tendered for posting, it will be refused, or, if detected in transit, it will be detained. Parcels containing fish, game, meat, eggs, &c., or razors, scissors, needles, knives, forks, or other sharp instruments, will not be accepted unless securely packed so as to guard against risk of injury to other parcels. Liquids, or semi-liquids, such as jellies, pickles, paint, varnish, &c., will not be accepted unless in bottles or cans securely stoppered; nor powders unless so packed that they cannot escape in transmission. Bottles, or glass in any form, will be accepted only when so packed as to be secure from breakage. If a parcel be tendered in a damaged or insecure condition, or in a condition likely to injure other parcels or any officer of the post-office, it will be refused. If a parcel in such condition should be observed in transit, it will, if possible, be made secure and sent forward; but, if it cannot be so secured, it will be detained. Parcels known to contain a letter, packet, or parcel, intended for delivery at an address other than that borne on the parcel itself, are prohibited.

Parcels to and from the Channel Islands and the Isle of Man.—Parcels addressed to the Channel Islands (Jersey, Guernsey, Alderney, Sark, and the adjacent inhabited islets) will be received from the public under the same general conditions with regard to weight and size, and at the same rates of postage, as parcels for all other portions of the United Kingdom; but as the Channel Islands, in relation to the Customs laws of the United Kingdom, are subject to the same restrictions as foreign countries, such parcels will be liable to Customs examination at the port of arrival, and the sender will be required to make a declaration of contents upon a special form provided for the purpose at the office where the parcel may be posted. Goods intended to be warehoused in the Channel Islands, or on which it is intended to claim "drawback" of duty on subsequent exportation from the Channel Islands, will not be accepted for transmission by parcels post. Parcels for the Isle of Man will be treated in all respects in the same way as parcels for places in the United Kingdom generally. They will be liable to examination by the officers of Customs; but the sender is not (as in the case of the Channel Islands) called upon to furnish a declaration of contents. The Customs laws of the United Kingdom do not admit of the use of the parcels post for the introduction into Great Britain of tobacco in any form.

Parcels addressed to a Post-office to be called for.—To those post-offices to which letters may be addressed to be called for parcels may also be addressed to be called for. There is no private box delivery of parcels, but parcels may be obtained as follows, on application at a post-office, provided the postmaster is satisfied of the identity of the applicant:—1. By persons having parcels addressed to a post-office. 2. By persons not residing within a free delivery. 3. By persons residing within the free delivery of a head office, or of any rural post, so far as regards parcels for which there is no immediate delivery by the usual means. 4. By members of the military, naval, constabulary, and coast guard services, under the same rule as applies to the delivery of their letters. Parcels addressed to a post-office to be called for, or to a person residing beyond the free postal delivery, will be kept three weeks. Parcels addressed to a ship will be kept one month. If, however, such a parcel contains perishable matter it will be kept only forty-eight hours; and should it become offensive it may be disposed of at any time as the Postmaster-General may direct.

Parcels Liable to Demurrage.—Parcels addressed to a post-office "to be called for," and only such parcels, are liable to a demurrage (detention) charge, if not called for within a certain time, at the rate of 1*d.* a day after they have remained in the office one clear day, counting as a day the period during which the office is ordinarily open to the public. Thus a parcel arriving after the opening of the office on a Monday becomes liable to demurrage if not called for before the closing of the office on Tuesday night, and if delivered on Wednesday the charge will be 1*d.*; one penny being added for each succeeding day, or part of a day. No charge will be made in respect of Sundays, Christmas Days, Good Fridays, or Bank Holidays, in England or Ireland; nor in respect of Sundays, Bank Holidays, and Sacramental Fast-days in Scotland. No demurrage will be charged on parcels addressed to persons residing outside the limits of the free delivery, or to persons on board ship.

Re-direction of Parcels.—On receipt of a properly signed authority, a parcel may be re-directed under the following regulations:—If the re-direction be from one place to another within the same delivery, the parcel, not having been delivered, and being re-directed by an officer of the department, is liable to no charge for re-direction; but if re-directed by any person other than an officer of the department, or to an address in another delivery, it is liable to additional postage at the full pre-paid rate for each re-direction. If it has not been delivered and is re-directed by an officer of the department, prepayment for re-direction is not compulsory, but a parcel which has been delivered as addressed will not be accepted for re-transmission unless the postage for re-direction be prepaid.

Returned Parcels.—In order to facilitate the return of parcels which cannot be delivered, it is most desirable that the name and address of the sender should appear on the outside of every parcel. If a parcel which cannot be delivered bears on the cover the name and address of the sender, a printed notice will be sent to him by post, informing him that the parcel (if not claimed in the meantime by the addressee) will be given up to him or to any person whom he may direct to call for it, or will be returned to him by post. If the parcel should be called for by the sender or his agent, or if it should be returned to him by post, it will be liable to a charge of 1*d.* for each day or part of a day after the expiration of two clear days following that on which the notice has been sent. If the sender should elect to have the parcel sent back to him by post he must return the printed notice, with stamps sufficient to cover new postage at the full rate, and also to cover any other charges to which the parcel may be liable, including the charge of 1*d.* a day described above. The parcel will then be forwarded to him prepaid by stamps affixed thereon. If no reply be received within six days after the date of the notice, or if the Postmaster should have reason to believe that application is made for the parcel by a person who is neither the sender nor the addressee nor duly authorised by either, or if the sender fail to pay the charges due on the parcel the parcel will be sent to the Returned Letter Office. If a parcel which cannot be delivered does not bear on the cover the name and address of the sender it will be sent to the Returned Letter Office, where it will be opened and examined. If upon such examination the name and address of the sender are ascertained, a printed notice such as is described above will be sent to him, and the parcel, will be treated in the same manner as a parcel upon the cover of which the name and address of the sender appears. If the name and address of the sender cannot be ascertained from the examination of the parcel, the name of the addressee of such parcel, and the post-office at which it was posted will be entered on a list, which will be exhibited in a conspicuous position at the Returned Letter Office of the district for inspection by the public. Personal applications for parcels entered on such lists will be entertained for three months from the date of entry, after which the parcels will be finally disposed of.

Parcels Without Address. — Parcels found without addresses will be sent at once to the proper Returned Letter Office. Parcels found to contain dangerous or offensive matter will be detained.

Rural Carriers Forbidden to Collect Parcels from the Public.—Rural letter carriers on foot are forbidden to collect parcels from the public. Mounted rural carriers are also forbidden to collect parcels from the public except under special authority.

Delivery of Local Parcels by Mounted Rural Carriers.—A parcel handed by the public to a mounted rural carrier authorised to collect parcels will be delivered either on his outward or inward route, provided it shall first be taken to a sub-office, in order that the stamps may be defaced.

Parcels Above Weight or Size, or Insufficiently Paid.—Should a parcel exceeding the prescribed limits of weight and dimensions be accepted by a mounted rural carrier or mail driver authorised to collect, it will be stopped at the office at which he hands it in, and returned to the sender by the person who accepted it. Should a parcel be accepted with insufficient postage, stamps for the amount of the deficient postage will be affixed to the parcel, which will be sent on to its destination, and the amount will be charged against the person who so accepted it, and who will have to collect it from the sender.

Parcels not to be Accepted near a Post-office.—Mounted rural carriers or mail drivers, even when authorised to collect, may refuse to accept parcels tendered to them close to a post-office.

Rural Letter Carriers not to Carry Parcels on their own Account.—Rural letter carriers or parcels carriers, on foot, are forbidden to carry parcels of any kind on their own account. In certain exceptional cases, in which special permission has been given to carry newspaper parcels, this rule will not be enforced as regards such parcels.

Newspaper Parcels Carried by Horse Posts.—Mail-cart contractors or their drivers, and mounted rural carriers may carry on their own account parcels of newly published newspapers, addressed to a newsagent, without restriction of weight, so long as the carrying of such parcels does not interfere in any way with the due performance of the mail service; but they are not allowed to carry on their own account parcels of any other description except in cases where they hold a special authority to do so, and such authority will in no case include parcels which are within the limit of weight prescribed for postal parcels.

Parcels by Passenger Conveyances —Contractors for the carriage of mails by passenger conveyance are not subject to any restriction as to the parcels they may convey.

Detention of Parcels under Special Circumstances.—The Postmaster-General has power to delay parcels when it is necessary to do so in order to secure the due despatch of the letter mails, or when it is expedient for the safety and protection of parcels mails. When, therefore, a Postmaster is satisfied that the despatch or delivery of letters would be delayed by the despatch or delivery of parcels, such parcels, or any of them, may be detained until the following despatch or delivery; or if it be necessary for the safety and protection of parcels that any of them should be forwarded or delivered by a later despatch or delivery than that for which they were intended, a Postmaster may delay such parcels, or may make some special arrangement for the despatch or delivery thereof, such as he may deem necessary or expedient in the circumstances of the case. In no case, however, must the delay exceed twenty-four hours.

Private Bags.—Postmasters are not prohibited from enclosing parcels in private bags, but under no circumstances will the restriction as to the weight of a private bag when empty be relaxed.

A Parcel not to be Given Back to the Sender.—The rule forbidding that a letter should be handed back to the sender applies equally to a parcel.

Bankrupts' Parcels. — The post-office rules which apply to bankrupts' letters apply equally to bankrupts' parcels.

Deception as to Place of Posting. — Postmasters are forbidden to be parties to deceiving the addressee of a parcel in regard to the place of posting. If a parcel reaches a post-office under cover with a request that it may be posted, it will be endorsed according to the rule applicable to a letter similarly received. If the parcel bears the necessary postage it will be forwarded as addressed. Should the postage not be prepaid, the parcel will be sent to the Returned Letter Office.

Damaged Parcels.—A parcel found open, or in a torn or injured condition, will be refastened as carefully as possible and secured with an official seal, or by means of a label similar to those provided for securing torn letters, and initialled by the responsible officers.

Non-Liability of Postmaster-General. — The Postmaster-General is not liable to make good any claim in respect of lost or damaged parcels.

Gratuities.—The Post-office regulations, which apply to the solicitation of gratuities from the public by persons employed in the postal service, apply to persons engaged in parcels' work.

Suggestions.—(*a*). Mercantile firms and others who may have to post a large number of parcels at one time, will facilitate the despatch of the parcels by sending them to the post-office in batches, and as early as possible. (*b*). The risk of delay in the transmission of parcels will be largely obviated if senders of parcels in large quantities (whether it be the intention to post the parcels daily or at regular or irregular intervals) will so far as possible notify their intentions to the nearest Postmaster or Sub-postmaster as early beforehand as convenient. It is not essential that the number and weight of the parcels and the frequency of posting should be specified with absolute precision: it will be sufficient if a general idea be given so that some provision over and above the ordinary means available may be arranged for in advance. (*c*). The public will greatly assist the work of the Post-office, and help towards the safe delivery of parcels, by taking care that they are in all cases strongly and securely packed, especially those with fragile or perishable contents. It must be borne in mind, although of course every care will be taken by the officers, that such a parcel must be several times handled before it reaches its destination, and will probably have to be packed with many others of a different kind and shape or more weighty and bulky. (*d*). It is not intended to apply to postal parcels the practice which obtains of adding to the address, in the case of letters for the metropolitan district, the postal district initials, and such initials should not be used in addressing a parcel to London or the suburbs.—By command of the Postmaster-General, *S. A. Blackwood, Secretary, General Post-office, July*, 1883.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JULY 25, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
July	In.	In.	°	°	°	°	°	°	°		In.
19	29.61	—0.19	68.1	49.5	18.6	56.2	— 6.3	47.6	72	W.; N.W.	0.00
20	29.54	—0.25	63.5	50.0	13.5	56.7	— 5.7	51.5	93	S.W.; S.S.W.	0.06
21	29.44	—0.34	62.0	51.5	10.5	54.7	— 7.6	47.7	77	S.W.; W.S.W.	0.33
22	29.66	—0.12	64.2	49.2	15.0	54.4	— 7.9	46.9	76	W.	0.03
23	29.62	—0.16	64.0	48.5	15.5	55.1	— 7.1	50.4	84	W.	0.02
24	29.65	—0.12	65.5	52.0	13.5	57.0	— 5.2	45.9	66	W.N.W.; N.N.W.	0.28
25	29.84	+0.08	64.5	52.0	12.5	56.7	— 5.5	47.4	71	W.N.W.; N.N.W.	0.00
Mean	29.62	—0.16	64.6	50.4	14.2	55.8	— 6.5	48.6	77	W.	0.72

July 19.—Fine day; sun shining at times. Fine, still night.
— 20.—Few slight showers during the day. Wet night.
— 21.—Stormy in early morning; fine and bright from 8 A.M. Heavy rain at 10.35 A.M. Thunder at 12.50 P.M. Fine and bright occasionally after 3 P.M. Fine evening generally. Rain at times.
— 22.—Rain in early morning; windy day. Fine night; moon bright.
— 23.—Dull day; mostly overcast. Sun shining at times. Occasional thin rain at night.
— 24.—Heavy rain in early morning. Fine day; cold wind. Fine night.
— 25.—Fine and bright at times during the day. Fine night; little rain at 9 P.M.

LONDON: *Atmospheric Pressure.*—During the week ending July 21 the reading of the barometer at the level of the sea increased from 29.81 inches at the beginning of the week to 30.17 inches by midnight on the 16th, decreased to 29.77 inches by 3 P.M. on the 19th, increased to 29.80 inches by midnight on the same day, decreased to 29.59 inches by 3 P.M. on the 21st, and was 29.67 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.88 inches, being 0.09 inch higher than last week, and 0.10 inch lower than the average of the week.

Temperature. — The highest temperature in the shade in the week was 68°.1, on the 19th; on the 16th the highest was 60°.7. The mean of the seven high day temperatures was 63°.2.

The lowest temperature in the shade in the week was 44°.5, on the 16th; on the 17th the lowest temperature was 52°.5. The mean of the seven low night temperatures was 49°.5.

The greatest range of temperature was 18°.6, on the 19th; the smallest was 10° on the 17th. The mean of the seven daily ranges was 13°.7.

The mean temperatures were—on the 15th, 53°; on the 16th, 53°.6; on the 17th, 56°.1; on the 18th, 56.°7; on the 19th, 56°.2; on the 20th, 56°.7; and on the 21st, 54°.7; and these were all below their averages by 9°.7, 9°.1, 6°.6, 5°.9, 6°.3, 6°.7, and 7°.6 respectively.

The mean temperature was 55°.3, being 5°.4 lower than last week, and 7°.4 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 129°, on the 19th. The mean of the seven readings was 108°.6.

The lowest reading of a minimum thermometer placed on grass, and fully exposed to the sky, was 39°, on the 16th. The mean of the seven low night temperatures was 42°.4.

Rain.—Rain fell on three days, to the amount of 0.46 inch, of which 0.33 inch fell on the 21st.

ENGLAND: *Temperature.*—During the week ending July 21 the highest temperatures were 71°, at Sunderland, 70°.3 at Brighton, and 70° at Nottingham; the highest, at Liverpool, was 61°.5, at Wolverhampton 61°.8, and at Bolton 62°.5. The general mean was 66°.3.

The lowest temperatures in the week were 39°.8, at Nottingham, 40° at Hull, and 40°.5 at Wolverhampton; the lowest temperature at Preston was 49°, at Liverpool 48°.8, and at Truro 48°. The general mean was 44°.2.

The greatest ranges of temperature in the week were 30°.2, at Nottingham, 28°.1 at Cambridge, and 28° at Hull; the least ranges were 12°.7, at Liverpool, 15° at Preston, and 17°.7 at Bolton. The general mean was 22°.1.

The mean of the seven high day temperatures was highest at Brighton, 67°.4, at Nottingham 66°.7, and at Cambridge 66°.4; and was lowest at Bolton, 58°.3, at Liverpool 59°.2, and at Wolverhampton 59°.8. The general mean was 63°.1.

The mean of the seven low night temperatures was highest at Truro, 53°.1, at Plymouth 52°, and at Liverpool and Preston 50°.7; and was lowest at Wolverhampton, 45°, at Nottingham 45°.9, and at Hull 46°.1. The general mean was 48°.6.

The mean daily range of temperature was greatest at Nottingham, 20°.8, at Hull 20°, and at Cambridge 19°.1; and was least at Liverpool, 8°.5, and Plymouth, 10°.8, and at Truro 11°.0. The general mean was 14°.5.

The mean temperature was highest at Truro, 56°.8, at Brighton 56°.6, and at Sunderland 55°.1; and was lowest at Wolverhampton, 50°.5, at Bolton 50°.8, and at Bristol 52°.6. The general mean was 54°.

Rain.—The largest fall was 2.33 inches at Bradford, 2.19 inches at Bolton, and 2.14 inches at Sunderland; the smallest falls were 0.23 inch at Brighton, 0.46 inch at Blackheath, and 0.77 inch at Truro. The general mean fall was 1.26 inch. Rain fell on every day in the week at Bolton.

SCOTLAND: *Temperature.*—During the week ending July 21 the highest temperature was 66°, at Dundee; at Greenock the highest temperature was 62°.2. The general mean was 63°.7.

The lowest temperature in the week was 39°.5, at Glasgow; at Dundee the lowest temperature was 45°. The general mean was 42°.8.

The mean temperature was highest at Aberdeen, 54°.3; and lowest at Perth, 53°. The general mean was 53°.6.

Rain. — The largest fall was 1.81 inch, at Edinburgh, and 1.80 inch at Dundee; and the smallest was 0.36 inch at Greenock, and 0.48 inch at Aberdeen. The general mean fall was 1.09 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

CLEMATIS: *A. H. J. O.* The accent should be on the first e, thus Clēmatis, but it is commonly pronounced Clemātis.

FAIRY ROSES: *A. V.* Varieties of Rosa Lawrenciana, an introduction from China in 1810.

INSECTS: *G. G.* The objects attached to a Laurel leaf are the eggs of the lace-winged fly (Hemerobius) Chrysopa perla), the larvæ of which feed on aphides. *I. O. W.* —*D. M'L.* The insect sent is the destructive Pine-weevil (Hylobius abietis). *I. O. W.*

LAWN-TENNIS GROUND: *R. M.* Seventy feet by 40 feet, for a double-handed game.

LILIUM: *S. R. H.* Send a fresh specimen in a box. The one received had been smashed to pulp coming through the post.

NAMES OF PLANTS: *W. H. K.* 1, Alstrœmeria aurantiaca; 2, Œnothera Youngii; 3, Tradescantia virginica; 4, Linum azureum; 5, Stachys lanata; 6, Polemonium cœrulcum album.—*R. P.* 1, not an Allamanda, but the common Tecoma Stans; 2, Dianthera pectoralis; 3, Centropogon, probably C. granulosa.—*W. Roberts.* The yellow Sweet Sultan (Centaurea suaveolens). — *Alpha.* 1, Jasminum rigidum; 2, send again when in flower; 3, Cyperus laxus; 4, Eupatorium Weinmannianum; 5, Swainsona galegifolia; 6, Lantana crocea.—*J. H. C.* Acropera Loddigesii. — *J. A. C.* We cannot identify it from such poor materials.—*C. M. Owen.* Rosa lucida, the wild form. Campanula grandis is a synonym of C. latiloba. — *T. K.* Please send us another specimen, and say where the plant is growing. — *Flora, Scarborough.* 1, Asplenium flaccidum; 2, Adiantum hispidulum; 3, Selaginella Braunii; 4, Adiantum cuneatum; 5, A. decorum? — *S. Y.* Centranthus ruber. — *G. C. Cox.* Broughtonia sanguinea.—*A. B. C.* Lilium Davuricum. — *J. Phillpotts.* Apparently a starved specimen of Rhododendron Blandfordiæflorum.

OAKS: *E. W. G.* The Memel, Dantzic, and Riga Oaks derive their names from the ports of shipment. They belong to the same species as the British Oak, Quercus Robur, of which there are two forms, sessiliflora and pedunculata.

PELARGONIUMS: *C. B. Mansfield.* We cannot undertake to name garden varieties of Pelargoniums, or any other florists' flower.

RASPBERRY: *J. H. C.* Your Raspberry leaves are affected by a fungus which is new to me, but which shall receive further attention. *M. J. B.*

STEPHANOTIS: *Ed. Hillier.* The flowers received, accompanied by your statement as to the remarkable freedom with which the plant is flowering, afford abundant evidence of high cultivation. If the floriferousness continued under indifferent cultivation the variety would be worth looking after.

STRAWBERRIES: *W. Lovel & Son.* The condition in which the fruits arrived was not satisfactory. The paper bags should have been made of stouter material, and these again should have been packed in soft, dry moss, instead of half-made hay, which is the very worst material that can be used for packing either fruits or flowers. The fruits were all of good size, and had apparently been gathered in excellent condition.

VINERY: *H. H., Bournemouth:* The earliest vinery may be planted with Black Hamburgh, and Foster's Seedling as a white Grape. The second or succession house may be Black Alicante, Madresfield Court, and White Muscat of Alexandria. You could include a Black Hamburgh in this for early use, and at the cooler end. Your border seems to be well prepared, only you should make a drain down the middle, giving the soil a slope down to it. It should be made of uncemented materials. When making the border place the turves with the grassy side downwards on the brickbats, and leave out the Heather, which in decaying might harbour injurious fungi. It will not be requisite to make up the border to a width of more than 5 feet at first, 1 foot of that being outside the wall or arches. You can use in your poor soil $\frac{1}{20}$ crushed bones, lime rubbish rather more. Burnt refuse is also good if it be thoroughly mixed with the other portions. Leave out the rotten manure, and avoid making your soil over-porous, as roots like to feel the soil all round them, and can then absorb more from it. Messrs. Keynes & Co., Salisbury.

*** All communications intended for publication should be addressed to the "*Editor,*" and not to the Publisher or to any member of the staff personally. The Editor would also be obliged by such communications being *written on one side only of the paper* and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

INTELLIGENT READERS, PLEASE NOTE: — *Letters relating to* ADVERTISEMENTS, *or to the supply of the Paper, should be addressed to the Publisher, and* NOT *to the Editor.*

CATALOGUES RECEIVED.

E. H. KRELAGE & SON, Haarlem — Coloured Plates of Plants, Flowers, Fruits, &c.

J. M. THORBURN & CO., 15, John Street, New York — Tree Seeds, &c.

W. LOVELL & SON, Driffield, Yorkshire — Select List of Strawberry Plants.

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Markets.

COVENT GARDEN, July 26.

[THE subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. ED.]

TRADE brisk. Cherries improved; otherwise prices the same, with the exception of black Currants, which are easier. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	12 0–24 0	Ficus elastica, each	1 6– 7 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Foliage Plants, various, each	2 0–10 0
— (common), dozen	6 0–12 0	Fuchsias, per dozen	6 0–12 6
Begonias, per doz. ..	6 0–12 0	Hydrangea, per. doz.	9 0–24 0
Bouvardia, doz. ..	12 0–18 0	Lilium longiflorum, per dozen.. ..	18 0–42 0
Calceolarias, dozen...	4 0– 9 0	Liliums, various, per dozen	12 0–30 0
Cockscombs, doz. ..	4 0– 9 0	Lobelias, per dozen	3 0– 6 0
Coleus, doz.	3 0– 6 0	Marguerite Daisy, per dozen	12 0–24 0
Dracæna term. doz.	30 0–60 0	Mignonnette, doz. ..	4 0– 6 0
—viridis, per doz...	12 0–24 0	Myrtles, per doz. ..	6 0–12 0
Erica, various, doz.	12 0–36 0	Palms in variety, each	2 6–21 0
Euonymus, various, per dozen	9 0–18 0	Pelargoniums, scarlet, per dozen ..	2 6– 9 0
Evergreens, in var., per dozen	6 0–24 0	— decorative, doz.	6 0–18 0
Ferns, in variety, per dozen	4 0–18 0		

CUT FLOWRRS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Marguerites, 12 bun.	6 0– 9 0
Asters, 12 bunches..	4 0– 6 0	Mignonette, 12 bun.	6 0– 9 0
— French, per bun.	2 0– 4 0	Marigolds, 12 bun...	2 0– 4 0
Bouvardias, per bun.	1 0– 1 6	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 0
Canterbury Bell, bun.	1 0– 2 0	Pelargoniums, 12 spr.	0 9– 1 0
Carnations, 12 blms.	1 0– 3 0	— zonal, 12 sprays	3 0– 6 0
— 12 bunches ..	3 0– 0 0	Pinks, 12 bunches ..	2 0– 6 0
Cornflower, 12 bun..	1 6– 4 0	Primula, double, bun.	1 0– 1 6
Dahlias, 12 bun. ..	4 0– 8 0	Pyretbrum, 12 bun..	3 0– 6 0
Delphinium, p. bun.	0 6– 1 0	Roses (indoor), doz.	2 0– 6 0
Eucharis, per doz. ..	4 0– 6 0	— (outdoor), 12 bun.	3 0– 6 0
Eschscholtzia, 12 bn.	2 0– 4 0	— coloured, doz. ..	3 0– 8 0
Gardenias, 12 blms..	3 0– 6 0	Spiræa, 12 bunches..	6 0–12 0
Gladioli, 12 spikes..	2 0– 6 0	Stephanotis, 12 spr.	1 6– 3 0
Heliotropes, 12 sp. ..	0 6– 1 0	Stocks, 12 bunches..	4 0– 9 0
Lapageria, white, 12 blooms	3 0– 6 0	Sweet Peas, 12 bun.	3 0– 6 0
— red, 12 blooms..	1 0– 3 0	Sweet Sultan, 12 bun.	4 0– 6 0
Lilac (French), bun.	4 6– 7 0	Tropæolum, 12 bun.	1 0– 2 0
Liliums, 12 bun. ..	12 0–18 0	White Jasmine, bun.	1 0– 1 6

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Cherries, ½-sieve ..	7 0–10 0	Lemons, per case ..	15 0–20 0
Currants, Black, ½-sieve	3 6– ..	Melons, each ..	2 0– 3 6
— Red, ½-sieve ..	3 3– 5 0	Peaches, per doz. ..	6 0–12 0
Figs, per dozen ..	2 0– 3 0	Pine-apples, Eng., lb.	2 0– 3 6
Grapes, per lb. ..	1 0– 3 0	— St. Mich., each	3 6–10 0
Gooseberries, ½-siv.	2 6– 3 3	Strawberries, per lb.	0 3– 0 9

VEGETABLES—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 4 0	Horse Radish, bund.	4 0– ..
Asparagus (Sprue), per bundle ..	2 6– ..	Lettuces, Cabbage, per dozen	1 0– ..
— English, bund...	3 6– 8 0	— Cos, per dozen..	1 6– ..
Beans, Fr. grown, lb.	0 4– ..	Mint, green, bunch..	0 6– ..
— Scarlet, per lb...	0 6– ..	Mushrooms, p. baskt.	1 0– 2 0
Beet, per doz. ..	1 0– ..	Onions, per bunch ..	0 6– ..
Cabbages, per doz...	1 0– 2 0	— Spring, per bun.	0 6– ..
Carrots, new, p. bun.	0 6– ..	Parsley, per bunch..	0 4– ..
Cauliflowers, English, dozen ..	2 0– 3 0	Peas, English, quart	1 0– ..
Celery, per bundle ..	1 6– ..	Radishes, per doz. ..	1 6– ..
Cucumbers, each ..	0 6– 1 0	Rhubarb, per bundl.	0 6– ..
Endive, French, per dozen	2 0– ..	Small salading, pun.	0 4– ..
Garlic, per lb. ..	1 0– ..	Spinach, per bushel	3 6– ..
Herbs, per bunch ..	0 2– 0 4	Sweet Potatos, lb. ..	0 6– ..
		Tomatos, per lb. ..	1 0– ..
		Turnips, new, bun.	0 4– ..
		Vegt. Marrows, each	0 4– ..

POTATOS.—Jersey Potatos much diseased, and trade bad; Kent Kidneys, £5 to £6 per ton.

SEEDS.

LONDON: *July* 25.—Messrs. John Shaw & Sons, 37, Mark Lane, E.C., report that in the absence of business quotations for farm seeds continue quite nominal. New Trifolium is in fair supply, the price being moderate. The new Rape seed shows poor condition. The same can be said of some samples of new Trefoil. There is an improved sale for sowing Mustard. White Millet for birds, being exceedingly scarce, commands an advance of 2*s.* per quarter. Other articles at this quiet season call for no remark.

CORN.

At Mark Lane on Monday the large arrivals of Wheat tended somewhat to retard improvement, but 6*d.* to 1*s.* rise was mostly quoted. Flour followed to the extent of 6*d.* per sack. Barley was very firm, and some asked advanced rates for grinding sorts. Beans and Peas met a quiet demand at unchanged rates. Maize showed better value for both round and flat corn, but more especially for the former. Oats were firm at the full currency of Monday se'nnight.—On Wednesday the Wheat trade was dull, but prices remained steady. The demand for flour was limited, and the trade slow. Maize on the spot was again rather firmer, with light arrivals. Beans and Peas, with shrinking supplies, tended against buyers. Oats having come in more freely, the trade was slow.—Average prices of corn for the week ending July 21:—Wheat, 42*s.* 2*d.*; Barley, 27*s.* 10*d.*; Oats, 23*s.* 2*d.* For the corresponding period last year:—Wheat, 49*s.* 2*d.*; Barley, 27*s.* 8*d.*; Oats, 24*s.* 8*d.*

CATTLE.

At Copenhagen Fields on Monday there was a good demand for cattle, and rather higher prices were obtained in some cases. Canadians sold at 5*s.* 4*d.* to 6*s.*; choice small at 6*s.* 2*d.*; Danish, at 4*s.* 8*d.* to 5*s.* 6*d.*: and Swedish at 4*s.* 6*d.* to 5*s.* per 8 lb. The sheep trade was quiet, partly owing to the dulness in the dead meat markets. The lamb trade was slow, owing to advance of the season. Calves were dull of sale. Quotations:—Beasts, 4*s.* 6*d.* to 5*s.* 4*d.*, and 5*s.* 6*d.* to 6*s.* 4*d.*; calves, 5*s.* 4*d.* to 6*s.* 6*d.*; sheep, 5*s.* 3*d.* to 6*s.* 2*d.*, and 6*s.* 4*d.* to 7*s.*; lambs, 7*s.* to 8*s.* 2*d.*—Thursday's trade was steady. Both beasts and sheep were in demand, and firm in value. Calves and lambs were quite as dear, but pigs dull.

HAY.

Tuesday's Whitechapel Market report states that supplies were moderate, and trade steady, at the following quotations:—Prime Clover, 105*s.* to 120*s.*; inferior, 60*s.* to 70*s.*; prime meadow hay, 70*s.* to 92*s.*; inferior, 40*s.* to 50*s.*; and straw, 30*s.* to 42*s.* per load.—Cumberland Market quotations:—Superior old meadow hay, 92*s.* to 100*s.*; inferior, 72*s.* to 84*s.*; new, 70*s.* to 84*s.*; superior old Clover, 112*s.* to 120*s.*; inferior, 84*s.* to 95*s.*; new, 84*s.* to 105*s.*; and straw, 38*s.* to 43*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that there were fair supplies and a quiet trade. Quotations:—Jersey kidneys, 7*s.* to 8*s.*; ditto round, 7*s.*; Cherbourg round, 6*s.* 6*d.* to 7*s.*; ditto flukes, 7*s.* to 8*s.*; Kent kidneys, 10*s.*; and Essex shaws, 7*s.* per cwt.—The imports into London last week were:—2133 bags and 2510 packages from Jersey, 507 cases 472 boxes Barfleur, and 500 boxes from Cherbourg.

COALS.

The following are the prices current at market during the week:—Ravensworth West Hartley, 14*s.* 9*d.*; Walls End—Tyne (unscreened), 11*s.*; Hetton, 19*s.*; Hetton Lyons, 17*s.*; Lambton, 18*s.* 6*d.*; Wear, 17*s.*; South Hetton, 19*s.*; Tees, 19*s.* 3*d.*

Government Stock.—Consols closed on Monday at 99½ to 99⅝ for delivery, and 99⅝ to 99¾ for the account. The final prices on Tuesday and Wednesday were 99⅝ to 99¾ for delivery, and 99¾ to 99 13/16 for the account. There was no alteration on Thursday.

W. H. LASCELLES & CO.,
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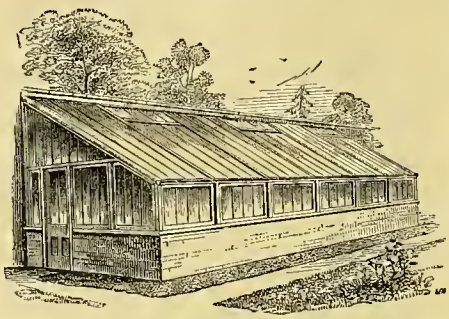

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LEAN-TO HOUSES

for building against existing walls, similar to above, 15 ft. by 10 feet, £24, or for brickwork, £19. Portable Cucumber Frames, painted 3 coats, glazed 21-oz. glass. 2-light Frame, 6 feet by 8 feet, £3 4*s.* 6*d.* Cases 4*s.*, allowed when returned.
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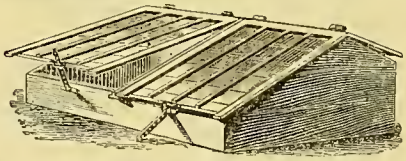

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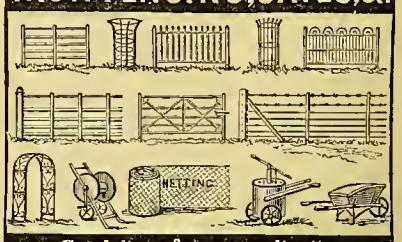

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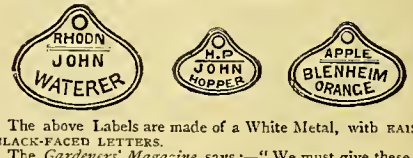

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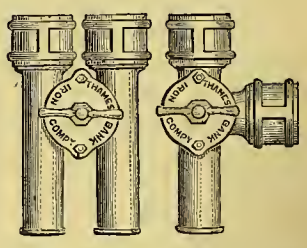

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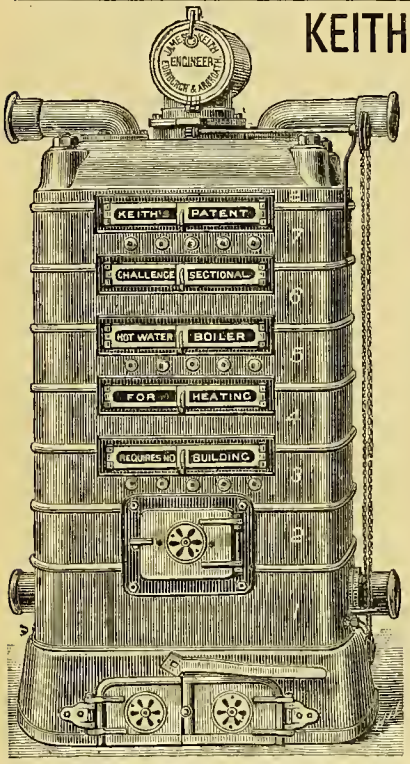

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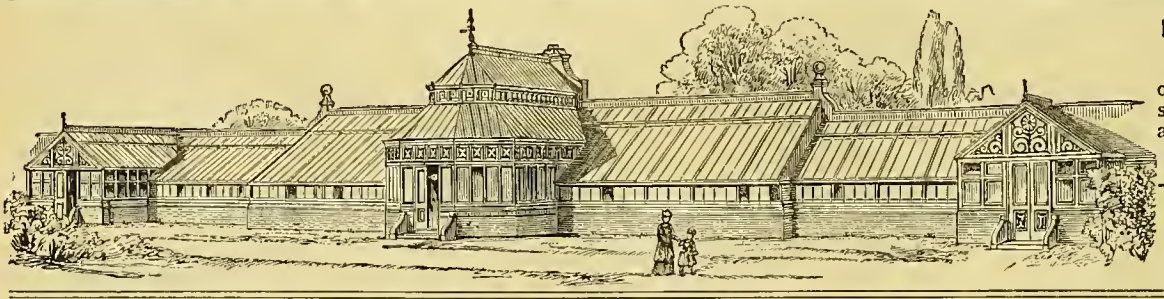

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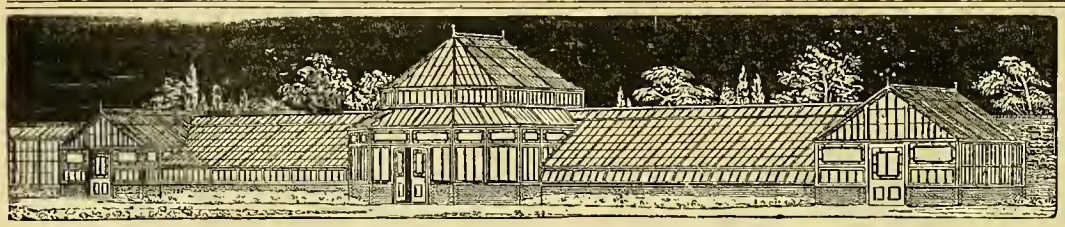

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RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Double White Sweet Scented
NARCISSUS BULBS for SALE, £1 per 100. Apply to
T. MILLS, Market Gardener, Chiswick, Middlesex.

STRAWBERRIES.—We are now prepared to supply strong, healthy Plants, from ground and in pots, of all the most approved kinds. A select descriptive LIST post-free on application.
THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

STRAWBERRY RUNNERS.—Alpha, Duc de Malakoff, Duke of Edinburgh, The Countess, Black Prince, Frogmore Late Pine, Crimson Queen, Lucas, James Veitch, Sir Harry, Sir Joseph Paxton, Amateur, Marshal McMahon, President, Keens' Seedling, Sir Charles Napier, Vicomtesse H. de Thury.
FREEMAN, Seed Growers, Norwich.

STRAWBERRY RUNNERS, from Twenty Choice Varieties. Price LIST on application. Sample box of plants with fruit, 4*d*. "Manual on Strawberry Culture," 6*d*.
W. LOVEL AND SON, Strawberry Growers, Driffield.

SALES BY AUCTION.

Friday Next.
CATTLEYAS and ODONTOGLOSSUMS.
VANDA SANDERIANA.

MESSRS PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, at half-past 12 o'Clock precisely, a grand lot of CATTLEYAS and ODONTOGLOSSUMS; also splendid sound plants of VANDA SANDERIANA, in fine specimens; also about fifty lots of ESTABLISHED ORCHIDS, and a quantity of ORCHIDS in flower.
On view morning of Sale, and Catalogues had.

Friday Next.
LÆLIA PURPURATA—54 Cases.

MESSRS. PROTHEROE AND MORRIS have been instructed by Mr. Bells, of Rio de Janeiro, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, at half-past 12 o'Clock precisely, 54 Cases of LÆLIA PURPURATA, in grand condition; also some very fine plants of ZYGOPETALUM GAUTHIERI. The Lælia purpurata are in splendid condition, and will be sold in the Cases.
On view the day previous to Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Dutch Bulbs.—Trade Sales.

MESSRS. PROTHEROE AND MORRIS beg to announce that they have made special arrangements for very extensive consignments of DUTCH BULBS of the best quality during the ensuing season.
The FIRST SALES will take place at their Rooms on AUGUST 20, 23, 27, and 30, and will consist of lots made up particularly for the Trade and other large buyers.
Gentlemen desirous of receiving Catalogues throughout the season can have a regular supply on application to the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C., and enclosing twelve stamps.

Tuesday Next.—(Sale No. 6439.)
PERIODICAL SALE of POULTRY and PIGEONS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY NEXT, August 7, at half-past 12 o'Clock precisely, PRIZE and PRIZE-BRED POULTRY, comprising Silver-spangled and Black Hamburghs, Minorcas and Houdans, from the Honourable Lady Murray; Black Spanish, Buff and White Cochins, Andalusians, Light and Dark Brahmas, Golden-spangled Polands, Malays, Bantams, &c., from several well-known exhibitors. Also choice PIGEONS, including Red and Yellow Jacobins, Magpies, Turbits, Checkered Homers, Silver Runts, Yellow Dragons, and a variety of other BIRDS from the yards and lofts of well-known breeders and exhibitors.
On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6440.)
A grand importation of
CATTLEYA MENDELII,
CATTLEYA GIGAS, CATTLEYA AUREA,
ODONTOGLOSSUM VEXILLARIUM,
O. CRISPUM, O. PESCATOREI,
O. SPECIES, supposed to be new;
MASDEVALLIA MACRURA, rare;
M. TROCHILUS and M. HARRYANA:
the whole of the above in the best possible condition,

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Messrs. Shuttleworth, Carder & Co., on WEDNESDAY NEXT, August 8, at half-past 12 o'Clock precisely, the above fine IMPORTATIONS of ORCHIDS.
On view morning of Sale, and Catalogues had.

Thursday Next.
ODONTOGLOSSUM, New Species.
CATTLEYA SANDERIANA.
VANDA SANDERIANA.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, August 9, at half-past 12 o'Clock precisely, a grand importation of the above.
On view morning of Sale, and Catalogues had.

Thursday Next.
LÆLIA ANCEPS.

MR. J. C. STEVENS will include in his SALE on THURSDAY NEXT, August 9, by order of Messrs. F. Horsman & Co., about 50 lots of selected pieces of the above, all in superb condition.
On view morning of Sale, and Catalogues had.
Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Thursday Next.—(Sale No. 6441.)
ESTABLISHED ORCHIDS, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, August 9, about 300 lots of good ESTABLISHED ORCHIDS from private collections, comprising a quantity of Odontoglossum Alexandræ and O. Pescatorei, Oncidiums, Masdevallias, Cattleyas, Cypripediums, Epidendrums, 50 Dendrobium infundibulum in flower, and a small collection of NEPENTHES in variety, a few STOVE PLANTS, &c.
On view morning of Sale, and Catalogues had.

Established Orchids, Palms, Dracænas, Stephanotis, FICUS, &c.

MR. J. C. STEVENS will include about 50 lots of the above in his SALE, on THURSDAY, August 9, from the Royal Exotic Nursery, Tooting.
On view morning of Sale, and Catalogues had.
Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Lælia elegans.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, August 16, at half-past 12 o'Clock precisely, a very grand importation of the above. Further particulars in next advertisement.
On view morning of Sale, and Catalogues had.

Dutch Bulbs.—Trade Sales.

MR. J. C. STEVENS begs to announce that his first SALES of DUTCH BULBS will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on
WEDNESDAY, August 15,
SATURDAY, August 18,
WEDNESDAY, August 22,
SATURDAY, August 25,
WEDNESDAY, August 29,
at half-past 12 o'Clock precisely each day, and will include choice Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, SCILLAS, &c., from well known Farms in Holland, in lots to suit the Trade and Private Buyers.
On view morning of Sale, and Catalogues had.

MR. JNO. COWAN will SELL by AUCTION, for the Liverpool Horticultural Company (John Cowan), Limited, on THURSDAY, August 9, at 12 o'Clock prompt, in the Concert Room at the Horticultural Gardens, Leeds, a splendid assortment of ESTABLISHED ORCHIDS, consisting of Dendrobiums crassinode Barberianum, Parishi, Dalhousianum, Wardianum, Dearei, Pierardi latifolia, Jamesianum, &c.; Aërides, Saccolabiums, Vandas, Phalænopsis, Odontoglossums, Cattleyas, and many other varieties, all healthy plants making good growth; also a fine variety of Aërides Lobbi from the Indian Archipelago, Thrixspermum Berkeleyi, Dendrobium Veitchianum, D. formosum Berkeleyi, Phalænopsis Esmeralda, P. amabilis, and Aërides Emericii, from Lieut. Col. E. S. Berkeley; and an importation of Cattleya labiata, just to hand, from Rio de Janeiro. Also a fine collection of FLOWERING and ORNAMENTAL PLANTS, consisting of Tea Roses, Pelargoniums, Geraniums, Fuchsias, Lilies, Begonias, Maidenhair and other Ferns, Palms, Coleus, Grevilleas, &c., all in fine health and condition, and suitable for Conservatory, Greenhouse, Table, and Window Decoration.
Plants on view at the Concert Room, on the 7th, 8th, and morning of Sale.
Catalogues on application to The Vineyard, Garston, Liverpool.

WANTED, a SMALL HOUSE, standing in an acre or more of ground; with Fruit Trees and Greenhouse or two preferred. Not more than 8 miles from London. Apply to
J. F., 47, Fulham Palace Road, Hammersmith, W.

Investment.—Important to Orchid Growers.
15 miles from London.

FOR DISPOSAL, a small and easily worked HORTICULTURAL BUSINESS—proprietor wishing to devote his whole time to another Business in which he is engaged. Capital opening for Growing Orchids.
Apply to Messrs. PROTHEROE AND MORRIS, 8, New Broad Street, E.C.—(Folio 5865.)

FOR SALE, SIDCUP HILL NURSERY, Foot's Cray, Kent. Established over fifty years, and widely famous for the culture of Ferns. In consequence of the death (without issue) of the late Mr. Robert Sim, the Stock, Leases, Business Structures, &c., of this Nursery are to be immediately disposed of.
For particulars apply to Miss SIM, at the above address.

FOR SALE, a NURSERY and FLORIST BUSINESS, in the North of Scotland. The Grounds extend to 11 acres, held on 11 years leases, the greater part of the terms being unexpired. The subjects include 3 Greenhouses, with Hot-water Appliances, and a number of Frames. The Stock, which is in first-class condition, consists of several millions of Seedling and Transplanted Forest Trees (for the prime quality of which the nursery is well-known), Ornamental and Fruit Trees, Shrubs, Bushes, and Flowers of every description. The sale is rendered necessary by dissolution of partnership, and offers a splendid opportunity for acquiring a good going established business.
Further particulars from GRIGOR AND YOUNG, Solicitors, Elgin, N.B.

INVESTMENT.—A most comfortable, newly erected MODERN RESIDENCE, at Twickenham, close to the Station and the river Thames—Dining-room, 24 × 18; Billiard-room same size, two other Reception-rooms, seven Bedrooms, Stabling, Grounds half an acre in extent, tastefully laid out; fine Orchid and Plant-houses, with all modern improvements. The whole most suitable to a Gentleman with a taste for horticulture. Price, £2300.
Address, D., Messrs. Pottle & Son, Royal Exchange, who will give cards to view.

TO GARDENERS AND OTHERS.—An opportunity occurs for PURCHASING a Plot of FREEHOLD LAND, Propagating and Two Glass Houses, fitted with Hot-water Pipes, Boiler, &c.; also Goodwill of Florist's Business, carried on by owner for five years. Leaving to take larger Business. Price for Freehold, Goodwill, and everything, £275 (£200 can remain and be repaid by instalments).
Apply, Mr. SALMON, Estate Agent, Kingston-on-Thames.

TO BE LET, ON LEASE, a good JOBBING and LOCAL BUSINESS, upon favourable terms.
Apply to Mrs. G. SMITH, Tollington Nursery, Tollington Park, Hornsey Road, N.

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

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 8, New Broad Street, E.C.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

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

CHADBURY EARLY CABBAGE SEED.—This seed has been grown by careful selection for sixteen years, and planting the stems where the produce would not be likely to be affected by Bees. It is liked by the Evesham gardeners, who are good judges of what pays them best, and is recommended to Farmers as a safe crop to plant—selling the Cabbages if they can grow them early enough and good enough—feeding them off by sheep if they cannot. Price 7s. per pound in small quantities; 5s. 6d. per pound for 20 lb. and upwards For Cash only. Apply to
Mr. RANDELL, Chadbury, near Evesham.

PARCELS POST.—CARTERS' SEEDS.

PARCELS POST.—CARTERS' SEEDS, Carriage free.

PARCELS POST.—CARTERS' SPECIAL ORDER ROOMS and Parcels Post-office now open.

PARCELS POST.—CARTERS' SPECIAL VANS and TRUCKS will deliver parcels hourly during the day to the Post-office.

CARTERS, The QUEEN'S SEEDSMEN, and by Royal Command to H.R.H. the Prince of Wales.
237 and 238, High Holborn, London, W.C.

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JAMES CARTER AND CO. have RECEIVED THEIR FIRST CONSIGNMENTS of the above in splendid condition.

PLANT AT ONCE, EARLY FORCING.
CARTERS' BULBS FOR THE DECORATION of the CONSERVATORY, DRAWING ROOM, &c., &c., at CHRISTMAS TIME.
EARLY WHITE ROMAN HYACINTHS, 25s. per 100, 3s. 6d. per dozen, 4d. each.
EARLY WHITE ROMAN HYACINTHS (Blue Skin), 17s. 6d. per 100, 2s. 6d. per dozen, 3d. each.
EARLY BLUE ROMAN HYACINTHS, 12s. 6d. per 100, 1s. 9d. per dozen, 3d. each.
LIGHT BLUE NEAPOLITAN, 15s. per 100, 2s. per dozen, 3d. each.
DARK BLUE NEAPOLITAN, 15s. per 100, 2s. per dozen, 3d. each.
EARLY DOUBLE ROMAN NARCISSUS, 2s. 6d. per dozen, 4d. each.
EARLY PAPER-WHITE NARCISSUS, 1s. 9d. per dozen, 3d. each.
DOUBLE SNOWDROPS, large, 21s. per 1000, 2s. 6d. per 100, 5d. per dozen.
SINGLE SNOWDROPS, large, 21s. per 1000, 2s. 6d. per 100, 5d. per dozen.
DUC VAN THOL TULIPS, red and yellow, single, 10s. per 100, 1s. 6d. per dozen.
ALLIUM NEAPOLITANUM, 10s. per 100, 1s. 6d. per dozen.
NOTE.—These prices are not binding after the publication of Carters' Autumn Catalogue.
COLLECTIONS of the above, price 5s., 7s. 6d., 16s., 24s., 45s., and 65s.

CARTERS, THE QUEEN'S SEEDSMEN.
By Royal Command to the Prince of Wales.
237 and 238, High Holborn, London, W.C.

POINSETTIA PULCHERRIMA, at 20s. per 100, £8 per 1000; now ready for 48's.
SMITH AND LARKE, Ashford, Middlesex.

Double White Primulas.

H. B. MAY has an unusually fine stock to offer, in large thumbs, fit for immediate potting. Price on application.
Dyson's Lane Nursery, Edmonton.

To the Trade.

BAUMFORTH'S SEEDLING RASPBERRY.
Special Prices for Orders before September 1 may be had on application.
EDMUND PHILIP DIXON, Hull.

Kentia Belmoriana.

KENTIA FOSTERIANA.
Offered in clean and healthy plants, with three leaves, in single pots, at £4 10s. per 100 seeds; of ARECA SAPIDA, at £1 per 1000.
J. HENRY KRAUSE,
Hanwell Nursery, London, W.

PARCELS POST.—Mr. WM. GORDON is prepared to give the full benefit of the Parcels Post to his customers, and will forward package and carriage free all orders of Ten Shillings and upwards. This will enable his Customers in the country to purchase Plants at the same price as is paid at the nursery by those resident in London and Suburbs.
The fact that these plants with ordinary care can be grown in a greenhouse has given an impetus to orders, and nearly all lovers of flowers are now Orchid growers and are forming collections, which, besides being very interesting, will become valuable as there are no plants which pay better for growing into specimens.
The following are a few of the varied and cheap ORCHIDS which are held in quantities: the special ORCHID LIST for August will be forwarded, post-free, on application:—
C. denotes Cool, I. Intermediate, and S. Stove Plants.

	Each—s.	d.
C. AERIDES JAPONICUM, a beautiful sweet-scented Orchid: flowers white, spotted with rose colour. Four to six leaves	2	6
I. AERIDES VIRENS.—This, one of the best of the Orchids. Six to seven leaves.. .. 3s. 6d. and	5	0
C. BLETIA HYACINTHINA, beautiful free-flowering hardy Orchid; grows well out-of-doors; can be left out all the year on a south border. Strong clumps, 2s. 6d. and	3	6
C. CALANTHE DISCOLOR, very free-flowering and beautiful. Strong plants, ...	2	6
C. CALANTHE SIEBOLDI, beautiful evergreen, cool-house species, with large yellow flowers 2s. 6d. and	3	6
C. CATTLEYA CITRINA, beautiful sweet-scented Orchid, with large yellow flowers .. 2s. 6d. and	3	6
I. CATTLEYA DOLOSA.—This is a very beautiful little Cattleya, with large flowers, ten and twelve bulbs .. .. 3s. 6d. and	5	0
I. CATTLEYA MOSSIÆ.—This is best of all Cattleyas; it is a free-grower, very beautiful and free-flowering; five to ten bulbs .. 2s. 6d. and	3	6
I. COLAX JUGOSUS.—Flowers very beautiful; white, with numerous rich dark purple spots.		
C. CYPRIPEDIUM INSIGNE.—This good old species is very easily grown; a free-flowering plant. Those offered are well established, but unflowered imported plants, and they probably contain some exceptionally fine varieties.		

All orders to be addressed to WM. GORDON, New Plant and Bulb Importer, 10, Cullum Street, London, E.C., and NOT to the Nursery, Twickenham, Middlesex.

1883.] Offer of Seeds from [1884.

A. LIETZE, Rio de Janeiro, Brazil.

Gross Prices in Shillings.

	Ripening.	100 Seeds.	1000 Seeds.
		s.	s.
ACROCOMIA sclerocarpa	Sept.	10	80
ARAUCARIA brasiliensis	May	5	30
ARECA lutescens	Jan.	4	25
" " " .. 5,000 Seeds, 100s.	"		
" " " .. 10,000 Seeds, 160s.	"		
" madagasc.	June	4	20
" rubra	Jan.	2	12
" " " .. 5,000 Seeds, 50s.	"		
" " " .. 10,000 Seeds, 80s.	"		
ASTROCARYUM Airi	Nov.	15	120
ATTALEA speciosa	May	30	..
BACTRIS Maraja	Nov.	6	40
CARYOTA sobolifera	irregularly	6	40
" ureos	"	6	40
COCOS campestris	"	7	50
" flexuosa	Sept.	5	30
" oleracea	Jan.	10	80
" plumosa	irregularly	5	30
" " " .. 5,000 Seeds, 120s.	"		
" Procopeana	Nov.	20	..
" Weddelliana	Dec.	7	50
" " " .. 5,000 Seeds, 200s.	"		
" " " .. 10,000 Seeds, 375s.	"		
COFFEA arabica	May	2	15
" " yellow fruit variety ..	"	3	25
" " variety Maragogipe ..	"	5	40
COPERNICIA cerifera	Jan.	10	80
DESMONCUS, sp. Rio	May	10	..
DIPLOTHEMIUM caudescens ..	Nov.	15	130
" maritimum	April	12	100
ELAEIS guineensis	May	12	100
EUTERPE edulis	"	6	50
GEONOMA gracilis	March	5	30
" " " .. 5,000 Seeds, 120s.	"		
" Schottiana	June	5	30
GLAZIOVA insignis	Dec.	7	50
" " " .. 5,000 Seeds, 200s.	"		
LIVISTONA sinensis	Aug.	2	10
" " " .. 5,000 Seeds, 40s.	"		
" " " .. 10,000 Seeds, 70s.	"		
MASSANGEA tigrina (Brom.) ..	May	5	30
OREODOXA oleracea	irregularly	2	10
PANDANUS utilis	"	3	20
" " " .. 5,000 Seeds, 80s.	"		
" " " .. 10,000 Seeds, 150s.	"		
RAVENALA madagasc.	"	4	30
PHILODENDRON bipinnatif. } " speciosum .. .. }	April	3	20
" " " .. 5,000 Seeds, 75s.	"		
" " " .. 10,000 Seeds, 120s.	"		

Less than 100 Seeds each sort are not delivered.

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CABBAGE, Dickson's Nonsuch, 1s. per ounce.
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" Early Rainham, 8d. per ounce.
" Improved Nonpareil, 8d. per ounce.
CAULIFLOWER, Improved Early London, 1s. 6d. per ounce.
CUCUMBER, Rollisson's Telegraph, 2s. 6d. per packet.
LETTUCE, Dickson's Hardy Winter Cabbage, 1s. per packet.
" Hardy White Cos, 1s. 4d. per ounce.
ONION, Giant Rocca Tripoli, 10d. per ounce.
" Red and White Italian Tripoli, each, 10d. per ounce.

Also choice strains of CALCEOLARIA, CINERARIA, GLOXINIA (erect and drooping varieties), PRIMULA SINENSIS FIMBRIATA (red, white, or mixed), in 1s. 6d., 2s. 6d., and 5s. packets; and all other VEGETABLE and FLOWER SEEDS for present or later sowing.

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To the Trade.

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HUGH LOW AND CO. offer the above, in 48-sized pots, at £3 15s. to £5 per 100.
Clapton Nursery, London, E.

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beg to inform their Customers and the Trade generally, that they have the largest stock of ERICA HYEMALIS, in fine condition, ever offered to the Trade. Other varieties in proportion.

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SOLUBLE FIR TREE OIL INSECTICIDE.

For destroying ALL INSECTS and PARASITES that infest Trees and Plants, whether at the Roots or on the Foliage. Kills all Vegetable Grubs, Turnip Fly, &c. Cures Mildew and Blight. Cleans Grapes from Mealy Bug, &c., and makes a good Winter Dressing. Of all Seedsmen and Chemists, 1s. 6d., 2s. 6d., 4s. 6d. a bottle. Per gallon 12s. 6d., or less in larger quantities. Maker, E. GRIFFITHS HUGHES, Manchester. Wholesale from all the London Seed Merchants and Wholesale Druggists. New York: RÖLKER & SONS.

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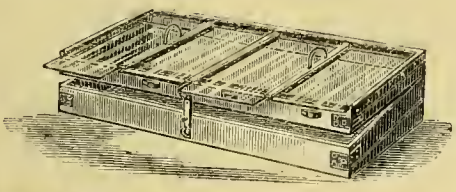

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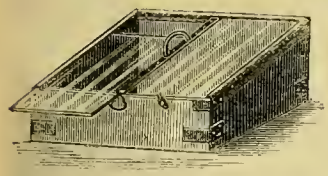

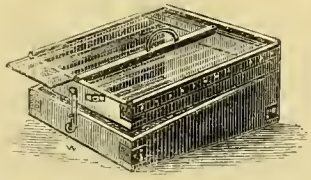

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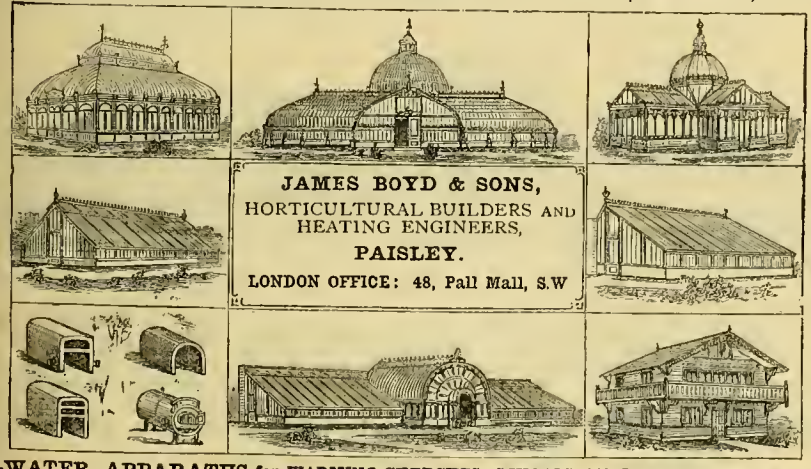

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COCOA-NUT FIBRE REFUSE.

4d. per bushel; 100 for 25s; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s; sacks, 4d. each.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; sacks, 4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton, 26s. per ton; in 2 bushel bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.
SPHAGNUM MOSS, 8s. 6d. per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Free Price LIST.—H. G. SMYTH, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

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An elegant Bordering to Flower Beds. Combines warmth and cleanliness with valuable antiseptic and deodorising properties.

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Quality equal to any in the Market.
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PEAT, best brown fibrous .. .. 4s. 6d. per sack.
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SILVER SAND (coarse) .. .. 1s. 3d. per bushel.
RAFFIA FIBRE, best only .. .. 10d. per lb.
TOBACCO CLOTH, finest imported .. 8d. per lb., 28 lb. 18s.
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Manufactured by the
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(JOHN COWAN), LIMITED,
The Vineyard and Nurseries, Garston, near Liverpool,
and Sold by them and all Nurserymen and Seedsmen.

This is the Manure used to produce the splendid Grapes grown by Messrs. WM. THOMSON & SON, Clovenfords.

For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

Speciality for Roses.

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STEVENS AND CO.'S AMORTISER INSTANTLY DESTROYS Hop Flea, Green Fly, Caterpillar, and every kind of Blight. Fruit Growers, Florists, more especially Rose Growers, will find this preparation invaluable, as one application causes INSTANT DESTRUCTION of all INSECT PESTS. For Hothouse, Greenhouse, and other Plants it is equally valuable, and is guaranteed not to injure the most delicate bloom or foliage. We have a Special Preparation of the Amortiser for Watering the Ground which Instantly Destroys Slugs, Wireworms, Caterpillars, Grubs, &c When ordering state which preparation is required. Sample Cans, 4½ gallons, 3s. 6d., tin included. Special Quotations for Large Quantities.
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A ¼ lb. Packet to 3 Gallons of Water.
A strong solution thickened with clay makes an effective Winter Dressing.

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"We find Hudson's Soap a very useful Winter Dressing for all kinds of Fruit Trees; both as a preventive and cure against American Blight and all kinds of Scales. We also use it for Camellias, Azaleas, Rhododendrons, and all kinds of Hard-wooded Plants. We have much pleasure in presenting you with this testimonial, and remain, yours truly,
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GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1s., 3s., & 10s. 6d.

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

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This Gum is guaranteed to effectually secure the petals of flowers from falling. It is easily applied—dries instantaneously—and leaves no stain on the blossom.
Universally approved of by the leading Florists and Growers.
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"18, Westbourne Grove, W., June 18, 1883.
"GENTLEMEN,—We have much pleasure in testifying to the excellence of your Floral Gum, which we have used for some years. It fixes the petals of flowers without injuring or staining them.—Yours faithfully, "JAS. H. POUNCE AND SONS."
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CRYSTAL GUM .. 2s. 0d. pint. 3s. 6d. quart. 12s. gallon
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Sample Bottle of either kind sent post-free for 1s. 3d. in stamps.

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INDIAN MUSLIN, for Garden Shading.—100 yards for 10s., delivered at Burnley Station; or 85 yards for 10s., delivered free per parcels post. Very useful pure Cotton for Curtains, Blinds, Draperies, &c.; cream colour. Postal Order to be sent with each Order. Send stamped envelope for Pattern.
J. KAY AND SONS, Burnley Wood Mills, Burnley.

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TRIFOLIUM INCARNATUM, WINTER RAPE,
RYE, AGRICULTURAL MUSTARD, WINTER TARES,
ITALIAN RYE-GRASS, PERMANENT PASTURE GRASSES, &c.
Samples and Quotations on application.

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EARLY WHITE ROMAN HYACINTHS,
EARLY ROMAN and PAPER WHITE NARCISSUS.

JAMES VEITCH & SONS
BEG TO ANNOUNCE THEY HAVE RECEIVED THEIR USUAL CONSIGNMENTS OF
THE ABOVE VALUABLE BULBS FOR EARLY FORCING,
and will be pleased to receive Orders for immediate delivery.

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WEDNESDAY NEXT.—(Sale, No. 6440.)

A GRAND IMPORTATION OF

CATTLEYA MENDELII,
CATTLEYA GIGAS, CATTLEYA AUREA,
ODONTOGLOSSUM VEXILLARIUM,
O. CRISPUM, O. PESCATOREI,
O. SPECIES, supposed to be new;
MASDEVALLIA MACRURA, rare;
M. TROCHILUS, and M. HARRYANA.
The whole of the above in the best possible condition.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Messrs. SHUTTLEWORTH, CARDER & CO., on WEDNESDAY NEXT, August 8, at half-past 12 o'Clock precisely, the above fine IMPORTATIONS of ORCHIDS.
On view morning of Sale, and Catalogues had.

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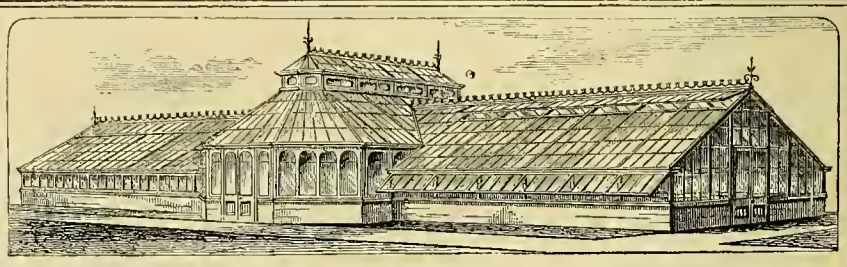
Five 1st Prize Medals recently awarded in open competition.



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Vineries, Stoves, Greenhouses, Peach Houses, Forcing Houses, &c., constructed on our improved plan, are the perfection of growing houses, and for practical utility, economy, and durability cannot be equalled. We only do one class of work, and that THE VERY BEST.
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Plans, Estimates and Catalogues free. Customers waited on in any part of the Kingdom.
Our Maxim is and always has been—
MODERATE CHARGES. FIRST-CLASS WORK. THE BEST MATERIALS.

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FOR PRESENT SOWING

SUTTONS' IMPERIAL.

The best Cabbage for spring use. If sown the first or second week in August it will produce beautiful Cabbages for early spring use. Heads cone-shaped, very large, firm, and of mild flavour.

1s. per ounce.

ENFIELD MARKET, 6*d.* per ounce.
SUTTONS' IMPROVED NONPAREIL, 9*d.* per ounce.
IMPROVED EARLY DWARF YORK, 8*d.* per ounce.
LARGE BLOOD-RED, 5*d.* per ounce.

Vegetable Seeds Post-free (except Peas and Beans); all goods value 20*s.* Carriage Free to any Railway Station in England or Wales.

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THE QUEEN'S SEEDSMEN, READING.

SEEDS,
VEGETABLE, FLOWER
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The BEST procurable,
at the Lowest Prices consistent with
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ILLUSTRATED DESCRIPTIVE LIST on application.

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ANT. ROOZEN & SON,
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Have pleasure in informing their numerous friends that their Crop of Bulbs is unusually fine this year, and they respectfully request that all Orders be sent them as early as possible. Their full and Descriptive CATALOGUE for 1883 will be sent, post-free, on application to their Agents,

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2½*d.* Postage on a Letter of Inquiry will secure you by return Mail our PRICES—Wholesale or Retail.

SEEDS of MAIZE for Field or Garden, PEAS, BEANS, CUCUMBERS, PUMPKINS, SQUASH, CANTALOUPES, WATER MELONS, TOMATOS, OKRA or GUMBO, COTTON SEED, TOBACCO, OSAGE ORANGE or MACLURA, TREE SEEDS, AMERICAN GARDEN TOOLS, BOOKS, &c.

All offered by the *oldest and ever the most extensive* Seed Farmers in America.

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

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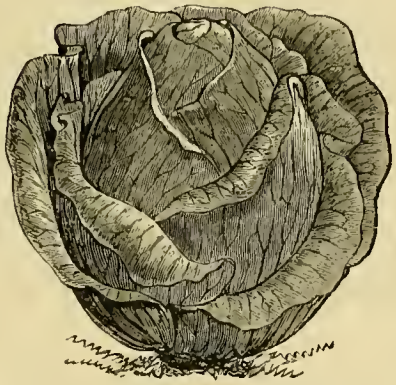
WEBBS' EMPEROR CABBAGE.



The Best Cabbage in Cultivation.
6d. and 1s. per Packet, 2s. per Ounce.

Mr. J. Muir, in the "Journal of Horticulture," of May 24, 1883, says:—
"Our largest piece of Spring Cabbage measures 70 feet × 50 feet, and here we have many sorts growing. The best of all these at the present time is WEBBS' EMPEROR."

	Per Ounce,	Post-free.
EARLY NONPAREIL CABBAGE	..	8d.
ENFIELD MARKET	do. ..	8d.
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RED DUTCH	do. 6d. pkt.	1s.

ONION.

	Packet.	Ounce.
WEBBS' NEW RED GLOBE TRIPOLI,	6d.	1s.
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All Garden Seeds Free by Post or Rail.
5 PER CENT. DISCOUNT FOR CASH.

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THE QUEEN'S SEEDSMEN,
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BULB SEASON, 1883.

GENTLEMEN, GARDENERS, and Others, by ORDERING IMMEDIATELY, may obtain the FINEST BULBS at strictly WHOLESALE PRICES.
Write for PRICE LIST to THE CITY FLOWER, SEED, and BULB DEPOT, 162, Fenchurch Street, and 80, St. Paul's Churchyard, London, E.C.

HYACINTHS. — HYACINTHS. — In harvesting our Hyacinths some time ago we were astonished to see the bulbs looking so grand and healthy this season. We really do not think we have had such a fine crop the last four years. Therefore we recommend our Customers to order at once to secure the very best stuff. Special offers for large quantities.
SEGERS AND CO., Bulb Growers, Lisse, near Haarlem, Holland.

DANIELS'
WHITE ELEPHANT TRIPOLI.

The largest White Onion known. Grows 2 ft. in circumference.
Seed, with complete Cultural Directions, 1*s.* 6*d.* per packet, post-free.

Daniels Bros. (Seed Growers and Importers), Norwich.

FERNS A SPECIALITY.

EXOTIC and BRITISH FERNS and SELAGINELLAS,

Suitable for STOVE and GREENHOUSE Cultivation, for OUTDOOR FERNERIES, and other purposes, in immense number and variety. Our ILLUSTRATED CATALOGUE (price 6*d.*) contains much useful information as well as "Hints on Fern Culture." SPECIAL LISTS, issued at intervals during the year, giving extremely low quotations, may be had FREE on application.

W. & J. BIRKENHEAD,
FERN NURSERY, SALE, MANCHESTER.

THE
Gardeners' Chronicle.

SATURDAY, AUGUST 4, 1883.

THE FRUIT CROP OF 1883.

THE returns from all parts of the United Kingdom sent us by trustworthy reporters, to whom we are greatly indebted, enable our readers, as it has enabled us, to get a bird's-eye view of the general condition of fruit production for the present year. One of the most remarkable features of these returns is found in their singular unanimity with respect to various fruits, for north and south, east and west alike, have to deplore on the one hand the almost total failure of some, and the same fruits, whilst they equally have to rejoice over the abundance of others. If we regard the intrinsic value of the various kinds, however, to a great fruit-consuming people, we shall find that the large crops of certain fruits far more than counterbalance those which have failed—as for instance, if Apricots are few, Peaches seem to be fairly abundant; and while Plums and Pears are scarce, the enormous crops of Apples—*par excellence*, the fruit of the nation—and of bush fruits, and wholesome Strawberries, far more than outweigh the former's shortcomings. Indeed, were all other fruits as thin as some are, yet would the splendid Apple crop, the very best without doubt, because so universally good, that we have had for ten years or more, suffice to mark 1883 as a red-letter year in the diaries o fruit growers.

We have remarked upon the unanimity shown in the fruit returns, and our readers have but to note those sent us either from the chilly land beyond the Tweed, or the drippy Emerald Isle, to find how closely they tally with reports sent in even from our southern and midland districts where the climatic conditions are so much more favourable to fruit production.

Whilst it will be generally admitted that the previous autumn seems to have been favourable to the ripening and maturation of fruit producing wood, the very indifferent results that have followed upon the fine bloom which garlanded Pears, Plums, and sweet Cherries, must be attributed to purely climatic causes, that if not perennial are at least far too common; whilst to the absence of these adverse conditions later in the spring do we owe that magnificent crop of Apples we now rejoice in. It seems idle to speculate on what might have been, but there can be little doubt that had the early spring been favourable throughout we should now have to be commenting upon and lauding one of the finest fruit crops seen within the memory of man. However, we have this consolation, that just as "he that fights and runs away may live to fight another day," so shall our now too barren Plum, Pear, and other fruit trees live to bear us good crops perhaps next year, when Apples at least can hardly be as good as they now are.

Summing up in a few words the general condition of the various fruit crops throughout the United Kingdom we find :—

APPLES everywhere most abundant—a truly grand crop.

PEARS equally are very thin indeed. In a few

favoured gardens there are fair crops, but generally the crop is poor, and may be classed as very moderate.

PLUMS universally are thin, the best results being seen on walls; but on orchard trees the produce is a very poor one, even Damsons being a failure.

CHERRIES of all sweet kinds are few indeed, and apparently better in Scotland than elsewhere; but the returns probably chiefly apply to Morellos, which are fairly good, as usual.

APRICOTS are a universal failure, and need no farther comment.

PEACHES AND NECTARINES are very fair generally, that is to say, in some places a heavy crop and in others thin. Of course, in Scotland and Ireland these are not largely grown on open walls; but in England and Wales all localities give good and indifferent returns alike, but the fairly good ones predominate.

BUSH FRUITS AND STRAWBERRIES seem to have been as universally abundant as Apples are, the season seeming specially to have favoured them. Finally,

NUTS of the smaller kinds are a very poor crop indeed, but in many localities Walnuts are fairly abundant.

It is not possible to take leave of what is not an altogether unclouded *resumé* of the fruit crops without commenting upon the great social and economical value a good fruit crop is to the kingdom. By it myriads live; by it the wealth of the country is increased, and vast sums of money are liberated for employment in other profitable channels. By it also the comforts and pleasures of the people are vastly increased, and may we not hope the health also. From afar come sad accounts of choleraic visitations, but these are the products of dirt and of foulness, not of the consumption of ripe, wholesome fruits. We trust no foolish alarms will interpose to prevent our growers from reaping to the full the benefits to which they are entitled from the plentiful Apple crop. Better a thousand times to purchase good fruit than poisonous liquid compounds and cheap questionable solids, the constituents of which none can tell. If we will take of the good things of God, surely none better merit such an epithet than a luxuriant crop of delicious wholesome fruits.

CHARLES TURNER.

WHEN the Royal Nursery, Slough, was founded is involved in some obscurity, and owing to an unfortunate fire, which destroyed the dwelling-house and offices with their contents, much historical information was thereby lost. The name of Brown was associated with the proprietorship of the nursery for many years. In a letter received from Mr. Edward Brown, the sole surviving partner of the old firm, bearing date May, 1872, he states, "The cultivation of fancy or named Tulips commenced during the partnership of Elizabeth and Charles Brown, the former being my mother, and the latter a cousin or trustee under my father's will." Mr. Brown is unable to give the exact date, but it is believed to have been somewhere about 1820 to 1825. "I am unable to give you an account of the foundation of the nursery, but as my father was born here, and if living would have been 95 years of age (in 1872), and as he was not the eldest child, I think I may presume that it cannot be much less than a century since my grandfather commenced a nursery, on I daresay a very small scale. At that time he held land at the west end of Slough, and at Upton (Slough being comprehended in the parish of Upton-cum-Chalvey), and also about the centre of the town; and it is upwards of 60 years since the present nursery came into the possession of my family. I think I may state broadly, that the originator, Mr. Thos. Brown, commenced about 1774, and was joined by his son, my father, in partnership, in 1810; the former died in 1814, and my father died in 1817. Elizabeth Brown, my father's widow, and Mr. Charles Brown, a cousin and trustee, carried on the business until the year 1833, when, by the death of my mother, the firm was changed to Thomas, Charles, and Edward Brown; and on the death of Charles, in the year 1836, Thomas, my brother, and myself, became the sole partners, and traded as T. & E. Brown. On the retirement of myself, in 1837, my brother Thomas carried on the business until 1840." Mr. W. Cutter was the proprietor of the nursery for about four years, when it passed into the hands of Mr. Charles Turner, the genial and enthusiastic florist whose portrait will be found on p. 145. Mr. Charles Brown was one of the earliest members of the London Horticultural Society, and was also a member of the Council at the time of his death, at the age of 41 years. The firm for a number of years regularly and most successfully exhibited at the meetings of the Horticultural Society of London, as well as at exhibitions in the large provincial towns. Lonicera Brownii, Lilium Brownii, Brown's Superb Rose, and many fine new varieties of Tulips, Dahlias, Pansies in very large numbers, Pelargoniums, Calceolarias, Phloxes, &c., originated at this nursery. It is believed that one of the first descriptive catalogues of flower seeds was sent out by the firm of Thomas and Edward Brown.

In May, 1864, *The Midland and Northern Florists' Guide*, then edited by Mr. William Dean, gave a portrait of Mr. Turner, accompanied by a racy and genial sketch from the pen of the Rev. Canon Hole. It set forth that Mr. Turner "was born at Wilton, near Salisbury, just at that season which we florists love so dearly—when all things are bursting into life and loveliness, blossom and bloom—on May 3, 1818. This date will surprise many, for he looks fully ten years younger than he is; but so it is, that garden life is the youngest, freshest life of all, and the heart which loves flowers, rightly and reverently, enjoys a perpetual spring."

"He was a mere boy (but, in vivid illustration of Wordsworth's words, 'The boy was father to the man') when he began his floral career. At that time the 'pink of fashion' was the Pink itself, and there were exhibitions almost entirely restricted to the display of that dainty flower. In 1832 he won his first prize. One fancies how some of the older competitors would grin derisively at the stripling, *æt. su.* 14, as he entered the show-room with his box, but it was Goliath despising David; and I should like to have seen Master Charley's face as he went home to tell the news that day, the proudest and happiest boy in England."

"This early success confirmed for ever his floral bias, united him to his first love in bonds never to be broken, and finally decided his vocation in life. From that day of victory he was never happy out of the garden. The jockey had won his first race, and the world was a dreary wilderness when viewed from the saddle. His parents kindly conformed to his wishes, and in 1834, when his enthusiasm had mounted to 'fever-heat,' on his again winning the 1st prize for Pinks, and also the 2d for Dahlias, he was apprenticed to a nurseryman at Salisbury. Here his previous talent grew and throve as rapidly, but withal as robustly, as one of his show Pelargoniums. His master was an invalid, and many things were entrusted to his supervision which are usually cared for by the owner himself, and which, perhaps, no other youth in existence would have successfully undertaken as he did. In 1835 he went to Bath with Dahlias, and brought home a £12 and an £8 cup."

"He went from Salisbury to the nurseries of Messrs. Cormack, New Cross, Surrey, and thence to the Messrs. Brown, of Slough, whom he ultimately succeeded; wherever he went victory went with him, and as he gradually extended his ambitions, so has honour always rewarded enterprise. He has tried no branch of floriculture without improving it, *nihil tetigit quod non ornavit:* he has aspired to no prizes which he has not obtained. In 1840 he won a £20 cup at Cambridge, and a £25 cup at Norwich; and in 1841 three £20 cups in one week—namely, at Tamworth, Warwick, and Halstead—for Dahlias, which were then the favourite flowers for exhibition. From 1832 to 1848 the number of prizes awarded to him was 498, and since that date no account has been kept."

The outline so pleasantly sketched by the Rev. Canon Hole may be filled up in a small particular or two by stating that Mr. Turner was foreman to Messrs. Brown until they retired from business, when he started in business on his own account at Chalvey, a small village lying nearly midway between Slough and Eton. About 1844—45, when Mr. Cutter retired, Mr. Turner took the nursery at Slough, and came to reside there. It was, we believe, during the tenancy of Mr. Cutter that Her Majesty the Queen paid a visit to the nursery, hence the prefix, Royal.

If the subject of this sketch is not the oldest living florist, he has been conspicuously before the public longer in point of time than any other member of the fraternity. Fifty-one years is indeed a long time to be actively engaged in any profession, but labour is pleasant if congenial to the taste. We think we may safely say that Charles Turner has taken more first prizes for his productions than any other grower in his or any time, and has awarded more prizes than any man living, his services as a judge having always been in great demand. The great characteristic of all his work has been its superb finish; everything he has placed on the exhibition stage has illustrated a high standard of cultivation, and many a one has had his perceptions quickened and his knowledge enlarged by a sight of what is done at the Royal Nursery, and has resolved to emulate so much of this standard as it was possible he could reach to. In the case of cut flowers, after winning all along the line for a series of years, Mr. Turner gave up exhibiting for a time, but now they receive the same attention at Slough as of old. Carnations and Picotees have never ceased to be favourites, and at the present time Roses have taken the high place Dahlias once occupied—and, indeed, still occupy — on the occasion of any great contest. Time was when it was not uncommon to have half-a-dozen collections of Dahlias, a hundred varieties in each. The old Pink, once so popular, and endeared to Mr. Turner as the flower with which he won his first floricultural victory, is rising into favour again, and the collection at Slough is one of the most complete and perfect to be met with. One great achievement has been the marked success with pot Roses. The leading characteristic of the Slough mode of culture was to show naturally grown bushes instead of the old fan-shape, at one time so prevalent. These took the place of the once splendid Azaleas that used to come from Slough to the London exhibitions; but the Azalea is by no means neglected, as in the spring time it is not unusual to see very fine collections of remarkably well-grown and flowered specimens sent from the Royal Nursery, and new varieties are constantly appearing in season from there. The Slough Pelargoniums are known far and wide, and are generally placed first on the exhibition stage. There was a time when the Pansy was extensively and successfully grown at Slough, but they will not now succeed in the warm and dry South as formerly. The battle against adverse influences was manfully kept up for a time, and only brought to a close when surrender was inevitable.

As an exhibitor, who shall attempt to estimate the prowess of Charles Turner? What a long line of successes are written in the chronicles of the Horticultural Press! A man who can hold his own against all comers for the space of half a century must have that within him which cannot be overcome until human power fails in old age. Emerson's remark may be appropriately quoted here: "This man accomplished by some magnetism. His victories are demonstrations of superiority. He conquers because his arrival alters the state of affairs." In a piquant passage in his *Book About Roses* the Rev. Canon Hole has sketched Charles Turner as an exhibitor:—"Mr. Turner does not show his cards, but when he comes to play them on the green cloth or baize of the exhibition table no man deals more fairly, knows his game more thoroughly, holds more trumps, or scores the honours more frequently." The number of prizes gained in 1883 amounts already to ninety, fifty of these being 1st prizes.

A list of the novelties in plants, flowers, fruits, and vegetables sent out from the Royal Nursery during the proprietorship of Mr. Turner, would fill a small volume. Their name is legion. New Auriculas, Azaleas, Carnations, Cinerarias, Dahlias of all kinds, Fuchsias, Gloxinias, Pelargoniums of every section, Picotees, Pinks, Roses, Verbenas, &c., have been from time to time sent forth until they can be counted by the hundred. A large number of these novelties are raised at Slough; a great proportion by others. The opportunity to secure and send out a good thing is never lost. Two of the best and most useful Strawberries ever raised—President and Sir Joseph Paxton—came out from the Royal Nursery. Cox's Orange Pippin Apple—a popular variety that finds a place in a select collection of dessert varieties—emanated from here also. It was Mr. Turner's good fortune to secure the reversion of the fine strain of new Peas raised by the late Dr. Maclean, of Colchester: they were care-

fully grown and selected at Slough, and a batch sent out—Advancer, Princess Royal, Little Gem, Epicurean, Wonderful, Premier, and others, commenced that long line of improvements more or less striking which has continued to this day. One of the most useful of winter Greens, the Cottagers' Kale, was sent out by Mr. Turner a quarter of a century ago; and the well-known Schoolmaster Potato at a more recent date. The Incomparable White Celery, and the Golden Gem Melon, also emanated from Slough.

It need scarcely be said that the Royal Nursery is widely known as one of the cleanest, best ordered and appointed establishments in the country, and famous for the healthy and satisfactory stock found there. It has grown largely in extent during the past twenty years, and yet extends itself according to the requirements of an increasing trade.

As an author Mr. Turner is not unknown, though his productions are few. It is not for want of ability to write that he has published so little; but, being always with the flowers he loves so well, and delighted to be there, literary occupation could not draw him aside. When at Chalvey he published *Practical Observations on the Culture of the Dahlia for Exhibition, with a Descriptive Catalogue of Dahlias, &c.* In 1850 he published, in pamphlet form, some papers on the *Culture of the Pansy*, which had previously appeared in the pages of *The Florist and Garden Miscellany*. In 1851 Mr. Turner succeeded the late Mr. Edward Beck as the conductor of the *Florist*, and continued in this capacity until the end of 1860, when the work underwent some modification, and Dr. Hogg, assisted by the late Mr. John Spencer, took an active share in the management. It is still continued under the name of the *Florist and Pomologist*, and is edited by Mr. Thomas Moore, F.L.S. At times Mr. Turner contributed to some of the gardening papers, but only occasionally.

As a representative man Mr. Turner has on not a few occasions stood forward on behalf of his fellow florists. Many years ago, when a complimentary dinner was given to the late Mr. Charles Kean, the eminent actor, the committee decided to invite a representative of every profession, and the late Mr. James Veitch was present to represent the nurserymen and Mr. Turner the florists. The Duke of Newcastle presided, the present Prime Minister of England being one of the guests. Mr. Turner was also a very active member of the Executive Committee of the Great International Horticultural Exhibition of 1866, and took more 1st prizes than any other exhibitor. In conjunction with the Rev. Canon Hole and the late Mr. Thomas Rivers, Mr. Turner laboured hard in carrying out the arrangements of the first National Rose Show, held in St. James' Hall, Regent Street, on July 1, 1858. Several men eminent as florists gave their quota of labour—John Edwards, Richard Stains, and others, who, with Mr. Rivers, have since gone over to the majority. In connection with the Southern Section of the National Auricula Society (a flower that for years past has found a congenial home at Slough), the National Carnation and Picotee Society, the National Dahlia Exhibition, the International Potato Show, and other societies, he is a willing and hearty helper; in fact he is ever to the fore when something has to be done in the best interests of horticulture. He has been a steady supporter of the Gardeners' Benevolent Institution for many years past. He most cordially aided in every way the old National Floricultural Society until it was superseded by the establishment of the Floral Committee of the Royal Horticultural Society; and he has been a member of this body, with short intervals of non-official existence, almost since its establishment.

Mr. Turner has for many years taken an active interest in local matters affecting Slough, and exhibited a commendable public spirit.

And so we bring this somewhat imperfect sketch to a close. A busy life extending over half a century's duration embraces many incidents, only a few of which can be compressed within the limits of a brief memoir. The reading of the foregoing lines will awaken in not a few hearts memories of old, and recall occurrences that it might be well had been incorporated in this concise story of a life. We can only give a necessarily imperfect outline. Those who will can fill it out to perfect fulness with recollections that will never die, so long as the powers of the memory remain unimpaired. And let us hope that the master mind which has ruled over the floral kingdom at Slough for so many years shall be enabled to retain its vigour, its fertility of resource and keen perception, for not a few years to come.

New Garden Plants.

PHACELIA CAMPANULARIA, *A. Gray.*

In the *Gardeners' Chronicle*, n.s., vol. xviii., p. 51, a description of this handsome half-hardy annual was given, from specimens sent by Mr. Thompson, of Ipswich. Seeds of it were sent to Kew by the same gentleman, and the accompanying figure (fig. 22) has been prepared from a plant which flowered here this season. It is dwarfer and more compact than P. Whitlavia, A. Gray (Whitlavia grandiflora, and W. minor, Harvey), and the corollas, which measure from ¾—1⅛ inch in breadth, according to vigour, are bright gentian-blue, with five pure white oblong spots on the inside, situate below the angles of the corolla lobes; these white spots become ochreous-yellow as the flower fades; on the outside they are usually absent,

Fig. 22.—Phacelia campanularia.

sometimes a trace of them may be seen, but here, if present, they are carried down to the base of the corolla.

Mr. Thompson has now sent a plant to Kew, from which a figure for the *Botanical Magazine* has been prepared. This plant is more compact than the one from which our drawing was made, which latter was grown in a deep frame early in the season, and, in consequence, had a drawn-up appearance—the leaves are dentate, and the whole plant much less hairy than in Mr. Thompson's plant, which is itself less hairy than an authentic specimen sent by Dr. Gray to Kew from California. The wild plant is so copiously covered with short glandular hairs as to give it a cinereous hue; the leaves are subcordate, 1 inch long and neatly crenate, and for some time I was unable to believe in the specific identity of this specimen with the one represented in our figure, especially as Dr. Gray, in the *Botany of California*, vol. ii., p. 467, says, "corolla violet-purple." Mr. Thompson's plant is intermediate between the two in hairiness and in size and crenation of leaf, showing that it varies in these respects with varying conditions; but the colour of the corolla must be emended as above. Doubtless Dr. Gray's description was taken from a dried specimen, but in this the fenestrate marking can be detected. If it proves as hardy as the purple-flowered P. Whitlavia, it will be a great acquisition, and will doubtless take a place in the front rank of showy half-hardy annuals. *R. A. Rolfe.*

Acrostichum (Elaphoglossum) magnum, *Baker, n. sp.**

This is a large new Acrostichum of the sub-genus Elaphoglossum, which was discovered in 1880 by Mr. G. S. Jenman, on the banks of the Mazaruni River, in British Guiana, and of which he has just sent living plants to Kew. It is allied to A. perelegans and A. anricomum.

Root-stock suberect. Basal paleæ small, linear subulate, nearly black. Stipes tufted, those of the barren frond 3—4 inches long, clothed with small lanceolate adpressed fimbriated membranous paleæ. Sterile lamina 2—3 feet long, 1½—2 inches broad at the middle, narrowed gradually to the apex and base, membranous in texture, green on both sides, the paleæ of the upper surface numerous but inconspicuous, minute, ovate, adpressed, whitish, deeply fimbriated, of the under side densest on the midrib, not adpressed, minute, membranous, lanceolate, ferruginous, densely fimbriated; veins slightly ascending, moderately close, distinct, simple or forked. Fertile frond not yet seen. *J. G. Baker.*

Anguloa Ruckeri (*Lindl.*) retusa, *n. var.*

A most remarkable variety. It is lemon colour outside the perigone, full of dark purple blotches inside. The good character is found in the lip. Its lateral laciniæ are quite abrupt, rectangular; its median lacinia is unusually small, reflexed, covered with short strong hairs. The column has a very strong angle at a short interval above the base. This curious plant, whose constancy can only be judged by time, though it is to be expected, was kindly sent by Mr. W. Bull, of Chelsea. *H. G. Rchb. f.*

Odontoglossum Schlieperianum (*Rchb. f.*), O. flavidum, *var.*

This is the Odontoglossum grande flavidum of the late Herr Klotzsch. It is a very fine variety, sulphur colour, with a few exceedingly light cinnamon bars at base of the sepals and petals, some orange on base of the lip and on the callus, and with brown hairs on the wings of the column. I have finally had it now afresh from Mr. B. S. Williams, Victoria and Paradise Nurseries. *H. G. Rchb. f.*

EDIBLE FUNGI.

According to *Coulter's Gazette*, Dr. J. J. Brown, of Sheboygan, Wisconsin, has for several seasons experimented with field fungi for culinary purposes. He finds no fungi that one would be likely to gather for eating that are violently poisonous. His method for discovering the valuable kinds is one that requires no scientific knowledge of the plants, and commends itself for its practical common sense. He gathers fresh clean-looking specimens; if they have a bad or unpleasant odour when cooking they are discarded, and one will soon be able to tell the good from the bad at this time with considerable certainty. A small amount of the cooked fungus is then eaten. If it has a pleasant taste, and no disagreeable results follow, it is partaken of more freely next time, and is soon put on the list of valuable kinds. Tasting of the fresh fungus is but little assistance, as an acrid or nauseating property is often dispelled in the preparation. There is no doubt that the danger of fungus-poisoning has been unnecessarily exaggerated. With the caution just pointed out the danger is so greatly lessened that it is practically reduced to zero, and no one need hesitate to make use of this abundant supply of nourishing and palatable food. It may be added that many sorts will be found harmless enough, but of no more culinary value than so much grass or wood, being either not juicy or without a rich flavour. Our contemporary is responsible for the whole of the foregoing. No doubt proper cooking neutralises some of the harmful properties, and another important point is to gather your fungus before it is too old; but, as far as European fungi are concerned at any rate, it is better to learn to distinguish the various kinds than to proceed in the experimental fashion recommended by Dr. Brown.

* *Acrostichum* (*Elaphoglossum*) *magnum*, Baker, n. sp.—Paleis basalibus lineari-subulatis atro-castaneis, frondis sterilis stipite 3—4-pollicari paleis pallidis lanceolatis adpressis dense vestito, fronde lanceolato 2—3-pedali integro membranaceo utrinque viridi, paleis faciei superioris pallidis inconspicuis adpressis profunde fimbriatis, faciei inferioris multis lanceolatis ferrugineis fimbriatis, venis patulis gracilibus perspicuis simplicibus vel furcatis, fronde fertili ignoto.

REPORT ON THE CONDITION OF THE FRUIT CROPS.

[FROM OUR OWN CORRESPONDENTS, AUGUST, 1883.]

COUNTY.	APRICOTS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APPLES.	PEARS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
SCOTLAND.										
ABERDEEN	....	Average; good	Average; good	Not grown out-of-doors	Average	Average; good	Over average; very good	Average; good	....	John Forrest, Haddo House, Aberdeen
	....	....	Over; good	....	Over; good	Under; bad	Average; good	Over; very good	....	John Proctor, Slains Castle
	Under	Under	Average; very good	Not grown outside	Under; small	Average	Over; very good	Over; very good	Under	R. Farquhar, Fyvie Castle Gardens
ARGYLL	....	Under average; good	Over average; good	....	Over average; good	Under average; good	Average; all good	Over; very good	Under; bad	J. T., Lochgilphead
	Under	Under	Average	None grown outside	Average	Average	Average; good	Average; bad	....	G. Taylor, Castle Gardens, Inverary
AYR	....	Very scarce	Thin crop	....	Medium	Thin crop	Abundant	Very heavy crop	....	John Gray, Eglinton Castle, Irvine
BANFF	Under; very good	Average; good	Morello average; others under	Average; good	Over average	Average; good	Over average; good	Over average; good	....	John Webster, Gordon Castle Fochabers
BERWICK	Under	Under	Average	....	Over	Over	Under	Average	....	W. Fowler, Mertoun, St. Boswell's
	Failure	Under	Average; good	Average	Over; very good	Average	Over; good	Over; good	....	W. Richardson, Ayton Castle
	Below average; bad	Below average	Average; good	No fruit outside	Heavy crop	Poor crop	Very good crop	Very good crop	Poor	John Reid, Blackadder, Chirnside
CAITHNESS	Under; bad	Average; good	Average; good	....	Under; bad	Under; bad	Average; good	Average; good	....	John Sutherland, Langwell
CLACKMANNAN	Under; bad	Under	Over; very good	Under	Over; good	Average; good	Over; very good	Average; good	Not much grown	Thomas Ormiston, Alloa Park
CROMARTY	Under	Over; very good	Average; good	Under	Over; very good	Over; very good	Over; very good	Average; good	....	J. McKay, Tarbat Gardens, Parkhill
DUMBARTON	....	Under; good	Average; good	None outside	Average	Average	Average; good	Over; good	....	Alex. Scott, Auchendennan
	....	Under; Victorias good	Average	None outside	Average	Average	Very good	Very good	....	James Mitchell, Camis Eskan
DUMFRIES	....	Under; bad	Average; good	Under; good	Average; good	Under; good	Average; good	Average; good	....	John Shannon, Jardine Hall
	....	Over; good	Average; good	....	Under	Under	Over; good	Average; good	....	James Smart, Rachill Gardens, Lockerbie
EAST LOTHIAN	Under average; good	Under average	Over average; good	Average	Over average	Over average	Over average; very good	Over average; very good	Under average	L. Dow, Newbyth, Prestonkirk
	Under; good	Under; good	Dessert under Morellos over	....	Over; very good	Average; good; Jargonelles over	Average; good; Raspberries over	Average; good	Average; good	Wm McKelvie, Broxmouth Gardens, Dunbar
FIFE	....	Under average	Over average	....	Average	Under average	Over average	Average	....	W. Henderson, Balbirnie Gardens
	....	Over	Over; very good	....	Over	Average	Over; very good	Average; good	....	George Ramsay, Fordell House Gardens
FORFAR	Bad	Good	Good	Good	Very good	Good	Very good	Very good	Good	Geo. Johnston, Glamis Castle
	....	Under; good	Over; very good	....	Average; good	Under; good	Over average, and good	Over average, and good	....	James Mitchell, Panmure Gardens, Carnoustie
INVERNESS	....	Over	Under	....	Over	Over	Over	Good	....	A. McDonald, The Gardens, Balmaccan
KINROSS	....	Under	Average	....	Under	Average	Average	Under	....	John Fortune, Blair Adam
	Few grown	Under average	Average	Under	Over average	Under average	Over average; very good	Over average; very good	....	Andrew Turnbull, Bothwell Castle
LINLITHGOW	Large crop	Very few	Good crop	Good crop	Moderate	Heavy crop on south walls	Abundant	Good crop	Good crop	Wm. Muir, Hopetown Gardens
MIDLOTHIAN	Very few; good	Over average; very good	Over average; very good	Under average; good	Over average; very good	Average; very good	Over average; very good	Over average; very good	Scarce; good	Malcolm Dunn, Dalkeith Palace Gardens
	Under	Very bad	Average	....	Over average	Good	Very good	Over average;	....	Charles Johnston, Dalhousie Castle Gardens
MORAY	Under	Average	Average; good	Average	Over	Over	Over; very good	Abundant, and very good	.. .	D. Cunningham, Darnaway Castle, Forres
NAIRN	Average	Under	Average	Under	Good	Average	Very good	Very good	....	James Manson, Kilrannock Castle
ORKNEY	....	....	Average; good	Average	Over average; good	Average	Average; good	Average; very good	....	Thos. McDonald, Balfour Castle Gardens, Kirkwall
PEEBLES	....	Average	Over; good	....	Over	....	Over; good	Over; very good	....	Malcolm McIntyre, The Glen, Innerleithen
PERTH	Average; very good	Over; good	Over; very good	Average; very fine	Under	Average	Average	Under	....	P. W. Fairgrieve, Dunkeld
	....	Average	Average	....	Average	Over average	Over average	Average; much destroyed by rain	....	George Croucher, The Gardens, Ochtertyre, Crieff
	Under average	Under average	Over average	Average	Over average	Under average	Over average; very good	Over average; fine	Average	David Doig, Rossie Priory, Inchture
RENFREW	....	Under	Average	Over average under glass	Average; good	Under average; poor	Over average; good	Abundant; very good	Under average	Thomas Lunt, Ardgowan
ROSS-SHIRE	Under	Average	Under	Under	Over	Average	Average	Average	....	D. Harvey, Invergordon Castle
	....	Under; good	Above; very good	Under; bad	Average; good	Under; bad	Average; very good	Average; good	....	J. Munro, Duncraig, Strome Ferry
ROXBURGH	Average; good	Average; good	Average; good	Peaches under; good	Over; good	Under; good	Over; good	Average; good	....	John Galloway, Minto Gardens, Hawick
STIRLING	Under	Average; var Victoria	Average; good	....	Average; good	Average; good	Over; good	Average; good	....	Maurice Fitzgerald, Dunmore Gardens
SUTHERLAND	....	Under	Over; good	....	Over	Under	Over; good	Average; good	Average	D. Melville, Dunrobin Gardens
WEST LOTHIAN	Average	Under	Average	Under	Average	Under	Average	Average	....	John Moyes, Dalmeny Park, Edinburgh
WIGTONSHIRE	....	Under; good	Over; very good	....	Over; good	Under; good	Over; good	Over; good	....	Archibald Fowler, Castle Kennedy
ENGLAND—NORTHERN COUNTIES.										
NORTHUMBERLAND	Under average	Under average	Average	Average	Over average	Average	Average; good	Over average; good	Average	Thomas Bowie, Chillingham Castle Gardens
CUMBERLAND	Failure	Failure	Morellos average; others under	None grown outside	Average; good	Average	Over average; good	Over average; good	....	J. Hammond, Brayton, Carlisle
WESTMORELAND	....	Failure	Over; good	Good under glass case	Average	Average	Over; good	Over; good	Under	Wm. A. Miller, Underley Gardens
	Under average	Under average	Average	None grown outside	Average	Average	Over average; very good	Over average; very good	Plentiful	Samuel Sarple, Dallam Towers, Milnthorpe
	....	Good; Damsons average	Average	Scarce	Average	Scarce	Very good	Very good	Fair	Edward Evans, Storrs, Windermere
DURHAM	Under; bad	Under; bad	Average; very good	None outdoors	Over average; very good	Over; very good	Very good	Average; good	Under; bad	J. Hunter, Lambton, Fence Houses
	Under average; very good	Under average	Over average; good	Under average; very good	Over average	Over average	Over average; very good	Average; good	Under average	James Larkin, Auckland Castle, Bishop Auckland
YORKSHIRE	Under average	Under average	Under average	Average; good	Under average; bad	Under average; bad	Average	Average	Under average	Michael Saul, Stourton Castle, Knaresborough
	....	....	Under	Under	Under	Under	Average	Good	....	James Fowler, Harewood House, Leeds
	Half a crop	....	Good	Good	Under average	Under average	Good crop	Very good crop	....	Joseph Shaw, Nunappleton
	Under	Under	Under	Under	Average	Average	Average	Over	Under	Robert C. Kingston, Brantingham Thorpe, Brough.

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APPLES.	PEARS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
NORTHERN COUNTIES.										
YORKSHIRE	....	Under	Under	Not grown outside	Average	Average	Over; very good	Over; very good	....	Wm. Stephens, The Gardens, Endcliffe Hall, Sheffield
	Bad	Moderate	Not good	Good	Very good	Very good	Abundant	Good	Bad	W. Culverwell, Thorpe Perrow, Bedale
LANCASHIRE	....	....	Morellos average	None outside	Average	Under	Over average	Over average	....	W. B. Upjohn, Worsley Hall Gardens, Manchester
	....	....	Average; good; Morellos heavy crop	Over; good	Over; very good in places	Average; good	Over; good	Over; good	Walnuts over; good	W. P. Roberts, Cuerden Hall, Preston
	Average	Under	Over	Over	Over	Average	Over	Over	....	F. Harrison, Knowsley Gardens, Prescot
	....	Under; good	Over; very good	...	Over; good	Over; good	Over; very good	Over; very good	....	Andrew Jamieson, Haigh Hall, Wigan
	None grown outside	Under	Average	None grown outside	Average	Average	Over; very good	Average; good	....	H. Lindsey, Huntroyde Park, Burnley
	....	Scarce	Morellos average	....	Over average	Under average	Very good	Over average	....	J. Johnstone, Roby Hall, Liverpool
MIDLAND COUNTIES.										
CHESHIRE	Under average	Total failure	Under average	Under; bad	Average	Very scarce	Abundant and good	Average; good	Failure	Alfred Jos. Grant, Withington Hall, Chelford
	Under	Under	Average; good	Under	Over	Under	Average; good	Over; good	....	Robert McKellar, Abney Hall, Cheadle
	Under average	Bad	Average; good	None outside	Average; good	Average; good	Over average	Average; good	....	Robert Milne, Vale Royal Gardens
	Under	Under	Average	..	Average	Under	Average	Over average	Under	T. Selwood, Eaton Gardens, Chester
DERBYSHIRE	Under	Under	Average	Under	Average	Under	Average	Average	Under	J. H. Goodacre, Elvaston Castle, Derby
	Under average	Under average	Average	Under average	Average	Average	Average; very good	Over average; very good	Average	T. Keetley, Darley Abbey, Derby
NOTTS	Under; good	Under	Average	Average	Under	Under	Average	Average	....	Richard Carr, Welbeck, Worksop.
	Under	Under	Average; good	Under	Under	Under	Average; very good	Over average; very good	Under	S. A. Woods, Osbertoo Gardens, Worksop
	Under	A complete failure	Average; good	Average; good	Over average; good	Average	Average; very good	Over average; very good	....	J. Edmonds, Bestwood Lodge, Nottingham
	Under	Very scarce	Average	Very good	Average	Average on some sorts	Very good	Very good	Average	A. Henderson, Thoresby Park
SALOP	Under average	Average on walls; good	Average on walls; under on standards	Under average	Average; partial	Average	Over average; good	Over average; good	Average	A. S. Kemp, Haughton Hall, Shifnal
	Under	Under	Under	Under	Over	Under	Over	Average	Under	James Louden, The Quinta Gardens, Chirk
	Average; very good	Failure	Average; good	Over; very good	Over; very good	Over; very good	Over; very good	Over; very good	Average; good	Richard Milner, Sundorne CastleGardens, Shrewsbury
	Under average	Under average	Average	Under average	Average	Under average	Average; good	Over average	Average	Henry Purser, Berwick Gardens, Shrewsbury
STAFFORD	Under average	Under average	Average	Under average	Over average	Average	Average	Over average	Average	W. Davidson, Sandon, Stone
	Under	Under	Average	Under	Over	Average	Over	Over	Under	E. Simpson, Wrottesley, Wolverhampton
	Under	Under	Under	....	Under	Under	Under; good	Average; good	Under	W. Bennett, Rangemore, Burton-on-Trent
	Under	Under	Under	Not grown in the open air	Average	Under	Over; good	Average; very good	Under	W. Ward, Little Aston Gardens
	Scarcely a fruit outside	Under	Average; Morellos very good	Under; very few grown outside	An excellent crop; very good	Under	Over; very good	Over; very good	Not many grown here	John Wallis, Keele Gardens, Newcastle
LEICESTER	Under average	Under average	Under average	Look average	Average	Under average	Above average	Above average	Under average	James Maclean, Beaumanor Park
	Under	Under	Under	Over	Over	Average	Average; Gooseberries under	Over	Under	William Ingram, Belvoir Castle Gardens
	Under average	Under average	Average	Under average	Over average	Average	Over average; good	Average; good	Under average	Edmund Wainwright, Nevill-Holt, Market Harborough
	Failure	Under	Under	Average; good	Average	Under	Average; good	Over; good	Under	G. C. Maynard, Cole Orton
RUTLAND	Very few	....	Average	Under average	Average	Under	Average; good	Very abundant and fine	Average	John Grey, Normanton Park, Stamford
	Failure	Failure	Average; good	Under	Average; good	Average; good	Abundant; very good	Abundant; very good	Walnuts very few	Henry Mason, Bisbrook Hall
WARWICK	....	....	A few	Fair	Average	Thin	Plentiful	Plentiful	Plentiful	Wm. Miller, Combe Abbey, Coventry
	Under	Under	Under	Over	Average	Under	Partial in places; over	Over and fine	Average	R. Greenfield, Priory Gardens, Warwick
	....	Under average	Under average	....	Over average; very good	Under average	Over average; very good	Over average; very good	....	E. Cooper, Highbury, Moseley, Birmingham
NORTHAMPTON	Failure	Under	Under	Average; promising	Under	Average	Over; very good	Over; very good	Average	J. Trigger, Milton Park, Peterborough
	Bad	Under average	Average	Full average	Full average	Under average	Above average	Above average	Bad	Richard Gilbert, Burghley Park, Stamford
	Failure	Failure	Under average	Average	Average; very good	Average	Over average; very good	Average; very good	Average	Edmund Cole, The Gardens, Althorp Park
	Under average	Under average	Under average; good	Under average	Average	Average	Average; good	Over average; good	Average; good	Wm. Kennedy, Kimbolton Castle
BEDS	Much under average; very small	Much under average; very small	Under average except Morellos; good	Average good	Average good	Under average; good	Over average; very good	Over average; good	Under average; Walnuts partial	Geo. Ford, Wrest Park, Silsoe
	Under	Under	Under	Average	Average	Average	Average; good	Over average	Under	Charles Turner, Cranfield Court, Newport Pagnell
	....	Under average	Under average	None grown outdoors	Average; good	Under average	Average; good	Over average; very good	....	Thomas Hedley, Putteridge Park, Luton
OXFORD	....	Under average	Average	Under average	Average; good	Under average	Over average; good	Over average; good	....	Isaac Watson, Nuncham Park Gardens, Abingdon
	....	Much under average	....	....	Great crops	Much under average	Over average; very good	Great crops; very good	....	John Greensbields, Sarsden House, Chipping Norton
	Under	Under	Under	Under	Over; good	Over; good	Over; very good	Over; very good	Under	Thos. Buckerfield, Shirburn Castle, Tetsworth
	....	....	Under	....	Average	Under	Average; very good	Over; very good	Under	William Finlay, Wroxton Abbey, Banbury
	Very scarce	Very thin indeed	Under average; Morellos scarce	Very thin outdoors	Average; good	Average	Plentiful and good	Abundant, and large fruit	Very thin; Walnuts fair average	B. Hope, Middleton Park Gardens, Bicester
BUCKS	Under average	Bad	Average	Over average	Over average	Average	Over average	Average	Under average	Thos. Bailey, Shardeloes Gardens, Amersham.
	....	Very few	Average; good	Over average; very good	Over average; good	Average; good	Average; good	Over average; very good	Average	Geo. Thos. Miles, Wycombe Abbey Gardens
	....	....	Average	Under average	Over average	Average	Over average	Over average	Walnuts over; Filberts under	J. Smith, Mentmore, Leighton Buzzard
	Under	Under	Under; good	Under	Over	Average	Over; good	Over; good	Average	Geo. Haskins, Stowe, Buckingham
HERTS	....	Under	Average; good	Average	Over	Average	Average; good	Average	Walnuts over	George Norman, The Gardens, Hatfield House
	Under	Under	Average on walls only	Average; good	Over average	Under	Over average; good	Over; good	Walnuts average; Filberts under	Richard Ruffett, Panshanger
	Thinner than for past seveo years	....	Good crop on walls	Fair crops	Abundant	On walls plentiful, standards none	Very abundant	Good and very plentiful	Thin	J. C. Mundell, Moor Park Gardens, Rickmansworth

CONDITION OF THE FRUIT CROPS—(*Continued.*)

COUNTY.	APRICOTS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APPLES.	PEARS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
MIDLAND COUNTIES.										
HERTS	Under; good	Under; good	Average; very good	Abundant under glass	Over average; very good	Over average; very good	Over average; very good	Under; good	Under; good	J. Thompson, Gorhambury Gardens, St. Albans
	Under; good	Under; bad	Under; good	Average	Over; very good	Under; good	Average; Raspberries excellent	Over; very good	Average	G. Merritt, The Hoo Gardens, Welwyn
EASTERN COUNTIES.										
LINCOLN	Poor crop	Worst crop I remember	Average	Much over average	Average crop and clean	A good crop	Great crops	Good crop; very fine	Poor crop	George B. Tillyard, Brocklesby Park, Ulceby
	Under	Under	Under	Average	Average	Average	Average	Over	Under	David Lumsden, Bloxholm
	Under	Under	Under	Average	Average	Average; small	Over	Average; fine	Under; few grown	T. Vinden, Harlaxton Manor, Grantham
	A failure	Failing	Half crop	....	Half crop	A failure	Good crop	Good crop	....	J. Taylor, Lee Hall, Gainsborough
NORFOLK	Under; bad	Under; bad	Under	Over; good	Over; good	Over; very good	Average; good	Average; very good	Under	H. Batchelor, Cattoo Park, Norwich
	Very very few	Very few	Under average	Average	Good crop	Average	Very good crop	Very good	Average	T. Wynne, Wroxham Hall Gardens
	Much under average	Under average	Average; good	Average	Average	Average	Average; good	Average; very good	Under average	A. Lancaster, Holkham
	Under average	Under average	Average; good	....	Average	Average	Average; good	Over average; very good	....	W. Shingler, Melton Constable
	Failure	Failure	Failure	Under average	Average	Under average	Average; very good	Average; very good	Under average	Thos. S. Murphy, Hillington Hall, King's Lynn
SUFFOLK	Under	Under	Under; good	Under	Average	Average	Average; good	Over; good	Average	J. Sheppard, Woolverstone Park, Ipswich
	Under	Under	Average; very good	Average; good	Over average; very good.	Average; good	Average; very good	Over average; very good	Average: good	J. Wallis, The Gardens, Orwell Park, near Ipswich
	Bad	Bad	Bad	Good	Good	Bad	Moderate	Good	Bad	Robert Squibbs, Ickworth, Bury St. Edmund's
	Failure	Under average; bad	Average; good	Average; good	Over average; very good	Over average; very good	Average; good	Average; good	Filberts under; Walnuts average	J. Mill, The Gardens, Rendlesham Hall
	Under	Under	Under	Over	Under	Under	Under	Over	Under	D. T. Fish, Hardwicke, Bury St. Edmunds
ESSEX	Under	....	Average	Average	Average	Average	Over	Average	....	D. Donald, Knott's Green, Leyton
	Under; good	Under	Average; good	....	Over; very good	Under; good	Average; good	Over; very good	....	James Douglas, Great Gearies, Ilford
	Under	Very bad	Under	Under	Good	Under	Very good	Good	Under	W. Bines, Havering Park, Romford
	Under	Under	Average; good	Average	Over; good	Under	Under; good	Over; good	Average	William Smith, Birch Hall, Colchester
	Under average	Under average	Under average	Average	Over average	Under average	Over average	Over average	....	W. F. Bowman, Hylands, Chelmsford
	Under average; bad	Under; bad	Under; bad	Average; good	Over; good	Average; good	Average; good	Over average; very good	....	Henry Lister, Easton Lodge, Dunmow
SOUTHERN COUNTIES.										
BERKS	Complete failure	None on standards; under on walls	Average; very good	Over average; good	Over average; very good	Under average; very good	Over average; very good	Over average; very good	Filberts under; Walnuts average	T. Jones, Royal Gardens, Windsor
	Bad	Scarce	Under	Average	Average	Under	Average	Average	Under	James Tegg, Bearwood
	Under; bad	Under; bad	Average; good	Average; good	Over; very good	Under; good	Average; good	Over; very good	Under	S. Mortimer, Purley Park, Reading
	Under	....	Under	Average	Over	Average	Average; good	Over; good	Under	Robt. Fenn, Sulhamstead Abbots, Reading
MIDDLESEX	Under	Under	Under	Average; good	Over; very good	Under	Average; very good	Average; good	Walnuts; good	A. Dean, Bedfont
	Much under	Much under	Under	Over	Much over	Under	Over; very good	Average; but wanting in flavour	....	T. Baines, Palmer's Green, Southgate, N.
	None grown out-of-doors	Much under average	Much under average	None grown out-of-doors	Average of some kinds	Under average	Average; good	Under average	Under average	T. P., Stanmore
	Under	Under	Under	Average	Average	Average	Average	Average	Under	R. Henderson, Fulham Palace
	Under	Under	Average; good	Average	Over	Under	Over; good	Average, but soon over	....	John Woodbridge, Sion House, Brentford
	Under; bad	Under; bad	Average; good	Over; very good	Over; very good	Average; good	Over; very good	Average; good	....	J. Willard, Holly Lodge Gardens, Highgate, N.
SURREY	Under average; good	Under average	Average; good	Average; good	Over average; very good	Average; good	Over average; very good	Average; good	Under	John Burnett, The Deepdene, Dorking
	....	....	Average; good	Average; very good	Over average; very good	Under average; good	Average; good	Average; good	....	W. Denning, Coombe Lane, Norbiton
	Under average	Failure	Plentiful and good	Average	Over average	Failure, except on walls	Over average and good	Over average; very good	Under average	Alfred Evans, Lythe Hill, Haslemere
	Under average; bad	Under average; good	Average; good	Average; good	Over average; very good	Average; good	Average; good	Over average; good	Under average	F. Corbould, Tandridge Court, Godstone
	Under average	Under average	Average	Under average	Over average; good	Average; good	Over average; very good	Over average; very good	Under average	H. C. McRae, East Horsley Towers
	Failure	Under	Under	Good	Average	Under	Average	Over	....	W. Smith, Farnham Castle Gardens
	Under average	Very scarce	Average	Over average	Over average	Under average	Average	Average	Under average	James Child, Garbrand Hall, Ewell
KENT	Under average	Under average	Average; very good	Average; good	Over average; very good	Average; good	Average	Average; good	Average	John Cox, Redleaf, Penshurst
	Under average; good	Under average; good	Average; good	Under average; good	Over average; good	Under average; good	Average; good	Over average; good	Under average	R. Gray, Chevening, Sevenoaks
	Under average	Almost a total failure	Not quite an average; good	About an average	Over average	About an average	A fair average; good	Over average; good	Much under average	Charles Whitehead, Barming House, Maidstone
	Under average	Very scarce	Average	Average	Abundance	Much under average	Average	Abundance	Under average	H. Cannell, Swanley
	Bad	Bad	Bad	Average	Very good	Average	Average	Very good	Under	F. Deuxberry, Cobham Hall Gardens, Gravesend
	....	Much under average	Under average	Average	Under average	Under average	Average; small, especially Currants	Average; good	Under average	John Charlton, Tunbridge Wells
SUSSEX	Average; good	Under average	Average	Under average	Average; good	Under average	Average; good	Average	Under average	John Wilson, Castle Gardens, Arundel
	Complete failure	Under average; good	Under average	Under average; good	Average; good	Under average; bad	Average; very good	Over average; very good	Average; good	B. Coombe, Wiston Park, Steyning
	Under average	Under average	Over average; very good	Average	Over average; very good	Average; good	Over average; very good	Over average; very good	Average	Joseph Rust, Eridge Castle
	Bad	Bad	Average	Average	Over average	Average	Over average	Average	Under	F. Rutland, Goodwood
	Under	Under	Under	Average; very good	Over; very good	Under; good	Over; very good	Over; very good	Under	Geo. M. Breese, Petworth
	Under	Under	Under	Bad	Over average	Under	Over; very good	Over: very good	Under	Sidney Ford, Leonardslee, Horsham
	Under	Under	Under	Average; good	Average; good	Under good	Over average; very good	Average: very good	Under	William Allen, Normanhurst Court, Battle
	....	Under average	Average; good	Average; good	Over average; very good	Average on walls only	Average; good	Average	Average	John Halsey, Cowdray Park, Midhurst
HANTS	Bad	Bad	Under average	Moderately good	Abundant	Under average	Abundant	Abundant, and very fine	Moderately good	P. Edwards, Fowley Gardens, Liphook
	Average; bad	Under average	Under average	Under average	Average; good	Average; good on walls	Average; very good	Average; very good	Average; bad	Wm. Smythe, The Gardens, Basing Park, Alton
	Under average; good	....	Average	Over average; good	Over average; good	Average; good	Over average; very good	Over average; very good	Under average	W. Wildsmith, The Gardens, Heckfield Place

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APPLES.	PEARS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
SOUTHERN COUNTIES.										
HANTS	....	Complete failure	Under	....	Over; good	Much under; good	Over; good	Over; good	....	Thos. Myles, Appley Towers, Isle of Wight
	Much under average	Under average	Average; good	Average; good	Average; good	Under average	Average; good	Over average; good	Under average	F. Thirlby, Broadlands, Romsey
WILTS	Under	Very good	Good	Average	Good	Under	Very good	Very good	Very bad	William Phipps, Bowood Gardens, Calne
	Under average	Quite a failure	Average; good	Average; good	Over average	Average	Average	Over average	....	J. Horsefield, Heytesbury
	Under; very bad	Under; good	Under; very bad	....	Over; good	Under; good	Average; good	Over; very good	Under	Thos. King, Devizes Castle
	Very few	Very few	Average; good	Under average	Average; good	Under average	Plentiful and good	Over average; good	Under average	H. W. Ward, Longford Castle, Salisbury
	....	Half a crop in places	Good	Average crop, all protected	Good	Average on walls, none on pyramids	All good	Abundant; very fine	Scarce	J. Saltford, Ilsington Gardens, Puddletown
	Bad	Bad	Average	Bad	Good	Under average	Good	Excellent	Under average	C. Hazel, Leweston House, Sherborne
	....	Under average	Average; good	Average; good	Average; good	Average; good	Average; very good	Over average; very good	Average	W. P. Leach, Bryanston Gardens
WESTERN COUNTIES.										
HEREFORD	Under average	Under average	Morellos average; others under	Average; good	Under average	Under average	Average; except Gooseberries	Average; good	Under average	Alfred Bye, Hampton Court Gardens, Leominster
	Under average; good	Under average; good	Morellos average; good	Under average; good	Over average; very good	Over average; very good	Over average; very good	Over average; very good	Average	Arthur Ward, Stoke Edith Park, Hereford
	Under average	Under average; good	Over average; good	Average	Average; good	Average; good	Full crop; good	Over average; very good	Average	Robert Abbey, Holme Lacy Gardens, Hereford
	Under; good	Under; good	Average; good	Average; good	Average; good	Under; good	Over; good	Average; good	Under; bad	Joseph Hall, Shobdon Court Gardens
WORCESTER	Under	Under; fair	Under; Morellos abundant	Average; good	Average; good	Under; good	Average; good	Over; good	Under	Arthur Barker, Hindlip, Worcester
	Under; bad	Under; bad	Average	Under average	Average	Under average	Over average; very good	Over average; very good	Under; bad	Robert Palmer, Hagley Gardens, Stourbridge
	Under; good	....	Average; good	Under	Over; good	Over; very good	Over; good	Over; good	Under	Walter Child, Croome Court, Severnstoke
	Under	Under	Under; good	Under; good	Over; very good	Average; very good	Average; good	Over; very good	Over; good	Wm. Crump, Madresfield Court, Malvern
	Bad	Under	Under	Under	Average	Under	Very good	Good	Under	George Westland, Witley Court
GLOUCESTER	Under average; good	Under average; good	Average; good	Under average; good	Over average; very good	Over average; very good	Average; good	Over average; very good	Under average; bad	A. Scott, The Gardens, Sherborne Park
	Under average; bad	Very few	Morellos good	Under average	Average	Average	Very good	Over average; good	Under average	Samuel Wathen, Kingscote Park
	Very bad	Very bad	Average	Very bad	Average	Under average	Average	Very good	Average	G. Turner, Fretherne Court, Stonehouse
	Under average	Under average; bad	Under average; but good	Average; very good	Over average	Under average; good	Over average	Over average; very good	Average	John Sowray, Highnam Court, Gloucester
MONMOUTH	Under; good	Under; bad	Average; good	....	Over; very good	Average; very good	Average; good	Over; very good	Over; good	Thomas Coomber, Hendre Park
	Under	Under	Average; good	Under	Average	Average; very good	Under	Over; very good	Under	A. S. Woods, The Gardens, Tredegar Park
SOMERSET	Under; good	Under; good	Under; bad	Under; good	Over; very good	Under; very good	Over; very good	Over; very good	Average; good	John Austen, Ashton Court Gardens, Bristol
	Under	Under	Under	Under	Over	Under	Over	Over	Average	William Hallett, Cossington Farm, Bridgwater
	Average	Bad	Average	Good	Very good	Average	Very good	Very good	Under average	W. A. Beale, Cricket St. Thomas, Chard
	Under average	Under average	Average	Under average	Over average	Average	Over average	Over average	Average	W. J. Rowley, Kingsweston, Taunton
DEVON	Very scarce	Under	Under; bad	Under	Over; good	Under average; good	Over average; good	Over average	Very thin	A. Ayson, Oxton House, Kenton
	Failure	Bad	Early varieties good; Morellos under	Average; good	Over; very good	Average; good	Average; very good	Over; very good	Walnuts abundant	D. C. Powell, Powderham Castle
	Failure	Under average	Good	Bad	Very good	Very good	Very good	Very good	....	F. Geary, Eggesford Gardens
	....	Under average	Average	Under average	Over average; good	Average on walls only	Good	Abundant; good	Scarce	Geo. Baker, The Gardens, Membland Hall
CORNWALL	....	Failure	Average; good	Failure	Average; good	Average; good	Very abundant; good	Abundant; good	Under average	Charles Lee, Boconnoc
	Under	Under	Average; good	Under	Over	Under	Average	Over; bad	Under	James Murton, Pencalenick, Truro
	....	Under	Average	Under average	Over average	Average	Over average; very good	Over average; very good	Under average	George Knox, Port Elliott Gardens, St. Germains
WALES.										
BRECON	Under average; good	Under average; bad	Average; good	Under average; good	Under average; good	Under average; good	Over average; good	Average; good	....	Albert Ballard, Glanusk Park, Crickhowell
CARMARTHEN	Very few trees grown	Under	Average	Under	Average	Average	Good; plentiful	Over average	Under	Louis Bowen, Edwinsford
CARDIGAN	Do not succeed here	Under average; good quality	Under average	Under	Over	Average	Average; except Gooseberries	Over	Over	Henry Howard, Castle Malgwyn Gardens
CARNARVON	....	Average	Average	....	Over	Average	Over	Over	....	Allan Calder, Vaynol Gardens, Bangor
DENBIGH	Very thin; indifferent quality	Very thin; small	Morellos good; sweet Cherries thin	Thin crop; small	Excellent crop; loaded	Good crop; Quinces good	Excellent crops	Excellent, and of good quality	Filberts fair; Cobs poor; Walnuts failure	P. Middleton, Wynnstay, and Llangedwyn Gardens
GLAMORGAN	Under	Under	Average; good	Under	Average	Under; bad	Over	Over; very good	Average	Ralph Crossling, Penarth Nurseries
MERIONETH	....	Under; good	Average; good	....	Average; very good	Average; very good	Over average; good	Over average; very good	Under	Jas. Bennett, Rhug Gardens, Corwen
MONTGOMERY	Bad	Under	Under	Under	Average	Under	Good	Good	....	Wm. Lee, Powis Castle Gardens
PEMBROKE	....	Very bad	Average	Bad	Over average	Over average	Good; except Gooseberries	Very good	Under average	Geo. Griffin, The Gardens, Slebech Park
IRELAND.										
ANTRIM	....	....	Average; very good	....	Under; bad	Under; very good	Over; good	Average; good	....	Geo. Porteous, Garron Tower
ARMAGH	Bad	Under average	Average	Average	Under average	Under average	Over average	Over average	....	W. Allan, Brownlow Gardens
CARLOW	Under average	Under average	Average; good	On walls under average	Over average	Average	Over average; good	Over average; good	Under average; bad	Thomas Bennett, Oak Park Gardens
CAVAN	Under average; bad	Average; very good	Under average; good	Under average; bad	Above average; good	Average; good	Over average	Average; good	....	W. I.
CLARE	....	Under average	Average; good	Under average	Over average	Average	Average; good	Average; good	Under	William Wilson, Dromoland Castle
CORK	Under	Under	Average	Average	Average	Under	Over average good	Over average; good	Under	W. Osborne, Foto Island
DERRY	Bad	Bad	Average	Bad	Over average	Average	Average	Average	....	William Fleming, Palace Gardens
DUBLIN	Under; good	Under; bad	Average; good	Not grown outside	Average; good	Under; good	Average; good	Average; good	Average; good	J. Ellam, Brennanstown House, Cabintely
	Average	Average; good	Over; very good	Over; good	Over; very good	Average; good	Average; very good	Average; very good	....	David Pressly, Knockmaroon Lodge

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APPLES.	PEARS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
IRELAND.										
FERMANAGH	Under average	Average	Good	Average	Average	Under average	Very good	Average	Average	William Magee, Florence Court, Enniskillen
KILDARE.....	Under	Under	Average	....	Average	Average	Average; Gooseberries under	Average	....	Philip Wadds, The Gardens, Moore Abbey
KILKENNY.....	A failure	Under; very good	Average; good	All under glass	Average; very good	Average on walls	Over; good	Over; good	Average	William Gray, Woodstock Park, Inistioge
MEATH	Under; bad	Under; good	Average; good	Average; bad	Over; good	Under; good	Over; very good	Over; very good	....	W. J. Ireland, Headfort Gardens, Kells
QUEEN'S CO.	Under	Under	Average	....	Average	Under	Average; very good	Average; very good	Under	Edward Ennis, Emo Park, Portarlington
WATERFORD.....	Under	Under	Over; very good	Under	Under	Average	Over; very good	Over; very good	Under	R. Fairbairn, Curraghmore
WESTMEATH	Under; bad	Under; good	Average; good	Under; bad	Over: good	Under; good	Over; good	Average	....	J. Igo, Moydrum Castle, Athlone
WICKLOW	Under average	Over average; very good	Under average; bad	....	Over average; very good	Average	Over average; very good	Over average; good	Over average	G. H. M'Culloch, Powerscourt Gardens
CHANNEL ISLANDS.										
GUERNSEY	Under	Under	Average	Under	Over	Average	Over; good	Over; good	....	Chas. Smith & Son, Caledonian Nursery
JERSEY.....	Under	Under	Average; good	Under	Average; good	Average; good	Abundant; very good	Abundant; very good	Very few	Charles B. Saunders, St. Saviour's
	Under	Under; bad	Average	Under	Over average; good	Average; good	Average; good	Average; good	....	Edward Pond, The Vineries
SCILLY ISLES	....	Average; good	....	....	Over average; very good	Average; good	Over average; good	Average; good	....	Geo. D. Vallance, Tresco Abbey Gardens

PLANTS IN FLOWER.

GLADIOLUS COLVILLEI ALBUS, OR "THE BRIDE."—This is really a lovely and useful plant, from the first highly eulogised, and destined to be much more appreciated. There is now no doubt as to its hardiness and adaptability for forcing. I have no hesitation in saying that, by careful management, it may be had in flower from shortly after, or by Christmas to September: and how serviceable the pure white flowers, invaluable for wreaths, &c. It is now in prime state outside, the admiration of all; and upon examination of the bulbs I find they are increasing rapidly. Thanks to a great extent are due to Mr. Thomas Ware for popularising this plant, and I am of opinion it will be far more popular than at present; and as it multiplies freely there is no prospect of the price rising to such a degree as to prevent an enormous sale. Bulbs once forced, if gradually hardened off and well fed after being forced, will flower well enough the following year. This I proved this year.

CAMPANULA CARPATICA AND VAR. ALBA.—These are undoubtedly two of the most useful border or rock plants we have now in flower, the former with blue and the latter with white flowers, produced in such profusion as to make the plants very conspicuous. Their hardiness is greatly in their favour, and the ease with which they may be propagated either by seed, careful division, or by cuttings; where a limited stock only is required the latter method is much preferable. Take the young cuttings in spring and prick in sandy soil in a cold frame, and they will strike freely. There is a very handsome variety sent out by Frœbel & Co., of Zurich, under the name of C. turbinata pelviformis, but it is nearer carpatica in every way, the flowers not being turbinate; and, besides, turbinata itself is only a variety of carpatica. It is very handsome, quite crowded with flowers. My plant is on the rockery, and is now about a foot high; but in a less drained position it grows rather taller. The flower-stems carry several flowers; corolla about 1½ inch across, nearly saucer-shaped, with five distinct lobes, of a pale blue-purple colour. It is one of the best plants now in flower, the colour of the flowers being very distinct, while they are produced in great abundance. To increase the stock of it the young shoots should be rooted in spring, as if seed of it is sown you get a great variety of offspring, none perhaps like the true plant; but I have noticed that all the seedlings approach carpatica more than turbinata.

RUTA PATAVINA OR PATAVANICA.—This is a very rare little alpine, which is the primary reason why it is mentioned here, as it is by no means a very showy plant, but is certainly a most interesting little Rue. I have some small plants now in flower which were originally obtained from Herr Max Leichtlin, of Baden Baden. It produces slender stems about 9 inches high. Leaves rather less than an inch long, lanceolate, entire, bluntish, slightly glaucous. Cymes few-flowered when expanded, but they are generally closed, are about half an inch across, pale yellow; petals oval, spathulate, boat-shaped. It is, I believe, hardy in well drained situations, and although a weakly grower, if planted in sand, loam, and leaf-soil it thrives fairly well, but undoubtedly is rather difficult to increase. Perhaps Herr Max Leichtlin will communicate his experience of the plant to the numerous readers of the *Gardeners' Chronicle*, whose delight is the cultivation of rare as well as showy hardy flowers.

CAMPANULA HOSTI.—This very much resembles C. rotundifolia, but as far as I have observed it never has the roundish leaves, like the radical leaves of that species, and the narrow stem leaves are more numerous; the flower-stems bear a larger number of flowers, which are individually much larger and more open than those of rotundifolia, in the normal form of a deep blue colour; I think it is often called linifolia. There is also a white-flowered variety, alba, which is extremely pretty, the counterpart of the blue form; both are excellent rock plants, dwarf in habit, very floriferous and hardy; increased freely from seeds, which must, however, be carefully saved. The young spring cuttings root freely in a cold frame; young plants thus made are very vigorous. It is a bad plan to split old plants up, as all the growths proceed from a primary rootstock, so it is difficult to divide in such a way as to have roots to each piece.

DIANTHUS SUPERBUS.—Among the host of alpine Pinks this stands out as one of the prettiest and most deliciously scented. It grows very freely, and produces a profusion of its pretty light pink laciniated flowers with an almost unique sweetness, which was not unobserved by the old authors. Clusius mentions it, and Parkinson describes it thus:—"Of a most fragrant scent, comforting the spirits and senses afarre off." The latter authority also describes it as the "feathered Pinke of Austria." Native of Southern Europe, easily grown and increased, forming a broad evergreen cushion on the rockery.

RUBUS ODORATUS.—This is a very showy shrubby species, growing 3—4 feet high, with large palmately divided leaves, and cymes of rosy-purple flowers from 1½—2 inches across. For the shrubbery and wild garden it is well suited; the fruit, which is very rarely produced, is edible, somewhat resembling the Raspberry, but rather larger. I remember seeing it with several fruit ripened in the marvellous collection at Byfleet, Surrey, belonging to Mr. Joseph Stevens. A good figure is given in *Bot. Mag.*, t. 323, and Miller cultivated it in 1739. Native of many parts of North America.

GERANIUM ARGENTEUM.—This is a very rare and beautiful little "Crane's-bill," of dwarf tufted growth. Leaves sub-peltate, with numerous divisions covered with a silvery pubescence. Peduncles usually two-flowered; flowers about 1½ inch across, of a soft pink colour; petals obcordate. The charming blending of colour in the flowers and foliage is very noticeable, and all alpine lovers are quick to appreciate it. It is remarkable that it is so rarely seen in our gardens, a fact which can only be accounted for by the slow rate at which it can be increased; it does not produce offshoots very freely, and when divided it is very difficult to coax into fresh growth. It ripens seeds but sparingly in this country, though undoubtedly the best way to increase it is by means of seeds, which are very slow in germination. I remember seeing a little colony of seedlings upon the rock garden belonging to Mr. Whitehead at Bickley, the seed being self-sown, yet undoubtedly the recipients of some care. An excellent figure of it is given as long since as 1801 in *Bot. Mag.*, t. 504, where Mr. Curtis remarks, "It was introduced into this country from the summit of Mount Baldus by Mr. Loddiges, nurseryman, of Hackney. "I have a good plant on the rockery outside, which has received no protection for three years. *T.*

RODGERSIA PODOPHYLLA.

A STATELY herbaceous plant, of great hardiness, remarkable more for its general effect than for the individual beauty of its flowers. It is a native of Northern Japan, where it grows in thin woods at sub-alpine elevations. Mr. Maximowicz, to whom we are indebted for so many ornamental plants from that region, sent it to the Petersburg Botanic Garden some fifteen years ago; and Dr. Regel states that it is perfectly hardy in the severe climate of that city. Closely allied to Astilbe, it possesses the advantage of a taller habit of growth, attaining a height of 3 or 4 feet. The flowers are white, and appear in June or July. Our figure (fig. 23) was prepared from a plant cultivated by Messrs. Rodger McClelland & Co., of Newry, Ireland.

ASTER DIPLOSTEPHIOIDES, a figure of which has been prepared for the *Botanical Magazine*, is a beautiful plant about 1½ foot in height, with large, showy flower-heads (of a lavender-blue colour) more than 3½ inches in diameter. The Kew plant was raised from Himalayan seed presented to the Royal Gardens by Mr. H. J. Elwes, and is the No. 32 of that gentleman's collection.

SOME RARE OLD PLANTS.

Now and then, and usually more often at country shows than at London exhibitions, we meet with some rare old thiogs that come upon old plantsmen with surprise and pleasurable delight, whilst younger men are apt to think that these are novelties of the finest water. It was with some such sentiments we saw at the pretty country show held the other day in the Duke of Buccleuch's fine park at Ditton, near Slough, two or three things that were worthy of and secured the greatest admiration. Thus the centre figure of a good group of plants put up by Mr. Godfrey, gardener to Dr. Meadows, of Poyle Park, was a tall, superbly bloomed specimen of the Madeiran Clethra arborea, one of the greenhouse evergreen section of a family of plants that is far too seldom seen in gardens. This plant was covered with long scapes or spikes of pendent bell-shaped flowers, pure white in colour, and bearing no inconsiderable resemblance to large blooms of Lily of the Valley. This Clethra is a grand plant for greenhouse and conservatory decoration. Then in a collection of fine stove and greenhouse plants put up by Mr. Aitkin, gardener to Mrs. Meeking, Richings Park, was a very beautifully flowered specimen of the Lagerströmia indica rosea, a fine old hard-wooded Chinese plant that to thousands of gardeners is as little known as are the propositions of Euclid. The petals, frilled at the edges, are attached to the calyx solely by a thin filament. The plant is not of a dense habit, but when in good bloom is singularly beautiful. The specimen shown was about 6 feet in height, and was an attractive feature to all lovers of choice things, and worth a score of commonplace fine-foliaged plants. Lastly, Mr. Aitkin had in another group a small but well-bloomed plant of the large yellow-flowered Celsia Arcturus, sometimes called C. cretica, that showed how in this genus and its allies, the Alonsoas, what beautiful flowering greenhouse plants are too much neglected.

Fig. 23.—Rodgersia podophylla: flowers white. (see p. 140.

Yucca aloifolia variegata.—A stately specimen of this handsome plant, which measures 12 feet 4 inches in height, is now in flower in Major Foster's garden at Moor Park, Ludlow. The panicle of flowers measures 2 feet 6 inches in length.

Orchid Notes and Gleanings.

Lælia Veitchiana ×.—This gorgeous hybrid Orchid (see supplementary sheet) is quite a veteran, having been raised in 1858. It was raised at Exeter by Mr. Dominy for Mr. James Veitch, who brought it to Chelsea, where, we believe, the whole stock still remains. The parents, it is recorded, were Cattleya labiata and C. crispa, and the hybrid was first named Cattleya Veitchiana by Mr. Dominy; but Dr. Reichenbach, who regarded C. crispa as a Lælia before he reduced the genus Lælia to Bletia, subsequently described the hybrid (*Gard. Chron.*, n. s., i., p. 566) under the above name. A seedling in 1858, it did not flower until 1874, in March of which year it was exhibited at South Kensington, and Messrs. Veitch were awarded a First-class Certificate for it. Sixteen years was a long time to wait for the first flowers, but the recompense was great. It has leaves of great substance, and deep dark green in colour, while the flowers are lilac-mauve, with a lemon-yellow and crimson-purple lip. Or to be more circumstantial the sepals are of a delicate lilac; petals deeper coloured, more inclining to mauve, with some pale amethyst-purple spots; anterior half of lip rich crimson-purple, with a sulphur-yellow disc behind, streaked with purple in the centre, the whole with a narrow pale lilac border.

Cattleya superba splendens.—I send you two blooms of the Rio Negro variety which have been out a fortnight and are past their best; but the colour of the petals is lovely, as you can perceive. I have seen darker lips and broader petals, but not a more attractive flower. Mr. Bockett calls it a bad one to manage; but I find plenty of sun, little or no shade, except when the young growth is coming up, floods of water during growth, combined with a hot temperature and near the light, suit it well. All my plants grow freely and make as large or larger bulbs here than the old ones show. They are impatient of any covering to the roots: and do best on a block of Tree Fern. I find, when not in growth, they do not get more water than just to keep them from shrivelling, and are always kept hung near the glass in a very airy stove-house (air on day and night). To this latter I attribute much of my success: a close damp atmosphere at night is death to many of our plants. *F. A. Philbrick.*

Cattleya Leopoldi.—I send you two blooms of a very bright fine shaped variety, I think far before any engraved or coloured plate I have seen. It is deliciously fragrant, the odour resembling Nutmegs or some "spicy breeze," though not from Araby the blest. I never saw such well spotted petals or so round a flower. *F. A. Philbrick.*

Trichopilia hymenanthera.—This is flowering for the first time with me, a very pretty and uncommon plant. It is best grown in a basket with sphagnum and a little peat and charcoal, in the intermediate-house. The flower-spike is extremely graceful, and though not a show Orchid is extremely charming. In growth it is not unlike a strong form of Leptotes bicolor. *F. A. Philbrick.*

Cypripedium Lawrenceanum.—I also send two blooms out of thirteen the plant bore for a month and cut about ten days ago. This plant is the variety I had a First-class Certificate for, at the same time the introducers (Messrs. Veitch) had a similar one. It is the best variety I know. Side by side I have a plant part of Mr. Pollett's parent plant, figured and badly coloured, vol. i. of *Williams' Orchid Album*, not nearly so large or so fine. In boldness and for a striking plant this is the finest Cypripedium introduced of late years, indeed I doubt if any of the old varieties touch it. For conspicuous beauty of foliage and for strength of consitution it is unrivalled among the slippers; it is a remarkably free grower, and keeps free from all pests and plagues. The dorsal sepal in these two flowers is beautifully coloured, and, unlike C. barbatum superbum grandiflorum, or indeed any variety of barbatum I ever saw, show a variety and combination of colouring of the ground of the dorsal sepal which greatly heightens the attractiveness of the flower. The plant in question has light marbled leaves, as distinctly marked as any C. Dayanum, but some C. Lawrenceanum have dark marbled leaves, resembling the darker form of Dayanum. I find the darker leaved variety generally bears smaller flowers. *F. A. Philbrick, Oldfields, Bickley.*

New Orchids from New Zealand.—Among a number of plants described as new by Mr. W. Colenso in the fifteenth volume of the *Transactions and Proceedings of the New Zealand Institute* are three Orchids, namely, Earina quadrilobata, Dendrobium Lessonii, and Pterostylis emarginata. The first is said to have close affinity with E. mucronata, but is a much smaller and more graceful plant, with fewer and differently formed flowers. The author considers his Dendrobium to be the same as D. biflorum of Richard, but not of Swartz, and specifically different from the commoner D. Cunninghami. A fourth new Orchid is reported by Mr. J. Buchanan in the same publication. On the authority of Baron Mueller it is Calochilus paludosus, R. Br., a species previously known only from New South Wales. It was collected by Mr. H. H. Travers in the Collingwood District, South Island. We may add that the genus, of which two other species have been described, is otherwise limited to South-eastern Australia.

Vanda teres.—In reply to the remarks of Mr. Douglas at p. 78, respecting the growth of the Vanda teres that recently bloomed so profusely, I have to state that it occupied for the past twelve months the small stove mentioned in my previous remarks, where it bloomed. This stove faces the west, and the plant stood at the sunny end, close to the glass, but a little shaded by the Dendrobiums around it. It was kept dry, water being entirely withheld. During the remaining ten months it was syringed twice daily, and the house shut up in the afternoon. On sunny days the thermometer has registered 75° to 100°. In this house there is a good heat kept up the whole year. In other respects it had no extra attention. It has now been placed in its old quarters, and will be treated under the same conditions as before, and I hope to report next June that it again bears 260 flowers. It cannot surely do better, for it was covered with bloom. *Jos. Broome, Wood Lawn, Didsbury.*

Odontoglossum Roezlii.—Although not possessed of the bold and striking appearance of O. vexillarium, this species is in every respect worthy of cultivation; and the two coupled with O. Phalænopsis would form a beautiful and interesting trio for any collection. They are all from the same country, and evidently closely related, but justly entitled to specific distinction, the differences of which are most apparent in the inflorescence. A white variety of the present species, and one of O. vexillarium, would, to a casual observer, be scarcely distinguishable; cultivators, however, cannot fail to note the disparity in the vigour of growth, the former being the weaker, and at the same time more erect in habit. The individual flowers are large and white, with the exception of a dull violet-purple blotch near the base of the petals, and orange lines and spots on the labellum. These flowers are deliciously fragrant, reminding one very forcibly of Rosa indica.

SPIRÆAS.

How often it happens that hardy plants possessing a beautiful and distinct habit of growth, and which, in addition, produce handsome flowers, remain so long unknown, or their merits unacknowledged by the generality of those who possess gardens, that they are absent from numbers of places where their presence in association with the ordinary occupants of the shrubbery would be a decided gain, as much for the contrast to other things which they would afford as for the individual beauty they possess. Amongst these may be named some of the Spiræas which bloom in the summer months, when the glory of the spring flowerers is past, and there is little in the way of flowers to light up the dense masses of foliage that are then predominant. Take, for instance, the Himalayan S. Lindleyana, with its distinct handsome leaves, and the large feathery elegant sprays of white flowers which it produces from the extremity of every shoot, than which nothing can be more effective, especially when a few plants are grouped together. Then there is the Chinese S. callosa, the white flowers of which are very effective; S. Nobleana, a Californian species with pale pink flowers, its erect dense panicles being both handsome and distinct; S. ariæfolia, another fine kind, bearing conspicuous white flowers; S. Reevesiana, a pretty white-flowered kind, of Chinese origin; S. prunifolia flore-pleno, still another Chinese sort, well worth growing where the ground devoted to shrubs is extensive; but even in places of limited extent the above might often with advantage be introduced if perforce the more usually met with denizens of the shrubbery were less extensively planted.

FORESTRY.

Forest Work for August. — Continue the operations recommended for last month regarding the preparation of ground for autumn planting, but more particularly the draining and trenching, or pitting of wet soils. Autumn planting is preferable to spring planting, and should be resorted to in all favourable situations. In the case of peat-bog, or other wet retentive soils, the reverse of this is, however, the case, as the antiseptic properties of peat always damage the tender rootlets before starting into growth in spring. Prepare ground where evergreens are to be transplanted, and towards the end of the month the planting of most evergreen shrubs may be begun. Large trees that are intended for removal during this season should have their roots cut round, which will greatly induce the formation of young rootlets.

Evergreens of all sorts may towards the end of this month, or beginning of next, be propagated by layering or from cuttings. Mow and clean all plantation drives and shooting roads, and where not already done cut all weeds around the margins of plantations. The sooner summer operations in the woodland are finished up the better, as game will now be driven to shelter by farming operations in the adjoining fields. Continue the tarring or varnishing of fences and gates during dry warm weather, as little of such work has been got done during the past month. In the nursery, owing to the very wet season, weeds have been difficult to keep down, and could only be managed by hand-picking; but now that more favourable weather has set in, extra perseverance and vigilance are necessary.

Young plantations may now be thinned, and the falls collected into lots suitable for local purchasers, as there is generally a good demand for fencing-poles and such-like material at this season.

Clean out all surface and leading drains, so that the late rains may have a free passage, bearing in mind that thorough drainage will keep the soil at a higher temperature than when water is allowed to lodge throughout the winter.

Collect all road-scrapings, ditch-cleanings, and general nursery refuse, and form into a compost with lime for use on the farm, nursery, or as a top-dressing for grass lands. Where it is intended to form new hedges the ground may now be prepared, either by trenching or digging, as the case may require. Continue the switching of Thorn and other hedges, as well as the pruning of evergreen fences and banks. Remove superfluous leaders from Coniferous and other trees; prune off dead branches wherever in sight, but more especially within the policy grounds and along the margins of plantations visible from drives or roads. Examine fences and tree-guards, and see that rabbit-proof wire-nettings are in a good state of repair. Groundwork alterations and improvements—such as roadmaking, levelling, &c.—may now be commenced, and materials carted during dry weather for repairing roads, walks, and drives.

The present is a good time to go over plantations, especially hardwood, and mark off such trees as are intended to be removed, always reserving the best for the permanent crop, and looking more to the future value of the plantation than to the value of the thinnings removed. Layering in the nursery and woodland should be continued, especially where game coverts are in request. The shoots best adapted for this purpose are those that have completed their second year's growth, such seldom failing if firmly pegged down and covered with good soil.

Look over ornamental trees, and see that all ties, stakes, or supports are in good order, and not cutting or chafing the bark, at the same time treading up such as have become loosened or are rocking with the wind.

The ravages of beetles and caterpillars are usually worst at this season, so a sharp outlook is necessary to prevent further damage, as the injury they inflict is not easily overcome, especially if it is the leader they have attacked. In the nursery or woodland remove all plants affected by beetle, red-spider, or caterpillar, and have such carefully collected and burned at once. *A. D. Webster, Penrhyn Castle, North Wales.*

The Kitchen Garden.

A most important crop, to be sown not later than the middle of this month, is winter Spinach The kind known as the prickly is the most preferred, being the hardiest. The situation chosen should be fully exposed to the sun, and the soil should not be of a too retentive character. A thorough good dressing of rotten manure should be dug in deeply, and the ground afterwards be marked out into 4-feet beds, running north and south, and formed in a convex shape. This done, the seeds had best be sown in four or five drills, but the great point is to see that the seed is got in not later than the 15th; the plants will then become strong, and be better able to stand the winter. And when one reflects that for a whole six months this crop is likely to be called upon for a supply, too much pains can hardly be taken in getting it properly in, and a good breadth sown; the south border is often chosen as the best place to sow this crop for winter. Also at the same time sow a packet or two of winter Onions—the Tripoli is generally preferred; for years we have sown this crop quite thick on a rather poor piece of land, and in the spring transplanted them to richer land, usually in March, when sowing the spring Onions. Sow at once a good hardy Cos and Cabbage Lettuce for winter and early spring supply, which we shall mention again, as to where and when to plant, in a later Calendar. Where Turnip greens are much in demand a still further sowing may be made—not that they will bulb much, but the tops are relished by some in the early spring. Push forward the planting of Endive, and let it be planted in various situations, sometimes on east or west borders it will stand the winter better than on a south border. The hardy green and the round-leaved Batavian are good hardy kinds. Oftentimes a plant dies here and there in the plantation; when this is the case a search in the place with a pointed stick will discover a brown grub, which kill, and then put in a fresh plant. The present is a good time to sow the winter supply of Chervil; in modern cookery this herb is greatly in demand.

If not already done get up early Potatos at once; the disease has made its appearance among them, and they are ripe: so sort them for seed and table separately. Cut the tops off early Parsley nearly close to the ground; it will push forth fresh leaves directly, which will stand the winter better than the old leaves. As soon as the mid-season Peas are over clear the ground, and plant directly with Broccoli or Kale to stand the winter. It is hardly possible to have too much of these. Plant in some shady place a few hundreds of some very hardy red Celery. It will not require earthing-up, but will come in most useful for flavouring soups in April and May. In some localities Scarlet Runners will shed their blossom; where this is the case a good watering will be beneficial. Keep the hoe going amongst crops, and endeavour to keep weeds from seeding. Earth-up all the Brassica tribe as occasion requires, and thin-out late Parsley and Turnips. Continue once a fortnight to earth-up the early Celery, and take care that late crops do not suffer for want of water. Nothing tends so much to make it hard and tough as too little water, and if the leaves get disease dust the entire crop with soot the first thing in the morning. If a good supply of herbs has not been secured by drying lose no time in doing so; even for some purposes dried Sage is preferred to the green. Begin at once daily to collect material for Mushroom beds, and do not reject too much straw from the droppings. *J. Rust, Eridge Castle, Sussex.*

Peaches and Nectarines.

Carry out the directions already given as to the treatment of early and second houses, and as the trees in succession houses become cleared of fruit, give them the same treatment as to syringing and watering, &c., as was applied to early houses when in the same condition. Also go over them and take out all superfluous and weak wood that will not be required for fruit-bearing next year; by doing this now the trees will require very little pruning in winter time, and the wood gets thoroughly ripened and in good condition to produce good crops of fruit next season. Bring on late houses according to the time they are required to be ripe: any forcing may be done by closing early on bright sunny days. Keep the foliage clean by plying the syringe freely twice daily on bright days—on dull wet days once will be sufficient. Get the fruit well exposed to all the sun and light possible, and pay special attention to the roots by keeping them well supplied with liquid manure whenever they require it. *J. Wallis, Keele Gardens, August* 1.

Plants and their Culture.

Stove Plants.—The section of these that are so much grown for the beauty of their foliage should now be in their very best condition. Keep a watchful eye on the inroads of all insect pests, which increase to an alarming extent if left to themselves at this season of the year. The very life-blood of the plants will be drawn from them if neglected; see, therefore, that all of these, our enemies, are kept at the lowest possible point. Where this is done far more plants can be grown in a healthy vigorous condition than can even be dreamed of where insects are at times allowed to have things all (or nearly all) their own way. Young and tender developing foliage becomes criopled and impaired beyond remedy; this in the case of fine-foliaged plants is, if possible, a greater evil than with flowering kinds. Plants become disfigured, and are an eyesore for months afterwards to those who take any pride in good cultivation. Guard against over-crowding to an undue extent; ease the stove proper of any plants that are considered sufficiently hardy to succeed when well established in an intermediate-house or even in a conservatory that is kept a trifle warmer than an ordinary greenhouse. In this way a very pleasing change can be made in the arrangement during the summer months without any injury to the plants if well cared for. Be careful in the case of the more tender kinds with regard to the watering; see that soft or rain-water is used if possible, and that, too, not drawn from a cold-water tank, where the sun's rays have not the chance of warming the same, and avoid placing the tenderest species in a draughty position.

Propagation of the well-coloured and shapely growths of Crotons may be looked to; these will be handy in the late autumn as table plants when well rooted. Asparagus plumosus nanus can be increased by division; this excellent decorative plant is well worthy of every attention, and an increase in the stock of the same will not be regretted. So far we have not succeeded in striking it from cuttings, but mean to try again. We have resorted to fertilisation of its flowers, but in this case too we failed to get the desired end, though the plant operated on was in robust health. This species makes a beautiful specimen, our example of it is now some 18 feet in circumference. Some seed of Cyperus alternifolius should be saved and sown as soon as ripe; this is the best way to grow this plant for decorative purposes. Gesneras, useful alike for the beauty of their leaves and for their flowers, should receive every attention where any stock is being grown for autumn and winter uses. We have succeeded best with the tuberous kinds when kept nearly close to the glass and plunged in a slight bottom-heat in a pit or frame. Dracænas that have become too tall may be struck off now, before winter comes on us again; when any are cut down look after saving some of the stems, to be cut up for increase for small dwarf stock. In the case of D. gracilis, however, we like to leave the stem intact after the top has been taken off, then as young shoots push forth these can be heeled off and struck singly in thumbs.

Continue to propagate any stock of winter flowering stove plants where any further increase is necessary. We have just put in some strong tops of Eranthemum pulchellum that will make dwarf stocky plants by the autumn. A late batch of Poinsettias will also be useful as dwarf plants, in which manner they are best adapted for furnishing purposes. All the Euphorbias should now be well established, and making strong growths. Thyrsacanthus rutilans is best grown as small standards, our young stock are now growing away nicely; old plants also flower well, and should receive attention. Begonias, as B. insignis and Knowsleyana, should now be making nice plants; seedlings of the latter kind are with us doing well, being dwarf and vigorous. All these and similar plants that are intended for winter supplies should be fully exposed to the sun, growing them as hard as possible. We have ours in a pit by themselves, where they receive the treatment best calculated to ensure these desired results in due time.

We have not so far given over firing for the stove this season; had the weather been warmer the fires might have been left out occasionally, but just a trifle of heat in the pipes, is, we think, the best plan, and the safest too. If the night temperature is above 72° a crack of top air may be left on all through the night. This is better than leaving the house closed without any fire; on this latter principle there will be an excess of moisture in the morning, which is not so easily dispelled should the morning be damp and dull. Where no fires are kept in the afternoon damping down and syringing should be the last for the day; this will in a measure obviate any excess of moisture in the morning. *James Hudson, Gunnersbury House Gardens, Acton, W., July* 31.

Melons and Cucumbers.

Melons.—Last week we made our last planting for the season, in a house in which plenty of top and bottom-heat is at command. As Melons had occupied this house up to within a day or two o making this planting, the only preparation necessary for the reception of the young plants, which had been previously got ready, was the removal of the old plants and a little of the surface-soil from the beds, which was replaced with some fresh soil as soon as the interior of the house had been cleansed. This was formed into little hillocks, and the plants—one on each—planted thereon, and secured to a stick fastened to the first wire of the trellis. These plants will furnish us with a good supply of fruit during the month of October and early part of November. The recent and somewhat frequent storms have necessitated the fire being lighted occasionally to dispel damp, now that the nights are becoming longer and somewhat colder. When there are indications that a falling in the temperature may take place during the night, the fires had better be lighted, and the atmospheric moisture in the houses be regulated in accordance with the requirements of the plants and the condition of the weather. Houses in which the plants are swelling off their fruit can be shut up earlier in the afternoon now, say at from 3 to half-past 3 o'clock, now that the days are getting shorter. Damping must be done very sparingly in pits and frames where no hot-water pipes are at command. *H. W. Ward.*

Cucumbers.—Now and again, at the end of the current month, will be a good time to make a sowing of Rollisson's Telegraph, which, when obtained true, is one of the very best varieties for winter work, producing, as it does, nice handsomely shaped and moderately sized fruit. The plant is also constitutionally good and prolific. Sow the seeds singly in large 60-pots in light mould, and plunge in a frame in which there is a little bottom-heat, and shift them as they require more room at the roots until they are planted out or finally shifted into their fruiting pots or boxes, as the case may be, for which purpose an admixture of three parts of light loam and one part of peat, and charcoal sufficient in quantity to keep the whole porous, will be best. In a mixture of this description I have always found winter Cucumbers grow satisfactorily—more so, in my opinion, than when animal or other manure has been incorporated with the above ingredients. Moreover, stimulants can always be applied in a liquid state as the plants require it. Put small sticks to the plants when sufficiently grown to require supports to prevent their being broken through vibration or other causes. Syringe the plants twice a day if hot-water pipes are at command, and shut up at from 3 to half-past 3 in the afternoon. The time, however, of putting on and taking off air must be regulated in accordance with circumstances existing in each particular garden and house, such as the aspect and construction of the house, inasmuch as one may consist of a minimum of glass and a maximum of wood, and *vice versâ*. These, however, are circumstances with which gardeners are fully acquainted, and hence, as I have already hinted, there should be no hard-and-fast line drawn for the giving and taking off of air. The usual thinning, stopping, and tying of the shoots and removing of superfluous fruits will, as a matter of course, be duly attended to. *H. W. Ward.*

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Aug. 6	Continuation of Flower Shows in Sefton Park, Liverpool; and Westwood Park, Southampton. Atherstone Horticultural Society's Show.
Wednesday,	Aug. 8	Sale of Imported Orchids, at Stevens' Rooms.
Thursday,	Aug. 9	Sale of Established Orchids, at Stevens' Rooms.
Friday,	Aug. 10	Sale of Imported Orchids, at Protheroe & Morris' Rooms. Annual Meeting of Royal Botanic Society, at 1 P.M.

MOST readers of this journal will be acquainted, at least by hearsay, with the very elaborate practical experiments carried on at Rothamsted for nearly fifty years in succession under the auspices of Sir JOHN LAWES. Those experiments have been instituted for the purpose of obtaining definite answers on certain points of the chemistry and physiology of animals and of plants and only indirectly for practical purposes. The needs of the scientific agriculturist have more especially been borne in mind, and in so doing ultimate benefit to the practitioner has been better assured than by catering for him alone in the first instance. Naturally, many of the results obtained are at once valuable to the gardener and to the farmer.

We propose at this time to speak only of one set of experiments, one which has been in progress for more than a quarter of a century, and of which, as indeed of all others, careful record has been taken and materials affording confirmatory evidence preserved in the laboratory at Harpenden. The experiments to which we now more especially allude, are those relating to GRASS LAND. The last part of the *Philosophical Transactions of the Royal Society* forms in itself a volume, and is devoted solely to statistical and botanical details relating to these experiments.* The mass of detail collected is so enormous and so bewildering that without some sort of clue the ordinary reader would be inclined to close the volume without examination, and only the most intrepid seeker after knowledge would be induced to proceed. We may, therefore, be doing good service by calling attention to the general scope of the paper, and to some of the principal points in which the cultivator may be presumed to be specially interested.

The special object of the memoir is to record the amount, quality, botanical and chemical composition of the produce of a certain area of meadow land over a continuous series of years and under various conditions of manuring. Part of that area has been left unmanured throughout the whole experiment; other parts have been continuously treated with various manurial combinations. In some cases the manure applied has been abruptly changed during the course of the experiment, in others a particular ingredient whose effect it was desired to ascertain has been discontinued either for a time or permanently. The subject, therefore, had to be considered with reference to the physical and chemical nature of the soil and of the manures added to it, the climatal conditions, amount of rainfall, temperature, &c.; the nature of the constituents of the herbage, *i.e.*, the plants, their mode of growth, and their chemical composition. All these points, and others which in this cursory review it is not necessary to mention, had to be considered separately, and then in relation one to the other. The earlier portion of the volume before us is taken up with a short account of the methods of experimenting, observing, and recording adopted—matters we can only refer to in passing as illustrating the laborious care which has been taken throughout.

As far as regards climatal influences, apart from the action of manures, it is shown that large crops may be produced in different seasons by very different climatal conditions, and the same holds good with small crops. A given amount of produce grown in different seasons, under identical conditions as to manure, may thus be very different in its composition. The plants may vary not only as to their development and luxuriance, but also as to their kind; thus, certain grasses will predominate in one season, certain other grasses in another, and so on. This relation of climate to vegetation, and its influence upon the competition between the several plants growing in association, has been especially worked out in detail in the four "separation years"—years, that is, in which a thoroughly exhaustive botanical analysis was made of the nature and amount of the produce on each plot.

The total number of species observed on the plots amounts to eighty-nine, but only about half this number are of general occurrence, and many occur in such insignificant proportions that their presence may, for practical purposes, be disregarded. The largest number of species on any given plot at any given examination has been fifty-two, and this on the plot without any manure at all. On the other hand, the smallest number of species or different kinds of plants observed at any one time, has been fifteen, on the plots most highly manured with ammonia salts, potash and mineral manure—a difference of thirty-seven species between the two extremes. It is significant, too, that the highest number of species on the unmanured plot, and the lowest number on the highly manured plot occurred in the same season, viz., that of 1877.

But the absolute number of species, and the range in variation, according to the nature of the manure, great as the latter is, are by no means of so much importance as is the proportion which certain groups of plants bear to other groups—the grasses to the Leguminosæ, for instance, or even certain grasses to other grasses, certain Leguminosæ to others of the same group, and so on. For instance, the proportionate amount which each of the fifty species contributes to the total herbage of the unmanured plots is more even and regular than in the case of the fifteen species on the highly manured plot. In the latter case, out of the fifteen species only two or three form the bulk of the herbage, and the others are all but entirely crowded out. Thus, to use round numbers only, as sufficient for our illustration, on one of the most highly manured plots (11^2), in the year 1877, 8500 lb. per acre of hay were yielded. Of this amount over 8300 lb. were furnished by the grasses; absolutely none at all by the Leguminosæ; and only 130 lb. by the miscellaneous meadow weeds. Practically everything but grass of some sort was banished by this particular manurial application. And this is no solitary case. The same thing has occurred, with only slight variation, throughout the whole experiment. The illustration we have given shows how, by the agency of a particular manure, all the varied constituents of a meadow, except the grasses, may be practically banished, and the Leguminosæ absolutely so.

If we investigate the matter more closely we shall find that of these grasses it is only certain ones which contribute materially to this result; some of them are as nearly exterminated as are the Clovers and Trefoil. Thus on the same plot, and in the same season to which we have just referred, the grasses, as a whole, contributed, as we have said, over 8300 lb. per acre to the total yield. The total number of contributing grasses was eleven, two of which yielded over 1700 lb. each, and three others more than 1000 lb. each per acre, so that those five species contributed considerably more than half of the whole amount, while the rest did not contribute more than a pound or two, and some yielded no appreciable weight. Let this be compared with what took place on the unmanured plot in 1862. Then there were eighteen grasses, which collectively yielded over 2100 lb., ten of these grasses furnishing amounts varying from 50 lb. to 400 lb., the remainder smaller quantities. On the same plot, in the same season, Leguminosæ furnished 247 lb. per acre, and the miscellaneous weeds 649 lb.

* *Agricultural, Botanical, and Chemical Results of Experiments on the Mixed Herbage of Permanent Meadow, &c.* Part II. The botanical results by Sir J. B. Lawes, F.R.S., J. H. Gilbert, F.R.S., and M. T. Masters, F.R.S. Pp 232, with eighty-two tables and two appendix tables.

—— PHALARIS ARUNDINACEA.—Our correspondent, "Diss," asks whether the ordinary green-leaved Phalaris (Digraphis) arundinacea, which, according to the London Catalogue, occurs in ninety-eight out of the 112 counties and vice-counties into which Britain has been divided by WATSON, is found sporting into the striped variety. We give what information we are able on the subject in this place, because it will be seen by a greater number of our readers, some of whom may perhaps be in a position to supplement it. The variegated grass alluded to by "Diss" is the one common in gardens, and generally called Ribbon Grass, though it has various other local and book namer, among them Painted Lady Grass, Gardeners' Garters, Ladies' Garters, Ladie Lace Grasse, &c. We find no earlier record than GERARD'S, mentioned by "Diss." In the first edition of GERARD'S *Herball* (1597) it is recorded that this grass, or at least what has been taken for the same grass by BAUHIN, LINNEUS, and other subsequent writers, "groweth naturally in the hilly and woody places of Savoy, and is kept and maintained in our English gardens, rather for pleasure than for virtue as yet known." We have referred to a large number of works, but we have found no single definite record of the variegated variety occurring in a wild state; and we have looked through the long series of dried specimens in Kew herbarium with a like result. It is true there is a specimen from the herbarium of DAWSON TURNER, collected in Yorkshire by Mr. DALTON; yet it does not follow that it was wild. Indeed it is more likely that it was taken from a garden, for at that period (1807) a specimen of a plant was the first consideration—its origin of little importance. There is no doubt that the variegated varieties—for there are several—are of the same species as the wild Phalaris arundinacea, as the difference between the two is merely the variegation. The ordinary green-leaved variety is very widely dispersed in the temperate and subtropical zones of the northern hemisphere, and the same, or a very closely allied species, occurs in South Africa. "Diss" also asks whether the variegated grass has been increased by importations from Savoy, or by propagation from varieties sported by native plants in Britain. Considering the persistent nature of the plant, and its great vegetative vitality, we should not be surprised if all the cultivated plants of each variety have descended from one stock. On the other hand, it is quite possible that variegated varieties are not very uncommon in certain localities, where the conditions are favourable to such sports. Among the prominent authors who mention it are SCHKUHR, KOCH, and NYMAN. The first says "There is also a variety having white, green and yellow striped leaves, with several German names (which he cites), but it is oftener seen in gardens than wild." KOCH merely enumerates a variegated variety without giving any locality; and NYMAN (*Conspectus*, p. 791) has "var. foliis albo-lineatis, in statu spontaneo rara, in hortis ornamenti gratia colitur." We have only to add that we have seen the variegated variety in a half wild state as an outcast of the remains of former cultivation.

—— A VERY CURIOUS CASE OF DISEASE IN A RASPBERRY is reported from the North. "It was planted among others which bore well; it came up with other seedlings three years ago, and having peculiar foliage was preserved, but has never yet produced any fruit, although it flowered like the rest at the same time." The leaves of the specimen which has been forwarded to us are either entirely discoloured on the upper surface, or have large, broad, deep brown patches on them, and paler spots appear on the stems. On examination with the microscope myriads of elliptic, or slightly club-shaped spores, like those of Glæosporium perexiguum, SACCARDO, though very different in other respects, and still more from G. Rubi, SACCARDO, which seems a very doubtful species. The species may be characterised as below.* *M. J. B.*

* *G. maculosum*, epiphyllum: foliis brunneo-maculatis; sporis minutis, ellipticis vel subclavatis hyalinis.

LÆLIA VEITCHIANA ×.

—— Hardy Flowers at the Chiswick Gardens.—One of the most useful among these is Geranium pratense flore-pleno; it is a good grower, very free of bloom, bearing fully double flowers of a bright blue-purple colour. There is a double white form, which is equally valuable. Lychnis chalcedonica flore-pleno and its white form are both excellent subjects for the hardy border. Lysimachia clethroides, with its manifold spikes of white flowers, is an attractive subject and very pleasing. Stachys coccinea, a very free species, with numerous spikes of pale brick-red flowers, is is a plant deserving of being much more generally cultivated. Campanula celtidifolium, a somewhat tall and stately species, is an object of great beauty on the rockwork, bearing very fine spikes of pale blue flowers on stems rising to the height of 3 feet. At the foot of this are some clumps of Campanula turbinata and its varieties that are most effective. These represent a group of dwarf free blooming Campanulas of considerable beauty and variety, all very free flowering and invaluable for the decoration of rockwork, and they make excellent pot plants also.

—— "The Moselle from the Battlefields to the Rhine," is the title of a handbook by Mr. Percy Lindley to a new tour arranged by the Great Eastern Railway company, for the benefit of Continental tourists. It forms the third of a series of illustrated guides to some of the less frequented districts of the Continent; is well written, and remarkably cheap at one penny. *Holidays in Holland*, *A Trip to the Ardennes*, are the titles of the other two, and all are published at 125, Fleet Street.

—— Acroclinium roseum. — Last season a valuable novelty in the form of a good double variety of this favourite everlasting was introduced by a Continental firm, and we were glad to see by specimens in Messrs. James Carter & Co.'s seed farm at St. Osyth that it maintains its fine double character. The latest novelty in the same direction is a white double variety, flowers of which were shown to us last week by Messrs. Hooper & Co., Covent Garden.

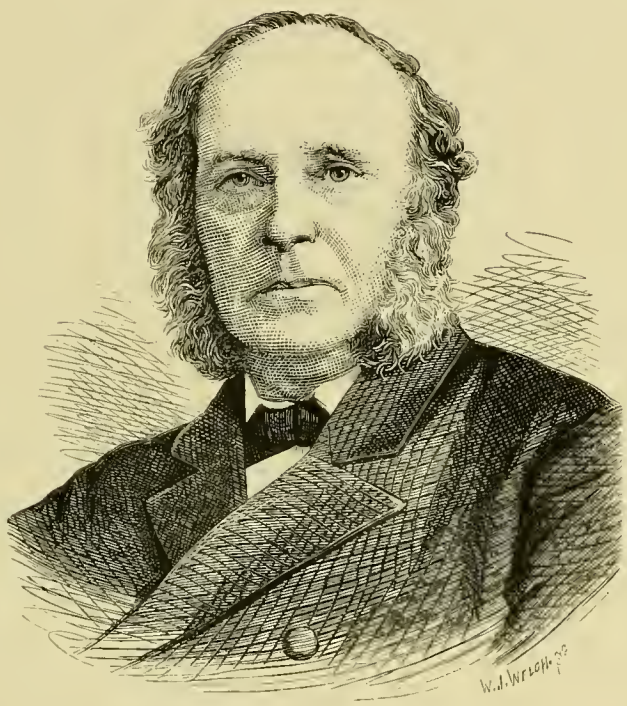
—— Actinomykosis, we learn from *Coulter's Gazette*, is the name of a new disease in man and some animals, caused by a fungus of the genus Actinomyce, which forms tumours near the angle of the jaw, and proves fatal when it becomes generalised. It was the subject of some remarks by Dr. Thomas Taylor and Dr. E. Salmon at the meeting of the Biological Society of Washington in June last.

—— Cultivation of the Sugar-cane in Auckland, New Zealand. — From experiments that have been made by Mr. Justice Gillies the following results were obtained :—From 12 to 18 tons of topped and stripped cane per acre can be produced on average soils with ordinary culture. Fifty per cent. of the weight of stripped cane can be expressed, and the juice averages over 11 lb. per gallon weight. To produce a crystallisable syrup the juice must be evaporated to one-fifth of its bulk, but the main difficulties are the evaporation and crystallisation.

—— An Old Rose.—Covering the back wall of a large orangery at Ditton Park there is one of the largest examples of a Banksian Rose possibly in existence. The stem a little above the collar measures nearly 18 inches in circumference. Its presence in its present position can, we understand, be traced back for nearly eighty years, consequently it must have been planted here soon after its introduction. When in bloom it must be an unusual sight.

—— A Monstrous Alpine Strawberry.—The Rev. M. J. Berkeley sends us a monstrous alpine Strawberry, with the suggestion that it is the "Fragaria vesca fructu hispido" of Gerard, which it possibly is. This monstrous state is brought about by the phyllody of the carpels, and, to a less extent, of the ovules also,—that is to say, the carpels have most of the characteristics of ordinary leaves instead of their normal character. The reversion is not complete, but the outermost carpels especially are quite like small leaves folded together. They are very much enlarged, green, veined, three-lobed, quite open to the base on the side next to the axis of the flower, and borne on a short stalk. Each lobe ends in a rather hard point, that may become harsh and prickly in time. Gerard describes his variety in the following words :—"There is also kept in our gardens (onely for variety) another Strawberry, which in leaves and growing is like the common kinde, but the floure is greenish, and the fruit is harsh, rough, and prickely, beeing of a greenish colour with some shew of rednesse. Mr. John Tradescant hath told me that he was the first that took notice of this Strawberry, and that in a woman's garden at Plimoth, whose daughter had gathered and set the roots in her garden instead of the common Strawberry; but she, finding the fruit not to answer her expectaions, intended to throw it away; which labor he spared her in taking it and bestowing among the louers of such varieties, in whose gardens it is yet preserved. This may be called in Latine Fragaria fructu hispido—the Prickley Strawberry."

—— Corisande's Garden. — We came upon a veritable garden the other day, just such as the author of *Lothair* pictured when he gave to the world that description of Corisande's floral haunt, which for the day was its literary sensation. It was a ducal garden, too, and in a fine old place where there clustered ancient historical and family associations. A quiet, secluded, yet noble old place, where the trees towered up to the skies with all that lofty dignity which become denizens of a ducal garden; where the shrubs are huge masses of greenery, rendering seclusion even more secluded, and where the lawns



CHARLES TURNER. (See p. 134.)

are of the softest verdure, as though too good to bear the common tread of mortal feet. There, too, the waters of the river-moat, which shut out this select spot from the outer world of common life, slumbered listlessly, scarce showing a ripple except when some proud swan disturbed its repose by his dignified motion. It was here we found CORISANDE'S garden, shut in even from so much of life as could thus be found in this somnolent pleasaunce. It was in bygone days a walled-in kitchen garden, but the needs of modern demands had driven the culture of vegetables into wilder spaces, and now the place where once grew Cabbages and Asparagus had been converted into a flower-garden pure and simple; the paths of well-kept gravel, the edgings of Box, and the beds filled with sweet Gillyflowers and Pinks, Violets and Heartsease, Valley Lilies and Sweet Briers, and myriads of old flowers and new ones; whilst, curiously consistent, and strangely in keeping, there grew up here and there the rich-coloured heads of a veritable Lothair—not the one of Lord BEACONSFIELD'S creation, however, but rather that of some admiring florist, for it was the beautiful Phlox of that name. This is a lovely old garden, one unique of its kind—a real flower-garden, that doubtless sometimes courts the admiration of a veritable CORISANDE.

—— CARNATION MARY MORRIS.—Further experience of this bright rose self-coloured Carnation confirms our original estimate of its merits as a border flower. Its raiser, Mr. H. G. SMYTH, has about 1000 plants growing in the beds and borders of his garden at Lower Sydenham, and a finer sight of its kind than those plants present now in bloom can scarcely be imagined. Its free, vigorous growth is something to admire in itself, but the freedom with which it blooms is something much beyond the average of high-class varieties. The flowers are of good size, exceedingly neat, sweet-scented, and seem to be devoid of any tendency to burst the calyx.

—— THE PEACH WALL AT DITTON PARK.—Whatsoever may be the fortune of outdoor Peach growers elsewhere—and this year it seems to be fairly good generally—it is certain that Mr. LINDSAY has, at Ditton Park, Slough, as fine a crop of fruit on all his trees as the most ardent gardener may desire to see. We noticed the Peach wall at Ditton two years since, and then described some of its prominent features, and it is gratifying to observe that the trees show no signs of failure in any respect; indeed, though producing in 1881 such a splendid crop, they even exceeded it in bulk last year, by no means a good Peach season, and now again are full of fruit. But, whilst many growers have Peaches in abundance outdoors this year, it is not everywhere that such a show of finely covered wall is seen—a show that, seen the other day for the first time by some capable judges, elicited the warmest expressions of pleasure and approval. There is one portion of the wall covered by four large trees that has not an inch of bare surface to be seen, and a much larger portion is broken only in about two places, and then to a very limited extent. Mr. Lindsay is not so exceedingly nice in his training notions as to decline to lay a shoot crosswise if there does not happen to be one at hand that will tie in correctly. He is for covering the wall, and it is done splendidly, the growth being of the very best, and the leafage clean, robust, and healthy. Very little covering is ever afforded to the bloom in the spring, as it is found better not to do it at all than to do it imperfectly, and of elaborate protective appliances there are none. No doubt the thorough drainage given to the roots, combined with abundant waterings in dry weather, is the key to the most successful results of outdoor Peach culture adopted at Ditton Park by an aged but very practical cultivator.

—— SEEDLING PANSIES.—Some pretty blooms of seedling border Pansies have been sent us by Miss OWEN, from Ireland, to show how well they can be grown in other places besides North of the Tweed. The colours are very rich and varied, and the forms almost perfect enough to please a florist. Rich shades of brown, purple, orange, blue, and yellow predominate, and these shade off into each other in many instances in a very charming manner. The petals are of great consistency, round, and broad, so that, as they overlap each other completely at the edges, an almost per ectly circular bloom results. A fine combination of purple and orange was remarked in a bloom which had the three lower petals of a dark purple, margined with yellow in a very regular way, the upper petal being also yellow, and the eye orange in colour. Purple, blue, and white selfs, of good forms, are noticeable as sorts which should be very effective for summer bedding in the flower garden. It is a pity the Pansy does not meet with more favour as a pot plant for windows, plant-cases, and greenhouses in spring and early summer. These seedling forms, easily raised and quickly grown, deserve greater recognition from the craft generally.

—— EAST LOTHIAN STOCKS.—From Mr. RUST, of Eridge Castle, we have received some examples of Messrs. THOMAS METHVEN & SON'S strain of East Lothian Stock, the finest by far that have come under our notice. The colours are good—rose-pink, purple, crimson and white, the plants dwarf and bushy, and carrying as many as two dozen branching spikes of perfectly double flowers. Mr. RUST writes:—"We have a border of these Stocks 120 feet long and 18 feet wide. The fragrance and beauty of the plants are beyond description. I sow the seeds in October in boxes, keep them on a greenhouse shelf till March, when they are pricked out in frames, and finally planted out in the open border in the middle of April. They will furnish us with cut flowers till October or November, and thus repay us right well for the trouble taken with them."

—— PAPAVER UMBROSUM.—This extremely showy form of the Poppy has been, and still is, very gay at Chiswick. There it has flowered grandly, its rich blood-crimson flowers with black basal blotches being so conspicuous and so admirable as to place it high up among the choicer hardy annuals. But we have heard complaints of inability to raise the seeds. This, we believe, arises to a great extent from covering the seeds with soil when sown. It is most successfully raised at Chiswick by simply sprinkling the seeds on the surface of the soil. They soon fully germinate. The flowers are generally regarded as somewhat fragile, but we have found them last a few days in water when cut young.

—— TUBEROUS BEGONIAS ON ROCKWORK.—The value of these free blooming plants can be seen at Chiswick at the present moment. A number of plants put out in little groups are flowering with remarkable freedom, and consequently are very showy. The tuberous Begonia is a most accommodating plant, and it can be used effectively in many ways. It bids fair to become speedily as common in flower gardens as the scarlet Pelargonium, and there is no reason why it should not be so.

—— BORDER CARNATIONS.—From Mr. WARE, Tottenham, we have received a fine lot of named border Carnations and Picotees—capital things for the purpose, some of them being deliciously scented, viz., Sambo, a crimson Carnation; Gloire de Nancy, a white ditto; and John Allum, a crimson bizarre. The Picotees Redbraes, with a purple edge, and the purple-edged Triumphans and Precision were very pretty examples. All are deserving of a place in the gardens of the richest or in the cottager's border. It is a pleasure to note how the plants have advanced in public estimation of late. They will be universally grown in a few years, in place of being found here and there in the gardens of collectors of horticultural rarities. The Italians and Tyrolese, who are great admirers of the Carnation, and which stands as high with them as the Rose does here with us, seldom tie up their blooms, but let them hang down from great jars on their balconies, quite *negligée*. The flowers are found to last fresh on the plant for a longer period than when they are compelled to stare in the eye of day, as with us, and the effect is quite as pretty, and it is quite natural to the growth of the plant.

—— CLEMATIS VIORNA COCCINEA.—The singular looking flowers of this plant, although small compared with those of many fine species and garden hybrids now under cultivation, are ornamental and interesting enough to merit a place in a conservatory or cool house collection. Given a light airy place near the glass where the foliage will attain firmness and substance, the flowers will keep in excellent condition for a long time. Under such treatment the plant will flower satisfactorily in a small state. In the typical plant the sepals are purple, while in the present variety they are more or less of a deep scarlet externally. Cohering as they do in a pitcher-shaped tube, the interior never becomes exposed and prominent as in most species; and the thick spongy sepals constitute the secret of their endurance. C. Pitcheri, with purple flowers of the same type, is a hardy and quite distinct species, although the present one often goes under that name in gardens.

—— SANDERSONIA AURANTIACA.—Throughout the vast order to which this monotypic genus belongs, few are more distinct or characteristic at a glance. The slender leafy stems are wiry in their texture, and almost support themselves without staking. The rich golden or orange flowers droop gracefully on slender pedicels, from the axils of the upper leaves, and owing to their shape and direction remind one somewhat of Urceolina pendula, an old bulbous plant now deservedly receiving more attention. The perianth moreover is smaller and shorter than in the latter plant, and besides the narrow six-lobed mouth is otherwise notably distinguished by six short spurs or nectaries at the base. Its cultivation is easy and being a native of Natal readily accommodates itself to greenhouse treatment, such as that afforded in the Cape-house at Kew, where it is now flowering.

—— PLANTS BY POST.—The *Evening Star* of Dunedin, New Zealand, for May 30, announced the arrival in that town of a packet of living Pelargoniums, sent from this country by Messrs. H. CANNELL & SONS, of Swanley, to the order of a local florist. The plants "arrived in first-class condition"—a fact, says the paper before us, which should encourage other floriculturists in the colony to send home for new and rare plants.

—— SANDAL WOOD IN CHINA.—According to the Imperial Maritime Customs Reports of China, the importation of Sandal-wood into Ningpo during 1881 amounted to 1066 piculs, which was more than double that of the preceding year. "This article," it is stated, "was in much demand, owing to unusually extensive repairs in the temples during last year, which period was considered an especially propitious one for building operations. Much Sandal-wood was also required and consumed in joss-sticks, for the worship of the freshly gilded idols. Nevertheless, owing to its higher value, the demand for Sandal-wood is not so large as it was formerly.

—— SPHENOGYNE SPECIOSA, a beautiful, free-flowering, dwarf-growing Cape Composite, is an annual deserving of general cultivation. It grows about 6 inches high, is of compact branching habit, and bears a profusion of bright clear yellow flower-heads more than an inch in diameter. The base of each ray-floret is glossy black, and so a continuous metallic-like lustrous ring is formed round the small disc. Nearly half a hundred species of the genus Sphenogyne are described in HARVEY and SONDER'S *Flora Capensis*, probably very few of which are in cultivation at the present time. In the *Genera Plantarum*, however, Sphenogyne is not kept up as a genus, but is referred to Ursinia. By successive sowings, the subject of the present note can be kept in splendid flower throughout the summer and autumn months.

—— GILIA AGGREGATA.—Why this pretty Phlox-wort is not oftener seen in gardens it would be difficult to determine, unless that it ripens seed less freely than most of the other species. It comes under the sectional name Ipomopsis, and is characterised by its great length of tube to the corolla. Besides this several other names have been given to it by different authors, such as G. pulchella and Cantua aggregata, while there is a figure of the plant in the *Botanical Register*, 1281. The elegant scarlet flowers are aggregated in a close raceme towards the top of the stem, and like those of its congener, G. coronopifolia, assume a pendent or drooping direction. Both are neat and select annuals, with pinnatifid leaves and linear segments, well worth a little attention, if needful, in the first place to start them into growth before planting out. G. aggregata is to be seen on the new rockery at Kew.

—— SAMBUCUS RACEMOSA.—When in fruit this species of Elder forms a striking and handsome object, and merits the praise bestowed upon it by Captain S. E. COOK, who likened the panicles of fruit to miniature bunches of Grapes of the most brilliant scarlet; when in perfection, he stated that it was the most beautiful wild fruit he had ever seen. It is widely distributed in a wild state over the continent

of Europe, and although cultivated nearly three centuries ago in British gardens it is far from being common in our shrubberies. A good sized specimen (about 12 feet high), laden with fruit, is just now a very attractive object in the Kew Arboretum.

—— Clerodendron macrosiphon. — This elegant stove plant is now flowering in the Palm-house at Kew. It forms a bush of neat habit, has rather narrow, irregularly toothed, stalked leaves, and heads of long slender-tubed flowers, the corollas of which are green in bud, but snowy white when fully expanded. It is one of the many discoveries of Sir John Kirk, who found it in very rocky places on the coast opposite Zanzibar Island, and forwarded plants to Kew two years ago. A characteristic figure is given in the *Botanical Magazine*, t. 6695.

—— Plumeria rubra.—In the Palm-house at Kew this handsome Apocynaceous plant is now in flower. The species belonging to this genus do not require much space, as they branch but sparingly, but are well worth growing both for the beauty of the flowers and for their delicious perfume. P. rubra is called the Red Jasmine in the West Indies, also Jasmine Mango and Frangipani. The "North" Gallery at Kew contains two pictures of Plumeria; one (184) being a representation of P. rubra, and the other (322) of P. acutifolia, like P. rubra, a tree of American origin, commonly planted in Indian gardens, and particularly in cemeteries, because it keeps the graves white with its daily fall of fragrant flowers. The branches are very stout, and exude a milky juice when wounded.

—— New Pickles.—Under the title of *Nouvelle Composition de Pickles* M. Paillieux recently communicated a paper to the Société Nationale d'Acclimatation de France. The paper has been published in the *Bulletin* of the Society, and from it we cull the following notes:—M. Paillieux gives the first rank as a pickle to his Oignon Catawissa (Allium fistulosum, var.), which he says produces abundance of bulbils, and should be planted in autumn. It is well known that the fruits of Cucumis anguria are used in West Indian pickles, and they are very strongly recommended by the author of the paper in question. This species grows wild in the Antilles, as well as in New Grenada, Brazil, and other parts of South America. It is also cultivated in gardens, the seeds being usually sown in March, and at the expiration of five months the fruits are ready for gathering. They are produced in very large numbers providing the season is not too wet. It is suggested that the plant might become a remunerative one for cultivation in the South of France. The young cooked fruits are tender, and very agreeable in flavour. They may be prepared in various ways, after being cut down the middle and the seeds taken out, when they can be cooked with Tomatos, ham, crabs, or cod. Placed whole in vinegar, with Elder flowers and Capsicums, they form a good pickle. They should be gathered before they are quite ripe. In Japan the roots of the Miogo (Amomum miogo, Thb.) are eaten in salads after being put in boiling water. The plant is not only found in its wild state, but is also cultivated. It is of very rapid growth, and the young shoots are cut in spring, in a similar way to Asparagus. The other plants recommended for pickles are Tropæolum tuberosum and Stachys Sieboldi. The tubers of the former are prepared in their native country by exposing them in canvas sacks until they are half-dried, or by partly freezing them; they are also eaten after being steeped in treacle; and steeped in vinegar they are said to form an excellent pickle—better, indeed, than the ordinary Gherkin. All the plants are recommended for cultivation in France.

—— Mahogany in Honduras.—A recent report from Honduras says that the cutting and shipping of mahogany is entirely carried on by British capital. Last year a little over 2500 tons were shipped in British and Norwegian vessels, all direct to London. There was an unprecedentedly long spell of dry weather, which was favourable for the trucking operations of the wood, and it was expected that the exports this year would greatly exceed those of last. Green fruit and Cocoa-nuts suffered very much from the dry weather. Cocoa-nuts have been in great demand in the New York and Philadelphia markets, and prices ruled higher throughout the year than has ever been known before, 37 dols. per thousand being freely given. They were also scarce, caused principally by a grub having attacked the trees, and in many instances causing their death. It is to be regretted that no remedy has as yet been found to eradicate the evil.

—— Theropogon pallidus, now flowering in one of the cool compartments of the T-range at Kew, is a Himalayan plant deserving of general cultivation for cool greenhouse or conservatory decoration. It has arching grassy foliage, and slightly arching racemes of purplish-tinted Lily-of-the-Valley-like flowers. It is common from Kumaon, at an altitude of 6000 feet, to Nepal and Sikkim, in which latter country it is found at an elevation of 10,000 feet; it is found also on the Khasia Hills towards the summit, about 5000—6000 feet above the sea-level. Mossy rocks, bases of old trees, &c., where the roots run rather superficially in the loose soil, are the places it affects in a wild state; under cultivation it flowers well and grows freely in rather light well drained loam and leaf mould.

—— Pachira macrocarpa.—A large specimen of this species has recently flowered in the Palm-house at Kew. The flowers are truly magnificent both in size and colour. They measure a foot or more in diameter; the strap-shaped petals are white and smooth within, and pale greyish or greenish-brown and slightly velvety on the outside, the upper portion of the very numerous long filaments of the stamens being a rather deep red, and the lower an orange-yellow colour. The leaves are digitate, somewhat like those of the Horse Chestnut, but a brighter green and more leathery in texture. Flowers of one species of the genus Pachira, P. marginata, a Brazilian forest tree, are represented in the "North" Gallery at Kew, picture No. 102.

—— Kœllikeria argyrostigma.—This pretty Gesnerad has been stigmatised by some as not worth growing, probably because the flowers are small and want that rich and showy colouring which is rather prevalent throughout the genus Achimenes, in which it was formerly included. It is figured in the *Botanical Magazine*, t. 4175, and healthy well-grown specimens have been in excellent flowering condition for some considerable time in the stove at Kew. The elliptic, hairy, crenate leaves are beautifully marked with bronzy veins, and dotted all over with white markings, at once suggestive of the specific appellation. These amply cover the soil in which the plants are grown, and form an admirable setting for the erect racemes of white and reddish-brown flowers, pencilled internally with red markings. The whole plant averages or does not much exceed a height of 6 inches, and grown in pots or pans forms a suitable subject for the front staging of a warm house.

—— Notobasis syriaca, the Syrian Thistle, is a plant by no means common in cultivation, although distinct and handsome enough to merit a place in any herbaceous collection. It is a striking plant, about 4 feet in height, with spiny white-veined leaves, not unlike those of the common "Milk Thistle," and sessile purple flower-heads, protected by rigid, spiny pointed, pinnatifid purple-veined bracts. At the present time it is one of the most conspicuous subjects in the herbaceous department at Kew.

—— Growth of the Cork Oak in New Zealand.—In a paper read before the Auckland Institute Mr. Justice Gillies gives the following particulars:—In the year 1855 the late Dr. Sinclair planted close to his house, near Symonds Street, a young Cork Oak, received from Kew. It is now about 40 feet in height, 14 feet from the ground to the first branch, with a spread of top of about 40 feet in diameter. The trunk at 3 feet from the ground is 5 feet 9 inches in circumference after stripping. For several years past it has produced acorns, from which the present occupant of the grounds, Mr. John Hay, has raised a number of young Oaks, and distributed them liberally throughout New Zealand. In 1877 I stripped the tree for the first time, and got a large quantity of virgin cork, which I did not weigh, the first stripping being of little or no commercial value. In February last I again stripped it, and after drying the bark found the product to be 70 lb. weight of good marketable cork fit for pint corks, as I am informed by Mr. Dutton, the cork-cutter, who was present at the stripping, and states it to be worth at least 60*s*. per hundredweight. It will thus be seen that the trees must be twenty-five to twenty-seven years old before producing any return, and then every five years may produce 70 lb. to 100 lb. weight of marketable cork. The produce improves in quality each stripping. On comparing the New Zealand product with imported bark it is evident that the annual growth of the bark in Auckland is equal to that of the imported.

—— A Cricket Match between the married and single *employés* of Mrs. Weatherill, of Finchley, which resulted in the success of the unmarried team, was played in the grounds of J. Shenton, Esq., of Finchley, on Saturday last. By the kindness of Mrs. Weatherill, a good luncheon was provided before play commenced, and a substantial tea followed the event of the day, and it goes without saying that full justice was done to both.

—— The Origin of Amber.—Some very interesting researches have recently been made on the flora of the amber-bearing formations of East Prussia by Messrs. Goeppert and Menge. In ancient times there must have been in this part of Europe a group of Conifers comprising specimens from almost all parts of the world. Among the splendid specimens of the Californian Coniferæ were the Red Wood, the Sugar Pine, and the Douglas Spruce; and of the examples of the Eastern States were the Bald Cypress, Red Cedar, Thuia, and the Pinus rigida; from the eastern coasts of Asia were the Chilian Incense Cedar, the Parasol Fir, the Arbor-vitæ, the Glyptostrobus, and the Thuiopsis; the Scotch Fir, the Spruce, and the Cypress of Europe; and the Callitris of Southern Africa. It appears that the deposits of amber for which the Baltic is noted are the product of generations of these resin-bearing trees. The richest deposits are situate along a strip of coast between Memel and Dantsic, though the real home of amber has been supposed to lie in the bed of the Baltic between Bornholm and the mainland. It rests upon cretaceous rocks, and consists chiefly of their *débris*, forming a popular mixture known as blue earth, which appears to exist throughout the province of Samland at a depth of 80 to 100 feet, and to contain an almost inexhaustible supply of amber. Immense quantities of amber are washed out to sea from the coast, or brought down by rivulets and cast up again during storms or in certain winds. The actual yield by quarrying is 200,000 lb. to 300,000 lb. a-year, or five times the quantity estimated to be cast up by the waves on the strip of coast above mentioned. *Times*.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending July 30, issued by the Meteorological Office, London:—The weather has been cloudy and unsettled generally, with occasional rain and local thunderstorms. The temperature has again been below the mean in all districts, the deficit ranging from 2° in "Scotland, W.," to 5° in "England, E.," the Midland Counties, and "Ireland, N." The highest maxima, which were registered either on the 28th or 29th, ranged from 75° in "England, S.," to 66° in "Scotland, E." The lowest readings were recorded on the 29th, and varied between 37° in "Ireland, N.," and 45° in "England, S. and S.W." The rainfall has been less than the mean in all districts excepting "Scotland, E." The driest weather has been experienced in the west of Scotland and north-west of England. Bright sunshine has been rather more prevalent than it was last week, the percentages of possible duration ranging from 52 in "England, S.W.," to 23 in "Scotland, E." Depressions observed:—During the greater part of the week pressure has been highest off our west and south-west coasts, and lowest over Scandinavia or the Baltic, and the prevailing winds have therefore been north-westerly or northerly. On the 29th and 30th, however, a shallow depression passed slowly across Ireland and England from the northward, the wind during its passage showing a cyclonic circulation. In force the wind has been light or moderate, except on the 27th, when a moderate northerly gale blew on the east coast of England.

—— Gardening Appointments.—Mr. H. Alderman, late Foreman at the Gardens, Eastwell Park, Ashford, Kent, as Gardener to G. Hatfield, Esq., Morden Hall, Morden, Surrey.—Mr. Geo. Dickson, lately Gardener at Farnborough Park, Hants, as Gardener to Henry Lamson, Esq.—Mr. G. H. Copp, late Foreman to Mr. Pullman, Frampton Court, to the Management of the Gardens and Grounds at Holnest Park, Sherborne, Dorset, the seat of J. S. W. S. Erle Drax, Esq.

Home Correspondence.

The Ornamental Water in St. James' Park.—During a recent stay in London I had frequent occasion to cross the ornamental water in St. James' Park, and felt much surprise at the want of taste shown in the arrangement of its banks. These are lined from end to end with large flints placed in lines with great regularity; the effect of course is scarcely better than that which would have been produced by rows of bricks. There are many beautiful plants which grow on the margin of water, such as the Osmunda regalis, the yellow Iris, the purple Loosestrife, Bullrushes, Sedges, &c.; tufts of these separated by masses of rock, might fringe the sides with the most beautiful effect if any taste were employed in the arrangement. The water is so shaped as to appear natural, but what can be less natural than a uniform bank of flint stones? The park professes to be something between a park and a garden, for there are large borders of shrubs and flowers: why then should that part, the margin of the water, which of all others is capable of being made productive of beautiful effects (for all I am sure will agree with me that nothing in Nature is more beautiful than combinations of water and vegetable forms), be treated like the gutter of a street? Why, again, should there be no water plants in the water? The fact that the bottom is concreted renders their management a very easy matter, for they can be grown in large pans, and each species kept separate and developed in its greatest beauty. I need not enlarge upon the beauty of these plants; the white Water Lily is a proverb for beauty, and its rosy variety, if possible, more lovely. The magnificent Nelumbia (speciosum and luteum) might probably in hot summers (if we ever again have any) flower in the open air if kept in the winter in warmth. Mr. Robinson states that for several years the latter lived and flowered in the basin of a fountain in Paris in the open air. The flower of this is nearly a foot in diameter. *N.*

The Carnation and Picotee Show. — Permit me to say that the rose flake Carnation, Robin Hood, ascribed to me in your report of the National Carnation and Picotee Show on p. 120, is the production of my friend, Mr. Richard Gorton, of The Woodlands, Gildabrook, Eccles, Lancashire, who also is the raiser of Wm. Skirving, C.B., and Tim Bobbin and Rob Roy, rose flakes—flowers, I venture to say, which will make Mr. Gorton's name honourably familiar on the lips of florists for many long years. *E. S. Dodwell, Oxford, July* 30.

Grafted Fir Trees.—How long will nurserymen vex us with grafted Fir trees? Like Macbeth's witches, they keep the word of promise to our ear, but break it to our hope. Having wasted time and money upon Abies amabilis, A. bracteata, and Larix Kæmpferi, with no better results than stunted bushes, I think that it would be far better to leave them alone until seed can be procured. *H. K.*

Trade Groups at Flower Shows.—The question asked on p. 80 as to "what kind of honours" are or should be paid to trade exhibitors opens up a subject that certainly requires ventilating. It is surprising that the views of nurserymen upon this subject have apparently not yet been sought for the guidance of show managers. Undoubtedly flower shows depend mainly on the not-for-competition groups of trade growers for their chief attraction, and it is surely pertinent to inquire how the nurseryman is recompensed; not in a monetary way, for no share of the admission-money falls to his lot—in fact, he is generally a subscriber to the society's funds, and sometimes offers special prizes for competition. His only opportunity is to make such a display of his goods as will induce visitors to become ultimately purchasers; he adopts this mode of obtaining bold advertisement, and has to educate the public taste to a buying point. The expense of conveying and staging a large group of plants is a heavy charge on trade, nor are the inducements to exhibit the value of the special prizes that may be awarded to a successful exhibitor. Now, let us inquire as to the honours. What do they consist of? Generally, only a "letter of thanks," ignorantly conveyed from the committee of the society; sometimes a more or less emblazoned piece of cardboard as a "certificate of merit;" often a "medal," silver, silver-gilt, bronze, or otherwise, is awarded, but how often even by the Royal Societies of London is the award properly carried out? Never promptly, sometimes tardily, and not infrequently the exhibitor informs the secretary he would like the equivalent of the medal in cash, for if he has already half-a-dozen, or it may be dozens, of these precious medals of questionable intrinsic value, of what use is another to his numismatic collection? He cannot exhibit his honours in his office or shop, because they can be so easily stolen; to adorn his person with them would provoke ridicule; to place them in a drawer or cabinet, and to show them at times to his friends, is the sole purpose to which he can devote them. May I not then venture to say the honour of medals is vainglorious, and the practical utility *nil*, as they have become too common by frequent and indiscriminate award? Prize winners at schools are wisely and encouragingly awarded books likely to be of service to their minds during life; at our athletic gatherings plated cups suggestive of potations are no longer, as formerly, the sole articles held out for competition: in more enlightened days a variety of articles useful for the household and table are discriminately awarded. Might I suggest, then, that the money equivalent of the prizes could be appropriately awarded in the shape of books relating to the profession, in ornamental or useful articles for the household—a nice epergne for flowers, for instance, silver or plated goods, which could have the winner's name and that of the society engraved thereon afterwards; and above all, is it not desirable that the prizes, whatever they may be, should be distributed at the close of the day's show by some person of note, who would thus add a grace and a charm, now so sadly wanting, by bestowing honour to whom honour is due, and when it is due? Lastly, I would add, that honour to the trade is as yet only accorded by the public praise, which finds a voice generously and ably in the columns of the gardening press: and this is our only consolation. *Spero.*

Travelling Impostors.—Allow me to warn your readers against a set of men who travel the country, calling upon gardeners and stablemen, to whom they tell a pitiful story of their misfortunes, which in the end of course means that they want money. There is one in particular who has a "stable cut" about him who I feel sure systematically carries on this system of swindling. He called here a few days since, and I recognised him as the same who called at an establishment where I lived about three years ago, and his tale has varied but little since that time. *G. Knight.*

The Gardeners' Royal Benevolent Institution.—As the time has arrived when our gardens are again in their most attractive condition I venture to express a hope that gardeners in charge will not forget their poorer brethren. Some of your readers may remember that I asked my employer last year for a half day, when £40 was realised for the above Institution. I feel quite sure that if gardeners would only ask their employers, very few, if any, would refuse. The matter rests for the most part with gardeners themselves, and I do hope they will do their very best to make this year's collection a success. *John Perkins, Thornham Hall, Suffolk.*

Thrum-eyed Primroses.—It needs considerable courage to question the dictum of an editor, and yet I venture to cast considerable doubt upon the dictum laid down at p. 86, that thrum-eyed Primroses do not on the average produce so many, or such good seedlings, in the long run, as pin-eyed flowers do. I have grown both coloured Primroses and fancy Polyanthuses for years, and am vain enough to think that I have one of the finest strains, and most varied in colours, of both these spring flowers, to be found in the kingdom or elsewhere. How were these strains obtained? Solely by selecting for seed only the finest thrum-eyed flowers. I once saved seed from the large pin-eyed kind, improperly called Primula altaica, but the flowers had been fertilised with pollen from thrum-eyed flowers. That was about twelve years since, but from that time I have depended solely upon selection from the best for the improvement of our strains, and never save from pin-eyed flowers. I have now, of Primrose seed so saved, a large quantity just germinating, and may truly say that it is coming up as thick as hail. Seed saved from any flowers could not possibly give better results, as far as germinating quality is concerned. As to productiveness of seed, that I have found to be in no respect governed by pins and thrums. From specially marked plants with thrum-eyed flowers I have taken a lot of seed-pods; from others of similar character very few. The same features have been found in pin-eyed flowered plants. There was no rule found in the results on which to base any theory or fact tending to show that pin-eyed flowers were more prolific in the production of seed than thrum-eyed ones. Now, what has been the result in the reproduction of thrum-eyes? That is a fair question to ask, but one difficult to answer, in so far that I have had no means of testing such result as against the produce of pin-eyed seed. Relatively I should say that the product is of thrums and pins about in equal proportion, so that it is certain the saving of seed from thrum flowers only will never lead to the extermination of the pins, much less of the Primrose family. Exactly the same results came from Polyanthus seed; indeed, beyond the not very distinctive line which separates the garden Polyanthus from the Primrose there is no discernible difference between the two sections. I should very much like to see tested the product of two Polyanthus and Primrose plants, the one pin-eyed and the other thrum-eyed, an equal quantity of seed being saved from each, and to note how far the seed of one plant germinated better than that of the other, and what difference—if any—there might be in the habit of the plants; and finally, which produced the larger portion of thrum-eyed flowers, and of the best quality. Such a test, if carefully applied, would soon set at rest all theoretical speculation, and convert only assumed facts into absolute certainties. Those who were at one of the South Kensington shows held in the conservatory early in May will remember the exceeding beauty of that grand lot of seedling alpine Auriculas, staged by Mr. Turner. They were, without exception, the finest lot of seedlings ever raised from any one batch. Mr. John Ball, who is Mr. Turner's talented grower of these plants, told me that this batch, with many others, the proportion of thrum-eyed ones being unusually large, were all the product of thrum flowers crossed with pollen from thrum flowers, the anthers in the seed-bearing flowers being first carefully removed. Mr. Ball is an experienced raiser, and is but a dubious theorist. He will have nought of pin-eyed flowers, however; for all such are florists' abominations. That they serve a purpose in the economy of Nature which thrum flowers cannot discharge, is a fondly received theory that practice shows not to be true. If every pin-eyed flower were to die to-morrow we should be in no lack of a great future for Polyanthuses and Primroses. *A. D.*

Seed of Papaver umbrosum.—Having had many applications last winter from gardening correspondents for seedlings of Papaver umbrosum because all their seed had failed, I may state that the Poppies especially in wet seasons produce seed very capriciously. On going round I find that many plants of P. umbrosum, though covered with healthy looking pods, are producing no good seed; all are filled with seed, but on examination it is shrivelled and barren. Good seed may be distinguished by its larger size and its plump look, but especially by its purple colour. The best way of raising seedlings of this plant, is to allow the plants to remain where they grow, and if any good seed ripens it will come up in September When large enough the seedlings may be transplanted to their flowering places, where no winter cold will injure them. *C. Wolley-Dod, Edge Hall, July* 28.

James Veitch Strawberry.—I can fully endorse all Mr. Murphy says in favour of this variety. I consider it the Strawberry of the day. When in Warwickshire we had 2 acres of Strawberries grown for sale, and amongst all the varieties none was so early and large as this. I have seen five fruits that would turn the scale at 1 lb.—not odd fruits, but as a rule. It also carries well, all the fruit I sent away having to travel long distances to most of the large refreshment departments on the London and North-Western Railway. As a market Strawberry there is nothing that comes near it. *Joseph Murdoch, The Gardens, Beaurepaire Park, Basingstoke.*

Cedars in Scotland.—You had lately some reference in your columns to exceptionally well grown Cedars in England. I have just lighted upon a memorandum prepared for me in 1878 of a splendid grove of Cedars that exists at Redick, a small estate in the district of the Aird, in the immediate neighbourhood of Inverness. There are thirty-three Cedar trees in the garden, and though it is not definitely known when they were planted, there is little doubt that they were brought from Persia and planted by the late J. B. Fraser, of Redick, author of the *Kuzzilbash*, the *Persian Adventurer*, and many other works, an accomplished Persian scholar and long resident in Central Asia (1820-30). Five years ago several of these Cedars were 60 feet in height. The largest girthed within a foot of the ground 13 feet 6 inches; the next largest, 12 feet 9 inches. The girth of the largest branch was 6 feet 1 inch. The extent of ground covered by the largest of these Cedars was 87 feet 10 inches. Cones are produced in abundance, large and well developed in appearance, but they refuse to fructify. In the same garden is a Deodar which in 1878 was about 36 feet in height and girthed 7 feet 3 inches, and which is supposed to have been planted about 1840. *Inverness, July* 30.

Mulleins.—Verbascum Chaixii, a very fine perennial Mullein, is now in full flower here, growing 7 feet high, the upper 4 feet being all flower. It is of very branching habit, corolla clear yellow, filaments thickly covered with bright purple wool, anthers orange. This combination of colours makes the flowers very effective; and it is one of my handsomest July plants, the flowering season being long. The description of the flower, as far as colour goes, suits the native V. nigrum also; but the flowers of V. nigrum are much smaller, the spikes less branched, and the plants about half the height. The two plants are entirely distinct, though V. nigrum is often sold for V. Chaixii. There is no such a plant as V. Chaixii album, or if there is I am ready to give a sovereign for a plant, but I must first see the flowers to make sure that it is true. V.

nigrum album is a most beautiful plant, the white of the flowers being very pure and well set off by the purple and orange above described. It not often divided and transplanted V. nigrum becomes coarse and leafy. V. phlomoides is a once flowering kind, growing 8 feet high, with very large pale yellow flowers, and a good branching habit; but V. olympicum is much better, being as tall and still more free in flowering. I raised a stock of them from Mr. W. Thompson's seed in spring, 1881. None flowered in 1882, but many rotted off. One has flowered this year in a warm and very well-drained border, making lateral spikes from top to bottom, and coming into flower all at once. Two other plants are still alive, and may flower next year. I have many other Mulleins, but these are the best. Self-sown hybrids come freely, but are seldom as good as their parents. Those between V. phlomoides and V. nigrum might be mistaken by gardeners unused to them for V. Chaixii, but the purple wool of the filaments is wanting, and the flowers are far inferior. V. phœniceum is a good spring plant for a sunless climate like this, having flowers of all colours between dark purple and pure white. It flowers more or less all the summer, and is a true perennial; but the flowers are withered at once by sun. None of the Mulleins stand sun well, but they get little enough of it in Cheshire. I have just measured the average size of the flowers and find them to be—V. phlomoides, 2 inches across; V. olympicum, and V. Chaixii, 1½ inch; V. nigrum, 1 inch. V. Blattaria, both white and yellow, is a pretty biennial for a dry shrubbery, but in this damp soil it grows too tall for its strength. *C. Wolley Dod, Edge Hall, Malpas, July* 30.

Chrysanthemum segetum. — Although some persons are growing this in gardens it is almost as common in fields in this neighbourhood as Poppies, and on one farm belonging to this estate it is so abundant that the farmer could supply a load of blooms every week if he could only find a market that would pay him for the picking and sending, as the plants are overtopping his Barley and other crops, and making a broad expanse of yellow with the bright colour of their numerous flowers. That these and those of other wild plants may be made to dress well in vases when associated with light feathery grasses and put up by persons possessing taste for the work there can be no question, and I have seen them at Woodbridge Show quite vie with the exotics, which proves what may be done with them if only the right things are selected. If Chrysanthemum segetum can be made to ornament our borders there is no reason why it should not find a place there as well as Tagetes pumila, and though it may be considered rubbish by some it matters not if the rubbish is put in the right place, and no doubt this Chrysanthemum, weed though it be, may be made to produce some charming effects by using it with dark-leaved plants, like the Ricinus Gibsoni, or associated with blue or purple, like Verbena venosa. *J. S.*

Wild Flowers at Horticultural Exhibitions. —I have read your observations on exhibitions of wild flowers at horticultural shows with very much interest, the more so as I did not agree with all you said. It may be, however, that after all there may be no difference of opinion between us on further explanation, and knowing your impartiality, I have no hesitation in placing, with your permission, my humble opinion, and the grounds for it, before your readers, albeit that my opinion may be at variance with your own. I am a member of a not insignificant provincial horticultural society which offers £400 in prizes, as your advertising columns will show, and in co-operation with a few other lovers of wild flowers I have succeeded in inducing the committee to give a few small prizes for competition for collections of wild flowers, from which fact you will see the position in which I stand, being to a certain extent committed to the practice you condemn. It has been with great difficulty the judges could be induced in former shows to give an opinion as to the relative merits of the collections sent in for competition, chiefly, I verily believe, because they knew nothing about wild flowers, or because they thought them beneath their notice. This year I proposed three botanists as judges who also possess a keen perception of artistic skill in arrangement of form and colour, and I feel sure a better result will follow. (I hope my gardening friends will pardon me.) Now, Sir, you ask in one of your recent articles, after stating your objections, "This being the case, what possible good can be expected to accrue from such exhibitions?" I will endeavour to answer this very legitimate inquiry. First I must give the rule in our schedule, because nearly all depends on this:—"Groups of wild flowers, grasses, and Ferns, arranged in basket or box, not exceeding 18 inches square," and a "Group of wild flowers, grasses, Ferns, and wild fruit combined, arranged in basket or box, not exceeding 18 inches square. Any cultivated specimen introduced will disqualify. Skill of arrangement to be considered the test of merit." At our last year's show the table on which the collections were displayed was one of the most crowded points of interest, and the effect of many of the collections was charming, both as to colour and form. Some were sent in by the wives and daughters of working men, and evinced a refinement of taste truly astonishing. The soft blending of colour produced by Lychnis, wild Rose, Water Lily, Myosotis; the exquisite freedom of form obtained by the trailing Bryony, Convolvulus, and Moneywort; and the superb tracery of Fern and grass left nothing to be desired by the most captious critic, unless unduly biassed by gardeners' proclivities. Now, Sir, for the good I expect to accrue from such exhibitions:—1st. The cultivation of a taste for floral decoration by those who possess no other greenhouse than Nature affords. 2d. The habit of observation of natural productions, which Sir John Lubbock so eloquently urged in the House of Commons last week as a necessary part of elementary education. 3d. The inevitable refinement which necessarily follows a love of flowers whether produced by costly culture or the free gift of Nature's hand in the fields and hedges of country districts. These appear to me not unimportant advantages gained by exhibitions of this kind, and are not, I contend, beneath the notice of the most advanced horticulturist. Regard for your space alone prevents me enlarging on this theme, but I hope enough has been said to show there are two sides to this question. *W. P.* [We shall return to this subject. Ed.]

The Reliance Rotary Valve.—At the great summer show at South Kensington, the Thames Bank Iron Company, Upper Ground Street, S.E., received a Special Certificate of Merit for their Patent Reliance

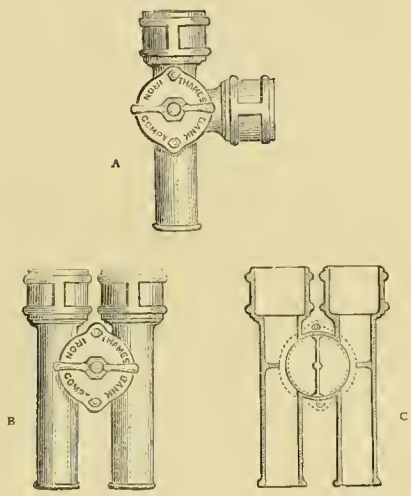


Fig. 25.—RELIANCE ROTARY VALVE.

A, 3-way T-valve; B, 3-way H-valve; C, Section of H-valve.

Rotary Valve, of which we give illustrations fig. 25), showing its application to H and T pipes. Its great merit consists in its being so constructed "that one will answer the same purpose as is now obtained by three separate valves, the one handle having control over the three waterways. The patentees claim that it "is exceedingly simple in construction, and very carefully fitted. All the moving parts are of the best gun-metal, and will not set fast or get out of order. The handle being the indicator, one half-turn either way opens or closes the valve, and it cannot be strained or injured by overturning."

Grammanthes gentianoides. — I recommend this neat little annual, now flowering from Mr. Thompson's seed, to those who do not already know it. It should be sown early under glass, and be pricked off when large enough, each being allowed a diameter of at least 3 inches. It grows about 2 inches high, making a dense little bush 4 inches or more across, crowded with orange-red flowers, the size and shape of those of Chlora perfoliata. For vacant warm spots on the rockery, where one plants Leptosiphon hybridus, Ionopsidium acaule, and such-like dwarfs, it is a valuable addition. *C. Wolley Dod, Edge Hall, Malpas, July* 27.

The Protection of Bush Fruit.—Every one who has a garden likes to preserve Gooseberries and Currants to as late a period as possible, and various are the methods resorted to for keeping birds off, some using mats, with which they envelope their bushes, and others nets, but both are objectionable, as the mats shut out the sun and air; and nets, when brought in contact with Gooseberry bushes, cannot fail to get torn. The best thing I have ever found for the protection of these hardy fruits is rabbit-wire, which should be from 3 feet to 4 feet high and about 1¼ inch mesh, which will keep out any birds, and, with care in handling and storing away, will last a lifetime; and, therefore, although it may appear dear at first is very cheap in the end. For single trees it is necessary to have the wire cut in lengths of 9 or 12 feet, according to their size, and all that is wanted for its support is a stout stake, to which the two ends should be brought and there tied. Although it is as well to throw an old piece of net over the opening at the top, it is not often the birds attempt an entry there, but run round and round the bottom, peering in till they make quite a path. The way we manage now is to have most of our late sorts of Gooseberries together in a separate plantation from the others, so that we can run a piece of rabbit wire right round, and strain a fishing net over the top on poles, or string resting on stakes, by doing which much less wire is needed, and a man can go under easily and gather the fruit. Where it is desired to have Currants late it is a good plan to grow them on low walls or fences, where they can have a coping board above them to keep them dry, as when rain gets at them they quickly rot in the autumn. The only Gooseberry I find to hang long is the old Red Warrington, a large rough red sort, which is not only an excellent cropper, but is also of superior flavour. For low bushes that have their branches near the ground it is advisable to mulch under them with a little short straw or litter, to keep the fruit from being splashed by the heavy rainfalls in the autumn, as otherwise the Gooseberries often get covered with dirt and grit, and rendered unfit for dessert. *J. S.*

A General Index to Curtis' "Botanical Magazine."—Will you kindly allow me, who am not a botanist, but only a lover of plants, to give some explanations in reference to the remarks of "H." on the above publication in your last issue? The work does not profess to be more than an index, and indexes generally are limited to the contents of the books to which they refer. It would have been more than an index, and more valuable, if it had contained synonyms other than those in the text; as I was aware of this, application for assistance was made to the botanists who were supposed to be specially interested in Curtis' *Magazine*, but it was refused. It may be that one or two indexes of subdivisions of the work have been published as supplements besides those enumerated in the preface, but they are not contained in my copy, which is apparently complete, and the fact does not affect the question of the want of a single general index to the entire work. Pritzel's *Iconum Botanicarum Index*, of which I have the original edition of 1855, and the supplement of 1866—a most valuable book—does not give the synonyms, nor supply the want above referred to, nor is it "based upon the limitations of the genera of plants in the most recent standard works," but gives the names as they are in the books quoted. The reference was to the third edition of Sowerby's *Botany*, and when it had been advertised as complete in its present form for ten years it was not incorrect to refer to it as a book without an index. It is difficult to understand what "H." means when he states I have singularly over-rated the importance of my index. A plain statement of its contents and of its deficiencies is given in the preface. "H." could not have been more pleased than I should have been if a competent botanist had published a complete index, and saved me the trouble and expense of preparing mine; but as such index was not forthcoming, and in the mean time my copy of Curtis was practically useless, I resolved to do the best my limited leisure permitted for the use of myself and such others as cared to avail themseves of my work. As to the surprising error alleged to have been committed by me in mistaking arctotidis, which may be a genitive form, for a derivative, as to its termination, of ἐιδής, if reference be made to plate 4035, Dryandra arctotidis, it will be found the translation of the latter word in the description is Arctotis-like, from which it would appear that the Editor of that date assumed it to be a derivative of ἐιδής; if it be a genitive it is singular, for to the best of my recollection no other example of a specific name constructed out of the genitive of a generic name occurs in the 107 volumes of the *Magazine*. *Edmund Tonks, Packwood, Knowle.*

The Potato Crop.—Two years since, discoursing in these pages on Potatos, I wrote:—"We are now at August 1 and not a fungus spot has been seen; a stem has gone off here and there, and some rust has been seen on the leaves, but of the genuine disease nothing has been heard, and there is a luxuriant healthiness about the leaves and plants that is for the time of the year as remarkable as it is unwonted." Just as history repeats itself, so may what was then written be repeated now with absolute truth; the only difference in the general aspect of the Potato now as compared with the growth in 1881 is that it is a little later, but, on the whole, during the past month the tubers have made great progress, and August finds the root crop but very little later than it has been in average years.

Already are early kinds dying off a healthy and natural death; the golden tints seen on the decaying leafage are as pleasing as they are unusual, indicating that the tubers, whether large or small, are at least sound and free from disease. With all the later sorts there is to be found a vigour and promise that indicates a marvellous crop, and it will not be a matter for surprise if the great crop of 1881 is repeated, but in an even more abundant degree. It was in that year that the Champions and the Magnums first began to tell upon the Potato markets, and as the breadth planted with these and similar heavy cropping kinds is this year probably much greater than two years since, there is every reason to anticipate what, after all, is hardly a blessing—such a glut of tubers as shall bring little profit to the growers, even though the consuming public may have ample reason to rejoice. Partly owing to the heavy crop of 1881, and the consequent low returns, so that a less breadth of ground was last year planted with Potatos, and partly owing to the early loss of leafage on all kinds through the premature action of the Peronospora, the glut of the preceding year was changed into a sparse crop, although as it proved in the end a fairly healthy one. Thus the comparative scarcity of one year reacts to evoke abundance in the next, and as we anticipate with so much good reason a big crop this year, it will not be surprising if some large growers should be shy of planting largely next spring. Whilst in 1881 we had so little to complain of generally as far as the disease was concerned, its action last year on the foliage was exceedingly premature, and, indeed, as early as the end of June we had to report its appearance largely on early kinds. Still the disease did not appear in the tubers in a virulent aspect, indeed many kinds that usually when disease is rife are fearfully affected were sound beyond our highest hopes. Coupling these results of the preceding two years with what is the state of things at present—a state that for health and promise has hardly been exceeded for the past forty years, we may be excused for imagining that possibly the back of the disease has been broken, and that it is less potent for evil than it was some years since. If that be too optimist a view to be taken of the state of things, at least we may congratulate ourselves that the seasons are now more favourable to the Potato than they were but recently. Mr. Plowright, in beginning his admirable paper at p. 103 on Mr. Jensen and the Potato disease, makes the remarkable and positive statement that "all appearances point to a severe visitation of the Potato disease." Comparing that assertion with the reports as to the present state of the Potato crop furnished by intelligent correspondents in all parts of the kingdom, I find it very difficult indeed to reconcile such prognostication with these reports, and the abundant evidence of my own senses; in fact, whilst last year as far as tried Mr. Jensen's protective earthing gave no results simply because the disease was so light in its attack, so this year does it seem as if we should pull through a splendid crop in our old-fashioned way. I would not for one moment seek to depreciate the value of Mr. Jensen's system. No doubt whatever it is absolutely correct in theory and in fact, but if the seasons decline to promote the operation of the Peronospora of course protective earthing will render us no useful service. We should like to learn first what the spores which are in damp seasons so active amongst the Potato plants are doing now. Are they sailing in the air robbed by its dryness of all power to strike and wound, or are they lying dormant in the soil, or somewhere, incapable of expansion and activity? There has been no lack of rain in most parts of the country, and specially have there been numerous electrical storms—phenomena once thought to be peculiarly favourable to the disease even if not its creative power. Still no particular harm has resulted, and to have got through July without finding any special quantity of disease spots is, with the exception of a similar state of things in 1881, a fact upon which we may well offer and accept congratulation. Very noticeable, however, this summer so far, has been the absence of those moist, muggy, misty nights that are more than any other natural phenomena to be dreaded. These promote the rapid operation of the floating spores in the leafage and stems far more than rains do. Whilst, however, there is so far such general immunity from disease even on the foliage I trust readers will take to heart Mr. Jensen's advice as to lifting, and not be in too much hurry to rush up their crops. In small gardens there is hardly any alternative, but as a rule the plan seldom turns out to have been a wise one. *A. D.*

—— The Potato crop so far is promising. Up to this date we have seen nothing of the taint or leaf spot which is the forerunner of disease in the Potato itself. We must not, however, feel too safe; there is yet plenty of time for the disease to appear and work much mischief. This sultry, thundery, rainy weather is exactly of the kind which in former years preceded, fostered, and engendered it. Such experience has reluctantly taught us to expect and anticipate a visitation of Peronospora whenever the elements appear favourable to its development, and to prepare us to combat with it as best we know how. But in this, so far as our humble efforts have yet led us, they have ended in nothing much beyond that position which enabled the poet to so aptly and forcibly express for us for this and all other similar failures, viz.—

> "In proving foresight may be vain;
> The best laid schemes o' mice an' men
> Gang aft agley,
> An' lea'e us nought but grief and pain
> For promis'd joy."

Last year we grew a good many of the newer and more highly recommended varieties, which ended more or less in considerable disappointment. This year we have reduced our varieties, growing only for our early crops such sorts as Myatt's and Rivers' Royal Ashleaf; for general crops Magnum Bonum, International, Beauty of Hebron, Schoolmaster, and Rector of Woodstock. In the allotment gardens in this neighbourhood Magnum Bonum is the favourite, but in these and in the village gardens all the newer varieties as they are introduced are tried, and judgment on their merits or demerits most unerringly pronounced upon them by a syndicate of the whole of the villagers from time to time assembled. Farmers in this district are not Potato growers. This is rather surprising, because to a certain extent there is a Potato trade going on between Coventry and Lincolnshire and other distant Potato growing districts. But after all, the demand for either Potatos or milk in Coventry or in other Warwickshire towns is small when compared to Scotch towns of equal size. Take Glasgow, Liverpool, or Manchester, where the people know how to appreciate and enjoy a Potato and herring dinner, and also a porridge and milk breakfast. The people of Coventry care for none of these things, consequently they are as a rule small in bone and thin in muscle. Any one may witness the multitude of milk carts that are during early morning driven into Scotch towns by every available approach, and also of the enormous quantities of Potatos making their way towards those great northern industrial centres by river, road, and rail. Contrast this state of things, if you like, by a visit at early dawn to the approaches of our Midland towns—there is no such traffic; all is still and melancholy almost as death itself. If our medical staff were to show a little more pluck in backing up what we already know to be their opinion, *i.e.*, in prescribing a more liberal diet of milk, vegetables, and fish, we would not only be gainers by having a race of men of improved physique, but our farmers, by a greater demand for milk and potatos, would have created for them an almost new industry, and so revive or resuscitate to a very considerable extent their present most depressed and languishing condition; and were our good Queen kind enough to take a lead in this, by ordering on to Her Majesty's royal table, dishes of Potato and herring, and porridge and milk, and the royal lead carried on in a spirited manner downwards through every grade and rank of the aristocracy — no one stands more in need of a pleasant turn in the agricultural lane than they themselves do—a pattern of this kind well carried out and well sustained would do more to improve the present depressed agricultural position than anything the House of Commons can do by laboriously legislating through an entire session over an Agricultural Holdings Act. Only give to agriculture encouragement for increased supply of the above production. This, followed by more congenial seasons than we have been having lately, rents will then be readily and fully paid up, and all noisy clamouring for agricultural legislation will vanish like the distant rumbling of a receding thunderstorm. *Wm. Miller, Combe Abbey.*

Ketton Hall, the seat of J. T. Hopwood, Esq., near Stamford, is well worth a visit now from any one interested in fruit culture, as upards of forty varieties of Peaches and Nectarines are to be seen there in various stages of development, but most of them ripening fast; and the fruit on some of the trees may be counted by hundreds—one tree in particular on the day of my visit (July 16) had about 300 fruit on then, and I was told 110 had been gathered that morning, and a similar quantity a few days previously, giving a total of over 500. This tree would measure from the points of the young wood about 24 feet by 16 feet. The varieties most esteemed are—Peaches: Royal George, Bellegarde, Grosse Mignonne, Princess of Wales, Alexander, Exquisite, Sea Eagle, Stirling Castle, Prince of Wales, First Lord, Merlin, &c. Nectarines: Elruge, Lord Napier, Victoria, Stanwick Elruge, Pine-apple, Violette Hâtive, &c. These are all located in splendid modern built houses, glazed on Rendle's system, thus giving the trees abundance of light, the effect of which is seen in the splendid colour of the fruit. The last addition to the glass structures—a fine curvilinear span-roof by Rendle, 150 feet long by 28 feet wide—is a picture in itself, and, taking all things into consideration, is probably the finest fruit-house in the kingdom. It was only completed last October, but was immediately planted with large trees removed from the other houses, and now the trellis is nearly covered with fine trees bearing enormous crops, not thinned out to the regulation distance but growing in clusters, and attaining a good size as well. The trellis as usual runs near to the sides of the house, and the centre part is filled up with Figs in pots, and Peaches, Nectarines, &c., in pots for preliminary trials; thus, what was only a grass field about ten months since is now a grand house full of delicious fruit, and this is a triumph in fruit cultivation of which Mr. Hopwood and his gardener, Mr. W. Woodfield, may well be proud. But although Peaches and Nectarines are the principal things grown here, other things are by no means neglected. In addition to the usual occupants of a good garden I noticed some Pear trees in pots which had some very fine fruit on, principally Doyenné du Comice, Souvenir du Congrès, Brockworth Park, Marie Louise, Pitmaston Duchess, Louise Bonne of Jersey, Clapp's Favourite, &c., the last-named being ripe, and appearing to be a first-class early Pear. The others will be very fine when they attain their full size. Ketton is about 4 miles from Stamford, but trains by the London and North-Western and Midland Railways call frequently at Ketton Station. *W. H. Divers, Burghley.*

The Hybrid Raspberry.—The plant figured in the *Gardeners' Chronicle*, xx., p. 13, as a "hybrid Raspberry" is a *forma inermis* of the Rubus Idæus var. obtusifolius (Willd. spec.) = var. anomalus Arrh. = var. Leesii, Babgt. This variety of the common Raspberry is a very curious thing, which very seldom bears fruit, because the carpels generally are not closed, and the young seeds cannot withstand the dryness of the open air. From the very rare fruits, however, the variety comes true. A *forma inermis* of the plant was hitherto unknown to me. *Dr. W. O. Focke, Bremen, July 24.*

THE SUNNINGDALE NURSERY.

Rhododendrons, it is needless to say, are one of the features of this nursery, thriving in the natural soil in a way that it is not possible to exceed. They comprise all the best kinds, new and old, which combine handsome flowers with the right parentage to give a hardy constitution, such as will enable them to pass unscathed through the exceptionally severe winters that from time to time visit us. This last is an important consideration, which should never be lost sight of in selecting varieties to plant, for however handsome the flowers may be, if the leaves are not able to withstand the hardest frosts which the country is ever subject to, they are useless, from the unsightly appearance the plants have when so injured. Mr. Noble rejects all that are the least susceptible to injury in this way, confining the kinds he cultivates almost wholly to such as have been raised from the North American species catawbiense, the progeny of which, like the parent, will bear a much lower temperature than ever visits these islands, without the leaves being affected in the least. The stock consists of thousands of all sizes, from the usual trade examples up to large bushes; the standards run from 2 to 8 or 10 feet in diameter; there is an unusually large stock of these effective plants, in the best possible condition. Amongst the new kinds is Charles Noble, a free-growing and profuse floweriog variety, with brilliant red flowers and a prominent yellow eye; it is a late bloomer, coming in when many sorts are over. Lady Strangford is another grand variety, ground colour peach, with deep claret centre, distinct and beautiful. Lord Wolseley, brilliant orange-scarlet in colour, with large commanding foliage; a fine distinct kind. Prometheus: the colour of this is intense scarlet-crimson, a very free bloomer, and fine habit. Rhododendron californicum, a comparatively little known kind, is here grown in immense quantities for covert planting; it is a free grower, with very large, handsome foliage, and a profuse bloomer; in colour the flowers vary through the different shades of pink. For covert planting or massing in woods it is much superior in every way to R. ponticum, and much hardier than that variety.

Spiræa palmata.—This nursery may be said to be the home of this fine herbaceous plant, which stands unequalled for its gorgeous crimson-red flowers; the effect it gives when, as here, in large plants, backed with the green foliage of Rhododendrons and other shrubs massed near it, is fine in the extreme. In one place it is planted amongst standard Rhododendrons thinly distributed, the Spiræas put in close enough to densely cover the ground, its feathery sprays of bloom literally touching each other, so as to form a sheet of the richest colour. It stands unrivalled

for massing in front of shrubs. An acre of the plant is grown; it reaches when in bloom from 4 to 4½ feet in height.

Roses.—Mr. Noble's Rose, Queen of the Bedders, grown in quantity together, flowers so profusely as to give a sheet of colour little less dense than that of the Spiræa, and so persistent is it that the bloom is continuous through the season after once it begins. It is a rich deep crimson, and stands unequalled for massing. Roses do well here; a selection of the best kinds are grown in quantity. They are on the Manetti and seedling Brier stocks, budded quite low, so that they shortly are virtually on their own roots. Few standards are grown. Even the old blush China, so effective for shrubbery planting, is thus budded on the Manetti; so managed the plants are as large at the end of the first season's growth as they would be in three if raised from cuttings. Duchess of Connaught, also raised by Mr. Noble, is another fine bedding variety; like Queen of the Bedders, dwarfish, and a profuse flowerer. It is also a fine exhibition Rose, especially for late in the season, for which purpose it was certificated by the Royal Horticultural Society, in addition to the similar award made to it as a bedding sort. It is a full globular shaped flower, bright crimson, with a dark velvety-purple shade, and very sweet scented. It was a seedling from Maurice Bernardin.

Lilies are an especial feature of this nursery. The most popular kinds are grown in the open ground in immense numbers, the mixed peaty soil on a bed of gravel suiting them admirably L. auratum in its several distinct forms, L. californicum, L. pardalinum, L. Leopoldi splendens, the finest of the tigrinum section, reaching a height of 6 or 7 feet; L. Fortunei, L. speciosum in its different varieties, L. Krameri, and the majestic L. giganteum, in thousands of young plants of various sizes coming on in addition to some that were in bloom. It has been grown here up to a height of 11 feet and a half, bearing a proportionate number of its great trumpet-shaped flowers. It seems to bloom the best amongst Rhododendrons, which give it some shelter from the cutting winds and frost that affect its young leaves for a short time after it begins to push up in spring.

Andromeda floribunda.—Amongst the large and well managed stock of deciduous and evergreen flowering shrubs may be mentioned Andromeda floribunda, which is here in such quantities and condition as seldom seen; in a small as well as a large state it is literally covered with flower-spikes. The largest examples are 10 feet through by 5½ feet high, they were raised from seed some twenty-seven years ago; it is sometimes said that this shrub will not increase freely from seed, but here is proof to the contrary.

Clematis have received special attention with Mr. Noble, a number of the finest kinds existent having been raised by him, as those who have seen his seedlings exhibited at South Kensington and elsewhere know. Amongst recently raised varieities may be named Aurora, The President, Xerxes, Proteus, Margaret Dunbar, Mademoiselle Torriani, Undine, and Elaine, all of which are free growers that produce freely their immense flowers, ranging in colour from pinkish-mauve, bright rose, to deep puce suffused with deeper shades in a way that indescribably intensifies the beauty of their large, in many cases double or semi-double flowers. There is probably no hardy flowering climbing plant so deservedly popular as C. Jackmanni, thriving as it does freely on any aspect, and producing for many weeks a dense sheet of its deep purple flowers. The want has been long felt of a sufficiently distinct coloured sort of the same type as a companion to contrast in colour with this grand old favourite. Mr. Noble has been successful in raising a variety in every way calculated to meet the want. I do not know what name the new sort may receive, but white Jackmanni, more than any other, will convey a correct idea of what it is. The leaves and general habit of the plant are identical with the old variety, growing as well and flowering as freely and at the same season, with the simple difference that the flowers are white, a little larger, and often come with a petal or two more than the old sort. If asked to name a new hardy plant destined to become a general favourite, and find its way into every garden where flowering climbers are held in estimation, I should say this Clematis. Since I saw the plant, Mr. Noble has exhibited it before the Floral Committee under the name of C. Jackmanni alba, receiving, as it richly deserved, a First-class Certificate.

Trees and Shrubs.—In the best kinds of deciduous and evergreen trees the Conifers are deserving of especial mention; in addition to the ordinary sizes for planting there are quantities of large specimens of the Piceas and other well-proved sorts that are kept constantly prepared by cutting back the roots, so as to enable their being moved with safety; in this way, where immediate effect is wanted, time may be saved. Amongst a select lot of the different kinds of fruit trees standard Apples receive especial attention: for the kinds that are at all difficult to get up with straight stems the strong, erect growing Apple, Annie Elizabeth, is used as a stock, working the sort required on the top. *T. B.*

ESCHSCHOLTZIA ROSE CARDINAL.

Apropos of this beautiful new addition to a group of most showy hardy annuals, it may be remarked that it is derived from the rich deep orange and golden Mandarin. That such a pleasing hue of rose could have originated from the golden form is a matter for surprise, but it is so; and it is not the less remarkable that, instead of the striking and showy Mandarin having been selected from crocea or its variety aurantiaca, it actually came from the old pale-coloured rosea. What tricks flowers seem to play upon us sometimes. Eschscholtzia Mandarin is a glorious subject: a very large patch of it, as one sees in the famous seed grounds of Messrs. Carter & Co. at St. Osyth, is a sight as unusual as it is striking, but it will be observed there is a tendency—not very marked it is true—to go back to a pale yellow form, and also to rosea. It is an annual that requires rigid selection; its sportive character must be regarded and circumscribed in so far as human agency can compass this. Rose Cardinal also will hark back to Mandarin, but, as far as we could judge of the seed beds at St. Osyth, only to a slight extent. Both are "rogued" with an unsparing hand, but it requires years to fix in something like definite form sports in annuals, and a large number of the new annuals are what we term—rightly or wrongly—sports. This is perhaps an appropriate term, because they are so apt to revert to the normal type. Mr. Robert Gardener, the foreman at Messrs. Carter & Co.'s seed grounds at St. Osyth, who has spent not a few years of an active life among these annuals, states that he has selected a sport, kept it true for five or six years, then it has gone back to the normal type, then reappeared, and finally becomes extinct. Better fortune has happened in other cases. A marvellous fund of patience is required in this work, and hope that will not be resigned; and this patience is sometimes rewarded by the shining forth in the floral constellation of some star of the first magnitude, like the Eschscholtzias above named, Clarkia pulchella integripetala, the new blue variety of Nemophila atomaria, and others. "Wait and hope" is an appropriate motto for the florist, whether he raises Auriculas, Roses, or Tulips, or seeks to improve common flowers by carefully selecting uncommon variations in type.

A NATURAL FERNERY.

New Zealand is proverbially rich in Ferns, not alone in mere number of species, but also as an element of the vegetation and a feature in its physiognomy. From 120 to 130 species are known to inhabit the islands, as against forty-eight in the British Islands; and a considerable proportion of them are peculiar to the islands, including the singular and beautiful Trichomanes reniforme. Mr. W. Colenso gives us some idea of the richness of the Fern element in some districts in an entertaining article in the *Transactions of the New Zealand Institute* on the number of species of Ferns noticed in a small area in the New Zealand forests, in the Seventy Mile Bush between Norsewood and Danneverke, in the provincial district of Hawke's Bay. Mr. Colenso has visited the woods and forests of the district in question several times a year during the last few years, and on each fresh occasion he has been more impressed with the luxuriance and variety of the Ferns. He says, "In one spot in particular, deeply secluded in the quiet recesses of the grand old forest (a spot very dear to me—one which I have almost invariably visited several times, and each time with increasing delight, on each of my journeys inland), I have repeatedly noticed and pleasingly contemplated a large number of species of Ferns; more than I have ever seen growing together in all my wanderings in New Zealand; and all, too, flourishing luxuriantly. Within this circumscribed area of, say, one-eighth of a mile each way, or even less, I have found fifty-three species belonging to fifteen genera."

We can only give one short extract from the description of this natural fernery. "First, then, I should tell you there is a large open space in the forest, of an oblong or an irregular oval shape, sheltered from all high winds. The centre of this oval is pretty clear of trees, save two or three large and ancient Conifers, whose huge and irregularly buttressed trunks, and high, ridgy, uneven, and grotesque roots, all thickly dressed in climbing feathery Ferns and other plants, add to the picturesque beauty of the scene. Here and there also in the centre and in the foreground, scattered in clumps and standing singly, are several handsome Tree Ferns, while the larger herbaceous Ferns prominently show themselves in big tufts and masses, with the smaller ones growing among them, and, as it were, under their sheltering wings. This is a very brief outline of the centre of that pleasing natural garden. It is not often that such a large and clear open space is to be met with in the midst of a thick forest; I daresay in that small piece of ground there are more than 100 Tree Ferns of nearly all sizes; some, as I said before, in the midst, and some intermixed among the trees and shrubs around it."

We will complete the picture as well as we can by giving a list of the Ferns found:—Cyathea dealbata, C. medullaris, C. Smithii, and *C. polyneuron; Dicksonia squarrosa, D. fibrosa (antarctica, H.B.K.?), D. lanata, and *D. Sparmanniana; Hymenophyllum tunbridgense, H. bivalve, H. multifidum, H. javanicum, H. rarum, H. dilatatum, H. polyanthos, β sanguinolentum, H. demissum, H. scabrum, *H. pusillum, H. flabellatum, and *H. erecto-alatum; Trichomanes reniforme, T. venosum, and *T. venustulum; Davallia novæ-zealandiæ; Adiantum Cunninghami; Hypolepis tenuifolia and H. distans; Pteris esculenta, P. tremula, P. scaberula, and P. incisa; Pellæa rotundifolia; Lomaria procera, L. fluviatilis, L. lanceolata, and L. discolor; Asplenium lucidum, A. falcatum, A. bulbiferum, A. flaccidum; Aspidium vestitum, A. Richardi, and A. coriaceum; Nephrodium decompositum, and N. hispidum; Polypodium grammitis, P. rugulosum, P. pannigerum, P. rupestre, P. tenellum, P. pustulatum, and P. Billardieri; and Todea hymenophylloides.

Five of the foregoing are new species, and hitherto only found in this locality; they are prefixed by an asterisk. Mr. Colenso also describes the following new Ferns from other parts of New Zealand:—Cyathea tricolor, Dicksonia gracilis, Hymenophyllum megalocarpum, and Asplenium anomodum.

CANADIAN NOTES.

We had an unusually severe and protracted winter, with a great depth of snow, proving very disastrous to the winter Wheat, which according to the most experienced observers was about half killed out in this province. The spring has been a very wet and cold one, and considerable damage has been done to the crops on the low lands. Haying commenced on Monday, and those who took up what they then cut on the Wednesday and Thursday morning were fortunate, as there was a heavy rain in the afternoon, which put a stop to the proceedings for some days, as well as inflicting a serious loss in spoiling the crop. The cutting is, of course, performed by machinery, but haymaking machines are not in vogue here.

The excess of water alluded to above has rotted the Potatos, and replanting has been necessary. The Early Rose variety is the general favourite, and there are very few better descriptions. Some are trying the Beauty of Hebron and the Mammoth Pearl, both of which, I believe, are good, but my favourite is the White Elephant for quality, size, and productiveness. On the high land the Potatos, and all other crops, are looking well.

The Grape Vines are showing nicely for fruit, as also the Apples and Plums, as the lateness of the season prevented any injury from frost.

There has been an abundance of Strawberries, both cultivated and wild, and the prices have been from 8 cents to 10 cents (halfpence) a quart. We expect also a large production of Gooseberries, Raspberries, Blackberries, and Thimbleberries (Rubus occidentalis).

As the Italian Mulberry will not stand our winters we have been deprived of this delicious fruit, but there seems now a prospect of our wants being supplied, as we are getting the Russian Mulberry *viâ* the Great North-West, where it was taken by the Mennonites, and as it flourishes in its native home at 50° below zero, we have no fear of its suitability to our less rigorous climate. *E. M., Minnesing, Ontario.*

LIST OF GARDEN ORCHIDS.

(*Continued from p.* 42.)

26. Epidendrum (Epicladium) Boothianum, Lindl., *Bot. Reg.* 1838, Misc., p. 5; *Fol. Orch.*, n. 3; *Walp. Ann.*, vi., p. 311.—Cuba. Introduced by Captain Sutton and cultivated by Sir Charles Lemon. A curious species, near E. variegatum.
E. brachiatum = glaucum.

27. E. brachiatum, A. Rich. and Gal., *Ann. Sc. Nat.*, série 3, iii., p. 20; Rchb. f., *Gard. Chron.*, n.s., xiii., p. 648.—Mexico. Cultivated by Messrs. Veitch in 1880. Flowers small, pale yellow spotted with cinnamon.

28. E. (Aulizeum) brachychilum, Lindl., *Orch. Linden*, p. 9; Lindl., *Fol. Orch.*, n. 109; *Walp. Ann.*, vi., p. 353; *Ill. Hort.*, xxviii., p. 96.—Venezuela. Introduced by Mr. Linden in 1854. Flowers very fragrant; petals yellow, spotted with brown; lip bright yellow.
E. bracteolatum = radiatum.
E. bractescens = aciculare.

29. E. (Encyclium) brasavolæ, Rchb. f., *Bot. Zeit.* 1852, p. 729; *Beitr. Orch. Centr. Am.*, p. 86; *Walp. Ann.*, vi.. p. 321; *Bot. Mag.*, t. 5664; *Gard. Chron.* 1867, p. 682, and p. 1239.—Guatemala. Discovered and introduced by Mr. Skinner, and cultivated by Mr. Bateman. A pretty species allied to E. prismatocarpum. Flowers 4 inches across; sepals and petals narrow, rich yellowish-brown; labellum purple, white, and green. Hort. Kew.

30. E. (Aulizeum—Holochila) calamarium, Lindl., *Bot. Reg.* 1838, Misc., p. 88; *Fol. Orch.*, n. 125; *Walp. Ann.*, vi., p. 358.—Brazil. Imported and cultivated by Messrs. Loddiges. Flowers pale yellowish-green, with five small violet spots on the lip, scentless.

31. E. caligarium, Rchb. f., *Gard. Chron.* 1869, p. 1110.—Central America. Cultivated by Mr. Wentworth Buller. Very near E. myrianthum, differing in the pitted ovary, and in the callosity, much like a boot, at the base of the lip.

32. E. calliferum, Lemaire, *Jard. Fleur.*, iv., t. 414.—Greenish-yellow, with red markings, is doubtfully referred to E. fuscatum by Reichenbach in *Walp. Ann.*, vi., p. 386.

33. E. (Epicladium) campylostalix, Rchb. f., *Bot. Zeit.* 1852, p. 730; *Walp. Ann.*, vi., p. 320; Lindl., *Fol. Orch.*, n. 2; Rchb. f., *Beitr. Orch. Centr. Am.*, p. 32 and p. 80; *Refug. Bot.*, t. 86.—Guatemala to Panama. Costa Rica. Introduced by Mr. J. Linden; whole plant very glaucous in hue; flowers striped yellowish-green and brown. This is the E. leucatum, Klotzsch, in German gardens; and, according to Dr. Reichenbach, it is most persistently called E. glaucum, Skinner, in English gardens.

34. E. (Encyclium—Hymenochila) Candollei, Lindl., *Bot. Reg.* 1839, Misc., p. 55; *Fol. Orch.*, n. 28; DC., *Pl. Rar. Hort. Genev.*, p. 8, not p. 15, t. 3; *Walp. Ann.*, vi., p. 327. *E. cepiforme*, Hook., *Bot. Mag.*, t. 3765.—Mexico. Dr. Lindley first received this through M. De Candolle from the Geneva Botanic Garden, and Mr. J. Parkinson must have sent it to the Duke of Bedford about the same time. It is a remarkable species, having large, globose, shining pseudobulbs, and branching panicles, 3 or 4 feet high, of tawny orange and yellow flowers.

35. E. caracasanum, Regel, *Ind. Sem. Hort. Petrop.* 1860, p. 32; Urban, *Addit. Ind. Sem. Hort. Berol.* 1880, p. 49.—Venezuela. *E. flavo-virens*, Regel, *Ind. Sem. Hort. Petrop.* 1855, p. 19; Urban, *Addit. Ind. Sem. Hort. Berol.* 1880, p. 49. No further information is given.

36. E. (Euepidendrum—Spathacea) carneum, Lindl., *Orch. Linden.*, p. 8; *Fol. Orch.*, n. 147; *Walp. Ann.*, vi., p. 364; *Ill. Hort.*, xxviii., p. 96.—Venezuela, at 500 feet. Introduced by Linden in 1843. Flowers yellow, with a flesh-coloured lip, arranged in a nodding raceme from 3 to 4 inches long.

37. E. Catillus, Rchb. f., and Warscew., *Bonplandia*, 1854, p. 112; *Walp. Ann.*, vi., p. 393; *Gard. Chron.* 1873, p. 1398, and n.s., ii., p. 419; *Ill. Hort.*, n.s., t. 162. *E. imperator*, Hort.—New Grenada. Discovered by Warscewicz, and imported by Linden, whilst Mr. Day, of Tottenham, appears to have been the first to flower it. Allied to E. cochlidium and E. elongatum. Flowers cinnabar-red.
E. cepiforme = Candollei.

38. E. (Encyclium—Hymenochila) ceratistes, Lindl., *Bot. Reg.* 1844, Misc., p. 91; *Fol. Orch.*, n. 31; *Walp. Ann.*, vi., p. 329.—Venezuela and New Grenada. Imported and cultivated by Mr. Barker. Panicle 3 feet long; flowers very fragrant, clear green or dull yellow, with a whitish lip streaked with red.

39. E. (Euepidendrum) chioneum, Lindl., *Bot. Reg.* 1845, Misc., p. 73; *Fol. Orch.*, n. 273; *Walp. Ann.*, vi., p. 409; *Ill. Hort.*, xxviii., p. 96.—New Grenada, at 12,000 feet. Introduced by Linden. Flowers pure white, in small close heads an inch or more long.

40. E. (Encyclium—Hymenochila) chiriquense, Rchb. f., *Bot. Zeit.* 1852, p. 730; *Walp. Ann.*, vi., p. 342; *Xenia Orch.*, i., p. 164, t. 57, fig. 2.—Veraguas. Cultivated in German gardens.
E. chloranthum = chloroleucum.

41. E. (Encyclium—Hymenochila) chloroleucum, Hook., *Bot. Mag.*, t. 3557; Lindl., *Fol. Orch.*, n. 37; *Walp. Ann.*, vi., p. 331. *E. chloranthum*, Lindl., *Bot. Reg.* 1838, Misc., p. 25.—Demerara. Imported and cultivated by John Allcard in 1837, and by Messrs. Loddiges in 1838. Flowers green, with a white lip; scentless.

42. E. chlorops, Rchb. f., *Gard. Chron.*, n.s., xiv., p. 524.—Mexico. Introduced and cultivated by Messrs. Backhouse, of York, in 1880. Flowers green.

43. E. (Aulizeum) Christi, Rchb. f., *Linnæa*, xli., p. 112; *Ill. Hort.*, xxviii., p. 96.—Ecuador. Introduced by Mr. J. Linden in 1867. Flowers large; sepals and petals green, spotted with violet; lip yellow, with a crimson disc. Flor de Christo of the Ecuadorians.

44. E. (Amphiglottideæ) chrysostomum, Rchb. f.; Otto and Dietr., *Allg. Gart. Zeit.* 1856, p. 98; *Cat. Orch. Samml. Schiller*, ed. 3, p. 29.—Peru. Cultivated by Consul Schiller, of Hamburgh, in 1857.

45. E. (Aulizeum—Schistochila) ciliare, Linn., *Sp. Pl.*, p. 1349; Lindl., *Fol. Orch.*, n. 90; *Walp. Ann.*, vi., p. 347; *Bot. Reg.*, t. 784; Lodd., *Bot. Cab.*, t. 9; *Bot. Mag.*, t. 463; Redouté, *Liliac.*, t. 82. *E. cuspidatum*, Lodd., *Bot. Cab.*, t. 9; *Bot. Reg.*, t. 783. *E. viscidum*, Lindl., *Bot. Reg.* 1840, Misc., p. 81.—Common and widely spread in tropical America. Cultivated by Mr. Whitley, nurseryman, Old Brompton, towards the end of the last century. Lindley distinguishes three varieties, of which cuspidatum is the finest, having wholly yellow-white or tawny flowers about 5 inches across, with relatively broad sepals and petals, and a deeply fringed labellum. Hort. Kew.

46. E. (Euepidendrum—Amphiglottideæ) cinnabarinum, Salzmann; Lindl., *Gen. et Sp. Orch. Pl.*, p. 106; *Fol. Orch.*, n. 218; *Walp. Ann.*, vi., p. 389; *Bot. Reg.*, 1842, t. 25; Hart., *Parad. Vindob.*, i., t. 14; *Gard. Chron.* 1842, p. 367.—Brazil. Discovered by Salzmann, and subsequently imported by Messrs. Loddiges, with whom it first flowered in 1842. Allied to E. radicans and E. Schomburgkii, but having the lateral lobes of the lip deeply fringed. A beautiful species, with orange-red flowers about 2 inches across, and crowded at the end of a slender scape.
E. cinnamomeum = pterocarpum.

47. E. (Aulizeum—Schistochila) clavatum, Lindl., *Bot. Reg.*, t. 1870; *Fol. Orch.*, n. 93; *Walp. Ann.*, vi., p. 349. *E. purpurascens*, Focke, *Tijdschr. Natuurk. Wetensh.*, iv., p. 64.—Venezuela. Introduced by Mr. J. Heuchman for Messrs. Low, of Clapton, in 1834. Pseudobulbs tapering downward into a slender stalk. Flowers green, with a white labellum, subtended by spathaceous reddish bracts. Hort. Kew.

48. E. (Euepidendrum) Clowesii, Batem., *Bot. Reg.* 1844, Misc., p. 16; *Fol. Orch.*, n. 170; *Walp. Ann.*, vi., p. 372.—Guatemala. Cultivated by Mr. Bateman. Flowers yellowish-white.

49. E. (Euepidendrum—Nutantes) cnemidophorum, Lindl., *Fol. Orch.*, n. 168; *Walp. Ann.*, vi., p. 372; *Gard. Chron.* 1864, p. 292 and p. 364; 1867, p. 1142; *Bot. Mag.*, t. 5656.—Guatemala, at 7000 feet. Discovered and eventually introduced by G. Ure-Skinner. A stately plant, 4 to 6 feet high, with ample drooping racemes of purple-brown and yellow flowers, with some tinges of pink, and very pale yellow outside.

50. E. (Aulizeum—Holochila) cochleatum, Linn.; Lindl., *Fol. Orch.*, n. 128; *Walp. Ann.*, vi., p. 359; Jacq., *Ic. Pl. Rar.*, iii., t. 605; *Bot. Mag.*, t. 572; Andrews, *Bot. Rep.*, i., t. 13; Lamark, *Encycl.*, t. 730; Descourtilz, *Fl. des Ant.*, vi., t. 440; Geel, *Sert. Bot.*, vi.—Mexico, Central America, and the West Indies. One of the earliest Orchids cultivated. Pseudobulbs two-leaved; sepals and petals greenish-yellow; labellum mostly purple, somewhat the shape of the bowl of a spoon. Hort. Kew.
E. cochleatum, Curtis. = fragrans.

51. E. (Euepidendrum—Amphiglottidea) cochlidium, Lindl., *Ann. Nat. Hist.*, iv., p. 382; *Fol. Orch.*, n. 228; *Walp. Ann.*, vi., p. 393. *E. pulcherrimum*, Klotzsch, in Otto and Dietr. *Allg. Gart. Zeit.* 1854, p. 233.—Peru. Introduced by Warscewicz, and cultivated by Mathieu, in Berlin. A very pretty species, with scarlet and yellow flowers.

52. E. (Aulizeum—Holochila) collare, Lindl., *Bot. Reg.* 1843, Misc., p. 60; *Fol. Orch.*, n. 121; *Walp. Ann.*, vi., p. 357.—Guatemala. Introduced by the Horticultural Society of London through Mr. Hartweg. Stems long, deeply furrowed. Flowers white, changing to yellow.

53. E. (Euepidendrum) conopseum, R. Br.; Ait. *Hort. Kew*, ed. 2, v., p. 219; Lindl., *Fol. Orch.*, n. 269; *Walp. Ann.*, vi., p. 408; Chapman, *Fl. Southern U. S.*, p. 455; *Bot. Mag.*, t. 3457.—North America. Carolina to Florida. A small plant, with greenish flowers, tinged with purple; interesting geographically. It grows on various trees, but chiefly on Magnolia grandiflora. Introduced in 1775 by John Fothergill.
E. colorans = polyanthum.

54. E. conspicuum, Lemaire, *Ill. Hort.*, t. 592.—Brazil. Imported and cultivated by Verschaffelt. Flowers white, suffused and veined with rose; lip claret-purple, edged with white.

55. E. (Euepidendrum—Nutantes) Cooperianum, Batem., *Bot. Mag.*, t. 5654; *Gard. Chron.* 1867, p. 852.—Brazil. First flowered by Mr. Cooper, of Alpha House, Old Kent Road. A pretty species, with drooping racemes of flowers from the tops of the tall leafy stems. Sepals and petals yellowish-green; lip bright rosy-purple.
E. coriaceum = variegatum.

56. E. (Euepidendrum—Strobiliferæ) coriifolium, Lindl., *Journ. Hort. Soc. Lond.*, vi., p. 218, with a figure; *Fol. Orch.*, n. 240; *Walp. Ann.*, vi., p. 400.—Central America. Introduced by Skinner, and cultivated by the Horticultural Society of London. Flowers small, greenish.

57. E. (Euepidendrum) corymbosum, Lindl., *Fol. Orch.*, n. 190; *Walp. Ann.*, vi., p 380. *E. dichotomum*, Lindl., *Bot. Reg.* 1838, Misc., p. 79.—Guiana and Brazil. Imported and cultivated by Loddiges. Flowers green.

58. E. (Euepidendrum—Amphiglottideæ) costatum, A. Rich. and Gal., *Ann. Sc. Nat.*, série 3, iii., p. 21; *Fol. Orch.*, n. 197; *Walp. Ann.*, vi., p. 383.—Mexico. Cultivated by Loddiges. Flowers rich crimson, as large as in E. nutans. Hort. Kew.

59. E. (Aulizeum—Holochila) Coxianum, Rchb. f., *Gard. Chron.*, n.s., viii., p. 358.—Tropical America. Cultivated by Mr. Serjeant Cox, with whom it flowered in 1877. Flowers small, dull brown and yellow.
E. crassifolium = ellipticum.

60. E. (Euepidendrum) criniferum, Rchb. f., *Gard. Chron.* 1871, p. 1291; n.s., ii., p. 419; *Bot. Mag.*, t. 6094.—Costa Rica. Imported by Messrs. Veitch. An attractive species, closely allied to E. rivulare. Flowers having the yellow and dark red variegation of an Odontoglossum; central lobe of lip and petals very narrow; lateral lobes of lip deeply fringed.
E. crispatum = adenocarpum.

61. E. (Euepidendrum—Amphiglottideæ) cucullatum, Lindl., *Bot. Reg.* 1838, Misc., p. 33; *Fol. Orch.*, n. 193; *Walp. Ann.*, vi., p. 382. *E. biforatum*, Lindl., *Bot. Reg.*, 1844, Misc., p. 15.—Brazil. Cultivated by Messrs. Loddiges. One of the least attractive.

62. E. (Aulizeum) cuspidatum, β ? ? brachysepalum, Rchb. f., *Linnæa*, xix., p. 372.—Native country unrecorded. Cultivated by Mr. Seidel of Leipsic in 1845.
E. cuspidatum = ciliare.

63. E. (Barkeria) cyclotellum, Rchb. f., *Gard. Chron.*, n. s., xiii. p. 72, but not the figure, which, on the authority of Dr. Reichenbach himself, represents E. elegans.—Mexico. Cultivated by Mr. W. Bull and others in 1880.
E. cycnostalix = Stamfordianum.

64. E. (Euepidendrum—Amphiglottideæ) decipiens, Lindl., *Fol. Orch.*, n. 221; *Gard. Chron.* 1857, p. 268; *Walp. Ann.*, vi., p. 391; *Bonplandia*, 1855, p. 68.—New Grenada to Guiana. Imported by Loddiges through Warscewicz. A brilliant species, resembling E. Schomburgkii. Flowers bright apricot, with two crimson eyes near the base of the lip.

65. E. (Euepidendrum—Paniculatæ) densiflorum, Hook., *Bot. Mag.*, t. 3791. *E. agathosmicum*, Rchb. f., *Linnæa*, xxii., p. 841; *Walp. Ann.*, vi., p. 413.—Mexico. Sent by Mr. Parkinson to Woburn, where it blossomed in 1839. Sepals and petals green, tinged with dull brown; lip white. Hort. Kew.
E. dichotomum = corymbosum.

66. E. (Encyclium—Hymenochila) dichromum, Lindl., *Bot. Reg.* 1843, Misc., p. 78; *Fol. Orch.*, n. 76; *Walp. Ann.*, vi., p. 343.—Pernambuco. Cultivated by Mr. Quesnel, of Havre. Flowers pure white, with a rose-coloured lip, yellow and downy at the base.
Var. striatum, Rchb. f., *Gard. Chron.* 1866, p. 219.—Cultivated by Mr. T. Dawson, of Meadowbank. A lovely variety, having white sepals and petals, veined with purple.

67. E. Euepidendrum—Subumbellatæ) difforme, Jacq., *Stirp. Amer.*, p. 223, t. 136. *E. umbellatum*, Swartz; Lindl., *Fol.*, n. 248; *Bot. Mag.*, t. 2030.—Guatemala, and West Indies to Brazil. First introduced by Admiral Bligh, in 1793. Flowers wholly green. Hort. Kew.

68. E. (Encyclium—Hymenochila) diotum, Lindl., *Bot. Reg.* 1843, Misc., p. 65; *Fol. Orch.*; n. 24; *Walp. Ann.*, vi., p. 326.—Guatemala. Introduced by Hartweg. Flowers 1½ inch in diameter, dull cinnamon colour, with a little yellow and some chocolate veins on the lip.
E. dipus = nutans.
E. discolor = nocturnum.

69. E. (Euepidendrum—Subumbellatæ) eburneum, Rchb. f., *Gard. Chron.* 1867, p. 404; *Bot. Mag.*, t. 5643.—Panama. Discovered by Mr. P. Henderson, and sent to Mr. T. R. Tufnell, of Isleworth. A very distinct species, having rather large flowers, with yellowish green sepals and petals, and an ivory-white broad lip with yellow callosities.

70. E. (Barkeriæ) elegans, Rchb. f., *Walp. Ann.*, vi., p. 374. *Barkeriæ elegans*, Knowles and Westc., *Fl. Cab.*, ii., t. 49; *Bot. Mag.*, t. 4784; *Fl. des Serres*, t. 959; *Ill. Hort.*, i., t. 23; *Fl. Mag.*, n. s., t. 394; *Pescatorea*, i., t. 10.—Mexico. Imported by Mr. G. Barker, of Birmingham. A very beautiful Orchid. Sepals and petals varying from pink to lilac and purple; labellum white or pink with a large, rich purple blotch near the tip, and yellow and purple dots below.
E. ellipticum var. flavum, Lindl. = *xanthinum*.

(*To be continued.*)

THE SPECIES OF TULIPA.—VII.

(*Continued from p. 71.*)

Sub-genus TULIPA PROPER.—Stigma sessile.

Section 3. *Gesneriana.*—Filaments without a tuft of hairs at the base. Bulb-coats glabrous, or furnished with a few adpressed hairs inside. Perianth campanulate, usually typically bright red. Leaves usually broad.

Sub-section 5.—Peduncle permanently pubescent. All the six segments of the perianth obtuse.

34. *T. pubescens*, Willd.—Not known in a wild state, and most likely a hybrid between T. Gesneriana and T. suaveolens. It has the large stigma, and six obtuse segments of the former, and the downy peduncle of the latter, the bright red forms have no blotch at the base of the perianth-segments. Here belong several of the April-flowering garden races, such as Duke of York, Brides of Haarlem, and Pottebakker. It has a faint scent, and runs through a wide range of variation in flower colouring. It is figured in Sweet's *Flower Garden*, tab. 78, and in the *Botanical Magazine*, tab. 2388, as a variety of T. suaveolens.

35. *T. maculata*, Baker.—A well-marked garden race, with the habit of T. Gesneriana, from which it differs by its small stigma, pubescent peduncle, and bright red flower-segments, with a broad black basal blotch. It flowers in the latter half of May.

36. *T. Greigi*, Regel.—This is decidedly the most showy and striking of the new Central Asian species. Our wild specimens are from the Boroldai Mountains, where it grows at from 2500—6000 feet above sea level, and from the neighbourhood of Samarcand, collected by Korolkow. It has been figured in the *Gartenflora*, tab. 773, the *Botanical Magazine*, tab. 6177, and in the *Florist and Pomologist*, 1876, p. 217. It may be recognised by its robust habit, broad oblong glaucous leaves, with numerous distinct brown blotches, pubescent peduncle, and bright flame-red campanulate perianth 2½—3 inches long, with all the six segments very obtuse, and furnished with a very distinct linear-oblong black blotch, sometimes 1 inch long, with a yellow border. It has a large stigma and glabrous linear filaments as long as the bright yellow linear-oblong anthers. It flowers in April, and so far as I have seen does not vary much.

37. *T. Eichleri*, Regel, *Gartenflora*, tab. 799.—A fine plant, and a well-marked species. It is a native of Georgia, near the borders of Persia. I described it fully in your columns in 1875, p. 220, from specimens furnished by Max Leichtlin, and it has been figured in the *Botanical Magazine*, tab. 6191. It much resembles T. Gesneriana, but differs by its pubescent peduncle. I have only seen the flowers bright crimson, and they have a distinct black blotch spread over the whole claw, with a yellow border. It flowers in April and May. It is very near the Grecian T. bœtica, but all the six segments are obovate and obtuse.

38. *T. Alberti*, Regel, *Gartenflora*, tab. 912.—A near ally of the last species. It inhabits the Alatau Mountains, in South Siberia, and is named after Dr. Albert Regel, who has done so much in the discovery and importation of these new Central Asian bulbs. It has the stature of T. Gesneriana, glaucous-green lanceolate leaves, without blotches, a pubescent erect peduncle 6 or 9 inches long, a faintly blotched orange-scarlet campanulate perianth, 2 inches long, with the three inner segments obtuse, and the three outer subacute, and glabrous yellow filaments exceeding the dark purple anthers. It flowers in April, and has been drawn for the *Botanical Magazine* from a specimen sent by Mr. Elwes.

39. *T. iliensis*, Regel, *Gartenflora*, tabs. 975 and 982.—Differs from all the other species of this group by its small yellow flowers, resembling those of T. Biebersteiniana. It has a small ovoid bulb, with the outer tunics slightly pilose inside, four linear leaves aggregated near the base of the peduncle, all under ½ inch broad, a slender pilose peduncle, a lemon-yellow flower not more than an inch long, with all the segments obtuse, a minute stigma and glabrous filaments twice as long as the yellow anthers. It is a native of Central Asia, and is figured in the *Botanical Magazine*, tab. 6518, from a specimen grown at Dublin by Mr. F. W. Burbidge. *J. G. Baker.*

(*To be continued.*)

A CARNATION SHOW AT SLOUGH.

When it was proposed by the members of the Southern Section of the National Carnation and Picotee Society that they should pay Mr. Turner the compliment of holding a supplementary exhibition in his nursery, the most enthusiastic promoter of the scheme could hardly have anticipated that such a pleasant social gathering as that which took place on Tuesday would have been the result. The morning opened fine, but a few showers fell in the middle of the day, driving all under cover for a short time. The rain, however, seemed to have no effect in the way of stopping Mr. Turner's local friends from accepting his invitation. Admission was free, the show-house was crammed all the afternoon, and it must be some years since the famous nursery was so closely scrutinised, and by so many pairs of critical eyes as went the round on Tuesday. However, as all the floricultural world knows, the Royal Nursery will bear inspection, for has it not ever had the reputation of being one of the brightest, neatest, and most garden-like of trade establishments?

We arrived with many others before the judging of the Carnations and Picotees had been commenced, and so had a favourable opportunity for a look round. Well, the nursery did not show at its worst, and the broad paths having been faced with fresh soft binding gravel, and the borders and beds being singularly gay with flowers, whilst choice shrubs and beautiful Conifers made up the background, it was not difficult for the time to forget that we were in a nursery, and were rather perambulating some well-kept pleasure gardens. The Royal Nursery is ever a show in itself, and had every one of the charming blooms shown in the competitions been absent, there yet remained, as far as the special features of the gathering—Carnations and Picotees—were concerned, an enormous wealth of flowers of the most beautiful and varied type. House after house was filled with finely grown plants in full bloom and in bewildering variety. To attempt to name even a small selection of those growing under these conditions would be folly, for all were so good and all found their respective admirers. Literally Carnations and Picotees are grown at Slough in pots by thousands—not in small ones either, but in large roomy 8-inch pots, and into each are blocked three plants, *Tria juncta in una*, the pots being of a very upright form and of a more than usually deep make so that ample root-room is given. The compost is evidently of two parts good turfy loam with one part of well decomposed manure and but very little of sand, an ingredient best dispensed with when it safely can be. Even the bitterest enemy to florists' flowers and paper collars could not have been but pleased with a sight of all these lovely Carnations thus naturally blooming in endless variety of colour and of marking. Tree Carnations in preparation for winter work are in large bulk both in pots and planted out for later potting, and Pinks, too, are in great bulk. Two large beds of the beautiful White Clove Lady Flora Molyneux, were in superb bloom, and the free growth being made showed that it is a fine robust kind. It is very pleasing to find that our sweet-scented Clove section is being largely added to.

Next to the flowers just commented upon come Roses as a great trade feature, and of these there are of all the best Tea kinds immense quantities in pots, the plants singularly robust, stout, and clean. One big lot of Maréchal Niels in pots bids fair to develope respectable hop-poles ere the growing season is over, whilst every kind is good according to its character. The bulk of the hybrid perpetuals are grown in outlying nurseries, but there is one big piece of bushes at Slough so stout and vigorous as to show that it is not soil but space that is wanted at home to enable Roses in thousands to be produced. Mr. Turner's success as an exhibitor, no matter of what, speaks volumes for the high quality of his stock, backed as he is by able and earnest growers, all of whom deserve a niche in history whenever the complete history of the famous Slough nursery shall be written.

Dahlias are a grand autumn attraction at Slough, and these will in a few weeks be a magnificent sight. The plants all about are now so short, stout, and sturdy that one marvels to find such habit, but those old Life Guardsmen amongst Dahlias, the "six footers" of past days, are being weeded out and replaced by newer kinds of shorter growth, so that the gain even in habit is great. Already the single and bouquet kinds are blooming freely, but in a few weeks nothing we are sure could more fully repay a visit to Slough than a sight of Mr. Turner's truly grand lot of Dahlias.

Chrysanthemums, too, are grown in immense quantities, and all in 8-inch and 9-inch pots of deep make. Plants stand about in all directions in huge masses—literally by thousands, and include all the best kinds in cultivation. Whenever these shall be all in bloom, the sight, as a floral display, should be a truly grand one, and it cannot be otherwise. In some houses we noted the big collections of show Pelargoniums now put under bare poles, though soon again to assume their wonted covering of green leafage. In others are Palms, Ferns, and foliage plants growing in luxuriant profusion. In others a fine collection of Achimenes in pots, Bouvardias in single bulbs, and inclusive of all the best kinds. In others Azaleas pushing up their bloom-buds and kept very warm so as to induce full ripening.

Outdoors there is a singularly varied collection of Ivies in pots and of herbaceous plants of many kinds, Phloxes and Pentstemons especially in beautiful bloom. Liliums, too, are a strong feature, whilst thousands of things cannot be enumerated. Not least worthy of notice are the tall narrow lines of Lombardy Poplars trimmed in close every year, and which afford a delightfully cool shade to the thousands of Auriculas in pots in frames, than of which there is no collection in the kingdom larger or better cultivated. But enough for the present. The Carnations are judged, and it is time we were amongst them. The show was held in the square exhibition house so familiar to all Slough *habitués*, and though still too early for the Northern flowers, was well attended by Northern growers. Mr. Turner, on his own ground, was of course invincible, taking the 1st prize for the twenty-four blooms in the Carnations and Picotee classes. Mr. Dodwell was also again to the front. The following were the awards :—

Carnations.—Twenty-four blooms, not less than twelve dissimilar.—1st, Mr. Turner, with a superb stand, which included Jessica, John Ball, Mrs. Bridgewater, Figaro, Matador, E. S. Dodwell, Robert Lord, William Skirving, Rob Roy, Thomas Moore, Juno, George, Sarah Payne, Mrs. Matthews, Sporting Lass, and Master Stanley; 2d, Mr. E. S. Dodwell; 3d, Mr. James Douglas, gr. to F. Whitbourn, Esq. Twelve blooms, dissimilar.—1st, Mr. E. S. Dodwell, with Dorothy, Samuel Barlow, Florence Nightingale, Henry Cannell, Sarah Payne. P.F.: John Keet, Master Fred, Arthur Medhurst, E. S. Dodwell, Squire Whitbourn, and Sarah Payne, P.P.B.: 2d, Mr. Douglas; 3d, Mr. J. Lakin, Temple Cowley, Oxford; 4th, Mr. W. Slack, Chesterfield; 5th, J. F. Burnaby Atkins, Esq., Sevenoaks; 6th, Mr. J. Buxton, Clapham. Six blooms, dissimilar. — 1st, Mr. Thomas Austiss, Brill, Oxon, with Thomas Moore, A. Hudson, Sarah Payne, Mayor of Oxford, J. Bayley, Jun., and Master Stanley; 2d, Master Stanley Dodwell, Oxford; 3d, M. Rowan, Esq., Clapham; 4th, Mr. W. Meddick, Bath; 5th, J. P. Sharp, Esq., Perry Barr, Birmingham; 6th, Mr. G. Wynn. Single specimens—S.B.: 1st and 2d, Mr. Douglas, with Fred and S. Hudson; 3d and 4th, Mr. Turner, with George; 5th, Mr. Dodwell, with Master Stanley. C.B.: 1st, 2d, 3d, and 4th, Mr. Dodwell, with two blooms of J. D. Hextall, H. K. Mayor, and Rifleman; 5th, Mr. Turner, with Rifleman. P.B.B.: 1st, Mr. Dodwell, with Mrs. Austiss; 2d, Mr. Turner, with William Skirving; 3d, Mr. Dodwell, with Sarah Payne; 4th, Mr. Turner, with William Skirving, and 5th with James Taylor. P.F.: 1st, Mr. Turner, with Sporting Lass; 2d, Mr. Dodwell, with Sarah Payne; 3d, Mr. Dodwell, with Squire Whitbourn; 4th, Mr. Turner, with Sporting Lass; 5th, Mr. Dodwell, with Sarah Payne. S.F.: 1st and 2d, Mr. Dodwell, with Henry Cannell; 3d, Mr. Dodwell, with Matador; 4th and 5th, Mr. Turner, with Flirt. R.F.: 1st and 2d, Mr. Turner, with Jessica; 3d, Mr. Dodwell, with Robin Hood; 4th, Mr. Turner, with Rob Roy; 5th, Mr. Dodwell, with John Keet.

The champion flower was Mr. Dodwell's Robert Lord, S.B., shown by Mr. Turner.

Picotees.—Twenty-four blooms, not less than twelve dissimilar.—1st, Mr. Turner, with Mrs. Webb, Her Majesty, Mrs. Chancellor, Mr. Bower, Mr. Tulton, J. B. Bryant, Mrs. Payne, Dr. Epps, Monarch, Baroness Burdett Coutts, Muriel, Morning Star, Dr. Abercrombie, Thomas Williams, Zerlina, Edith D'Ombrain, and Exhibition; 2d, Mr. E. S. Dodwell; 3d, Mr. J. Douglas. Twelve blooms, dissimilar.—1st, Mr. E. S. Dodwell, with Mrs. Chancellor, Royal Visit, Zerlina, Countess of Wilton, Mrs. Payne, Muriel, Mrs. Rudd, Daisy, Arthur Medhurst, Ada Hannah, Edith D'Ombrain, and Novelty; 2d, Mr. J. Douglas; 3d, J. F. Burnaby Atkins, Esq.; 4th, Mr. J. Buxton. Six blooms, dissimilar.—1st, Master Stanley Dodwell, with Zerlina, Mrs. Chancellor,

Morna, Mrs. Payne, Dr. Epps, and Royal Visit. 2d, Mr. J. Lakin ; 3d, Mr. J. Austiss ; 4th, Mr. W. Slack ; 5th, M. Rowan, Esq. ; 6th, J. P. Sharp, Esq. Single bloom.—H.R. : 1st and 2d, Mr. Turner, with Dr. Epps and Dr. Abercrombie ; 3d, Mr. Dodwell, with Mrs. Dodwell ; 4th, Mr. Douglas, with J. B. Bryant ; 5th, Mr. Dodwell, with Brunette. L.R. : 1st and 2d, Mr. Turner, with Thomas Williams ; 3d, Mr. Dodwell, with Mrs. Gorton ; 4th and 5th, Mr. Dodwell, with Thomas Williams. H.P. : 1st, 2d, and 3d, Mr. Turner ; 4th and 5th, Mr. Douglas, with Mrs. Chancellor. L.P. : 1st, Mr. Turner, with Mr. Tulton ; 2d, Mr. Douglas, with Baroness Burdett Coutts ; 3d, Mr. Turner, with Her Majesty ; 4th, Mr. Turner, with Cynthia ; 5th, Mr. Turner, with Baroness Burdett Coutts. H.R. : Mr. Turner took all the prizes with Mrs. Payne, Edith D'Ombrain, Fanny Helen, Mrs. Payne, and Constance Heron. L.R. : 1st, Mr. Turner, with Lucy, the others all going to Mr. Dodwell for three blooms of L'Elegant and Miss Lee. Twenty-four self and fancies.—1st, Mr. Turner ; 2d, Mr. Lakin ; 3d, Mr. Douglas. Twelve yellow-ground Picotees.—Mr. 1st, Turner ; 2d, Mr. Douglas. Twelve selfs or fancies.—1st, Mr. Dodwell ; 2d, Mr. Stanley Dodwell. The Champion Picotee was Mrs. Payne, heavy rose, shown by Mr. Dodwell.

The inhabitants of Slough offered a special prize, consisting of a dozen silver spoons, for a stand of twelve blooms, six Carnations and the same number of Picotees, and Mr. J. Lakin had a walk over.

The following prizes and Certificates were awarded to seedlings :—Carnations : Dorothy, 1st prize and First-class Certificate in its class, rose flake, a large full flower, pale rose, and beautifully marked ; 2d, Mr. Turner, with Mrs. Bridgewater, a good large flower in the way of Jessica. 1st prize and First-class Certificate to Mrs. Austiss, pink and purple bizarre, a very beautifully formed flower, rich purple and deep rich pink. 1st prize and First-class Certificate to Samuel Barlow, crimson bizarre, a very large flower, with the outer petals large and shell-like, the colours rich, with the crimson flakes broad and clear. First-class Certificate to Squire Whitbourn, purple flake, the colour rich and deep, and the petals the best formed of all the purple flakes. Picotee : 1st prize and First-class Certificate to Mrs. Webb, heavy scarlet edge, a very large full flower, in the way of Constance Heron, with the white very pure.

The labours of the judges being ended, a large number of the visitors repaired to the Camellia-house, which for the nonce had been converted into a dining-saloon, and here, under the presidency of G. F. Wilson, Esq., F.R.S., ample justice was done to the good things provided. The toast list was a somewhat lengthy one, "loyal," "patriotic" and "special," as became the occasion ; but the toast of the day was that of "Our good friend and host, Mr. Turner," proposed in singularly happy and felicitous terms by Mr. Shirley Hibberd, well received by the company, and feelingly acknowledged by Mr. Turner.

The Herbaceous Border.

Doronicum hybridum.—Some time ago I sent to the *Gardeners' Chronicle* flowers and a note of a very fine variety of Doronicum which I have had in my garden for three or four years. A plant of it was shown at the Manchester spring show, by Messrs. Rodger, McClelland & Co., of Newry, and named D. hybridum, and I hear it is likely to be in great demand soon. I write, therefore, to protest against the name, as conveying a wrong impression, as there is nothing hybrid about it. Those Composites of which the common annual Aster and Pyrethrum roseum are examples, are apt to become enlarged and varied by cultivation, but I think seldom, if ever, make hybrids. I have submitted specimens of this Doronicum, which was raised from seed by Mr. Harper Crewe, to the Kew botanists, and they say it can be referred to no known species except D. plantagineum, of which it is probably a garden variety. It has been in flower in my garden ever since February, and will continue in flower till November, growing nearly 6 feet high. *C. Wolley Dod, Edge Hall.*

Campanula turbinata and carpatica.—Mr. Brockbank's definition of C. turbinata, that it differs from C. carpatica in producing only one flower on a stalk, is clear and satisfactory as explaining what he means, and if all writers on flowers would define as clearly the names they use it would save much misunderstanding. I have never, however, found any C. turbinata which in my garden answered to this definition, and it is notorious that the seed of C. turbinata produces C. carpatica and every intermediate form. It is easy to say these are hybrids ; but, as I lately pointed out, hybrids of Campanula are rare. Probably botanists know that C. turbinata is a local variety of carpatica. We have several similar cases amongst native plants. The seed of the dwarf Veronica spicata produces in cultivation every form up to the tall V. longifolia. The seed of Myosotis rupicola produces in a generation or two typical M. sylvatica. There is a very pretty dwarf Erythræa, common on the roadsides about Holyhead and elsewhere, growing an inch high, and bearing forty flowers in a tuft, larger than those of Erythræa Centaurium ; but seed collected from these wild plants produces the common Centaury of our fields, a foot high. These one-flowered Campanulas may keep their character in some soils, but they do not in mine. *C. Wolley Dod, Edge Hall, Malpas, July 25.*

Reports of Societies.

Colnbrook Horticultural : *July* 25.—The promoters of this show were fortunate in securing the best possible site, in the Duke of Buccleuch's fine old park of Ditton, near Slough, in which to hold their annual display of garden produce ; and the attractions of the exhibition, combined with the fame of the park and beautiful pleasure grounds, all thrown open to the visitors, assisted to bring in a large assemblage from the surrounding locality. As in other shows so here, the most attractive features were found in the decorative groups, covering 80 square feet, and which were encouraged by no less than six prizes, Mr. Aitkin, gr. to Mrs. Meeking, Richings Park, coming 1st, with a superior and varied lot of plants, inclusive of a fine Cocos Weddelliana as a centre plant, and having many good Crotons, Caladiums, Aralias, Ferns, &c., lit up with some telling Liliums, Begonias, Gladioli, and a few Orchids. Mr. Godfrey, gr. to A. Meadows, Esq., Poyle Park, came next, the central figure of his group being a fine Clethra arborea, alluded to elsewhere, with several finely flowered Lilium auratum and good foliage plants. The third group, placed by Mr. Phillips, gr. to R. W. Mann, Esq., Langley Broom, was a very telling one as far as colour was concerned, Liliums specially predominating.

Generally the arrangements were not of that artistic character seen in metropolitan groups, but good use was made of the plants at disposal. The six stove and greenhouse plants staged by Mr. Aitkin were vastly disproportioned to the value of the small prize they won, even though so tempting a *souvenir* as one of the Royal Horticultural Society's Silver Medals was added. These comprised the beautiful Lagerströmia indica rosea, to which we have elsewhere referred ; a superbly flowered Bougainvillea glabra, an equally good Allamanda Hendersoni, a glowing mass of Kalosanthes punicea, good Croton Johannis, and a fine Kentia Fosteriana. Mr. Godfrey had some good plants, including Vinca occulata alba, Plumbago capensis, and Stephanotis floribundus.

In the class for Ferns Mr. Aitkin was again 1st, having, with others, fine Dicksonia antarctica, Adiantum Cardiochlænum, and Davallia dissecta, the latter having beautiful fronds ; Mr. Godfrey coming 2d, with some fine Gymnogramma, the pretty Cheilanthus elegans, &c. ; and Mr. Phillips 3d, his lot including a finely coloured piece of Davallia Mooreana. Mr. Aitkin was an easy 1st with six zonal Pelargoniums, the plants well grown and flowered, the sorts being Lucie Lemoine, Madame Amalie Baltet, Madame Thibaut, and Wonderful, doubles ; and Polly King and White Vesuvius, singles. Mr. Godfrey had some smaller but excellent plants, and was the only exhibitor of Achimenes, having some capital clumps in pots, full of bloom, of longiflora major, Dentoniana, Mauve Perfection, Dr. Hogg, Meteor, and Williamsi. Mr. Aitkin had the best Begonias. Fuchsias were well shown by this latter exhibitor, who had Lord Beaconsfield, Mrs. Marshall, and Avalanche as fine pyramids ; whilst Mr. Godfrey had two very fine standards in Lucy Finnis and Arabella, and a good pyramid of Mrs. Marshall. Some pretty table decorations were put up in competition for a good prize offered by the Rev. Mr. Griffiths, the Hon. Secretary, the best, a very pleasing arrangement, being set up by Miss Jones, The Elms, Langley, but one even more charming, set up by Miss Meadows, was disfigured by a diagonal arrangement of leaves and flowers on the cloth that was sadly out of keeping. In another arrangement the foliage was of the Lady Fern only, and the flowers of Water Lily and yellow Chrysanthemum segetum. Mr. Aitkin had the best six dishes of fruit, including good Muscat of Alexandria and Black Hamburgh Grapes, Brown Turkey Figs, Dell's Hybrid Melon, fine Noblesse Peaches, and some superb Lord Napier Nectarines. Mr. Godfrey had good Black Alicante Grapes, Early Rivers Plums, Elruge Nectarines, Grosse Mignonne Peaches, &c. With three bunches of Grapes Mr. Aitkin was 1st, having fine though slightly discoloured Bowood and Alexandria Muscats, with Black Hamburgh—Mr. Godfrey coming next with good Black Alicante, Lady Downe's, and Black Hamburgh. There was a good representation of fruits in the other classes, the cottagers especially showing up well with bush fruits.

Vegetables were well shown by the gardeners, Mr. Aitkin again coming 1st, and winning yet another Royal Horticultural Society's Medal with twelve kinds, a capital selection and good samples, including Cosmopolitan Potatos, fine Williams' White Celery, Telegraph Cucumbers, Gladiator Peas, Pragnell's Exhibition Beet, &c. Finally, Mr. Aitken was 1st with six dishes of Potatos, having fine samples of Vicar of Laleham, Mr. Bresee, Cosmopolitan, Radstock Beauty, Schoolmaster, and International. Some very good samples were shown in other collections. We must not omit mention of a very beautiful collection of Carnations and Picotees in pots, and several boxes of cut flowers, sent by Mr. Turner from the Royal Nursery, Slough, and which attracted no small share of attention.

Caterham Horticultural and Cottage Gardeners' : *July* 25.—This is a most useful Society, combining a Gardeners' Mutual Improvement Society, in connection with which periodical meetings are held, when papers are read and discussed, and these meetings are always well attended. The *locale* of the show is in the old village of Caterham, as distinct from that new growth of district and population found in the thriving Caterham Valley. The show took place, as usual, in the grounds of the Rectory, and, the weather being fine, was well attended.

Outside contributions, which greatly helped the show, included four boxes of excellent cut Roses from Messrs. Paul & Son, the Old Nurseries, Cheshunt, which contained admirable examples of Lord Beaconsfield, Louis d'Or, J. S. Mill, Camille Bernardin, Leopold I., Helen Paul, Duc de Montpensier, rich shaded crimson, very fine ; John Bright, brilliant in colour ; William Keile, a showy Rose of the A. Colomb type ; Devienne Lamy, very fine ; Mons. Boncenne, Madame Montet, Mons. E. Y. Teas, Lady Sheffield, the new white Baroness, &c. This collection was very highly commended. Messrs. A. Jeffkins & Co., successors to Mr. J. Cattell, nurseryman, of Westerham, sent an interesting collection of plants, and cut blooms of Roses and other flowers ; among the latter were some very fine spikes of Delphiniums, such as ranunculæflora, Pompon Brilliant, Mooreana, Alopecuroides, grandiflora, &c. These last were much admired, as they deserved to be. Messrs. J. Laing & Co., Stanstead Park Nursery, Forest Hill, sent a capital group of plants, including Begonias and Caladiums, and also some good cut Roses. Mr. Woollett, a local nurseryman, also sent an effective collection of plants and cut flowers.

Stove and greenhouse plants were the principal feature, the best three of the former coming from Mrs. S. P. Ireland, gr. to F. B. Ryder, Esq. ; Mr. Pearman, gr. to H. Horne, Esq., being 2d. Mr. Brand, gr. to H. Gardener, Esq., had the best three greenhouse plants ; Mr. Ireland being 2d. Mr. Pearman had the best three exotic Ferns, staging among them a handsome specimen of Adiantum concinnum. In addition there were Caladiums, Begonias, Pelargoniums, Fuchsias, Balsams, &c., of fairly good quality.

The groups of plants made a nice feature, and in their make-up displayed no little amount of taste, though a general flatness was perceptible. Mr. Brand was awarded the 1st prize in this class, Mr. Pearman being 2d, and Mr. Ireland 3d.

In the way of fruit Mr. Brand had the best four dishes and Mr. Pearman the 2d best. The best two bunches of Black Hamburgh Grapes came from Mr. Halsey, gr. to J. G. Clarke, Esq. Mr. Pearman had the best two bunches of white Grapes, staging good examples of Buckland Sweetwater and Foster's Seedling. Other fruits did not call for comment.

Vegetables were a strong feature, all classes of exhibitors showing in fine form. The best collection of six varieties came from Mr. Johnson, gr. to W. C. Straker, Esq., a very good representative lot ; Mr. Hicks, gr. to J. E. Street, Esq., being 2d ; and Mr. Halsey 3d. There was a good competition also in the class for four dishes of Potatos, Mr. Johnson being 1st and Mr. Ireland 2d. Remarkably good vegetables were shown by cottagers ; indeed, for quality they, as is now often the case, ran the gardeners very hard.

There was a class for table decorations shown by ladies, and here Mrs. Guimarius, of Orchardleigh, was deservedly awarded the 1st prize, being far ahead of all other competitors.

Obituary.

We deeply regret to record the death, on July 30, at 12, Wellington Square, Chelsea, of Lizzie, the dearly beloved and loving wife of Eugène Absolon, and only daughter of Mr. Thomas Moore, of the Chelsea Botanic Garden, aged thirty-eight years.

—— We regret to hear of the death of another son of Dr. Paterson, of Bridge of Allan, the third within the last fifteen months. Mr. Harry Mackenzie Paterson died on the 6th of last month from dysentery, in Pondoland, South-East Africa, after a few weeks' illness. The deceased went out to Africa in January, 1878, and a few months after his arrival he joined the Mounted Volunteer Forces of the colony, serving under Captain Ferreira, and with General Sir Evelyn Wood, as Lieutenant, and latterly under Colonel Baker, of "Baker's Horse," with the rank of Captain. Like his brothers, Captain Paterson shared his father's love for Orchids.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, August 1, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
July	In.	In.	°	°	°	°	°	°	°		In.
26	29.97	+ 0.21	68.1	51.5	16.6	57.8	— 4.7	50.0	76	N.NW.	0.00
27	29.97	+ 0.21	63.2	53.5	9.7	56.3	— 5.9	50.8	81	N.W.	0.02
28	29.91	+ 0.15	71.0	52.0	19.0	59.7	— 2.8	47.5	65	N.E.; N.NE.	0.00
29	29.70	— 0.06	71.0	48.0	23.0	58.6	— 3.7	48.4	69	W.; S.S.W.	0.09
30	29.47	— 0.28	66.0	52.5	13.5	57.9	— 4.4	53.7	86	W.; S.W.	0.03
31	29.60	— 0.17	75.0	53.9	21.1	62.2	— 0.1	54.8	79	W.; S.W.	0.04
Aug. 1	29.89	+ 0.14	68.0	53.2	14.8	59.2	— 3.1	44.3	65	N.W.; W.S.W.	0.07
Mean	29.79	+ 0.03	68.9	52.1	16.8	58.8	— 3.5	49.9	74	S.W.	0.25

July 26.—Dull day mostly; fine and bright at times. Fine night, cloudless.
— 27.—Dull day, cold wind; rain from 1.30 P.M. till 2 P.M. Fine night.
— 28.—Fine bright day, warmer. Fine night, cloudless.
— 29.—Fine bright day, overcast from 4 P.M., rain at 11 P.M.
— 30.—Fine day, slight rain at times. Fine night, calm dark sky.
— 31.—Fine, bright, warm day, rather windy; dark at 4.15 P.M., then rain at 4.45 P.M., and again at 8 30 P.M. Fine night.
Aug. 1.—Rain in early morning, fine and bright at times; little rain at 8 P.M. Fine at midnight.

London: *Atmospheric Pressure.*—During the week ending July 28 the reading of the barometer at the level of the sea increased from 29.67 inches at the beginning of the week to 29.91 inches by midnight on the 22d, decreased to 29.75 inches by midnight on the 23d, increased to 30.16 inches by 9 A.M., decreased to 30.11 inches by 3 P.M., and increased to 30.18 inches by midnight on the 26th, decreased to 30.14 inches by 3 P.M. on the 27th, and increased to 30.15 inches by midnight on the same day, and was 30.07 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.98 inches, being 0.10 inch higher than last week, and 0.04 inch above the average of the week.

Temperature. — The highest temperature in the shade in the week was 71°, on the 28th; on the 27th the highest was 63°.2. The mean of the seven high day temperatures was 65°.8.

The lowest temperature in the shade in the week was 49°.2, on the 22d; on the 27th the lowest temperature was 53°.5. The mean of the seven low night temperatures was 51°.2.

The greatest range of temperature was 19°, on the 28th; the smallest was 9°.7, on the 27th. The mean of the seven daily ranges was 14°.6.

The mean temperatures were—on the 22d, 54°.4; on the 23d, 55°.1; on the 24th, 57°; on the 25th, 56.°7; on the 26th, 57°.5; on the 27th, 56°.3; and on the 28th, 59°.7; and these were all below their averages by 7°.9, 7°.1, 5°.2, 5°.5, 4°.7, 5°.9, and 2°.5 respectively.

The mean temperature was 56°.7, being 1°.4 higher than last week, and 5°.6 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 125°.5, on the 28th. The mean of the seven readings was 112°.5.

The lowest reading of a thermometer placed on grass, and fully exposed to the sky, was 41°, on the 23d. The mean of the seven readings was 43°.9.

Rain.—Rain fell on four days, to the amount of 0.35 inch, of which 0.28 inch fell on the 24th.

England: *Temperature.*—During the week ending July 28 the highest temperatures were 75°.3 at Brighton, 72°.2 at Bristol, and 71°.2 at Plymouth; the highest, at Wolverhampton, was 63°.2, at Liverpool 63°.7, and at Preston 64°.5. The general mean was 64°.8.

The lowest temperatures in the week were 41° at Hull, 41°.5 at Nottingham, and 43°.1 at Wolverhampton; the lowest temperature at Brighton, Blackheath, and Liverpool was 49°.2. The general mean was 46°.

The greatest ranges of temperature in the week were 29° at Hull and 26°.1 at Brighton and Cambridge; the least ranges were 14°.5 at Liverpool, 17°.5 at Preston, and 18°.9 at Bradford. The general mean was 22°.4.

The mean of the seven high day temperatures was highest at Brighton, 69°.2, at Cambridge 67°.2, and at Plymouth 67°; and was lowest at Wolverhampton, 59°.9, and at Liverpool and Bradford 60°.9. The general mean was 64°.2.

The mean of the seven low night temperatures was highest at Liverpool, 52°.1, at Plymouth 51°.6, and at Brighton 51°.4; and was lowest at Wolverhampton, 46°, at Hull 46°.2, and at Nottingham 46°.6. The general mean was 49°.4.

The mean daily range of temperature was greatest at Cambridge, 19°.8, at Hull 18°.4, and at Nottingham 18°.3; and was least at Liverpool, 8°.8, at Preston 11°.2, and at Bradford 11°.6. The general mean was 14°.8.

The mean temperature was highest at Brighton, 58°.4, at Plymouth 57°.4, and at Truro 56°.9; and was lowest at Wolverhampton, 51°, at Bradford 53°.2, and at Hull 53°.5. The general mean was 54°.9.

Rain.—The largest fall was 0.99 inch at Leeds, 0.60 inch at Bristol, and 0.57 inch at Liverpool; the smallest falls were 0.08 inch at Plymouth, 0.10 inch at Sheffield, and 0.14 inch at Cambridge. The general mean fall was 0.33 inch.

Scotland: *Temperature.*—During the week ending July 28 the highest temperature was 71°, at Glasgow and Dundee; at Leith the highest temperature was 64°.8. The general mean was 68°.7.

The lowest temperature in the week was 42°, at Dundee; at Aberdeen the lowest temperature was 47°.3 The general mean was 44°.1.

The mean temperature was highest at Dundee, 56°.8; and lowest at Edinburgh, 53°.5. The general mean was 55°.4.

Rain. — The largest fall was 1.60 inch, at Aberdeen, and the smallest was 0.03 inch at Greenock. The general mean fall was 0.46 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

Errata. — At p. 116, in the letter on Melon Growing, for Mr. "Hobson" read Mr. "Hotson." — At p. 20, last line but one, for "Watson" read "Waterer."

Insects: *W. H. M.* The Oak leaves are marked all over with small discoloured spots, at first very minute and circular, with a very fine transparent dot in the centre, but subsequently enlarging and becoming more and more confluent and of large size. Both surfaces of the leaf are entire, but the parenchyma in the discoloured parts seems to have disappeared. Such a peculiarity might have arisen by the action of some sucking insect, such as aphides; but we much question if this is the case here, as there are no marks of the insects nor exuviæ left upon the leaves. *I. O. W.*

Kentish Roses.—We are reminded that in our notice of the Carnation and Picotee Show last week we overlooked the fact that the Floral Committee awarded Messrs. Geo. Bunyard & Co., of Maidstone, a silver Banksian Medal for twelve boxes of cut Roses. They attracted considerable attention from their bright colour.

Names of Plants: *C. M. O.* Kalmia latifolia. — *A. M.* 1 and 2, probably one of the numerous forms of Juniperus Sabini; 3, Abies lasiocarpa; 4, Juniperus sp —*C. W.* We named the Moss on July 21 (Bryum argenteum). The Lychnis is L. coronaria.—*W. W.* 1, Achillea millefolium; 2, Senecio Jacobæa; 3, Hypericum perforatum; 4, Potentilla reptans. — *Leadenham.* 1, Lygodium japonicum; 2, Pteris cretica var.; 3, Polypodium appendiculatum; 4, Onychium japonicum; 6, Pteris serrulata, crested var.—*Philomathes.* 1, Centrostemma multiflorum; 2, Epidendrum ciliare. — *C. M. Owen.* 1, Veronica salicifolia; 2, V. Traversii; 3, V. elliptica.—*J. R. Haig.* Holcus lanatus.—*L. L.* There does not appear to be any climbing Cineraria known, but some of them grow several feet high. There are climbing species of Senecio, one of which is probably intended. — *H. C.* A proliferous condition of Mimulus luteus.

Peas: *E. T. D.* There is no great merit in growing Peas and Beans so tall as those you describe. It is only a question of manure and a dripping season, and the use of a ladder to gather the crops by. — *E. Nott.* The old purple-podded variety.

Ricinus: *Dammann & Co.* The leaves arrived in such a dry shrivelled condition that we can say nothing as to the merits of your new variety.

Rose Sport: *Alfred Tanner.* The Rose blooms which were sent are not finer in form or colour than those of Marie Baumann, from which the plant is stated to be a sport, and the fine perfume of that Rose is absent in those you forwarded; but if the plants are vigorous, and have greater floriferousness, it would be an acquisition to the garden.

Strawberries: *A. N. Jones.* Your Strawberries (Helena Gloede) came to hand very much bruised. Had there been a little dry moss, and only one division used in the box, they would, we think, have endured the transit better. Soft fruit needs some kind of padding in the box or basket. The flavour is decidedly inferior. Why grow it, when there are so many that are better in colour, flavour, and firmness—this last quality the greatest desideratum in fruit for market purposes.

Strawberry Seeds: *J. T.* Try some of the large seed firms. We think you would do better to send some runners, if only a few, by post. Mr. Cannell, of Swanley, would probably assist you in the matter.

Vines: *G.* Yours is an excellent illustration of "putting new wine into old bottles." It is extremely difficult to introduce young Vines amongst old-established plants. The portion of border into which the young Vines are planted should be renewed entirely, and freed from any possible encroachment by the roots of the established plants, and the management of the house as to atmosphere, temperature, &c., must be all in accordance with the requirements of the young Vines. In your case it has not been so; the old Vines have robbed the younger of the proper nourishment, and hence the failure. Why not allow the old Vines to extend, or if other sorts are wished for, why not graft on to the old plants? We recommend you to consult Barron's *Vines and Vine Culture*, where this subject is fully discussed.

Communications Received.—H. N.—Asa Gray.—R. W.—G. T. B. (too late in the day).—H. E. G.—J. G. B.—J. B. Armstrong.—T. S. J.—C. M. O.—N. E. Br.—M. T. M.—A. H.—E. Mayer.—C. K.—S. Y.—E. W. B.—D. T. F—R. O'C.—J. W.—H. E.—J. H.—W. B.

Markets.

COVENT GARDEN, August 2.

Heavy supplies during the week, with prices easier. Currants a further fall. Good samples of Cherries in demand. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Cherries, ½-sieve	7 0–13 0	Lemons, per case	15 0–20 0
Currants, Black, ½-sieve	3 0– 3 6	Melons, each	2 0– 3 6
— Red, ½-sieve	3 0– 4 6	Peaches, per doz.	2 0– 8 0
Figs, per dozen	2 0– ..	Pine-apples, Eng., lb.	2 0– 3 6
Grapes, per lb.	1 0– 3 0	— St. Mich., each	3 6–10 0
Gooseberries, ½-siv.	2 6– 3 3	Strawberries, per lb.	0 3– 0 9

Vegetables—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	2 0– 3 0	Lettuces, Cabbage, per dozen	1 0– ..
Beans, French, lb.	0 4– ..	— Cos, per dozen	1 6– ..
— Scarlet, per lb.	0 4– ..	Mint, green, bunch	0 6– ..
Beet, per doz.	1 0– ..	Mushrooms, p. baskt.	1 0– 2 0
Cabbages, per doz.	1 0– 2 0	Onions, per bunch	0 6– ..
Carrots, new, p. bun.	0 6– ..	— Spring, per bun.	0 6– ..
Cauliflowers, English, dozen	2 0– 3 0	Parsley, per bunch	0 4– ..
Celery, per bundle	1 6– ..	Peas, English, quart	1 0– ..
Cucumbers, each	0 4– 0 8	Radishes, per doz.	1 6– ..
Endive, French, per dozen	2 0– ..	Small salading, pun.	0 4– ..
Garlic, per lb.	1 0– ..	Spinach, per bushel	3 6– ..
Herbs, per bunch	0 2– 0 4	Sweet Potatos, lb.	0 6– ..
Horse Radish, bund.	3 0– 4 0	Tomatos, per lb.	1 0– ..
		Turnips, new, bun.	0 4– ..
		Vegt. Marrows, each	0 3– 0 4

Potatos.—Jersey Potatos much diseased, and trade bad; Kent Kidneys, £5 to £6 per ton.

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	12 0–24 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 0
Asters, per doz.	4 0– 8 0	Fuchsias, per dozen	4 0– 9 0
Begonias, per doz.	6 0–12 0	Hydrangea, per. doz.	9 0–24 0
Bouvardia, doz.	12 0–18 0	Lilium longiflorum, per dozen	18 0–42 0
Caladiums, per doz.	6 0–24 0	Liliums, various, doz.	12 0–30 0
Calceolarias, dozen	4 0– 9 0	Lobelias, per dozen	3 0– 6 0
Cockscombs, doz.	4 0– 9 0	Marguerite Daisy, per dozen	12 0–24 0
Coleus, doz.	3 0– 6 0	Mignonnette, doz.	4 0– 6 0
Dracæna term. doz.	30 0–60 0	Myrtles, per doz.	6 0–12 0
—viridis, per doz	12 0–24 0	Palms in variety, each	2 6–21 0
Erica, various, doz.	12 0–36 0	Pelargoniums, scarlet, per dozen	2 0– 6 0
Euonymus, various, per dozen	9 0–18 0	— decorative, doz.	6 0–18 0
Evergreens, in var., per dozen	6 0–24 0		

Cut Flowers.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Marguerites, 12 bun.	6 0– 9 0
Asters, 12 bunches	4 0– 6 0	Mignonette, 12 bun.	6 0– 9 0
— French, per bun.	1 0– 3 0	Marigolds, 12 bun.	2 0– 4 0
Bouvardias, per bun.	1 0– 1 6	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 0
Canterbury Bell, bun.	1 0– 2 0	Pansies, 12 bunches	9 0– 1 6
Carnations, 12 blms.	1 0– 3 0	Pelargoniums, 12 spr.	0 6– 1 0
— 12 bunches	3 0– 6 0	— zonal, 12 sprays	3 0– 6 0
Cornflower, 12 bun.	1 6– 4 0	Picotees, 12 bun.	2 0– 6 0
Dahlias, 12 bun.	4 0– 8 0	Primula, double, bun.	1 0– 1 6
Delphinium, p. bun.	0 6– 1 0	Pyrethrum, 12 bun.	3 0– 6 0
Eucharis, per doz.	4 0– 6 0	Roses (indoor), doz.	2 0– 6 0
Eschscholtzia, 12 bn.	2 0– 4 0	— (outdoor), 12 bun.	3 0– 6 0
Gardenias, 12 blms.	3 0– 6 0	— coloured, doz.	3 0– 8 0
Gladioli, 12 spikes	1 6– 4 0	Stephanotis, 12 spr.	2 6– 4 0
Heliotropes, 12 sp.	0 6– 1 0	Stocks, 12 bunches	3 0– 6 0
Lapageria, white, 12 blooms	3 0– 6 0	Sweet Peas, 12 bun.	3 0– 6 0
— red, 12 blooms	1 0– 3 0	Sweet Sultan, 12 bun.	4 0– 6 0
Liliums, 12 bun.	12 0–18 0	Tropæolum, 12 bun.	1 0– 2 0
Lavender, 12 bun.	6 0– 9 0	White Jasmine, bun.	0 6– 1 0

SEEDS.

London: *Aug.* 1.—The trade now doing in farm seeds is as nearly *nil* as possible; indeed, no disposition whatever is shown to make forward purchases. Red Clover seed promises to be a large crop in America. French Trifolium is slightly dearer. Some choice new Rape seed is now offering at very moderate rates. Mustard for sowing continues in fair demand. Feeding Linseed is firm. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

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Illustrated Catalogue of Ornamental Conservatories.
Plans, prices, and particulars of GROWING HOUSES.
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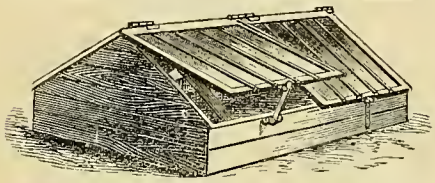

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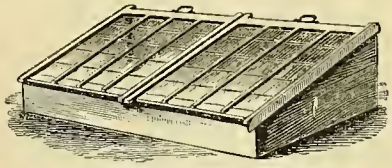

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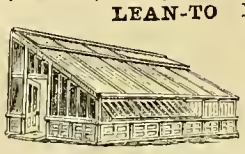

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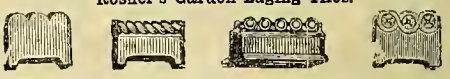

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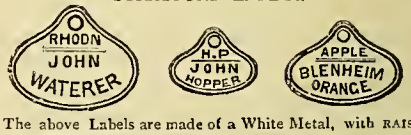

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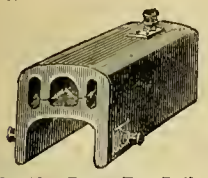

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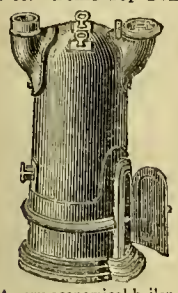

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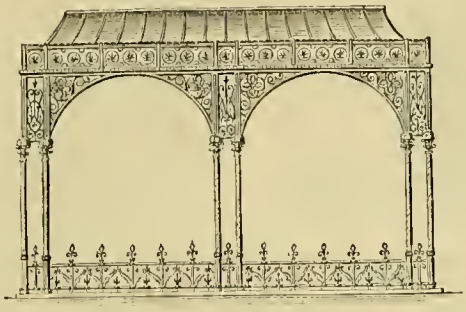

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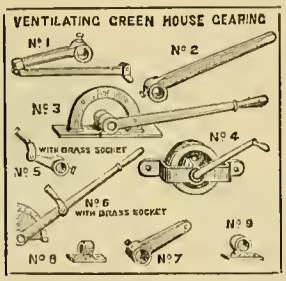

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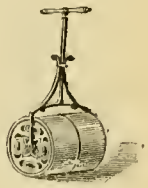

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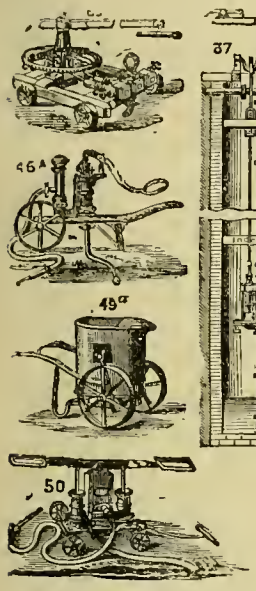

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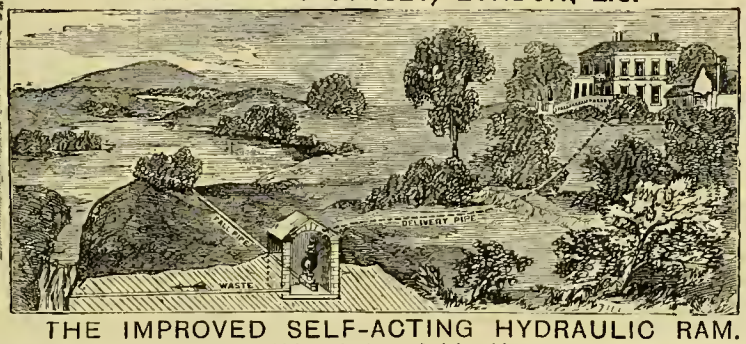

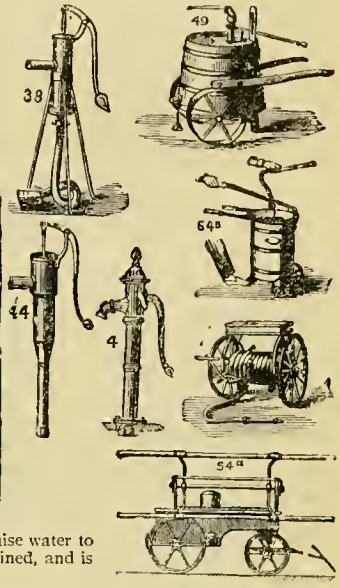

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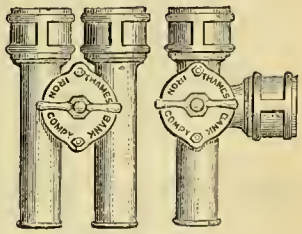

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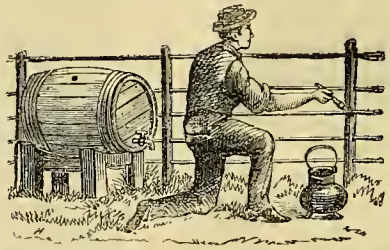

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PRIMULAS, CINERARIAS, and CALCEOLARIAS.—Bull's choice strain of the above, in good transplanted Seedlings, at 8s. per 100, 70s. per 1000, package and carriage free for cash with orders. Good strong Marechal Niel and other Tea ROSES, in 48-pots, at 60s. per 100.

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AQUILEGIA GLANDULOSA (Grigor's Variety).—10,000 to offer. Plants to bloom next spring, 15s. per 100; smaller, 10s. Seed, just collected, 2s. 6d. and 5s. per packet. Usual discount to the Trade.

R. AND A. MORRISON, The Nurseries, Elgin.

Hardy Primrose and Polyanthus Seed.

ANTHONY WATERER begs to offer SEED of the strain exhibited by him in the Spring at the Meetings of the Royal Horticultural and Royal Botanic Societies of London, and also at Manchester, in Packets at 5s. each, post-free on receipt of cash or stamps.

Knap Hill Nursery, Woking, Surrey.

SPECIAL OFFER.—PELARGONIUMS, best market varieties; red and white BOUVARDIAS, ADIANTUM CUNEATUM. Strong plants of each, in thumbs, 20s. per 100, for prompt cash

ROBERTS BROS. AND ARNOLD, East Grinstead, Sussex

SALES BY AUCTION.

Wednesday Next.—(Sale No. 6442.)
DUTCH BULBS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, August 15, at half-past 12 o'Clock precisely, 19 cases of DUTCH BULBS, comprising nearly 1000 lots of first-class double and single Hyacinths, in all colours, White Roman ditto for forcing, Tulips, Crocuses, Narcissus, Scillas, Snowdrops, and other bulbs just received from well known farms in Holland, in lots to suit the Trade and private buyers.

On view morning of Sale, and Catalogues had.

Thursday Next.
LÆLIA ELEGANS.

MR. J. C. STEVENS has received instructions from Mr. F. Sander, of St. Albans, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, August 16, at half-past 12 o'Clock precisely, the most wonderful consignment of LÆLIA ELEGANS ever seen, in extra condition and health.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6443.)
IMPORTED ORCHIDS.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, August 16, a quantity of imported plants of SACCOLABIUM HARRISONI, and CYPRIPEDIUMS, from South Borneo; also three cases of DENDROBES, CYMBIDIUMS, &c.

On view morning of Sale, and Catalogues had.

Saturday Next.—(Sale No. 6445.)
DUTCH BULBS. — TRADE SALE.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY NEXT, August 18, at half-past 12 o'Clock precisely, a large consignment of first-class DOUBLE and SINGLE HYACINTHS in all colours, TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, early ROMAN HYACINTHS, and other BULBS, just received from well known farms in Holland, in lots to suit the Trade and private buyers.

On view morning of Sale, and Catalogues had.

Tuesday Next.
CYPRIPEDIUM BOISSIERIANUM, Rchb. f.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, at half-past 12 o'Clock precisely, a fine lot of CYPRIPEDIUM BOISSIERIANUM, offered for the first time, and figured in Reichenbach's *Xenia*. Also superb masses of finest varieties of ODONTOGLOSSUM ALEXANDRÆ, many CATTLEYAS and other ORCHIDS.

On view morning of Sale, and Catalogues had.

Tuesday Next.
CONSIGNMENT of DENDROBIUMS from Upper Burmah, consisting of D. WARDIANUM, D. CRASSINODE, D. PRIMULINUM, D. THYRSIFLORUM, and several plants of the rare D. BRYMERIANUM.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE, to take place at their Central Auction Rooms, on TUESDAY NEXT, at half-past 12 o'Clock precisely.

On view morning of Sale, and Catalogues had.

Tuesday Next.
ESTABLISHED ORCHIDS, &c., for UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C. (next door but one to Bennett's Clock), on TUESDAY NEXT, at half-past 12 o'Clock precisely, several lots of ESTABLISHED ORCHIDS, including Odontoglossum Edwardsi, O. crispum, O. vexillarium, Cattleya dolosa, C. gigas, C. Warscewiczi, &c.

On view morning of Sale, and Catalogues had.

Friday Next.
A GRAND IMPORTATION of CATTLEYA MENDELLI, ODONTOGLOSSUM CRISPUM (Alexandræ), O. PESCATOREI, O. SPECIES, CATTLEYA AUREA, C. GIGAS, MASDEVALLIA MACRURA, M. HARRYANA, M. TROCHILUS.

MESSRS. PROTHEROE AND MORRIS will SELL the above, at the Central Auction Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, August 17, at half-past 12 o'Clock precisely, by order of Messrs. Shuttleworth, Carder & Co.

On view morning of Sale. Catalogues at the Rooms, or 8, New Broad Street, E.C.

Roman Hyacinths and Eucharis candida.

MESSRS. PROTHEROE AND MORRIS will include in their first BULB SALE at their Rooms, 67 and 68, Cheapside, E.C., on MONDAY, August 20, 3000 fine Roman HYACINTHS, and 300 fresh imported bulbs of EUCHARIS CANDIDA, true.

Mondays and Thursdays, August 20, 23, 27, and 30.
DUTCH BULBS—SPECIAL TRADE SALES.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY, August 20; THURSDAY, August 23; MONDAY, August 27; and THURSDAY, August 30, at half-past 11 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other ROOTS from Holland, of the best quality, and lotted specially to suit the Trade and other large buyers.

On view mornings of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Preliminary Notice.—Southgate, N.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, The Nursery, Chase Side Cottage, opposite the "Crown" Inn, Old Southgate, N., on WEDNESDAY, August 29, the Erections of Eleven GREENHOUSES, containing about 7000 feet of Glass and Woodwork, many thousands of feet of Hot-water Piping, Boilers, &c.

Catalogues at 8, New Broad Street, E.C.

Manchester.

SALE of an IMPORTANT and VALUABLE COLLECTION of CHOICE ORCHIDS, including fine specimens of Vanda tricolor, V. suavis, and V. gigantea, several from Mr. Mendel's sale; Lælia anceps, L. superbum, and L. purpurata; Cattleyas Mossiæ and other varieties, Cypripedium, a fine plant of Angræcum sesquipedale, Cœlogyne cristata, Cymbidium eburneum, Calanthes, and other rare kinds; PALMS and other FINE-FOLIAGE PLANTS, large specimens of CYATHEA DEALBATA, DICKSONIA ANTARCTICA, CYBOTIUM PRINCEPS, LATANIA BORBONICA, well-grown AZALEAS, CAMELLIAS of known sorts, well grown, and some of large size; EUCHARIS AMAZONICA, beautiful EXOTIC FERNS, DRACÆNAS, together with the usual PLANTS for STOVES and GREENHOUSES, also choice RHODODENDRONS, twenty-six FRUIT TREES in pots, about 150 CHRYSANTHEMUMS of sorts, ROSES, PELARGONIUMS, &c.

MESSRS. CAPES, DUNN AND PILCHER have received instructions from the Executors of the late Peter Spence, Esq., to SELL by AUCTION, on FRIDAY NEXT, August 17, at 11 o'Clock prompt, at Erlington House, Seymour Grove, Old Trafford, the highly valuable collection of ORCHIDS and other STOVE and GREENHOUSE PLANTS.

May be viewed on Monday, August 13, and three following days, when Catalogues can be had at the house, or earlier on application at the offices of the Auctioneers, 8, Clarence Street, Albert Square, Manchester.

Investment.—Important to Orchid Growers.
15 miles from London.

FOR DISPOSAL, a small and easily worked HORTICULTURAL BUSINESS—proprietor wishing to devote his whole time to another Business in which he is engaged. Capital opening for Growing Orchids.

Apply to Messrs. PROTHEROE AND MORRIS, 8, New Broad Street, E.C.—(Folio 5865.)

FOR SALE, SIDCUP HILL NURSERY, Foot's Cray, Kent. Established over fifty years, and widely famous for the culture of Ferns. In consequence of the death (without issue) of the late Mr. Robert Sim, the Stock, Leases, Business Structures, &c., of this Nursery are to be immediately disposed of.

For particulars apply to Miss SIM, at the above address.

FOR SALE, a NURSERY and FLORIST BUSINESS, in the North of Scotland. The Grounds extend to 11 acres, held on 11 years leases, the greater part of the terms being unexpired. The subjects include 3 Greenhouses, with Hot-water Appliances, and a number of Frames. The Stock, which is in first-class condition, consists of several millions of Seedling and Transplanted Forest Trees (for the prime quality of which the nursery is well-known), Ornamental and Fruit Trees, Shrubs, Bushes, and Flowers of every description. The sale is rendered necessary by dissolution of partnership, and offers a splendid opportunity for acquiring a good going established business.

Further particulars from GRIGOR AND YOUNG, Solicitors, Elgin, N.B.

Kingswood Cottage Nursery, Vulcan Road, Brockley, Kent.
To GARDENERS and OTHERS.

TO BE LET, a compact NURSERY, with Greenhouses 200 feet by 12 feet; good Garden, well stocked, containing about three quarters of an acre; Dwelling-house, 6 rooms, with outbuildings, &c. Rent, about £32 per annum; must be Let at once on account of owner going abroad. Five years' of lease unexpired: can be renewed. This, a bargain not often met with, can be taken at valuation, or by private contract, with immediate possession.

Apply on the Premises as above.

TO BE LET, ON LEASE, a good JOBBING and LOCAL BUSINESS, upon favourable terms.

Apply to Mrs. G. SMITH, Tollington Nursery, Tollington Park, Hornsey Road, N.

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

DUTCH BULBS.

DIRECT FROM THE GROWERS.

ANT. ROOZEN AND SON, NURSERYMEN, Overveen, near Haarlem, Holland.

Before ordering Dutch Bulbs, read ANT. ROOZEN & SON'S CATALOGUE for 1883, which their Agents, Messrs. MERTENS AND CO., 5, Billiter Square, London, E.C., will forward Post-free on application.

To the Trade.

JAMES CARTER, DUNNETT AND BEALE'S CATALOGUE of Bulbs, Plants, and Horticultural Sundries, has now been posted to every Customer; should it have miscarried another copy will be sent on application to

237 and 238, High Holborn, London, W.C.

BEGONIAS.—B. Hareana, a new variety, blooming continuously; of the greatest value for cutting or for market work, being dwarf and compact, and crowded at every joint with white flowers; 1s. 6d. each. B. DAVISII, 1s. 6d.; B. SEMPERFLORENS ROSEA, B. VEITCHII, B. SCHMIDTII, B. ROEZLII, B. FRŒBELLI, 1s. each; a good plant of each of the above, 7s. GOLDEN NUGGET: strong plants full of bloom-buds, of this famous Begonia can now be offered at 2s. 6d. each. B. BONIFACE, large trusses of enormous scarlet flowers, 3s. 6d. each. These choice varieties should be in every collection.

LIST of other Begonias post-free. All plants are package and carriage free, from

T. H. HARE, Bulb Grower, &c., Sittingbourne, Kent.

BULB SEASON, 1883.

GENTLEMEN, GARDENERS, and Others, by ORDERING IMMEDIATELY, may obtain the FINEST BULBS at strictly WHOLESALE PRICES.

Write for PRICE LIST to THE CITY FLOWER, SEED, and BULB DEPOT, 162, Fenchurch Street, and 80, St. Paul's Churchyard, London, E.C.

PLANT AT ONCE, EARLY FORCING.

CARTERS' BULBS FOR THE DECORATION of the CONSERVATORY, DRAWING ROOM, &c., &c., at CHRISTMAS TIME.

EARLY WHITE ROMAN HYACINTHS, 25s. per 100, 3s. 6d. per dozen, 4d. each.
EARLY WHITE ROMAN HYACINTHS (Blue Skin), 17s. 6d. per 100, 2s. 6d. per dozen, 3d. each.
EARLY BLUE ROMAN HYACINTHS, 12s. 6d. per 100, 1s. 9d. per dozen, 3d. each.
LIGHT BLUE NEAPOLITAN, 15s. per 100, 2s. per dozen, 3d. each.
DARK BLUE NEAPOLITAN, 15s. per 100, 2s. per dozen, 3d. each.
EARLY DOUBLE ROMAN NARCISSUS, 2s. 6d. per dozen, 4d. each.
EARLY PAPER-WHITE NARCISSUS, 1s. 9d. per dozen, 3d. each.
DOUBLE SNOWDROPS, large, 21s. per 1000, 2s. 6d. per 100, 5d. per dozen.
SINGLE SNOWDROPS, large, 21s. per 1000, 2s. 6d. per 100, 5d. per dozen.
DUC VAN THOL TULIPS, red and yellow, single, 10s. per 100, 1s. 6d. per dozen.
ALLIUM NEAPOLITANUM, 10s. per 100, 1s. 6d. per dozen.

NOTE.—These prices are not binding after the publication of Carters' Autumn Catalogue.

COLLECTIONS of the above, price 5s., 7s. 6d., 16s., 24s., 45s., and 65s.

CARTERS, THE QUEEN'S SEEDSMEN.
By Royal Command to the Prince of Wales.
237 and 238, High Holborn, London, W.C.

TO BE SOLD, CHEAP.—100 CROTONS in varieties—plants from 1 foot to 3 feet. Also 100 DRACÆNAS, from 6 inches to 18 inches, all well coloured. The above must be sold for want of room. Full particulars will be sent as to varieties and sizes.

HY. NOBLE, Paradise Nurseries, Boston Spa, Yorkshire.

JOSEPH BAUMANN, NURSERYMAN, Ghent, Belgium, offers the following Plants:—AZALEA hardy MOLLIS and hardy Ghent, A. INDICA, RHODODENDRONS, CAMELLIAS, KALMIA LATIFOLIA, dwarf with flower buds: fine Sweet BAYS, Standards and Pyramids: fine LATANIA BORBONICA, ARALIA SIEBOLDI and VARIEGATA, ARAUCARIAS, ILEX, MAGNOLIAS, PÆONIES, ROSES, SPIRÆA JAPONICA, &c.

CATALOGUE free.

Parcels Post.

MR. WILLIAM GORDON is prepared to give the full benefit of the Parcels' Post to his Customers, and will forward, package and carriage free, all orders of 10s. and upwards. This will enable his Customers in the country to purchase plants at the same price as is paid at the Nursery by those resident in London and the Suburbs.

The fact that these plants with ordinary care can be grown in a greenhouse has given an impetus to orders, and nearly all lovers of flowers are now Orchid growers and are forming collections, which, besides being very interesting, will become valuable as there are no plants which pay better for growing into specimens.

The following are a few of the varied and cheap ORCHIDS which are held in quantities: see also last week's advertisement.

The special ORCHID LIST for August will be forwarded, post-free, on application:—

C. denotes Cool, *I.* Intermediate, and *S.* Stove Plants.

	Each—s.	d.
I. AERIDES FIELDINGII, or FOX BRUSH.—Five to seven leaves .. .. 5s. and	7	6
I. CATTLEYA SANDERIANA.—This is the best of all Cattleyas, a very grand type of gigas. Fine imported pieces, six to twelve bulbs, 10s 6d., 15s. and	21	0
I. CATTLEYA GASKELLIANA.—This is a splendid new Cattleya. Good established plants, eight to twelve bulbs ... . 10s. 6d. and	15	0
Imported pieces .. .. 7s. 6d. and	10	6
I. CATTLEYA WARSCEWICZII.—Six to twelve bulbs, good strong breaks. Imported pieces ..	7	6
I. CATTLEYA MENDELII.—Six to twelve bulbs. Good strong breaks. Imported pieces, some established .. .. .. 7s. 6d., 10s 6d. and	15	0
I. CYPRIPEDIUM VENUSTUM.—This is a very pretty old Cypripedium. It is a greenhouse species, good for cutting. Strong plants	2	6
S. CYPRIPEDIUM NIVEUM.—This is very beautiful: flowers pure white. Strong plants .. 2s. 6d. and	5	0
I. DENDROBIUM JAMESIANUM.—A beautiful large flower, pure white .. .. 3s. 6d. and	5	0
I. DENDROBIUM PALPEBRÆ.—Very pretty, sweet-scented. The flowers, white and golden-yellow, hang in beautiful clusters .. .. 2s. 6d. and	3	0
S. DENDROBIUM SUAVISSIMUM.—This is a charming variety, bright yellow, except the lip, with very dark crimson spots in the centre. Five to six bulbs.. .. .. 5s. and	7	6
SINGLE WHITE ROMAN HYACINTHS.—For forcing .. .. per dozen, 2s. 6d., 3s., and	3	6
NAMED HYACINTHS .. per dozen, 3s. 6d. and	4	0

All orders to be addressed to WM. GORDON, New Plant and Bulb Importer, 10, Cullum Street, London, E.C., and NOT to the Nursery, Twickenham, Middlesex.

ALEXIS DALLIERE, NURSERYMAN, Ghent, Belgium, has a large quantity of his Special Cultures for disposal this season, such as:—

Azalea indica, Azalea mollis, Camellias, Rhododendrons, Bouvardia Alfred Neuner, the whole well budded; also Alsophila australis, Aspidistra fol. var., Araucaria excelsa, Cybotium princeps, Dracæna terminalis, and other sorts; Latania borbonica, Corypha australis, Phœnix reclinata and tenuis, Seaforthia elegans, Ptychosperma Alexandræ, Ficus elastica, Spiræa (Hoteia) japonica, very strong. The whole in well cultivated plants. Prices and sizes of plants will be immediately sent on application.

SPIRÆA JAPONICA, strong Clumps for forcing, 15s. per 100, £6 per 1000. ROSES. Standards, Half-standards, and Dwarfs, in first-class varieties. Hardy Ghent MOLLIS and Indian AZALEAS and RHODODENDRONS, in splendid collections of the most showy sorts, and strong plants with buds. Will supply the above named articles in quantity in the next season, at the lowest prices. Price on application. Apply to ED. PARRÉ, Nurseryman, Ghent, Belgium.

To the Trade.

BAUMFORTH'S SEEDLING RASPBERRY.

Special Prices for Orders before September 1 may be had on application.

EDMUND PHILIP DIXON, Hull.

HYACINTHS. — HYACINTHS. — In harvesting our Hyacinths some time ago we were astonished to see the bulbs looking so grand and healthy this season. We really do not think we have had such a fine crop the last four years. Therefore we recommend our Customers to order at once to secure the very best stuff. Special offers for large quantities.

SEGERS AND CO., Bulb Growers, Lisse, near Haarlem, Holland.

Carriage Free.

Just to hand.—Plant now.—Early Winter White Flowers. Splendid quality.

SINGLE WHITE ROMAN HYACINTHS, which will produce 3 to 6 spikes per bulb, 21*s.* per 100, 3*s.* per dozen (not the puoy Italian so largely distributed).

PAPER WHITE NARCISSUS, charming and useful companion to preceding, 12*s.* 6*d.* per 100, 2*s.* per dozen.

The early consignments are always the finest. Apply at once.

GEO. P. DARBY, Importer, Hertfordshire Seed and Plant Establishment, Watford, Herts.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE.

4*d.* per bushel; 100 for 25*s.*; truck (loose, about 2 tons), 40*s*; 4-bushel bags, 4*d.* each.

LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s*; sacks, 4*d.* each.

BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks 22*s.*; sacks, 4*d.* each.

COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* per half ton, 26*s* per ton; in 2 bushel bags, 4*d.* each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1*s.* per bushel.

SPHAGNUM MOSS, 8*s.* 6*d.* per sack.

MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Free Price LIST.—**H. G. SMYTH**, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

COCOA NUT FIBRE REFUSE, newly made, as supplied to the Royal Horticultural Society and principal Nurserymen in England, in sacks at 1*s.* 3*d.* each, or 15 sacks, 18*s.*; 30 sacks, £1 5*s.*, sacks included. Truck-load, loose, 3*s.*; fifteen bags or more and truck-load free on to rail. Post-office order or cheque with all orders will oblige. Established 1872—J. STEVENS AND CO., "Greyhound" Yard, and 132, High Street, Battersea, S.W.

12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6*s.* per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15*s.* per ton per Truck. Sample Bag, 5*s*; 5 Bags, 21*s.* 6*d.*; 10 Bags, 45*s.* Bags included. Fresh SPHAGNUM, 10*s* 6*d.* per Bag. SILVER SAND, Coarse or Fine, 52*s.* per Truck of 4 tons. Red Sandstone ROCKWORK, £5 per Truck of 4 tons. GRAVEL, good colour, 25*s.* per Truck of 6 tons.

WALKER AND CO., Farnborough Station, Hants.

Thomson's Vine and Plant Manure.

Manufactured by the

LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), LIMITED,

The Vineyard and Nurseries, Garston, near Liverpool,

and Sold by them and all Nurserymen and Seedsmen.

This is the Manure used to produce the splendid Grapes grown by Messrs. WM. THOMSON & SON, Clovenfords.

For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

GARDEN REQUISITES.

PEAT, LOAM, SILVER SAND, PREPARED COMPOST, RAFFIA FIBRE, TOBACCO CLOTH, &c.

Quality **equal to any** in the Market.

(All Sacks included.)

PEAT, best brown fibrous	4*s.* 6*d.* per sack.
,, best black fibrous	3*s.* 6*d.* ,,
,, extra selected Orchid	5*s.* 0*d.* ,,
LOAM, best yellow fibrous	1*s.* per bushel (sacks included).
PREPARED COMPOST, best ..	
LEAF MOULD	
PEAT MOULD	
SILVER SAND (coarse)	1*s.* 3*d.* per bushel.
RAFFIA FIBRE, best only	10*d.* per lb.
TOBACCO CLOTH, finest imported..	8*d.* per lb., 28 lb. 18*s.*
,, PAPER, finest imported	10*d.* per lb., 28 lb. 21*s.*

COCOA-NUT FIBRE REFUSE (see special advertisement)

Terms, strictly Cash with order.

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

Amortiser.—Amortiser.—Amortiser.

To HOP and FRUIT GROWERS, FLORISTS, MARKET GARDENERS and OTHERS.

STEVENS AND CO.'S AMORTISER INSTANTLY DESTROYS Hop Flea, Green Fly, Caterpillar, and every kind of Blight. Fruit Growers, Florists, more especially Rose Growers, will find this preparation invaluable, as one application causes INSTANT DESTRUCTION of all INSECT PESTS. For Hothouse, Greenhouse, and other Plants it is equally valuable, and is guaranteed not to injure the most delicate bloom or foliage. We have a Special Preparation of the Amortiser for Watering the Ground which Instantly Destroys Slugs, Wireworms Caterpillars, Grubs, &c When ordering state which preparation is required. Sample Cans, 4½ gallons, 3*s.* 6*d.*, tin included. Special Quotations for Large Quantities.

Orders received at 67, High Street, Borough, London, S.E.

Speciality for Roses.

BEESON'S ROSE MANURE.

To be had of all Nurserymen, Seedsmen, and Florists. For particulars please apply to

W. H. BEESON, Carbrook Bone Mills, Sheffield.

SILVER MEDAL-1881. BRONZE MEDAL-1881.

To Her Most Gracious Majesty Queen Victoria.

To His Royal Highness the Prince of Wales.

For Beautiful Flowers and Fruits

USE CHUBB, ROUND AND CO.'S PATENT

COCOA-NUT FIBRE REFUSE

By CHUBB'S PATENT PROCESS,

As supplied to all the Royal Gardens and Principal Nurseries of Europe.

GUARANTEED ABSOLUTELY PURE. FREE FROM ANY FOREIGN INTERMIXTURE. Manufactured on the premises from the famous "Laguna" Cocoa-Nut Husks, and can only be obtained from us direct. This article is not to be confused with so-called Cocoa-Nut Fibre Refuse, sold by dealers and others at ridiculously low prices, and dear in the end. Amongst numerous Testimonials and extracts from scientific writers, to be seen at our works, we hold the following:—From Mr. CHARLES PENNY, Head Gardener to H.R H. the Prince of Wales: "The Gardens, Sandringham, February 28, 1883.—I must say your Cocoa-Nut Fibre Refuse is far superior to any I have ever tried; in fact, it is simply perfection; and the use of your Fibre for so many purposes in Horticulture is a thorough boon. Make what use you like of this letter." Useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bulbs, Mushrooms, Bedding-out Plants, &c.

DESTROYS ALL SLUGS AND INSECTS.

An elegant Bordering to Flower Beds. Combines warmth and cleanliness with valuable antiseptic and deodorising properties.

MOISTENS IN HEAT. HOLDS HEAT IN COLD WEATHER.

Terms, strictly cash with order. Prices as follows:—Sacks 1*s.* 6*d.* each; 10 sacks, 13*s.*; 15 sacks, 18*s.*; 20 sacks, 23*s.* 30 sacks, 30*s.* (all sacks included). Truck-load, free on rail, £2. Limited quantities of P. M. SPECIAL QUALITY, Granulated, in sacks only, 2*s.* 6*d.* each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from the Manufacturers, **CHUBB, ROUND & CO.,**

Fibre Works, West Ferry Road, Millwall, London, E.

Important Discovery.

For Cleansing Plants from Aphides and all Parasites—To Prevent American Blight, and all kinds of Scale, &c., and for Washing all Hard-Wooded Plants, always use

HUDSON'S SOAP.

A ¼ lb. Packet to 3 Gallons of Water.

A strong solution thickened with clay makes an effective Winter Dressing.

Testimonial.

"Coton Hall Nursery, Shrewsbury, July 28, 1880.

"We find Hudson's Soap a very useful Winter Dressing for all kinds of Fruit Trees; both as a preventive and cure against American Blight and all kinds of Scales. We also use it for Camellias, Azaleas, Rhododendrons, and all kinds of Hard-wooded Plants. We have much pleasure in presenting you with this testimonial, and remain, yours truly,

(Signed) "JOHN JONES AND CO."

REMARKABLE DISAPPEARANCE!

of all DIRT from EVERYTHING

BY USING

HUDSON'S EXTRACT OF SOAP.

Certain Sudden DEATH

to all Grubs, Aphis, Lice, Red Spider, Thrips, Mealy Bug, Caterpillars, &c.

Perfectly Harmless } to the Hands and Skin, but will cure Ring-worm and all Diseases produced by Parasites.

FIR TREE OIL

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A combination of Hydrocarbon Oils made Soluble in Water. **For destroying ALL INSECTS and PARASITES that Infest Trees and Plants,** whether at the Roots or on the Foliage. It cures Mildew and Blight on Fruit or Foliage, and a weak solution Kills all Vegetable Grubs, Turnip Fly, &c. Cleans Grapes from Mildew or Mealy Bug without affecting the bloom; and, thickened with a little clay, makes a good winter dressing. Destroys Lice and Fleas on Animals. Sold by Seedsmen and Chemists, 1*s.* 6*d.*, 2*s.* 6*d.*, 4*s.* 6*d.* a bottle. Per gallon 12*s.* 6*d.*, or less in larger quantities. Each bottle bears the Inventor's Trade Mark (a Cat's Head) and full directions for use. *Manufactured by*

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W. SHORT, Horticultural Co., Midhurst, Sussex.—Est. 1862.

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GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1*s.*, 3*s.*, & 10*s.* 6*d.*

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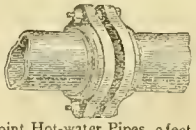

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ERICAS (Hyemalis, and other varieties), EPACRIS, GENISTAS, CYCLAMEN, BOUVARDIAS, ADIANTUM CUNEATUM and other FERNS, GREVILLEAS, VINES in pots, &c. An inspection is invited.
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NOTICE.—A very large quantity of Dwarf Roses, Standards and Half-Standards, ready for sale in the Autumn.
General CATALOGUE sent post-free on application.

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The present season's edition of the above is in the printer's hands, and will be issued in a few days, when it will be duly posted to all Customers, and may be had Gratis and Post-free upon application.

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MR. J. C. STEVENS has received instructions from Mr. F. SANDER, of St. Albans, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, August 16, at half-past 12 o'Clock precisely, the most wonderful consignment of LÆLIA ELEGANS ever seen, in extra condition and health.

On view morning of Sale, and Catalogues had.

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

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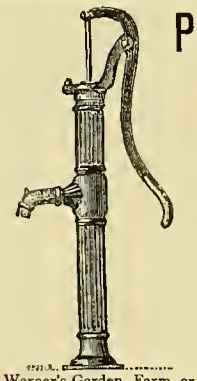
Of every description for Steam, Water, Wind, Horse, or Manual Power.

Prices upon application with particulars of requirements.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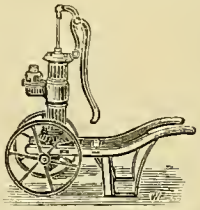
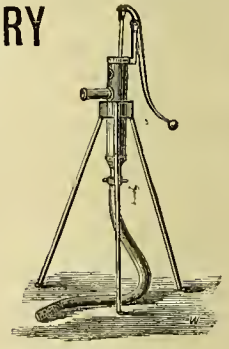

Warner's Improved Farmer's Fire Engine, or Portable Force Pump for Manure.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See "*Gardeners' Chronicle*," June 26.

FROM THE
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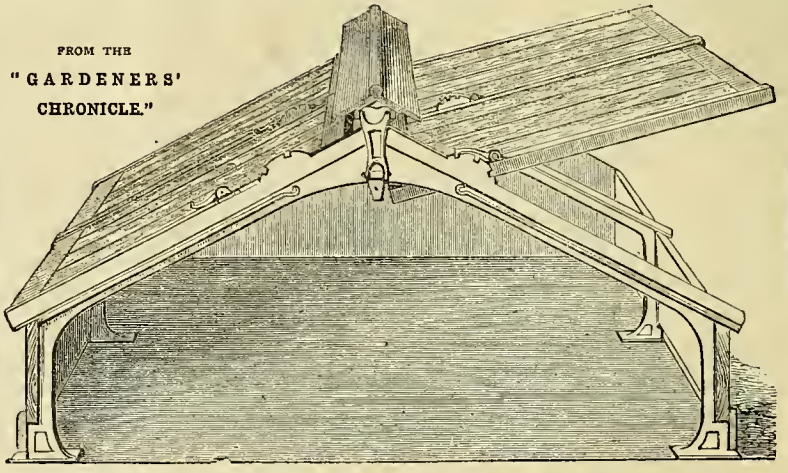

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The largest White Onion known. Grows 2 ft. in circumference.
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W. & J. BIRKENHEAD,
FERN NURSERY, SALE, MANCHESTER.

THE
Gardeners' Chronicle.

SATURDAY, AUGUST 11, 1883.

THE FENLAND.

THE noblest view in England, according to William Cobbett, is that from the rising ground at Sutton, in the Fens, between Cambridge and Ely. From the highest roof of the cathedral at Ely the same wide expanse of cornfields and grass may be seen with a still more distant horizon.

The Fens, like the Weald of Sussex, take the shape of a horse-shoe, with an encircling boundary of hills on all sides except that which is open to the sea; and in each case the existing country was once laid under water which has been removed, by natural subsidence in the Weald, by artificial drainage in the Fens, leaving behind a country composed of peat and silt—a stage remarkable for the historic dramas played thereon, and well suited for gardening. The oldest gardening in England was that of the Wealden, where the Romans introduced the art; and some of the most fertile land in England best suited for gardens is that of the Fens. A Mulberry tree stands hard by the cathedral of Ely on the south side in the sun, in the garden of a canon, and as the continuity of the clergy in residence here has been unbroken since the abbey was founded on this spot by St. Etheldreda, A.D. 673, the cultivation of fruit trees which the Romans left behind them has no doubt been so too. It is needless to repeat the story of what we owe the monks in the way of gardening. The Vine, we may be sure, they grew; for wine maketh glad the heart of man, and we have evidence of the cheerfulness of the monks of Ely in the following lines, written by a king:—

> "Cheerful sang the monks of Ely
> As Knut the king was passing by;
> 'Row to the shore, knights,' said the king,
> 'And let us hear these churchmen sing.'"

Wine was grown at all the religious houses, and it must have been particularly needful amid the swamps of the undrained Fens. We would describe the Fens as gardeners grateful to our predecessors, to the monks who fostered gardening in the great abbeys at Ely, Crowland, and Peterborough, and to those who subsequently laid the country dry, and covered it with farm dwellings and gardens which may now be counted by the thousand. An area of 750,000 acres is included in the Fens, which extend 73 miles from Lincoln to near Cambridge north and south, and 36 miles from Peterborough to Brandon west and east. Ely is in the very heart of the Fens, and from the western tower, standing on the boss of the leaden roof, turning round like a pivot on that dizzy height, you may detect the boundary-line of chalk hills which enclose them, with the spires and towers of Cambridge and of Peterborough, and the village beyond Crowland that gave Hereward the Wake his title of Lord of Bourne. The high ground of Norfolk lies on the east, and Lynn and the waters of the Wash on the north.

Within these boundaries, further than the eye can reach, a desolate waste of waters covered

the flats, with little islets, *eys*, here and there thickly planted with Oaks and Willows, and now the sites of the villages and churches which pleasantly dot the landscape. Over the wet, bedraggled region fever mists hung for centuries. The sole wealth and comfort of the country consisted in the abundance of wild fowl and fish, which formed the support of an amphibious race of Fen-men, who paddled and waded among the reeds, or stalked through the shallows on stilts.

The earliest inhabitants of the Fens, according to Messrs. Miller and Skertchley, in their elaborate work, *The Fenland*, were the Iberians, in the Stone period, who possessed among their domestic animals the indigenous short-horned ox of Britain, Bos longifrons, a distinct animal from Bos Urus, the parent of our ordinary breeds, which was introduced about A.D. 449. There are numerous remains of these swarthy little men whose old blood is still traced in the short, black-haired, dark-eyed people of Wales. Cæsar found them in Britain side by side with the fair Kelts, who were subsequent invaders, a race of "tall stature, broad skulls, fair hair, and blue eyes, uncouth features, and small hands." Rude works of drainage and embanking were executed by these people, and afterwards more elaborate works by the Romans, and, at a later period, by the Saxons and Danes. During the whole course of our history the higher ground at Ely, Crowland, Thorney, Peterborough, and Ramsey, was occupied, and the Fenland was resorted to as a camp of refuge by Kelts, British, Saxons, or English, at the time of invasion or during the several great internal struggles and civil wars, from the period of Simon de Montfort to that of Charles I.

Kingsley's attractive picture of the Fens in *Hereward the Wake*, relates to the greatest of the struggles, and we find therein a description of Earl Leofric's hall at Bourne, where the feudal castle of the Wakes afterwards stood. There is no historic record of the older residence, and Kingsley in his picture of the hall of the great earl, the father of Hereward, mainly describes one of the wooden houses such as the Saxon nobility inhabited. It was probably a one-storeyed assemblage of high-peaked roofs, built of stone below and wood above with the great hall in the centre and numerous other apartments and lean-to buildings, including a great kitchen and a chapel. Around it were the farm buildings, barns, and stables, which a large farmer, like a Saxon Thane, would require, and the whole was defended by an outer circle of palisades and earthworks.

Omitting the quaint details of mediæval life in the Fens, we pass to a period which heralds the modern order of things when, in 1620, the Dutchman Vermuyden was employed to drain the Fens. His success was partial, for in the last century Arthur Young could still describe them as drowned in water and ague-stricken. Birds and fish were *in excelsis*. "Butter-bumps," or bitterns, abounded; starlings swarmed in the reeds, pike were taken in the meres weighing 52 lb. each. As the waters of Whittlesea were sunk at the time it was laid dry, many tons of fish were taken out with nets, pike weighing 5 lb., 15 lb., and 20 lb.; perch weighing 3 lb. and 4 lb.; and the last acre was covered with fish to a depth of 1½ foot. The bream, the roach, and the chub were left to rot on the surface, and for many days eels continued to be taken from the mud by people wading with flat boards to widen the soles of their shoes. Adders, as well as snakes, were so numerous in the Fens that seventy vipers were bought one year, at a price offered, for the sake of diminishing the number of these reptiles. The dykes swarmed with frogs, whose melancholy croaking formed the music of spring. All this was changed forever, we may hope, by the effective works of drainage under the Act of 1844. The subsequent rise in the value of land has been astonishing. A thousand undrained acres, let at £10 a year, were worth £2000 when dry. Under the old system of windmill drainage—those picturesque mills which E. W. Cook loved to sketch—the drainage taxes were not less than 4*s.* 6*d.* an acre, and 80 acres were sold at £904, so that parts of the Fens were still very ineffectively drained. An estate sold at £7000 which afterwards realised £57,000. At the present moment the wet seasons have reduced the value of the Fens, but this is not the fault of the land, and sunny skies will restore all its old fertility.

"We see, we recognise, we almost deem
The present fiction and the past a dream."

A few years since the vitality of seeds taken from the buried forests in the peat was warmly though erroneously maintained. During the construction of the Great Northern Railway a submerged forest was discovered over which the peat had accumulated 3 or 4 feet during the thousands of years since the sea broke in and engulphed the flat. It was composed of Oak, Ash, and Willow, with an undergrowth of Hazel, and many nuts and acorns were recovered. The antiseptic property of peat is destructive to the vitality of seeds, and so is time: but a clergyman nevertheless succeeded, as he believed, in obtaining several young plants from the nuts. Sir William Hooker was appealed to, and some of the supposed seedlings from the peat were sent to Kew, the reverend sower expressing himself as having "no more doubt of their reality than of his own existence." It need hardly be added that Sir William Hooker placed this error of the growth of the long-buried nuts in the same category as the similar mistakes relating to the growth of other ancient seeds, such as the Raspberry seed of the Roman tomb and the Wheat from an Egyptian mummy. *Rambler.*

New Garden Plants.

SCILLA (LEDEBOURIA) LIVIDA, *n. sp.**

This is a new Scilla of the subgenus Ledebouria, just imported from the Cape of Good Hope by Messrs. F. Horsman & Co., of Colchester. It belongs to the group of species of which S. lanceæfolia is the type, and comes nearest to S. socialis, Baker, in *Ref. Bot.*, t. 181.

Bulb large, ovoid, above an inch in diameter, with thin brown outer tunics and a dense tuft of long root-fibres. Leaves 6—8 in a rosette, contemporary with the flowers in July, sessile, lanceolate, 6—8 inches long, 1—1¼ inch broad, narrowed gradually to an acute point, bright green, glabrous, without any spots or lines. Peduncle green, terete, 4—5 inches long at the flowering time. Raceme dense, oblong, 3—4 inches long, 15—16 lines broad; bracts minute, deltoid; pedicels erecto-patent, ¼—⅓ inch long Perianth green, oblong, ⅓ inch long, green, tinged on the outside with very dull purple; segments ligulate. Filaments bright mauve-purple, shorter than the perianth segments; anthers minute. Ovary stipitate, subglobose, with two collateral ovules in a cell; style ⅙ inch long. *J. G. Baker.*

TRICHOPILIA KIENASTIANA (*Rchb. f.*), *n. sp.*†

An old acquaintance of mine. It was February, 1873, when I first saw a single flower of this, kindly forwarded by Mr. W. Bull. I got no further information about bulb, leaf, and origin, and the flower, as well as my sketch and notes, was kept in my herbarium. Finally, in June last, Herr Consul Kienast, Zölly (Züric, Rämistrasse) sent me not only several inflorescences, but even—*ex præcordiis*—a bulb and a leaf.

I learn that this ardent collector found a tiny plant at Mr. F. Sander's labelled "Chestertoni." The poor dwarf was treated with the greatest love, and now it is a stately plant, flowering in profusion. It is a pleasure to dedicate it to its benevolent saviour, who is inferior to nobody in love and genial management of Orchids, and at once with Mr. Ortgies the *facile princeps* of growers of Pescatoreas and Bollcas.

Our plant stands near Trichopilia suavis, Lindl., and Backbousiana, Rchb. f. Bulb and leaf look much like those organs of the species just named, and the shape of the flower is comparable to, though the lip is not so stately as in T. suavis, Lindl. The peduncle would appear to be usually two-flowered. Sepals and petals are linear-ligulate, blunt, acute, straight, or nearly so. Lip three-lobed, lateral lobes median, obtuse angled; anterior lobe porrect, wavy, emarginate, the adherence of the claw to the lip goes very high on the column and is linear, where it is very broad triangular in Trichopilia suavis, and short and square in Trichopilia Backhousiana. The rather slender and long column has an oblique membranous hood at its back, with small teeth (no fringes, as in Trichopilia suavis). The anther is broad and acute over the front. The flowers are white, with a few yellow lines or spots on the disc of the lip. It is a very good species. *H. G. Rchb. f.*

CALANTHE ANCHORIFERA, *n. sp.**

A curious Polynesian Calanthe, imported by Mr. W. Bull (753), who had it in flower in December last. The general habit of the leaf, the hairy peduncle, the short velutinous bracts are like those of the common C. veratrifolia, R. Br. The whitish-ochre flowers have very small petals, much shorter pedicels and ovaries, and the lip is remarkably distinct. The anterior lacinia, bent like an anchor, suggested the name. *H. G. Rchb. f.*

CAMPANULAS.

My note on the Campanulas (p. 74) has led to a considerable amount of correspondence, and brought prominently before me the variability of the plant under garden culture. My friend, Mr. Wolley Dod, had a note on the same page showing the "polymorphous character of C. rotundifolia," and a bunch of seedlings he sent to me fully proves his statement, and shows that the Campanula is easily influenced, probably by bee-borne pollen, so that it is difficult to raise true typical forms from home-saved seed where many varieties are grown in the same garden. Mr. Dod doubted the correctness of the distinction I drew (p. 74) between C. turbinata and C. carpatica, because almost all his turbinatas had branched stalks, each branch bearing flowers, and we have exchanged specimens accordingly. My original plants of C. turbinata, bought about seven years ago, carry but one flower on one stalk, and agree exactly with the plate iii. in Wooster's *Alpine Plants*, 1st series, published 1874. We may, I think, take it that the plant was newly introduced from Transylvania about that date, as I cannot find an earlier record of it in England; and my original plant was acquired very shortly after this date, so I feel sure it is perfectly true to name. It still keeps to its distinctive habit of growth as before described, and is a very different plant to C. carpatica. I further find that new plants we are now blooming, and which we have raised from Mr. Thompson's seed, have branched stems, and are scarcely distinguishable from carpatica; and it is thus probable that the seedling stock so raised throughout England is not true. By turning to plate xxi. in the same volume C. carpatica alba will be found figured, and here the distinctions between the two sorts will be at once seen, the stem being much branched, carrying many flowers.

* *Scilla* (*Ledebouria*) *livida*, n. sp.—Bulbo magno ovoideo; foliis 6—8 synanthiis sessilibus lanceolatis immaculatis racemo cum pedunculo vix brevioribus; pedunculo 4—5-pollicari; racemo denso oblongo multifloro; bracteis minutis; pedicellis ascendentibus flore subduplo longioribus; perianthio oblongo 2½ lin. longo segmentis utrinque viridibus extus lividis; filamentis purpureis inclusis; ovario subgloboso stipitato; ovulis geminis collateralibus. *J. G. Baker.*

† *Trichopilia Kienastiana*, n. sp.—Pseudobulbo late ligulato apaco (bipollicari); folio oblongoligulato acuto (spithamæo); racemis porrectis bifloris; bracteis oblongis acutis ovaria pedicellata non æquantibus; sepalis tepalisque cuneato-ligulatis obtuse acutis; labello longe cum columna connato cuneato dilatato trilobo lobis lateralibus obtusangulis; lobo antico porrecto crispulo emarginato, plicis nullis; columnæ androclinio breviter membranaceo deoticulato. *H. G. Rchb. f.*

* *Calanthe anchorifera*, n. sp.—Affinis Calanthidi veratrifoliæ, R. Br. Ovariis pedicellatis velutinis calcara paulo superantibus; sepalis oblongis apiculatis extus velutinis; tepalis rhombeis obtusangulis apiculatis manifeste minoribus; labelli laciniis lateralibus ligulatis retusis antrorsis, isthmo recto brevi; lacinia antice biloba, laciniulis semilunatis antice lobulatis; callis ter ternis triserialis, antepositis apiculis quibusdam in linea mediana; calcari filiformi velutino ovarium pedicellatum subæquante. Ex Polynesia, introd. cl. Bull. *H. G. Rchb. f.*

Against this view we have Messrs. Froebel's plate, at p. 28 of their Catalogue, No. 93, for autumn, 1881, where C. turbinata pelviformis is figured with a branched stem. Perhaps Messrs. Frobel will give us the history of this plant. We have it now in flower here, and can see no difference whatever between it and C. carpatica, except in its cymbal-shaped flower. Of the latter we have a great variety of seedlings both in shape like the above and even retroflexed, and of all shades, from white to blue, so that a pretty long list of varieties of C. carpatica alone could be made out.

Amongst all this confusion it is, therefore, worth while to try to establish the genuine plant if it be practicable.

I find the same variability in our English Campanulas, C. Rapunculus and Trachelium. These are growing almost wild here, and in the same garden are also abundant plants of rapunculoides and barbata. The pollen of all these appears to have got intermixed until it is difficult to single out a true seedling plant of either rapunculoides or Trachelium —some of the latter are as hirsute as barbata, and in others the leaves vary.

Mr. Wolley Dod challenged my having C. rapunculoides fl.-pl., and I sent him a series of flowers, singles and doubles, and from these he decided against me. A party of botanists were here a few days ago, and with the plants before them they differed from Mr. Dod—truly "the hands were the hands of Esau, but the voice was the voice of Jacob." The flowers are the shape of the true rapunculoides, but they carry the hairs of Trachelium. Here then we have in the Campanula a plant which seems especially liable to hybridisation, and I hope we shall see some more of its hybrid forms.

With reference to the double form of C. rapunculoides, which I believe is at present an unrecorded species, I still think I have it, as well as the double form of C. Trachelium. I send you flowers of both varieties, and will thank you to name them. With each is the single form of the same plant. I also send you C. turbinata, true, and C. turbinata pelviformis, and the seedling varieties of C. turbinata, also several varieties of C. carpatica. *Wm. Brockbank, Brockhurst, Didsbury, July* 28.

[Mr. Brockbank's Campanulas are interesting, but they offer no greater range of individual variability than almost any common plant in a wild state does within a comparatively restricted area. Take Cardamine pratensis, Capsella Bursa-pastoris, Sonchus oleraceus, or Ranunculus acris, and it will be difficult to find two plants of any one of these species exactly alike, while the extreme forms may be so different as to constitute "sub-species" or even the species of some authors who love "critical" species. Any one of these forms may come true from seed for a number of generations, or the first batch of seedlings may exhibit considerable variation, and that without hybridisation. Among all the Campanulas sent by Mr. Brockbank there is not one that I should take for a hybrid. Possibly, however, the one he regards as C. rapunculoides flore-pleno is a hybrid between C. Trachelium and C. rapunculoides, though my opinion, based upon the specimen sent, is that it is simply a variety of C. Trachelium, having the characteristic broad calyx-lobes of that species, but almost destitute of the bristly hairs usually present.

The seven forms labelled "C. rapunculoides largest, and C. Rapunculus smallest," are all varieties of C. rapunculoides, taking the species in a wide sense, and exhibit none of the characteristics of the very distinct C. Rapunculus. C. Trachelium is correctly named. Then as to the specific rank of C. turbinata, as distinguished from C. carpatica, Mr. Brockbank's seedlings prove that it at most deserves the rank of an inconstant variety, or variation, one might term it. C. carpatica is commonly described as glabrous, but Jacquin (*Hortus Vindobonensis*, i., p. 22, t. 57), the author of the species, figures a hairy state, and describes the species as hairy or glabrous, and the branches as being one or few-flowered. The following is a translation of Schott's original description (*Analecta Botanica*, p. 14, and *Œsterreichisches Botanisches Wochenblatt*, 1855, p. 357) of the species, as well as his amended description of C. carpatica :—

C. turbinata (C. carpatica transylvanica of authors in part).—Hairy, leaves opaque, with rectilinear teeth; calyx-tube campanulate turbinate, segments spreading and reflexed, gradually cuspidate, cusp three times shorter than the rest of the segment; corolla broadly turbinate (gradually spread out, not ventricose), lobes erect at the tips. Early corolla deep violet.

C. carpatica, Jacq.—Glabrous (except the calyx); leaves shining, with curved teeth; calyx-tube hemispherical turbinate (top-shaped), with the reflexed segments abruptly cuspidate, cusp twice shorter than the rest of the segment; corolla somewhat pelviform (basin-shaped), immediately above the base ventricose (bellied), lobes recurved, spreading at the tip. Flowering much later than the first, and the corolla bluer.

Nyman (*Conspectus Floræ Europææ*, p. 482) reduces C. turbinata to C. carpatica, yet he originally regarded it as distinct. *W. B. H.*]

A BUCKINGHAMSHIRE GARDEN.—X.

June 24.—"Ere the parting hour go by, quick, thy tablets, Memory." In less than a week July will be here, and June will fade away into the past and be forgotten, while more than half its loveliness is still unnoted and untold. So here on Midsummer night, when the spirits of earth and air have power, let me call back for a moment the dear-worth vision of flowers that were my delight in the gone sweet days of early June. I would try also to fix the remembrance of a few, out of the thousand glories of the day, doomed to die before ever the story of next month begins. And first the Pæonies, which I have as yet scarcely named. Earliest of all came the crimson-pink single Pæony, with yellow stamens and bluish leaves, like a giant Rose of Sharon (the single red Scotch Rose); then the pale pink double one; then the heavy crimson, that pales so quick in sun or rain; then, most beautiful of all, the pure, cold, white Pæony, with a faint tinge of colour on its outer petals. Last of all, the large rose-red—rose colour, with an evanescent perfume, like a dream of the smell of a wild Rose, yet in substance so staunch a flower that I have known rose Pæonies retain their beauty for two full weeks in a glass of water. All these, however, excepting one or two, who here and there outstay the rest, are gone by.

And then the Elder! The hedgerows have been white with it; and there were days when all the air was scented with Elder. The path under our one tree is now a milky way, covered with a myriad of little fallen stars. They remind one of the far away Olives' starry blossoms when they fall softly among Lady Tulips and Gladioli in May. Syringa has come and almost gone; three varieties—the old small one, the large-flowered, and the half-double sort. I like most the first, and this has also the most powerful scent. A large old bush of it grows in the grass, just without the glass door in the wall opening into the greenhouse. Poor Syringa! best hated and best loved of flowers. The lovers of it hail its blooming with enthusiasm, and break off bits to wear as they pass the bush, whilst others will go the other way round to avoid passing near.

And now, at this very time, has come a new burst of Irises—the narrow-leaved kind. Not the real Spanish Irises; their time is not yet. We have a few old plants whose flowers are deep bronze, flame-centred, in yellow gold; and a stronger, commoner kind, of full lilac colour. One little plant, growing in a pet corner by the iron gate in the south wall, has a delicate primrose and lilac-tipped bloom. And there is the great white Flag Iris, whose grand leaves stand 4 feet high. The right place has not yet been found for this fine plant. For three years past he has just borne with us, and no more; I fear he dislikes us, and he shows it. By the watercourse the yellow Flags are as yellow as possible, in rich contrast with their dark green leaves; and in the "fantaisie," where the white China Tulip stood last month, showing bright against the dusky Cryptomeria elegans, is now a fine root of Iris sibirica alba. The blue sibirica is good, but this white variety is most lovely. One could not pass it by without remarking the peculiar whiteness of its small shapely flowers set on such long slender stalks. How wonderful are the contrasts of white in flowers. Of those now in bloom together, one hardly knows which to call the whitest of them all. The little Iris, however, retains through its whiteness a dim remembrance, as it were, of blue.

There is the kitchen garden too! The fresh and brilliant beauty, that just now it holds within its walls, will soon be past, giving place to richer, more sober colours. Looking through the old ironwork of the gate, up the straight middle walk, there is such a splendour of brightly blended colour in the flowers on either side! Yet the flowers are in their prime; the keynote of colour is white — double Rockets, double white Pyrethrums, and white Pinks. Bending down over the walk, mixing in with the whiteness, glowing through leaf and branch in brilliant intervals of light, are Roses—pink, crimson, blush; Himalaya Poppies, tender or dazzling in their hue; clouds of pale blue Delphinium, with spires of deepening blue, over-topping all the rest. Just midway, between the pink and crimson Roses, a Brier, wreathed about with small yellow blooms, hangs over the cross walks at the corner. Masses of low blue Campanula fill in below or between the larger flowers. Right at the end, another iron gate, lets in the glimmering of cool shades beyond. A little wren's nest is there, ensconced snugly in a bowery Clematis, halfway up the pillar—the nest cannot be seen so far off: but I know well how the small entrance hole is quite filled up with greedy little yellow beaks and gaping mouths! The little mother is hard at work for them, somewhere near—hunting the bark of an old Elm, most likely. The golden wrens have brought out their families: two nestsful. We found the nests hanging in the Yews, and now the garden seems to be full of little elfin scissors' grinders, busy all day long.

I have a fancy to open the gate and go all round the kitchen garden quite prosaically. The other garden will seem still sweeter, after. Here, on the left is a breadth of wonderful Lettuces, round and close, like small round Cabbages, with milk-white middles; and beyond, some taller tied-up ones, more like salad! Near the Lettuces are tall ranks of Peas, hung all over with well-filled pods. I think I like these beautiful green Peas, growing here, as much as when served up in a dish for dinner. There seems always to be something attractive to Art in pea pods, from the pods sculptured on the great bronze gates of the cathedral at Pisa, or the raised needlework of the sixteenth century, to the portraits of Marrowfats or Telegraph Pea in the advertisement sheets of gardening papers (these last are really pictures, though not meant so.) I remember being once shown a white satin spencer of Queen Elizabeth's, embroidered in butterflies and green Pea pods, half open, to show the row of Peas within.

I think there is Beet-root, and a fine lot of young Cabbages, beyond the Peas—in which no one can feel any particular interest; and oh! such a sweet patch of seedling Mrs. Sinkins white Pink. I wish that Pink did possess a more poetical name—Arethusa or Boule de Neige! but the thing is done, and to the end of time Mrs. Sinkins will be herself. Next comes a little square of Japanese Iris, the tall stems tipped with swelling buds, whose grand unfolding I long to see. Rows of young Sage plants grow near, quite unlike sage-green, so called, in colour; and a nice little plantation of healthy looking Fennel. That is for broiled mackerel: but there is to me another interest connected with Fennel that lies in a lurking hope, always unfulfilled, of finding upon it a caterpillar of the rare Papilio regina. Caterpillars of another sort are only too multitudinous on the Currants growing up the walls. The pertinacious increase of them, and the sawflies belonging to them, is not short of miraculous. One may stamp out whole families and clear the bushes, and next morning they will be beginning again. Invariably, however, in the act of destroying there creeps in a sort of questioning, whether the caterpillars have not full as good a right to the Currants as we have; except, indeed, that we and not they planted them. But they would seem to have at least a right to live—more perhaps than we to have tarts, yet they are spared none the less for such-like uncomfortable reflections. On the south wall the fruit trees seem to be more or less flourishing. An old Nectarine is covered with fruit. Then comes Apricot tree No. 1, on which I find no Apricots; Nos. 2 and 3 the same, 4 dead, and 5 with a good few on it. Then we come to Peaches: plenty of them. Then a beautiful dark-leaved Fig tree, and then the Cherries, well fruited and well netted. And so on, round the walls. Near the wren's nest there is another large patch of Pinks, commoner and better than any, with the neatest lacing of purple-madder or lake. And here a powerful fragrance stops one short; it is the Strawberries, smelling deliciously They are littered down with clean straw, and netted close for the discomfiture of blackbirds. The scent takes me back

a very long way—back to an inconceivable time, when this old smell of Strawberries, borne across the hedge in the hot noon-tide of some summer holiday, was reason enough to set us wild vagrants of the garden, scrambling through the Thorns to seize the exquisite delight of spoiling our neighbour's Strawberries—a joy that was never marred, for we were never found out. Sun and rain have both been kind, and this is our second week of immense red Presidents, one of the oldest and best of Strawberries. The espaliers are showing plenty of Apples and Pears. Three Pear trees, standing at the four cross-ways, are curiously in bloom; the blossoms are all sickly-looking and undersized, but the trees are covered with them up to the very top, while fruit is set at the same time. I dislike this unnatural blooming, for the mind will persist in reverting to foolish sayings and superstitions connected with trees bearing fruit and flower at the same time.

Among the pleasant sights of this midsummer-tide, perhaps the pleasantest of all, is the great thicket of wild Roses growing within the wire network that bounds the tennis-lawn, on the garden side. The east shining full upon it, every morning brings forth a crowd of new blown Roses. Very often, as you pass into their sweet presence from under the Plane trees, the air is redolent of a subtle perfume—not always, though, nor every day, for Roses are capricious of their scents. The yellow stamened centre of each flower glows like a tiny lamp of gold, and the soft petals surrounding it are pink of the tenderest dye. Were these the canker-blooms of Shakespeare? If so, and if in his day they were said to live unwooed, and unrespected die, surely now the tide has turned—the wild Rose is beloved of all; while we must confess that garden Roses now-a-days do not always "die sweet deaths."

July 22.—

> "It is not growing like a tree
> In bulk that makes man better be,
> The Lily of a day
> Is fairer far in May,
> Although it fall and die that night,
> It was the plant and flower of light."

Once more, our favourite old Ben! Roses are gone, and the memory of them is as of something too beautiful for words. And Lilies, too, are over; the fairest of them, the tall white Lily, with her shining head—*nil candidium*—pure as the shining robe of saints in heaven—better than Solomon in his glory. She, too, is past; nothing of her remains but long dismal stems with down-hanging shrivelled leaves and melancholy pointals, undrest of beauty—to tell of her former pride. July must be all retrospect, for all is over—or so it seems to me. After an absence of a few days, on returning to the garden, I find there is a change; an autumnal feeling in the air, and withered leaves are blown across the lawn. Faint perfumes linger still about the Limes, and though no song birds are there, the sound of bees is heard in the green depths above. But we no longer would breakfast under the Limes as we did so short a while since in summer days departed. Wind and rain have done their worst amongst the flowers, and yet there is consolation in what remains. The best are past away, but beautiful new things are coming on. The Evening Primrose (Œnothera) already lights up the garden ways. Variegated Maples, with their foliage white as ivory, look their best against the darkening Elms.* The hedge of Sweet Peas is, for the moment, in beauty. Sweet Peas go off too quick in our light, warm soil, so we try to prolong their blooming to the latest limit by cutting off their seeds as fast as they appear.

Purple draperies of Clematis in many shades, from the deepest violet softening into grey, make the old brick garden walls beautiful, or the same Clematis droops from trellises or clambers up the trees in many parts of the garden. Almost always it so happens that the tender green of Vines mingles with the purple. There is something almost unpleasing in the arrangement of four petals of Clematis Jackmanni, but one forgives much for the sake of such grand colouring. No climbing plant comes near the Vine perhaps in perfect grace and beauty of line. The fruitful Vine gives delight to the eye in far larger measure than Virginian Creeper, or any other of our green hangings upon the walls of a house. The Vine is more obedient, and yet more free, and its intelligence is greater. Thinking of the Vine as of a person, one would say that her foliage shows all the variety of genius. Scarcely will you find two leaves alike in shape, or size, or colour. The youngest leaves, half transparent and golden-green, or reddened by the sun: on some the light lies cold and grey. If the Vine is trained round the window the leaves seen from within and spread against the light glow like green fires. The very shadiest recesses of the Vine are full of light. And then the tenderness and strength of her slender beautiful tendrils! How they reach out like sentient hands! And when they have found, how strong and firm their clasp! Then, who does not know and love the curious aroma of her small green flowers, bringing back to memory the smell of a Southern vineyard. Very soon now, autumn suns will swell the clustered fruit, and purple bloom begin to show between the leaves. A Vine is one of the only trees whose every leaf, well nigh, may be painted with care in a picture and yet not seem too much made out. Rarely, however, can human hand give the fine thinness and yielding texture of a Vine leaf!

We are never without Portulaca and Mesembryanthemum about this time, and the two beds of them this July are especially brilliant. Cool colours tell beside the scarlet and orange that mostly prevail, and in this way nothing could be more refreshing than the dwarf Ageratum and blue Lobelia mixed with the honey-scented Koniga maritima variegata near the Carnations and Portulaca. The deep blue with bronze foliage of the Lobelia beds in the parterre is almost hot beside the cooler blues beyond. The Sumac this year, for some reason, is not in beauty—not as if a sunset cloud had settled down upon it. The multitude of new green shoots would seem to overpower the crimsoned fluff. *E. V. B.*

* A small branchlet in one of these white Maples has run back to the original green, and this is also the sole bit of the tree that bears a bunch of keys.

THE BANDED RUSH.

"This remarkable Japanese plant (which has been introduced to cultivation [under the name of Juncus zebrinus] through the agency of Mr. T. Hogg, of New York) has a most peculiar appearance when growing, the idea suggested by a group of it being that of a cluster of porcupine quills. The plant, which is a true Rush, throws up erect terete leaves, but these, instead of being green, are transversely banded with white and green, the colours being in most cases pretty evenly distributed; sometimes the white preponderates, the surface being either wholly white or the green bands being narrower and less conspicuous; but in the best marked leaves the green and white portions occupy alternately nearly equal bands of about half an inch deep. It is a most interesting plant." The above, copied from Mr. Bull's catalogue for 1881 (No. 176) is a fair description of this curious plant. Mr. Bull's assertion, and the name under which it was distributed, seem to have been sufficient for M. Ed. André in *Illustration Horticole*, where the present plant is figured and described without any expression of doubt as a species of Juncus.

In the *Gardeners' Chronicle*, n.s., vol. vii., p. 399, a figure is given with the name used at the head of this communication; but the Editor definitely states that the botanical position of the plant is uncertain. Now that a specimen has flowered at Kew the doubts expressed directly and indirectly in the *Gardeners' Chronicle* are shown to have been fully justified, for the plant proves to be, not a Juncus at all, but a species of Scirpus. This knowledge may lead many people who have hitherto failed to succeed with this curious and interesting plant to modify their treatment, and thus no doubt to achieve success.

The section of the genus Scirpus to which our plant belongs is a thoroughly aquatic one, and the "Banded Rush" will certainly not do well unless placed under widely different conditions from those under which one generally sees it. Planted out in the bog garden in the new rockery at Kew it seems quite at home, and perhaps even more so in another place at Kew, where the pot in which the plant is growing is quite submerged. Kept in warm houses, and without a sufficient supply of water there is no wonder that the growths are so thin and wiry, and that it has acquired the character of being a plant very difficult to grow.

Scirpus Tabernæmontani, under which Juncus zebrinus of gardens must for the future be placed as a variety, is not uncommon on the mud banks of the Thames and some other of our rivers (mostly near the sea). Is has a wide extra-British geographical distribution, being found east as far as Japan. From the common Bulrush (S. lacustris), under which it is placed as a sub-species in the *Student's Flora*, it differs in its smaller size, and in the style being two-cleft and not three-cleft, as in S. lacustris. Some of the more minute characters relied on for distinction between the two seem to be not always trustworthy.

As before stated, Juncus zebrinus now should be altogether sunk, and the name of Scirpus Tabernæmontani var. zebrina used instead. *Geo. Nicholson, Royal Gardens, Kew.*

THE SPECIES OF TULIPA.—VIII.

(*Continued from p.* 153.)

Sub-genus Tulipa proper.—Stigma sessile.

Section 4. *Saxatiles.*—Filaments furnished with a tuft of hairs at the base. Perianth red or lilac.

These are a little group of fine species, all belonging to the oriental flora, all as yet little known in cultivation.

40. *T. saxatilis*, Sieber; *Bot. Mag.*, t. 6374.—Bulb middle-sized, ovoid. Leaves 3—4, lanceolate or linear, glabrous, the lowest above a foot long, 1—1½ inch broad. Stems a foot or more long, often two-headed. Peduncle glabrous. Perianth oblong-infundibuliform, 2—2½ inches long, the inner segments obovate-cuspidate, 15—16 lines broad, the outer oblong, under an inch broad, all bright mauve-purple in the upper two-thirds, and bright yellow on the claw, without any spot. Stamens nearly an inch long, the subcylindrical bright yellow filament, which is densely hairy above the base, twice as long as the oblong blackish anther. Ovary green, clavate-trigonous, narrowed to the apex. Stigmas small. A native of Crete, in Raulin's *Zone des Collines*, 500—2000 feet above sea-level. The flowers have a faint Primrose scent, and appear with us at the end of March. It was figured in the *Botanical Magazine* in 1878 from specimens grown by Messrs. Maw and Elwes. There is a closely-allied plant found near Lucca—T. Beccariana, Bicchi—which I have not seen.

41. *T. Aucheriana*, Baker, n. sp.—Bulb ovoid, middle-sized, the outer tunics with a few adpressed hairs towards the top on the inside. Stems 4—8 inches long, slender, glabrous, one-headed. Leaves 3—4, linear, glabrous, acute, 4—6 inches long, ½ inch broad, narrowed gradually from the middle to the base and apex. Peduncle slender, glabrous. Perianth oblong infundibuliform, 1—1¼ inch long, all the six segments nearly alike, oblong, acute, ½ inch broad, mauve-lilac, with a bright yellow claw. Stamens ¾ inch long, the cylindrical yellow filaments twice as long as the anther, densely hairy at the base. Ovary ampullæform-trigonous; stigmas small. A near ally of T. saxatilis. We have dried specimens in the Kew herbarium, gathered long, near Ispahan, by Aucher Eloy (No. 5372 of his distribution), and Mr. Elwes imported it alive from Teheran in 1880. We have also received it alive from the Rev. H. Harpur-Crewe and Mr. Barr. It has a strong fragrant scent, and flowers in April.

42. *T. violacea*, Boiss. et Buhse.—Bulb ovoid, middle-sized, with rigid dark brown outer tunics. Stem slender, about half a foot long. Leaves three, linear, channelled down the face, under ½ inch broad. Perianth 1—1¼ inch long; segments all oblong-lanceolate, acute, violet, with a blackish base, with a yellow blotch surrounding it. Filaments pilose at the base, twice as long as the oblong violet anthers. Stigmas small. Gathered by Buhse in the Trans-Caucasian province of Talysch. I am not aware that any specimens have reached this country. It evidently comes near the two last species.

43. *T. Hageri*, Heldreich; *Bot. Mag.*, tab. 6242.—Bulb ovoid, middle-sized. Stem one-headed, 1 foot long. Leaves 3—4, linear, green, acute, channelled down the face, the lowest 6—8 inches long, ½ inch broad. Peduncle glabrous, stiffly erect. Perianth campanulate, 1½—2 inches long, all the segments oblong, acute, ½—¾ inch broad, bright red, often tinged with yellow outside, furnished with a large rhomboid blue-black blotch on the claw, with a yellow border. Stamens purplish-black, under 1 inch long; filaments slender, densely pilose at the base longer than the linear-oblong anthers. Ovary cylindrical-trigonous, with small stigmas. A native of the mountains of the Parnes range, in Attica; gathered first by Professor Von Heldreich, in company with T. Orphanidea, at an elevation of 1600 feet above sea-level. It was figured in the *Botanical Magazine* in 1876, from specimens grown at Kew, from bulbs presented by Mr. Elwes, and we have also had it from

Messrs. Maw, Ellacombe and Ware; and a closely allied form from the Rev. H. Harpur-Crewe, with brick-red perianth segments with an unblotched yellow claw, from the Tahtalie Dagh, near Smyrna, brought thence, I believe, by Mr. Maw.

44. *T. pulchella*, Kotschy; *Bot. Mag.*, t. 6304; *T. alpina*, J. Gay.—A dwarf one-flowered species from the alpine region (6500—8000 feet above sea-level) of the Cilician Taurus. Bulb ovoid, 1 inch in diameter; outer tunics rigid, dark chestnut-brown. Leaves three, crowded near the surface of the ground, green, channelled down the face, obscurely ciliated; outer one about 3 inches long, ½ inch broad; the inner ones narrower. Peduncle slender, glabrous, not more than 1—2 inches long in the wild plant. Perianth infundibuliform, 1½ inch long; segments nearly uniform, oblong, acute, mauve-red in the upper two-thirds; claw slate-violet, with a yellow base. Filaments ½ inch long, flattened, whitish, densely pilose at the base, twice as long as the oblong anthers. Ovary cylindrical-trigonous, nearly black; stigmas small. Not scented. Figured in the *Botanical Magazine* in 1877 from specimens sent by the Rev. H. Harpur-Crewe. It flowers in April.

45. *T. bithynica*, Griseb.; T. turcica, Griseb., *non* Roth. — A near ally of the last species. Stem slender, ½ foot long. Leaves 3—6, linear, channelled down the face, 3—6 inches long, ¼—½ inch broad. Perianth infundibuliform, bright red, 1—1½ inch long, all the segments uniform, oblong, very acute. Filaments linear, black, twice as long as the oblong anthers, densely pilose at the base. Ovary ampullæform, with a narrow neck and small stigmas. A native of the mountains of Lydia and Bithynia, and found also near Constantinople. I do not think the true plant has ever reached this country alive. *J. G. Baker.*

(*To be continued.*)

NOTOSPARTIUM CARMICHAELIÆ.

This is a remarkable plant in many ways; and if it prove perfectly hardy, as it promises to, it will be a most valuable acquisition. The accompanying engraving (fig. 26) conveys a very imperfect idea of it—in fact, little more than that it has slender, leafless branches bearing lateral racemes of Pea-like flowers. It is the only known species of a genus that is confined to New Zealand, a country in which the numerous and generally diffused order of Leguminosæ is only very sparingly represented; besides this genus there being only the closely allied Carmichaelia, of which there are about ten species (the only other one known having been recently discovered in Lord Howe's Islands), and one species each of Swainsona, Clianthus, and Sophora. Notospartium, or Southern Broom, as its name signifies, is a shrub or small tree, rising in favourable situations to a height of 20 feet, but usually, as would appear from the notes on the labels attached to the specimens in Kew Herbarium, about 6 to 8 feet high, with long, slender, pendulous branchlets, quite destitute of leaves. All collectors agree in describing it as a most beautiful object when laden with its bluish-purple blossoms; and the colonists have named it "Pink Broom."

Judging from the wild specimens the clusters of flowers should be at least three times as long under the most favourable conditions; the longest one in the wild specimens being about 2 inches. Dr. Munro, the first or next to the first collector of the specimens in the Kew Herbarium, notes that it grows in sandy and rocky places, and Dr. Haast gathered it "along beds of rivers at elevations of 1200—2000 feet above sea-level." It inhabits the provinces of Canterbury and Otago, and we should expect it to be quite as hardy as the White Broom, Cytisus albus. The ultimate branchlets vary considerably in length and thickness, some of them being very long and flexible, and almost thread-like, while in other specimens they are comparatively short and stiff, as they are represented in the engraving. Although leafless in the flowering stage, young plants are furnished with small roundish or oblong leaves notched at the tip, as some seedlings sent home by Mr. T. Kirk show. The plant from which our drawing was made is growing in the nursery of Messrs. Veitch at Combe Wood, where it has lived unprotected for several years.

Some of the species of Carmichaelia, which have pink, bluish, or white flowers, must be much hardier than the present shrub, as they grow at a greater elevation in a higher latitude. They are very similar in habit and floral structure, but the flowers of most of the species are considerably smaller, and of some of them they are even minute, yet as they are produced in dense clusters they are not unattractive. The pods of C. australis are curious and pretty. When ripe the two valves fall away, leaving a slender oval frame about half an inch long, with usually one coral-red seed hanging from the middle on one side,

Fig. 26.—Notospartium carmichaeliæ.

though there are sometimes two or three. C. crassicaulis is a very singular species, having very stout longitudinally grooved branchlets and densely clustered flowers, with a conspicuously white woolly calyx. It ascends to an altitude of 5000 feet in the province of Otago. Mr. Armstrong, a Colonial botanist, has proposed raising it to the rank of a distinct genus, under the name of Corallospartium.

The Borough of Hackney Chrysanthemum Society have issued a schedule of prizes for a Dahlia Show, to be held in the Morley Hall, Hackney, on September 6.

REMARKS ON THE FRUIT CROPS.

Bedfont, Hounslow.—Market fruits are very important in this district, and superior kinds are above mediocrity, Apples being in great abundance. Not only are all the best known market kinds full of fruit, but many others not usually prolific are fruiting also. A week or two since there was a great and sudden thinning of Apples, presenting quite a phenomenon in that way; but there is a fine crop left, and samples will be excellent. Pears are a mere sprinkling, and Plums no better. Cherries of sweet kinds were very thin, and Morellos a very fair crop. Gooseberries have been fairly plentiful, but black and red Currants and Raspberries may be classed as heavy. Strawberries were good and early, but the bulk of the fruit felt the want of moisture later on. The whole of the market growers regard the present fruit season as a fair one, and are not dissatisfied with it. *A. Dean.*

Barming House, Maidstone.—The blossom of Cherries in the Kentish orchards was unusually abundant, but many of the small Cherries dropped off just after they had "set." The Apple crop bids fair to be very large and good. Very many "ran off" in June, but quite enough were left behind. Raspberries were unusually plentiful and fine. Gooseberries fairly abundant. Black and red Currants are well grown and a good crop. There is a general failure in the Plum and Damson crops.

Lythe Hill, Haslemere.—The Pear crop is a failure again, except on walls and under glass copings. The trees in the spring had, as a rule, a garb of white blossom, but a great percentage of them were imperfect; this, I think, was owing to the wood not ripening last autumn after the disastrous gale of April, 1882; and the failure of Plums as well may be said to be due to that more than to the frosts and wind this spring. Apples are much more plentiful on pyramids, cordons, and espaliers, than on orchard standards. *A. Evans.*

Madresfield Court, Great Malvern.—Apricots and Plums are a total failure. The month of March was fatal to the former, whilst Plums had a general scarcity of bloom throughout the large Plum-growing districts of Evesham, Pershore, &c. Pears are an uneven crop, but appear to be good. Cherries, as usual, suffered from persistent attacks of black-fly, still Morellos are good. Peaches and Nectarines are fairly good, and genial weather has improved the foliage. Strawberries and Raspberries were immense crops, especially President, Elton, and Oxonian. Walnuts are an abundant crop. Fruit trees are generally healthy. *W. Crump.*

Hindlip Hall, Worcester.—Plums, though not so profusely bloomed as Pears, were destroyed by the frost, and the Plum crop, always an important one in this district, may be put down as a failure. Cider and perry fruit is very abundant, and choicer kinds of Apples are a good crop in most places. The health of the trees is much improved this season, and they are tolerably free from blight and caterpillars. *Arthur Barker.*

Combe Abbey, Coventry. — This is not a good all-round fruit year. From the flowering period of the Apricot down to that of the Pear and Apple we had frost after frost, which destroyed nearly everything. It is very disheartening to a gardener who has, by cultural skill, produced on his trees plenty of good and healthy blossom, that these efforts should be followed and blasted by frost—a killing frost is enough to cause the boldest almost to despair. Going round our little orchard I noted the names of all trees that had a little fruit on, and which I here subjoin:—Apples: Irish Peach, Lemon Pippin, King of the Pippins, White Astrachan, Court Pendu-plat, Lord Suffield, Hawthornden (new), Dutch Codlin, Keswick Codlin, Yorkshire Greening, Sam Young, Cox's Orange Pippin, Cellini, and Alexander. *Wm. Miller.*

Hendre Park, Monmouth.—Taking fruits generally, the crops here this season may be classed as above the average. Apples are plentiful; the following sorts are those that carry the most fruit:—Cellini, Cox's Pomona, Sturmer Pippin, Orange Pippin, King of the Pippins, and Beauty of Kent. Pears are partial; some that were the most proliferous have the lightest crops—Easter Beurré and Winter Nelis are examples of this. Glou Morceau, Beurré Diel, Beurré d'Aremberg, Marie Louise, and Marie Louise d'Uccle are well laden with clean, promising fruit. Owing to late

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frosts we found it necessary to protect the trees when in blossom with canvas. Plums and Apricots are very scarce; although the latter were covered with wide glass copings and netting, the severe frosts in March were too much for them. Strawberries were excellent; as a very late one Loxford Hall is the best we have grown. Raspberries are the finest crop of the kind we have ever had. *T. Coomber.*

Heytesbury.—With one or two exceptions fruit crops in this locality are highly satisfactory, and Apples—thanks to the severe weather in March, which retarded their blossoming by two or three weeks—are plentiful. This is highly gratifying; we can well afford to put up with partial failures or under averages with many other kinds of fruit when there is a good crop of Apples. Pears are a good average; the same may be said of Peaches, Nectarines, Cherries, and Figs. Apricots are much below, and Plums quite a failure. That the latter should be scarce this year is a fact which cannot be wondered at, seeing that the trees have borne heavy crops for two or three seasons in succesion; this year, however, so far as they are concerned, will be a recuperative one, and their energies, so to speak, will be fully employed in adjusting the balance of power between root and branch. All kinds of small fruits are abundant, and of good quality. *J. Horsefield.*

Heckfield Place, Winchfield.—Plums are a complete failure, the trees blossomed fairly well, but a continuous north-east wind, and a temperature that barely averaged 40° all the time they were in flower quite destroyed the bloom. Apricots would have suffered as much had they not had extra covering, and the best aspects (south and west) on the walls. Pears on walls are a full crop, but in the open borders thin, and many are dropping off. Peaches have not been better for years, and the trees are healthy and clean. Apples are excellent, and the fruit promises to be fine. Strawberries and all small fruits have been extra plentiful. *W. Wildsmith.*

Powderham Castle, Devon.—The failure of Apricots is to be attributed to the severe weather experienced about the middle of March, when the whole of the bloom was expanded. Peaches and Nectarines were likewise much cut up, but happily nearly one half of the bloom at that time was yet to open, and in that state perfectly secure, so that we have a fair average crop on most trees. Plums generally are bad; Morello Cherries fell considerably at stoning, but still a fair crop has swollen. Of Apples large crops of most varieties grown, especially those of New and Old Hawthornden, Keswick Codlin, Lord Suffield, Blenheim Pippin, King of the Pippins, Lemon Pippin, Gravenstein, Winter Greening, and Majetin, Loddington Seedling, Irish Peach, Warner's King, &c. Pears of some kinds are full, the principal ones being Marie Louise, Williams' Bon Chrétien, Beurré Rance, Muirfowl's Egg, Doyenné Boussoch, Catillac, and Bellissime d'Hiver. Gooseberries an average crop, and very fine, making good growth this season. Black, red, and white Currants and Raspberries are all that can be desired. Strawberries excellent, especially Sir Joseph Paxton.

The Quinta, Chirk.—We grow between thirty and forty varieties of Pears here, and the following have a very full crop, while others in the same orchard have few or none on them:—Beurré Bachelier, Beurré d'Amanlis, Beurré Superfin, Williams' Bon Chrétien, Doyenné d'Eté, Duchesse d'Angoulême, Durandeau, Fondante d'Automne, Forelle, Louise Bonne of Jersey, Winter Nelis, Passe Colmar, Pitmaston Duchess, Zepherine Gregoire, Jean de Witte, Bergamotte d'Esperen, and Beurré d'Esperen. The following Apples are well laden, while a great many others are either without fruit or have a thin sprinkling:—Dutch Mignonne, White Juneating, Kerry Pippin, Reinette de Canada, Irish Peach, Cox's Pomona, Rymer, Eclinville Pippin, Duchesse d'Oldenburg, Hawthornden, Jolly Beggar, Lord Suffield, Tower of Glammis, Orange Pearmain, and Betty Geeson. *James Louden.*

Wynstay, Ruabon.—The blooming period of all sorts of fruits was quite a show, but the setting period belied our sanguine hopes; the continuous severe frosts during the whole of March seems to have chilled and stunted everything for this season, the ground being ice-bound the whole month. All stone fruits are swelling very slowly, and will be of poor quality. *P. Middleton.*

Slebeck Park, Haverford West.—Apples and Pears are a splendid crop—the heaviest we have had since 1875; all varieties are bearing a good crop. Plums are a total failure. Damsons are rather extensively grown in this county, especially on such portions of it as belongs to the Old Red Sandstone formation: nearly every cottager has a Damson orchard, so that the failure of the crop will be a great loss to them. *G. Griffin.*

Panmure, Carnoustie, N.B.—Fruit trees were in general better ripened last year than they have been for some years back, and the Apple blossoms especially were very large. Young Pear trees are doing well, but all planted more than a dozen years have not recovered since 1880. Most of the spurs are dead, and any that are alive have been flowering all the summer. Many branches of Cherry trees have died since that year both on old and young trees, but in general we have a good crop on healthy branches, and which are now beginning to ripen. Strawberries are earlier than usual here by ten days at least, other fruits later. *J. Mitchell.*

Haddo House, Aberdeen.—Fruit trees of all sorts bore a very abundant crop of blossoms, and although the weather was cold we had very little frost, so that in general fruit set well. The dry weather of May and June caused a good deal of it to drop, but still there is a fairly good crop, especially on young trees. Victoria Plums set an extra large crop, and at least three-fourths had to be thinned off. Gooseberries are an extra crop, also black Currants and Raspberries. Early Strawberries are a fair crop, late sorts are a heavy crop. *John Forrest.*

Woodstock Park, Co. Kilkenny.—Small fruits in general are very plentiful in this neighbourhood, and of good quality, Gooseberries in particular being very fine, but I do not remember ever seeing the caterpillar so troublesome as it is with us this season. Strawberries have been an abundant crop, and large in size and excellent in quality, notwithstanding the incessant rainfall (4.67 inches) we have experienced during the present month. Apples are an average; such varieties as Lord Suffield, Stirling Castle, Irish Peach, and Adams' Pearmain are bearing most abundantly. Pear trees on walls have a fair show of fruit, but on pyramids are almost a failure. Plums are a poor crop, excepting Victorias, which are plentiful. Fruit trees in general are healthy and making good growth. *W. Gray.*

Fota Island, Cork.—Some kinds of Apples are a heavy crop, viz., Lord Suffield, Hawthornden, Irish Peach, Cox's Pomona, and a few others very heavy, others light. Pears set a very heavy crop, but a quantity of fruit fell when about the size of horse-beans—Glou Morceau the worst. Marie Louise is a heavy crop on walls. Cherries fell off in large quantities. Gooseberries are a heavy crop here, but in some parts of the county there are none. Currants are a very heavy crop, and good; Strawberries are also good and large. *W. Osborne.*

Adare Manor, Limerick.—Fruit, as a rule, has been gathered in good quantity and condition up to the present, excepting Strawberries, which were injured by wet. Fruit to be gathered, as Apples, &c., are only moderately promising; all will be small, partially owing to unfavourable weather from the latter end of April until the middle of June—weather was dry, and accompanied by north-east wind. Many, I may say half the crop of Apples fell to the ground. Figs also nearly all fell to the ground where growing outside; and Apricots, which otherwise would have been a moderate crop, suffered severely and fell off in stoning. *Alfred Barker.*

St. Saviour's, Jersey.—The Apples will be fine and good this year. Pears promise to be very fine, the trees having made unusually good growth. Wall fruits generally have been thin, owing to the changeable weather in the spring. Currants are abundant, especially the varieties of black. Raspberries are producing an abundant crop. Strawberries have been exceptionally fine. The crop of Gooseberries has been good. We may rejoice in the abundance of these wholesome and acceptable provisions of Nature. Grapes are abundant, and very fine. *C. B. Saunders.*

Œnothera tenella.—Nearly all the Evening Primroses are showy border flowers, but some are rather coarse growing things, hardly fit to be in a select set of herbaceous plants or in a garden of small size. The subject of the present note, however, is free from any objection of that kind; it grows about a foot high, and bears a profusion of its handsome mauve-purple flowers. It was introduced from Chili sixty years ago, and was figured in the *Botanical Magazine*, t. 2424.

THE GRANGE, HACKBRIDGE.

With the river Wandle running through it but few gardens possess the naturally picturesque appearance of that of A. H. Smee, Esq., and still fewer gardens have had the care and skill bestowed on them that his has; the father of the present proprietor having made it his chief study, and found in it his greatest pleasure, as his son now does. The late Mr. Alfred Smee, F.R.S., was well known to most plant lovers as one who took a great, an intelligent, and a scientific interest in all things relating to gardening, to plants generally, and more particularly to Ferns and to the acclimatisation of exotic plants. Being always under his own surveillance his garden became a model one, and its owner wishing to benefit others by his experience and experiments published a work, *My Garden*, in 1872, giving an account of it and the manner in which it was managed in every department. The second edition of this book, which contained 1300 engravings and twenty-five plates, was translated into French,* and formed a very useful and interesting work, which conveyed instruction in a very pleasant manner, and gained for The Grange garden a wide and lasting reputation.

Looking over the author's work in his garden, much of which has remained unaltered, any one cannot fail to admire his cleverness and feel a touch of his enthusiasm. Mr. A. H. Smee, the present proprietor, while keeping the whole of the establishment well up to its former standard, turns his attention more particularly to the Orchids, and bids fair to become a good cultivator. Certain it is that out of the numerous bold experiments he is making, new light must be obtained in some particulars. Already in the intermediate-house a good collection of medium-sized plants of most of the best Cattleyas, Lælias, Epidendrums, &c., have been got together, and these seem to thrive well with plenty of air and sunlight admitted to them. It is pleasant to see how these plants thrive and bloom wherever they are not coddled and shaded too much. In the Odontoglossum-house an equally thriving lot of plants are to be found. They are grown on the strictly cold system, and the absence of insects and the sturdy appearance of the young growths promise well for a good show of bloom. Among other interesting things in bloom the once common but now rare Promenæa stapelioides, with its pretty dark brown barred flowers, is nicely in flower, as well as some good Odontoglossum crispum, many Masdevallias, Odontoglossum Roezlii, O. cordatum, O. bastilabium, Oncidium Forbesi, Epidendrum fragrans, E. vitellinum majus, and the showy Mesospinidium vulcanicum and Lycaste aromatica.

Perhaps the most interesting of all the houses is the naturally arranged Fern rockery and Orchid-house combined. This charming house is a lean-to of about 90 feet in length; the large masses of Ferns, many of them rare, having the Orchids arranged among them, and having the roof covered with flowering climbers, the showy flowers of the Allamandas, Ipomœas, Lapagerias (white and red), Gloriosa superba, Dipladenias, Hoyas, Stephanotis, Tacsonias, Passifloras, &c., now in bloom, being alone sufficient to give great interest to the house at the present time. This plan of growing Orchids mixed with other plants does not answer in every house, as in some situations the Ferns and climbers are apt to harbour insects, to the detriment of the Orchids; but in Mr. Smee's house, which is built over a narrow stream, the air seems so equable and genial that no inconvenience on that score is likely to be experienced. Where such an arrangement is practicable it is certainly desirable, as the blooms of the Orchids appear to a much greater advantage where their pots are hidden by the elegant foliage of the Ferns, and many of the colours seem to be heightened by the background thus secured.

Few Orchids could compare with our old friend Stanhopea tigrina, now in bloom at Hackbridge, for striking beauty and novelty; if the plant were only new and expensive what a sensation it would create! The very pleasing effect created in this house by the comparatively small number of Orchids in bloom speaks much for their arrangement, in which, as in all the other matters connected with the Orchid department, Mrs. Smee has taken a leading part. Among those in bloom are some fine forms of Miltonia Regnelli superba, Cattleya Leopoldi, C. Gaskelliana—that most sweetly-scented of Cattleyas, C. superba, On-

* *Mon Jardin—Geologie, Botanique, Histoire Naturelle, Culture.* Par Alfred Smee. Paris, 1876.

cidium triquetrum, Phalænopsis violacea Schrœderi, Odontoglossums, Cypripediums, &c. In a shady cold part of the house some plants of Phalænopsis are being experimented on under cool treatment, and up to now they are in fine order.

Passing through the East India-house we come to the dell outdoors, where representatives of many of the Orchids from all parts are being experimented on with a view to test how far they are amenable to outdoor culture in summer. A narrow stream runs through the dell beneath the trees, and in this stream are placed supports on which temporary stages rest within about 2 inches of the surface of the water. On these stages are placed representatives of many of the Orchid family which are not too expensive, without regard to the climate or any other condition of the country from whence they come — Cattleyas, Lælias, Oncidiums, Vandas, Phalænopsis, Odontoglossums, Cypripediums, Aërides, Dendrobes—in fact some of every class. Not to be wasteful, and knowing that failure must take place in some instances, Mr. Smee always selects the worst varieties he has for this rigorous experiment, but it is surprising how sound and healthy all but an odd plant or two are, considering that they have been in the open air ever since the early summer. The Dendrobium Wardianum and D. crassinode have well ripened their growth, and the Odontoglossums, Masdevallias, Vanda cœrulea, Cypripedium insignis, and a few others have really progressed, and look much happier than many of their brethren in hothouses. Such experiments, when carefully observed, always bring knowledge to the operator; but Mr. Smee does not counsel growers generally to imitate his extensive trials, his object being to himself gain experience bearing on each species under treatment.

One thing he is sure of, and that is, that any Orchid from any part of the world which has been in prolonged bad health under glass, if subjected to a few weeks' careful treatment in a shady place outdoors in summer, and then returned to the house, will at the proper growing season generally grow most vigorously, even although it may not have seemed to be benefited by its stay in the open air. He has also satisfied himself that open-air treatment in summer of the Orchids least likely to thrive, at most causes them to go back very slowly, while where they are treated to excessive heat in a close house their end is sudden and sure; and that Orchids which have been made poorly by outdoor treatment quickly recover on being taken into a cool house, while those which have been made sickly by too much heat are very difficult and slow to re-establish. On another branch of the stream is another set of Orchids, similarly placed, but having a wooden house over them, and near at hand a collection of Sarracenias in good health.

To do the outdoor garden justice would require the greater part of a volume, as its former owner found, the beauties of the rock garden and herbaceous borders being so many and so varied. Perhaps the most lovely series of pictures in the place are to be found in the Fern dell with the small branch of the Wandle flowing through it and with the noble trees arching overhead. Here most of our indigenous Ferns, as well as the hardy exotic varieties, are planted, not one and one as we usually find them, but with large masses of several of the finest kinds planted together at salient points and the smaller ones arranged in the sheltered rockeries between. The mass of Ostrich-feather Fern (Struthiopteris germanica), some 30 feet in length, with a gigantic specimen of the variety S. pennsylvanica, about 6 feet across, in the centre, would be difficult to match in the United Kingdom. Next, as a series of scenes of natural grace and beauty, we must place those views of the lake and the banks of the Wandle clad with our beautiful native vegetation. Masses of reeds 9 feet in height, tall Bulrushes, glowing masses of rose-coloured Loosestrifes and Willow herbs, bright yellow Lysimachias, white and yellow Water Lilies—these scenes are enchanting viewed from the lower walks or from the massive and unconventional mansion, which was rebuilt in 1880. The kitchen garden at The Grange is also well attended to, and the collection of fruits cultivated there is very extensive—over 250 varieties of Apples and nearly as many Pears being there in good bearing order. *J. O'B.*

The Fruit Show at Hereford, held under the auspices of the Woolhope Field Club, is announced to be held in the Shire Hall on October 24 and 25.

INSECTIVOROUS PLANTS OUT-OF-DOORS.

In the milder parts of the country most species of these plants at present in cultivation can be grown out-of-doors under *cloches* and smaller bell-glasses. These appear to be necessary in the cultivation of even native species of Drosera, as the air over a small bog-bed has not the moisture it would have in a real bog, and without such covering we failed several times in growing them. With this treatment not only British Droseras, but the beautiful Australian D. dichotoma, can be easily grown; and D. capensis is also quite hardy, though its yearly shoots come so late in spring that there is a danger of its being thought dead if examined early in the season. There is a tendency to a shrubby habit in this Drosera which may not at first sight be perceived, as here at least its stems are buried under-ground, or under a carpet of live sphagnum. Another Cape species, D. spathulata, lived out-of-doors for two years, but the plants died last winter, possibly from having become too much weakened by having been allowed to seed. Probably the American, and many other species, would be equally hardy, and it is to be hoped that there may soon be various new Droseras introduced with which to try experiments in outdoor culture.

Through the kindness of botanists abroad, and of Mr. Lindsay in raising the seed in the Edinburgh Botanic Garden, an Indian species, D. lunata, and an African one, probably D. ramentacea, are, I hope, now introduced successfully, even if they were not already in cultivation; but as they are as yet only in the seedling stage it may be too soon to be sure of their eventual success. As, however, some of the same seed of D. lunata which I sent to the Newry nursery has produced a quantity of vigorous seedlings there seems good hope that this beautiful species, closely resembling D. peltata, may be added to those already in general cultivation.

Drosophyllum lusitanicum did well out-of-doors last summer, but we did not venture to leave it out in winter, and it died indoors in spring, as a plant of it had done the previous spring. Our next experiment shall be to have it out-of-doors altogether, but at best it is said to be but a short-lived plant. It is, at all events, a most interesting one, from the differences between it and the Droseras in its glandular structure, and between it and all other known plants in its leaves always rolling outwards in vernation (the reverse way to the circinnate vernation of Ferns).

Another plant of great interest is the Australian Pitcher-plant (Cephalotus follicularis), with its beautiful little pitchers from ½ inch to about 2 inches long, and often tinted with deep red. Not only from its peculiar glands, but from the "encapsulating" hairs on the wings of the pitchers—one hair apparently being inside the other—this plant is of special botanical interest.

As we have but one plant I feared to leave it out last winter, as but a few of the Australian plants (of those we have as yet tried) are perfectly hardy here. But it does well through the winter with its pot placed in a deep pan of sphagnum covered with a bell-glass in a window, and it can be plunged out-of-doors in a bog-bed during the summer, of course covered with a bell-glass. The same treatment is, perhaps, safest for Dionæa, but a plant lived for two winters out-of-doors, though it died last winter. We intend to try it out-of-doors again, especially as it has proved quite hardy at Kew. Every attempt to grow Pinguicula lusitanica here has failed, nor do P. vulgaris and P. grandiflora always succeed; the latter is, however, too good a plant not to try over and over again. P. vallisneriæfolia, with the edge of its leaves folded backwards, would probably prove hardy, and the beautiful P. caudata will be well worth a trial; indeed, all the Pinguiculas would be so.

The plants already mentioned, having glands with true digestive powers, are perhaps still more wonderful than the Sarracenias and Darlingtonia, about which the fact has not been satisfactorily proved; but these latter plants are certainly wonderful enough, and can be grown out-of-doors with equal success. Sarracenia purpurea is said to be the species most commonly grown out-of-doors, but it is the only one with which we have entirely failed; even good plants from New Brunswick and Newfoundland having died.

Of the other five species S. variolaris seems to be the most delicate, but it lived through last winter, and possibly a nest of ants among its roots has prevented its thriving well. These ants are very troublesome; another nest was found close up to the collar of S. psittacina. Though S. flava and S. Drummondi grow without bell-glasses they are probably all the better for such protection, especially in winter. In the comparatively rare hard frosts here we give all the insectivorous plants some extra covering. The Darlingtonia, now 15 inches high, is outgrowing its *cloche;* it had one blossom this year for the first time, and has thrown out suckers. It has been out-of-doors for three years, and it is, I believe, a sucker, or offshoot, from the plant at Glasnevin, which at one time had pitchers over 3 feet long, and then unaccountably went off in size and general vigour, and whether it will ever recover its former health has yet to be proved. The finest plant of it at the Edinburgh Botanic Gardens is not making such large pitchers this year as last; possibly the plant may not be a long-lived one in cultivation. It would be interesting to know whether it is so when growing wild.

Is the Darlingtonia the only genus of Pitcher-plant in which there are no unpitchered leaves? The two species of Sarracenia which so closely resemble it in various points seem always to have the hood, with a smaller or larger pitcher beneath it, though in some houses the development of the latter is but slight. But the other species of Sarracenia have often unpitchered leaves, as have also Nepenthes and Cephalotus; whether this is the case with Heliamphora and Dischidia I do not know. In seedling Darlingtonias the first leaves after the cotyledons are pitchered; though in these first pitchers a tongue-like prolongation of the hood takes the place of the two wing-like projections of the more fully developed leaves.

It is singular that amongst insectivorous plants so many of the genera have but one known species—Aldrovanda, Cephalotus, Darlingtonia, Dionæa, Drosophyllum, Heliamphora, and Dischidia; and of Roridula there are but two species.

Few kinds of plants are less troublesome to cultivate than hardy insectivorous plants; probably none are of greater interest. Even people who know nothing of either botany or plant-culture take such pleasure in seeing these plants that it is evident they may become a widespread source of enjoyment once they are more generally cultivated. Books like *Freaks and Marvels of Plant Life* help to spread the popular interest in them, and may in many instances lead on to a further study, opening up the marvels of Darwin's book on the subject, and to the discovery that the modern study of botany is not a mere mass of hard names, but that it vies with fairy tales themselves in its wonders and endless points of interest.

Even in a dry gravel subsoil these plants can be grown by making a bog-bed, 3 feet to 3½ feet deep, water-tight with puddling. A tub or barrel of water near, connected with the bed by a bit of leaden piping (let in near the bottom of the cask, and covered by a piece of perforated zinc to keep the pipe clear), supplies water when required by filling the barrel now and then; and this plan suits the plants better than too much watering from a rose watering-can, which is apt to disturb the soil. In winter no artificial supply of water is requisite. In making the bog-bed it is well to mix plenty of sphagnum through the peat, and live sphagnum round the plants forms a good blanket in cold weather, and also helps to keep up the supply of moisture in summer. But birds generally tear it to pieces, except where it is protected by bell-glasses. As it often harbours slugs and grubs it requires to be carefully looked to now and then *C. M. Owen, Knockmullen, Gorey.*

ALPINE PLANTS.

The German-Austrian Alpine Club (Alpenverein) has issued in the form of a supplement to the *Zeitschrift des Deutschen und Œsterreichischen Alpenvereins* an introduction to the scientific observation of plants, which will be found very useful by those who can read German. It opens with a brief history of the flora of the Alps, which is followed by a key to the natural orders and genera, and a more extended key to the species, and an index to the popular and botanical names of the plants. A third part is devoted to the physiology and biology of the flora of the Alps, and contains in a condensed form the results of the observations of the principal writers on these subjects. To this part cultivators will find much useful information respecting the habitats of alpine plants, the soils they love, the external characteristics of plants affecting different soils, &c.

It is curious that different species of the same genera replace each other in different soils, offering striking parallelisms of certain forms in the first settlers on chalky and slaty subsoils. Thus Hutchinsia brevifolia and Thlaspi cepeæfolium play the same part on the rubble of the chalkless slate Alps that Hutchinsia alpina and Thlaspi rotundifolium do in the limestone mountains. Again Androsace carnea and glacialis, Anemone sulphurea, Draba Zahlbruckneri, Gentiana excisa, Juncus trifidus, Primula villosa, and Ranunculus crenatus flourish in similar localities in the chalkless slate districts that the following species do in chalky soil:—Androsace lactea and helvetica, Anemone alpina, Draba aizoides, Gentiana angustifolia, Juncus monanthos, Primula Auricula, and Ranunculus alpestris. On this point the author, Dr. K. W. von Dalla Torre, submits the following generalisations:—

1. Plants of chalky soils, compared to their parallel forms growing on chalkless soil, are usually more copiously and densely hairy. They are often furnished with a white or grey felt, whereas their parallel forms, if at all hairy, are glandular.

2. Plants of chalky soils often have bluish-green leaves, while their parallel forms on chalkless soils have them grass-green.

3. The leaves of plants growing on chalky soils are mostly more and deeper divided than those of their parallel forms on chalkless soils.

4. When the leaves of a plant growing on chalky soil are entire, its parallel form on chalkless soils has not rarely glandular-toothed leaves.

5. Plants that grow on chalky soils have, compared to their parallel forms on chalkless soils, mostly a greater measurement of corolla.

6. Plants growing on chalky soils usually have duller and lighter coloured flowers than their parallel forms on chalkless soils. When the former is white the latter is often red, blue, or yellow.

But what is more surprising, certain plants that avoid the chalk, &c., in one region flourish on it in another. A short tabular statement borrowed from Bonnier will convey more information than explanations would:—

	Only on chalk.	Chalk-fleeing.	On chalk and flinty ground.
Ranunculus glacialis	....	Carp. Dauph.	....
„ alpestris ..	Carp.	....	E. Alps
Biscutella lævigata	Carp.	Dauph.	E. Alps
Trifolium badium ..	Carp.	Dauph.	....
Phaca australis ..	Carp.	E. Alps. Dauph.	Dauph.
Dryas octopetala ..	Carp.	....	Dauph.
Gnaphalium Leontopodium	Carp.	Dauph.	E. Alps
Calluna vulgaris ..	....	Dauph. E. Alps	....
Teucrium montanum	Dauph. Carp	....	E. Alps

PLANTS IN FLOWER.

Lavatera trimestris.—In the herbaceous department at Kew there are few more handsome or striking plants than the subject of the present note, and its white-flowered variety. The type is a splendid annual, about 3 feet high, with a profusion of large, deep rose-coloured blossoms nearly 3 inches in diameter. It is certainly one of the most showy of all annuals grown in British gardens, and one, moreover, which requires but little care. Sow the seeds in March or April where the plants are intended to remain; thin out and keep them clear of weeds. *X.*

Convolvulus Scammonia.—Both on account of its interest from an economic point of view, and of its beauty from a purely garden standpoint, this species is well worth growing. At Kew in the medical collection, as well as in the Convolvulus bed, plants of Scammony form very attractive objects. The greyish-green halbert-shaped leaves form a pretty setting to the numerous white trumpet-shaped blossoms. In well drained rather light soil the plant succeeds admirably, and its long shoots make charming festoons. Either trained to stakes in the ordinary border, or, better still, allowed to roam at will over shrubs, or used as a summer covering for arbours, &c., Convolvulus Scammonia is one of the prettiest of plants. *X.*

Eritrichium strictum.—This came amongst a lot of seeds from Kashmir raised at Kew this year, nearly all of which turned out uninteresting or useless from a garden point of view. Eritrichium strictum, however, is a decidedly handsome and desirable garden plant; it grows about a foot high, and produces upright racemes of splendid dark blue flowers about the size of those of Venus' Navelwort. It is a native of Western Himalaya, &c., where it is found at elevations ranging from 7000—13,000 feet above sea-level. *X.*

Coreopsis lanceolata, by which a pretty and useful plant is generally known, is the same plant that goes under the name of grandiflora; and very much resembles C. auriculata. Are the basal lobes of the leaves the only distinguishing characteristic of this last? I have observed differences in various batches of C. lanceolata—some are smooth, others scabrous, while the leaves vary in breadth, but these are but very trivial points of differentiation. The subject of this note is very floriferous, producing huge heads, nearly or quite 3 inches across, with broad even-spreading ray-florets which, with the disc-floret, are of a bright yellow colour. It is very useful in a cut state. For three months it yields a wealth of bright flowers. It is perfectly hardy, easily increased by cuttings, and quite as easily grown. I am sure there is a great deal of confusion in the names of species of Coreopsis in cultivation. C. tripteris, a common plant in damp positions in the United States, is a good thing, flowering about the beginning of September with flowers rather larger than those of C. lanceolata, and the leaves are variously divided: it is a very distinct plant. C. verticillata is just coming into flower; it has smaller bright yellow heads and slender stems, bearing verticils of short linear leaves. This last is very near, if not synonymous with, C. tenuifolia, coming from the same part and said to have been introduced about the same time. *T.*

Cotyledon edulis (Brewer).* — This very remarkable and distinct species of Cotyledon is now flowering in the Royal Gardens, Kew. It is well marked, and easily recognised by its nearly terete or obtusely subtrigonous leaves, which stand erect, and are of a whitish-green or glaucous-green colour, but without any meal upon them; and by its cymose paniculate inflorescence of white Sedum-like flowers, which are shortly pedicellate, and arranged along the upper side of the flexuose, spreading branches; the corolla is 6—7 lines in diameter, and is cleft to about three-fourths of the way down the oblong-lanceolate acute lobes, being widely spreating, so that the flower looks very like that of a Sedum. The young leaves are said to be eaten by the Indians. It is a native of California, growing on dry banks near the sea at San Diego. *N. E. Brown.*

FLORAL DECORATIONS.†

Within the last twenty or thirty years the taste for floral display in the homes and on the dinner-tables of the wealthy classes has advanced more rapidly perhaps than any other branch of gardening, excepting the cultivation of Orchids.

At the present time, in most gardening establishments, the preparation of decorative material for the house, and its proper arrangement, is second to no department in importance. Indeed, if the indoor work is unsatisfactory, there is usually trouble in store for the gardener.

The owners of gardens in the old times were usually content to enjoy their flowers and plants by occasional visits to the garden; the tendency now-a-days seems to be to take the garden into the house as much as possible. The gardener of the old school seldom took kindly to the flower-cutting principle, he usually set his face resolutely against it, or, at best, tolerated it under protest. A gradual change has come about in this respect; modern ideas and tastes have proved too strong for the old conservatism of the floral wealth of the garden. The gardener of the present day has usually to prepare for the production of cut flowers as carefully and as regularly as he does vegetables for the kitchen, fruit for the dessert, or plants for the conservatory. In looking round most of the gardens in the country one cannot fail to be impressed with the amount of glass devoted to the production of suitable material for house and table decoration, during the dull months of winter and spring, or for satisfying the almost insatiable demand of a London house during the season.

For summer and autumn supplies much may be done in either large or small gardens by devoting a convenient part of the garden to the especial purpose of producing quantities of useful flowers for cutting. The flowers should be carefully selected for the purpose, either for lasting properties when cut, or for colour, perfume, or graceful habit, and should be grown in sufficient quantity to meet all probable demands.

When a portion of the garden is set apart for cutting purposes, it will often be found the most enjoyable, and a favourite resort for the ladies of the family who may wish to gather a few sweet-smelling flowers of the old sorts, which have been in a great measure elbowed out of our modern flower gardens.

The young gardener who wishes to excel in the arrangement of plants and flowers must study the decorative capabilities of the various flowers and plants he grows for the purpose; and he must lose no opportunity of acquiring that first essential towards success in all decorative arrangements—a correct taste. Taste seems to be born with a favoured few, like instinct; with the majority of humanity it has to be patiently acquired with much perseverance and practice—with many failures, perhaps; but where failures are traced out to their cause, and used as marks to be avoided for the future, they only make the way clearer and more sure to ultimate success.

Ruskin says, "The temper by which right taste is formed is characteristically patient. It dwells upon what is submitted to it. It does not trample upon it, lest it should be pearls, even though it look like husks. It is distrustful of itself, so as to be ready to believe and to try all things; and yet so trustful of itself, that it will neither quit what it has tried, nor take anything without trying. And the pleasure which it has in things that it finds true and good is so great that it cannot possibly be led aside by any tricks of fashion or diseases of vanity; it cannot be cramped in its conclusions by partialities and hypocrises—its visions and its delights are too penetrating, too living, for any whitewashed object or shallow fountain long to endure or supply. It clasps all that it loves so hard that it crushes it if it be hollow."

But it may be asked, How is the young gardener to help himself in the acquirement of correct taste? I should reply, By studying and noting effective harmonies and contrasts in colour and arrangement wherever found—whether in the garden or the conservatory, in the face of Nature, by mountain, forest and field, or on the walls of the picture gallery. Wherever a noteworthy effect is found, let it be noted for future use—not for the mere purpose of reproduction or copy, but to help us to gain an acquaintance and familiarity with the best effects, and to give us the taste to distinguish that which is good and refined from that which is gaudy and paltry. In carrying out floral arrangements another essential and valuable faculty is forethought. Before moving plants or cutting flowers the leading points of the arrangements to be done should be thought out, so that only such plants may be moved and such flowers cut as will be required for our purpose. This is especially necessary in winter and spring, when the supply of flowers is principally limited to that grown under glass. The want of a little forethought often causes loss of time and material; besides, unless we have a clear idea of what we mean to be at in floral arrangements, the result is seldom so satisfactory as when we have decided beforehand what is to be done, and have all the necessary material ready to hand.

In order to keep up the interest in arrangements in cut flowers and plants in rooms frequent change is necessary, for however beautiful the flowers, and however perfect the arrangement, the interest soon fades if it remains too long or is repeated too often; besides a sameness of arrangement shows poverty of thought and resource on the part of the decorator. A safe method of securing change and variety is to give a certain amount of individuality to each arrangement of flowers or plants—let there be something distinct about it, either as a contrast or bit of colour, a graceful arrangement of flowers and foliage—something choice to stand on its own merits, or something prized for perfume: let something have the lead in

* Cotyledon edulis, Brewer, in *Botany of California*, i., p. 211.

† "Notes on the Arrangement of Plants and Cut Flowers for House Decoration." Paper read at the June meeting of the Scottish Horticultural Association.

one arrangement and something else in the next. A leading idea is as necessary for an arrangement of flowers or plants as a key-note is to a piece of music.

In arranging flowers for rooms there are several details which must not be lost sight of in order to produce the best effects; for instance, the size and light of the room, the purpose for which it is used, the prevailing tone or colour of the walls and upholstery. Thus a tall glass filled with long sprays of flowers and foliage, from 2 to 4 feet long, would look well in a drawing-room of noble proportions, but would probably be out of place in a little boudoir.

Where the prevailing tone of the room is light and cheerful a moderate use of pink, carmine, or crimson usually tells with good effect. Where the upholstery is of a florid description, white and green, or white and green with a bit of blue, will usually look well; crimson should be more sparingly employed.

As a general rule, small choice things are usually placed in low glasses or vases in positions where they will be near the eye, or where the perfume, if not too strong, will be near enough to be appreciated. Taller subjects for form or colour are usually placed in positions further removed from the eye, such as centres of tables, &c., where they will be seen to better advantage, and taken in by the eye in conjunction with the surrounding objects. In all floral arrangements overcrowding must be avoided; a light and graceful arrangement should be aimed at, and as natural as possible. We may improve upon Nature in so far as we may arrange a greater wealth of flower with a given amount of foliage, but we must not lose sight of Nature in seeking after artistic effect. In arranging with mouthed glasses a few sprays of Yew, or some such material, should be inserted first, then cropped off level with the mouth of the glass, this will enable the flowers to be placed in and retain any desired position until the arrangement is complete.

In keeping up a succession of flowers and plants in the house there are a few simple matters which must never be lost sight of, and which young men sometimes forget, such as keeping the vases and water always thoroughly clean and pure. Nothing detracts from the enjoyment of a choice vase of flowers like dirty finger marks or dirty, putrid water. In plant arrangements withered leaves or faded flowers should never be seen; a few withered leaves or one bad plant will spoil any group.

In order to keep a succession of plants or flowers in the house in good order it is necessary to have them attended to every morning before the rooms are occupied for the day. By renewing a few glasses or groups of plants each day, and looking for and removing any imperfections in those which do not require removal, with the addition of a bit of Fern here and a flower or two there, and careful examination of every plant and vase to see that it has enough water to keep it fresh till next day, the arrangements can be kept fresh without bustle or interference with household arrangements. When it happens that all the work cannot be got through in the morning, then only such things should be left for renewal later in the day as can be got at without inconvenience to the members of the household. But nothing should remain where it will be seen unless it will bear looking at with satisfaction.

Forced plants for indoor work should be inured to light and air, as much as is consistent with healthy development, and kept as near the glass as possible for a short time previous to use; they will be better prepared to stand the drier atmosphere of living rooms than if used without being so treated.

In winter and spring, when flowers are occasionally scarce, after being in use for a short time they may be revived by being immersed in tepid water for a few hours, and having the end of the stem shortened a little. When suitable fresh foliage is obtainable, and used judiciously, it is surprising how long flowers may be made to look well in a time of scarcity.

In all flower arrangements it will usually be found that decided colours give the best results. In order to lessen the strain on the glass department, and permit of its being devoted as much as possible to the production of material when not obtainable out-of-doors, a note of a few useful outdoor decorative plants may be interesting.

For tall glasses the following are useful:—Gladioli, Iris, Solomon's Seal, Veratrum nigrum, Hellebores, Anemone japonica, A. Honorine Jobert, Lobelia cardinalis, Agapanthus umbellatus, Rhododendrons, Liliums, Arundo conspicua, Spiræas, and some of the taller grasses. Among the more useful trailing plants for draping the stems of glasses are the small leaved Ivies, Periwinkles, and Clematis. The following are useful for foliage:—Escallonia macrantha, Japan Privet, Spiræa japonica, Berberis Aquifolia, Ceanothus, Polygonums, Bambusas, and some of the stronger foliaged Roses. Among fragrant useful things are white Jasmine, Sweet Brier, Honeysuckle, Aloysia citriodora, Pheasant's-foot, and other cut-leaved scented Geraniums, Heliotrope, Sweet Peas, &c. Among annuals the following are useful for cutting:—Phlox Drummondi, Dianthus Heddewigii, Cornflowers, Clarkia, Viscarias, Godetias, &c. These plants are within the reach of all, but where there is glass for the production of decorative material of the usual kinds the variety and supply will depend principally on the amount of glass which can be devoted to it, and the length of the proprietor's purse. *D. Melville, Dunrobin Castle Gardens.*

Fig. 27.—Caccinia glauca: flowers pale blue.

CACCINIA GLAUCA.

This is a reappearance of a plant cultivated at the beginning of the present century in the celebrated garden of Cels, at Mont-Rouge, near Paris, and figured and described by Ventenat in his work entitled *Descriptions et Figures des Plantes Nouvelles et peu connues cultivées dans le Jardin de J. M. Cels*, plate 100. It is there named Borrago crassifolia, and recorded from Persia. Again, in 1830, it was cultivated in the Luxemburg, as we learn from a specimen from Gay's herbarium, now at Kew. The present engraving (fig. 27) is from a drawing by Fitch of a plant cultivated at Kew this season. A perennial plant, succulent in texture and glaucous in hue, remarkable in the family to which it belongs for its star-like flowers, which change in colour from pale blue to reddish. Usually less than a foot high, it sometimes exceeds 2 feet. In a wild state it ranges from Persia to the confines of India.

Lasiogrostis calamagrostis. — This is a pretty and graceful South European grass, which is capable of taking care of itself in the herbaceous border without becoming a nuisance in any way. It is a tufted perennial, between 2 feet and 3 feet in height, and flowers rather later than most other cultivated grasses. At present it is one of the most conspicuous species in the large collection at Kew.

Notices of Books.

The Botanical Results of the Travels of the Princes of Saxe-Coburg-Gotha (*Itinera Principium S. Coburgi, Die Botanische Ausbeute.* By Dr. H. Wawra. Erster Theil, 4to, pp. 188, tt. 39. Wien: Carl Gerold's Sohn, 1883).

This is a handsome volume, the paper, printing, and plates being of excellent quality; but we doubt whether botanists will welcome it, because it is one of those troublesome books that treat of plants from various parts of the world. It is an enumeration of the plants collected at the points touched on a voyage round the world, and on a second voyage to Brazil, with descriptions and good coloured figures of a number of reputed new species. We say "reputed new species" in no spirit of carping criticism, and we daresay most of them were previously undescribed; but we know the probabilities of overlooking published species are very great, when dealing with a few plants from this country and a few from that. In this work we have to do with plants from California to Brazil, and from Australia to India. But apart from the inconvenience it shares in common with many other books of travel of being necessary to a botanist, whether his study be of the plants of the New World, of Australia, or of Asia, it is a praiseworthy production, and the horticulturist as well as the botanist will be thankful for the coloured plates, which are admirably drawn and printed in the best style of chromo-lithography, and superior to many hand-coloured plates. Brazilian Bromeliaceæ constitute the specially useful feature of the work. Twenty-one of the plates illustrate members of this family, the species of which are difficult to discriminate from descriptions alone. Most of those figured are of an ornamental character, and some of them are very showy, notably Nidularium Ferdinando-Coburgi, and N. Antoineanum, which have scarlet bracts and crimson and indigo-blue flowers; Billbergia Reichardti, with a very slender inflorescence of rosy bracts and purple and blue flowers; Vriesia Philippo-Coburgi, with a very slender branched inflorescence in which red, yellow, and green are contrasted, and V. paraibica, with a simple stout spike of yellow flowers, supported by crimson bracts. Among other pretty plants figured we note Ebermayera itatiaiæ, Cyrtanthera citrina, Manettia filicaulis (very near M. bicolor), and Psychotria Muelleriana. Owing partly to the custom of giving dedicatory and commemorative names, and partly, we should say, from infertility of invention, many of the specific names are awkward and inelegant, to say the least. Thus, we have of the first category Ferdinando-Coburgi, Augusto-Coburgi, and Philippo-Coburgi—not often repeated, fortunately; but the name itatiaiæ is repeated ten times among the new species figured.

Topographical Botany. By Hewett Cottrell Watson. Second edition. Edited by J. G. Baker and W. W. Newbould. London: Quaritch. 8vo, pp. 612, with map.

Thanks to the enterprise of Mr. Quaritch, and the disinterested labour of Mr. Baker and the Rev. Mr. Newbould, this valuable work, the result one might say of a life's application, is now accessible to all botanists. Although this is the second edition, it is practically the first publication of the work, for only 100 copies of the first edition were printed, and they were privately distributed, so that many provincial botanists have not even had a chance of seeing it, and know nothing of its scope. The full title explains the scope: — *Topographical Botany; being Local and Personal Records towards Showing the Distribution of British Plants Traced through the* 112 *Counties and Vice-Counties of England, Wales, and Scotland.* And the Editors' preface gives a good idea of the extent of the additions and corrections of the present edition:—"It was Mr. Watson's intention to publish a second edition of this work, and to entirely recast and rewrite the introductory and explanatory portions. This he did not live to accomplish, but he made preparation for it by keeping an interleaved copy of the first edition always at hand, and entering in it regularly all the records of the occurrence of plants in additional vice-counties that came to his notice. The few additions which we have made on our own responsibility may be distinguished by having the name of the personal authority placed within parentheses.

Out of the nine vice-counties, for which in 1873 there were no lists for even the commonest plants, only two now remain totally unreported upon, so that in this edition all the vice-counties are dealt with in the same manner. His notes for the remodelled, introductory, and explanatory chapters are too incomplete to be used, so that we have reprinted those of the first edition, with only a few trifling alterations that were rendered needful by changed circumstances."

We may mention that the two vice-counties for which no lists of plants exist are forty-two and seventy-four — Brecon and Wigton, and perhaps somebody will go and botanise in those neglected districts.

Mr. Watson's herbarium, manuscripts, and printed books relating to British botany now form part of the national collections at Kew.

The Natural History of Hastings and St. Leonards and the Vicinity. First Supplement. (Daniel & Co., Hastings.)—This supplement to the *Fauna and Flora of Hastings*, that was published in 1878, consists partly of additions and partly of revised lists, and is an earnest of the activity of the local naturalists. Visitors will find it a useful guide.

STRAWBERRIES.

Autumn and Winter Management. — In the cultivation of a plant, whether corn, vegetables, fruit trees, or shrubs, the first thing for one to determine is to make himself acquainted with its structure and habits. When he has ascertained what Nature has designed it to do, and what means she has furnished, then only can he judge correctly of the manner in which it may be treated, and how far it is practicable to alter its disposition in order to render it more subservient to his own purposes. In applying this truth to the cultivation of the Strawberry, it may be stated that this plant consists of a very short main stem, seated just at the surface of the ground, covered with leaves, and throwing out from the lower part long slender woody perennial roots, which divide into a multitude of branches. The stem itself has a soft centre, consisting of pith, with a woody outside covered with an epidermis or bark. In fact the stem of a Strawberry plant is not essentially different from the branch of a tree one year old, with all its joints so contracted as to touch each other. The roots extend to a considerable distance from the stem, branching in all directions in search of food, and increasing in numbers as the stem increases in age. Their object, however, is not only to obtain nutriment from the soil, but a sufficiency of moisture, of which the Strawberry is particularly greedy. When undisturbed the roots live for a long time, and should therefore be preserved as much as possible. Digging between the rows too, late in autumn or winter, as is sometimes practised by gardeners, with a belief that the roots are only annual, is a mistaken idea.

After the plantation is once made the principal attention required is to keep the ground clear of weeds by hoeing, and on no account to allow any other crop to be planted between the rows. After the fruit is gathered the runners are recommended to be removed, without, however, destroying or taking off the foliage from the stem, because this prevents proper buds from being formed for the following year, and also because it deprives the plants of their natural protection during winter. Mr. T. A. Knight, an authority on the cultivation of the Strawberry, highly disapproved of digging between the rows during autumn, for, he says, "By shortening the lateral roots in autumn the plants not only lose the true sap which such roots abundantly contain, but the organs themselves, which the plants to a great extent depend upon for supplies of new food in the spring." It is better, therefore, when the ground between the rows becomes hardened by the treading, unavoidable in picking the fruit, to loosen the soil with forks as soon as the crop is gathered, when the destruction of a few roots will be of less consequence than to break up and destroy a large proportion of the organs in winter or late in autumn. If, on the contrary, winter digging is performed, the roots are largely destroyed, and the work of the stem must in consequence be directed downwards for the formation of more roots, and the supply of nutriment intended for the leaves and fruit is diminished in proportion to the amount of roots which the plant has to replace. The Strawberry stem, which is designed to form leaves and fruit only, cannot have its power diverted to the formation of roots without diminishing the quantity and quality of its fruit in the following season.

Orchid Notes and Gleanings.

Work in the Houses.—Any plants of Lælia purpurata and Cattleya Warneri that were late in flowering should be examined at the root, and any top-dressing necessary should be given to them at once. Most of the early blooming Cattleyas will now be advanced in growth, and many of them will soon be showing signs of throwing out a fresh set of roots from the young bulbs, which must be carefully guarded from injury. The appearance of these young roots seems to offer an inducement to water the plants more freely, but this must still be done cautiously, as the moisture in the atmosphere will be much more agreeable to them, and will be ample to keep the young roots gently on the move. It is safer to err on the side of giving too little than too much water to this genus at any season, but an overdose just now, when the young growths are drawing upon the older ones for supplies, will lead to many of the older leaves turning yellow more rapidly than they would do under drier treatment. Most of the Oncidiums will now be getting in full growth, and any growing on blocks will require frequent attention to keep them in a healthy state of moisture at the roots. The temperature of the Cattleya-house will accommodate a great many species belonging to this genus, and where there is not an intermediate-house available they should be grown with the Cattleyas. Any of the wiry-rooted ones will generally stand more water than those with soft, fleshy roots. Avoid giving them too heavy shading, as the majority of them will stand a moderate amount of sunshine with benefit; and as soon as the growths are getting completed a little cooler and more airy treatment should be given to thoroughly ripen up the foliage. Some few species require warmer treatment than the intermediate-house, and among these are O. hæmatochilum, O. luridum, O. Lanceanum, O. Kramerianum, and O. Papilio majus; while O. macranthum, O. cucullatum, and O. crispum will succeed in the cool house during the summer months, keeping them at the warmest end during the winter season. A useful Orchid for flowering at this season, and one too seldom seen, is the old Miltonia spectabilis. When in thriving condition it is a plant that breaks freely, and soon forms a nice specimen. It will grow well in a shady part of the Cattleya-house, and should be grown in a shallow pan or a basket, which must be well drained, as stagnation at the root is fatal to it. A very thin layer of fibrous peat and sphagnum moss in equal parts will be sufficient to satisfy the wants of the roots. M. Moreliana is another autumn bloomer that will thrive under similar conditions to M. spectabilis. Look over the stock of Dendrobium formosum giganteum, and any that are completing their growths should be placed under conditions a little less exciting than where they are making growths. Place them well up to the light in an intermediate temperature, but keep them shaded from direct sunshine. The object should be to get the foliage leathery and the growths moderately firm to ensure a good crown of flowers. It is a most useful plant for supplying cut flowers, and the finest of all the white Dendrobes. There will be little beyond routine work to do in the cool house. The season up to the present has been a favourable one for the plants in this house, as no great difficulty has been experienced in keeping up a good supply of moisture around the plants, and an excessive use of the shadings has not been necessary. Keep all pots and stages perfectly clean, and any material in the house intended to give off moisture should be frequently turned. Keep the plants well ventilated night and day during the next month or six weeks to get the growths firm before autumn, and any plants infested with thrips or other insects should be carefully sponged over at short intervals. *J. Roberts, Gunnersbury Park Gardens.*

Vanda teres.—In my remarks at p. 142 there is an omission of part of a sentence, which renders the rest inexpressive and incomplete. Before the sentence, "It was kept dry, water being entirely withheld," should have been written "from November to January." *Jos. Broome.*

Galeola hydra.—The interesting note at p. 111 concerning Galeola induces me to communicate to you the fact that in the year 1874 a Galeola blossomed in the botanical garden at Carlsruhe. I took the plant for Erythrorchis (Galeola) altissima of Blume, but Professor Reichenbach recognised it as Galeola hydra. In Professor Pfitzer's *Grundzüge einer vergleichenden Morphologie der Orchideen* there will be found (pp. 158, 159) some notes of mine about this remarkable plant, which, alas! died after having blossomed. *E. Mayer, Karlsruhe, Aug.* 1.

Number of Genera of Orchids.—Linnæus knew only about thirty species of tropical epiphytical Orchids; and all these he referred to his genus Epidendrum. Though he knew so few, yet he had among them one or more species of each of the following genera:—Phalænopsis, Dendrobium, Brassia, Ornithidium, Brassavola, Cymbidium, Renanthera, Oncidium, Isochilus, Stelis Cyrtopodium, Saccolabium, Vanilla, Pleurothallis, Vanda, and Angræcum. How many of the species Linnæus actually saw is not easily ascertained—perhaps not a quarter of them, and those only in a dried state; the rest were founded on figures in the works of Jacquin, Rheede, Sloane, and others. Swartz, following in 1800, established a number of new genera, including Dendrobium, Aërides, Oncidium, Cymbidium, and Vanilla—not that these were in all cases founded upon the same species that came under the observation of Linnæus. Then came Robert Brown, who, in Aiton's *Hortus Kewensis*, edition 2, vol. v., founded, among others, the genera Brassavola, Broughtonia, Brassia, and Pleurothallis, and he subsequently proposed the genus Vanda. He also founded twenty-four out of the forty-eight genera represented in Australia. Blume defined many Asiatic genera, including Saccolabium, Arachnanthe, and Phalænopsis; and Thouars several African, amongst them Angræcum and Bulbophyllum. Hooker (Sir W. J.) published a few new genera of Orchids, such as Coryanthes, Zygopetalum, Polystachya, Peristeria, Ornithocephalus, and Lockhartia; but for a period of about forty years (1820—1860) Orchids were left almost entirely to Lindley, though it is now hard upon forty years since Reichenbach published his first paper on Orchids. I believe that his paper entitled, "Plantæ Leiboldianæ, Orchideæ," which appeared in the *Linnæa* for 1844, was the beginning of his Orchid career. At least, it is the first publication of his relating to the order that has come under my notice. How far Lindley has left his mark on the genera of Orchids may be gathered from an analysis of the authorship of the 334 genera retained by Mr. Bentham in the *Genera Plantarum*. Leaving out Swartz, Kunth, Ruiz and Pavon, Thouars and others, who between them established a considerable number of genera, the remaining genera retained by Mr. Bentham were founded by the following authors:—Lindley, 114; Blume, 50; Robert Brown, 41; Reichenbach, 20. The last number does not include about half a dozen genera which Mr. Bentham has not seen, and is unable to assign places in his classification. Bentham himself proposes only four new genera, though he raises some of Lindley's sections of Epidendrum to the rank of genera. Thus it will be seen that Lindley established as many genera as Blume, Brown, and Reichenbach together, or a little more than one-third of the total number retained by Mr. Bentham. With comparatively slight modifications, Mr. Bentham has elaborated the Orchideæ for the *Genera Plantarum* on the Lindleyan system, both in the limits of the tribes and genera. Under the title of "Notes on Orchideæ" (*Journ. Linn. Soc.*, xviii., pp. 281-360), the author gives an interesting review of the order, with definitions of the tribes, subtribes, and some of the principal genera. It may be mentioned that Lindley published his first genus of Orchids (Trizeuxis) in 1821, when he was twenty-two years of ago, and I think his last contribution to Orchid literature was an enumeration of the Orchids collected in West Tropical Africa by Barter and Mann, which was read before the Linnean Society in November, 1861. The total number of names of proposed genera of Orchids is about 770, or more than double the number now adopted. By far the greater part of those reduced are not reduced for the first time in the *Genera Plantarum*. Most of them had been previously reduced, and a not inconsiderable number of them, by the writers who originally proposed them. *W. B. H.*

The Hardy Fruit Garden.

Apricots, which are very scarce this year, will now require to be looked over almost daily and gathered before they become dead ripe, or as soon as they can be easily detached from the tree. Great care must be exercised, as the least injury will cause speedy decay. The early varieties of Peaches and Nectarines should be frequently examined and gathered before they become fully ripe. These will finish in the fruit-room, and keep for several days longer than when left to become quite ripe on the tree. The basket or tray used at the time of picking the fruit should be well padded with cotton-wool, or dry moss covered with tissue-paper, so that all danger of bruising may be prevented as much as possible. To ensure fruit of the best quality the roots of the tree must be kept well supplied with moisture and the surface of the soil mulched; and until the fruit ripens water applied to the foliage with the syringe, to keep down red-spider and aphis. Insert dry bean-stalks about 6 or 9 inches long between the branches to decoy earwigs, and examine daily to destroy them by blowing them out into a pot or pail of water. In the evening dust the borders at the foot of the walls with lime, to destroy slugs, which are very destructive to the fruit, especially on dwarf trained trees, and look well between the branches and foliage for the house-snail, also very fond of the fruit.

By looking often over the early varieties of Pears, and picking those which readily separate from the tree, without breaking the stem, the season may be more prolonged. Most early kinds are better for picking before they are ripe, if left on the tree to ripen the flavour becomes much deteriorated. Early Apples also are best gathered and stored immediately they detach easily from the tree. Both should be gathered and stored when dry. Plums—give the same, attention to the gathering as for Apricots, and to trees infested with aphis continue to use the syringe. All fruit trees making a second growth after the summer forcing pinch back closely. Remove the old and fruiting canes of Raspberries, as the crops are finished, thinning-out the suckers to the required number for the trellis or stakes for next year's fruiting, retaining the strongest for that purpose, so that they have the benefit of the sun and air as much as possible to ripen them. Clear off the weeds, and as the mulchings put on in winter or early spring have nearly disappeared, a good Dutch hoeing and loosening of the soil will be beneficial. Autumn bearing Raspberries should have their suckers removed and kept well mulched and supplied with water.

The late Gooseberries and Currants, if not already netted up, should first of all be surrounded with ½-inch mesh wire-netting, as recommended in a previous Calendar for Strawberries. By stretching wire on poles over the bushes to keep the net clear of them, and carrying the net down to the wire netting, the preservation of the net is insured, as it is kept free from the damp earth, which would cause it to decay if left for any length of time, as must be the case now. Continue to make new beds of Strawberries as the plants become established in the pots where layered, and keep them supplied with water until they have made a start. Remove the suckers from old fruiting beds and clear off weeds. Keep the growths of Figs stopped, and pinch-in closely any second growth made after the first stopping. Make the nets secure on Morellos, for, now the small fruits are nearly gone, the birds will naturally visit the late Cherries, and will find out the least hole left where it is possible to enter.

Wasps, which happily are not very plentiful, and flies will soon be expected to commence their depredations. The old remedy of placing two handlights one over the other, making a small hole on the top of the lower one, and placing a saucer with fruit or sugar underneath to attract them, should now be fixed at once, and as many as possible, in different parts of the garden. This is about the best contrivance for their destruction, and gives the least trouble. *D. C. Powell, Powderham Castle, Devon.*

Grapes and Vineries.

The earliest houses that have been cleared of fruit, and in which the wood is well ripened, must have plenty of air night and day, and plenty of clear cold water at the roots whenever the border is dry. Houses in which ripe fruit is hanging can be kept as advised in my last Calendar, but those in which the fruit is colouring must not be kept at a lower temperature than 65° by night with a rise of 10° by day, with an abundance of air from the front and back ventilators when the weather is hot and bright, but on cold sunless days less air will be required. Keep a little fire-heat in the pipes to keep the air warm and circulating, and when the border is dry water with clear tepid water, choosing a bright day for the operation, when a little extra fire-heat and air can be used to dry up the extra surface moisture. Let the laterals run without stopping if the growth is not too crowded; damp the paths and borders only on the brightest days, when it must be done in the early part of the day so that it will dry up before the ventilation is reduced in the evening. Late houses of Black Hamburghs swelling their fruit must have liberal supplies of tepid manure-water on the inside border, and the outside border must be examined, for if well drained they will sometimes be dry when not expected, and if not watered the Vines and fruit suffer; when watering always give sufficient to go through the border. When the Grapes commence to colour clear water only must be used; keep the night temperature at 65° with a rise of 10° by day, and close the house early in the afternoon, while the sun is powerful with plenty of moisture until they commence to colour. Muscats that are ripe will not require any fire-heat, but must be kept cool and have sufficient clear water at the roots to keep the berries plump and in good condition. Those that are nearly ripe can be kept as advised in my last Calendar. The latest houses will now be on the change, and if the border is dry water with tepid manure-water at a temperature of 85°, and afterwards use only clear tepid water. As the ripening process advances keep the atmosphere somewhat drier, but the Vines must have plenty of water at the roots when they require it. Keep the night temperature at 70°, with a rise of 10° by day, and leave a little air on the back ventilators all night, and increase it in the early part of the day; give air on the front ventilators with caution, as Muscats do not require so much front ventilation when ripening as other Grapes. Keep sufficient heat in the pipes to keep the atmosphere light and dry.

Late varieties of Grapes must be kept at a night temperature of 65° to 70°, with a rise of 10° by day. While the fruit is colouring give air on the front and back ventilators night and day. If both wood and fruit are not well ripened they will not keep through the winter. Any young Vines with extra strong growths must have plenty of heat and air until the wood is well ripened, when it must be discontinued and the front and back ventilators be left open night and day. Give plenty of clear water at the roots, to keep them healthy. Pot Vines for next year's fruiting, now that the pots are filled with roots, will take plenty of manure-water for a short time longer, and must have plenty of heat and air, and not be placed too closely together, so that the sun can play freely among them, to induce the wood to ripen early. Keep all the laterals pulled out, and keep them near the glass. *Joshua Atkins.*

Grammatocarpus volubilis is an elegant and graceful twining plant, with pretty pinnatifid leaves and cup-shaped flowers of a golden-yellow colour. For a summer covering for a wall or the sunny side of an arbour it is eminently suitable, under such conditions making growths 7 or 8 feet in length. In the ordinary border, merely trained to a stake or two, it does not grow so vigorously. It is a near ally of the genus Loasa, in company with several species of which it is now flowering at Kew. A native of Chili, whence it was first introduced in 1824, but was soon lost; it was, however, reintroduced in 1843, and figured in the *Botanical Magazine*, t. 5028.

APPOINTMENTS FOR THE ENSUING WEEK.

Tuesday,	Aug. 14	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M. Sale of Imported and Established Orchids, at Protheroe & Morris' Rooms.
Wednesday,	Aug. 15	Shropshire Horticultural Society's Great Summer Show (two days). Sale of Dutch Bulbs, at Stevens' Rooms.
Thursday,	Aug. 16	Reading Horticultural Society's Show. Sale of Imported Orchids, at Stevens' Rooms.
Friday,	Aug. 17	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
Saturday,	Aug 18	Sale of Dutch Bulbs, at Stevens' Rooms.

REVERTING to the subject of the Rothamsted experiments relating to GRASS LANDS, some illustrations of which were cited at p. 144, referring principally to grasses and to the action of nitrogenous manures on certain of them; it may be instructive to allude by way of contrast to the Leguminosæ (Trefoils, Clover Lotus, Lathyrus), and to the action of potash upon them. On one of the plots mineral manures, including potass, but without ammonia, or nitrogenous manures, have been continuously applied. On this plot the largest total number of species of plants of all orders has been forty-four, or eight less than on the unmanured plot. Of these forty-four grasses have supplied from sixteen to eighteen species, that is about the same number as on the unmanured plot. The Leguminosæ have been represented by four species, as in the plot without manure, while the miscellaneous orders have furnished twenty-two or twenty-three species, instead of from twenty-eight to thirty-one, as on the unmanured plots.

The absolute number of species, however, is less instructive than the proportionate weights they furnish. The seventeen to eighteen grasses have yielded on this plot a mean quantity of 2841 lb. per acre, as against 1787 lb. without manure.

The four leguminous plants have produced a mean weight per acre of 1010 lb., as contrasted with 193 lb. without any manure at all. The miscellaneous plants contributed 702 lb. to this plot, as compared with 617 lb. on the plot without manure.

Still more significant, however, is the contrast between the potash plots of which we have taken one illustration and those to which ammonia salts alone (without potass) have been added.

Here the highest number of species has been thirty-eight, the highest number of grasses seventeen; of Leguminosæ four, and of miscellaneous plants seventeen.

In actual produce the seventeen (or on an average only fifteen) grasses have supplied a mean amounting to 2652 lb. per acre, the four Leguminosæ only 8 lb. per acre! and the seventeen (or on the average fifteen) miscellaneous plants 496 lb.

The cause of this astonishing diminution of leguminous herbage is conclusively proved to be chiefly due to the deficient supply of potass, for where this is supplied even with ammonia salts in conjunction, the leguminous produce jumps up. Thus by adding, or by withholding potass, the quantity of leguminous produce can be increased or diminished at will, just as by adding or diminishing nitrogenous manures the quality and quantity of grassy herbage can be correspondingly increased or diminished. The tables abound with striking illustrations of this character, but we have cited enough to show their general nature.

But while, speaking in general terms, the characteristic requirements of the grasses and of the Leguminosæ are thus shown to be quite distinct, closer analysis shows that the grasses differ among themselves, sometimes as much as grasses do from leguminous plants. To give one illustration only, the two Poas—P. pratensis and P. trivialis—are very much alike in appearance, but very different as regards the action of manures upon them. Thus, on a plot dressed with ammonia salts and mineral manures, including potass, Poa pratensis yielded an average percentage of 16.10, Poa trivialis of 2.90. On another plot, where nitrate of soda was substituted for the ammonia, Poa pratensis showed a mean percentage of 2.27, while P. trivialis afforded 25.44 per cent. These figures are positively startling, and could we afford space to give the details for each year instead of the mean, the result would be even more striking. These are by no means isolated cases. The reader will find many others, and many interesting contrasts between the Composites, the Umbellifers, the Docks, &c., but space forbids us to do more than mention the facts and refer to the paper for corroboration.

There is, then, abundant evidence to show that manures influence the amount of the yield very materially; and, further, that they affect the nature and quality of the produce quite as much. With these tables before him, the cultivator desirous of favouring one plant, or set of plants, or of banishing others, will be provided with valuable suggestions as to the means of effecting his object, and artificial manures and fertilising dressings may be concocted on the sure basis of rational experiment.

Not only is the effect of manures on particular plants brought prominently under notice, but the effect of particular manures upon each description of plant is illustrated. It is obvious from the tables before us how, and to what varying degrees, particular manures affect the luxuriance and maturation of leaf, of stem, and of seed respectively in the same plant. The nitrogenous manures, for instance, specially favour leafy development and succulence, the mineral, earthy, or alkaline manures tend to mature and consolidate the stem and ripen the seed. "It is the proper adaptation of the two descriptions of [manure] to the current requirements of the plant and of the season that gives both full, properly proportioned, and well matured growth."

A large section of the paper is devoted to those peculiarities of form and structure by virtue of which plants growing together maintain themselves in competition, or get the advantage over others; and then a detailed account is given of the general conformation of every one of the species grown on the plots, and of the way and degree in which it is influenced by the various manures.

The particular species being thus separately dealt with, the next section is devoted to the consideration of these species when growing in association on each separate plot, manured or unmanured, and also in relation to the variations of climate and season. The fluctuations in amount of produce and character of vegetation are considered, and their causes discussed. Detailed statistical tables afford ample means of ascertaining the number of species, the absolute and proportional amounts of their produce for the four separation years, and the differences in these points observed in the different plots according to the nature of the manure employed. The very numerous tables are formidable-looking, especially the two bulky appendix tables, and the information they contain is overwhelming in amount. The text, however, to a large extent is devoted to the discussion of the more prominent facts recorded in these tables, while each of the latter comprise, in addition to the full details, a few lines of "summary" at the bottom, which will save readers desirous of getting at general results much trouble. The tables and records properly used will be of incalculable use to all future investigators, and they will be followed in due time by similar tables giving the results of the chemical analyses made of the soil and of the plants, the whole representing an amount of sustained work as accurate as it is prodigious.

—— THE FRENCH GARDEN AT CHATSWORTH.—On the opposite page we give an illustration (fig. 28) of the French garden at Chatsworth—a subject which was not treated upon in the supplement devoted to this princely demesne published with our number for June 26, 1874, but which many of our readers who have visited the celebrated Palace of the Peak will no doubt easily recognise. Like a good many other things at Chatsworth, it is unique in its way. The elevated busts standing in a group to the left are having the columns that support them clothed with greenery, and which, so long as kept within reasonable bounds, will be looked on by most people as preferable to so much bare stone, whether in keeping with the original intention of the designer or not. The figure on the extreme left with outstretched hand and extensive head-gear is a commanding object, placently surveying the surrounding scenery. It is needless to say that this garden is laid out so as to show the particular style it is intended to illustrate, and when seen in the subdued light of a summer evening affords a striking contrast to the less artificial style that pervades the rest of the grounds.

—— ROYAL HORTICULTURAL SOCIETY.—We are requested to state that the meetings of the Floral and Fruit Committees on Tuesday next at South Kensington will be held in the Conservatory.

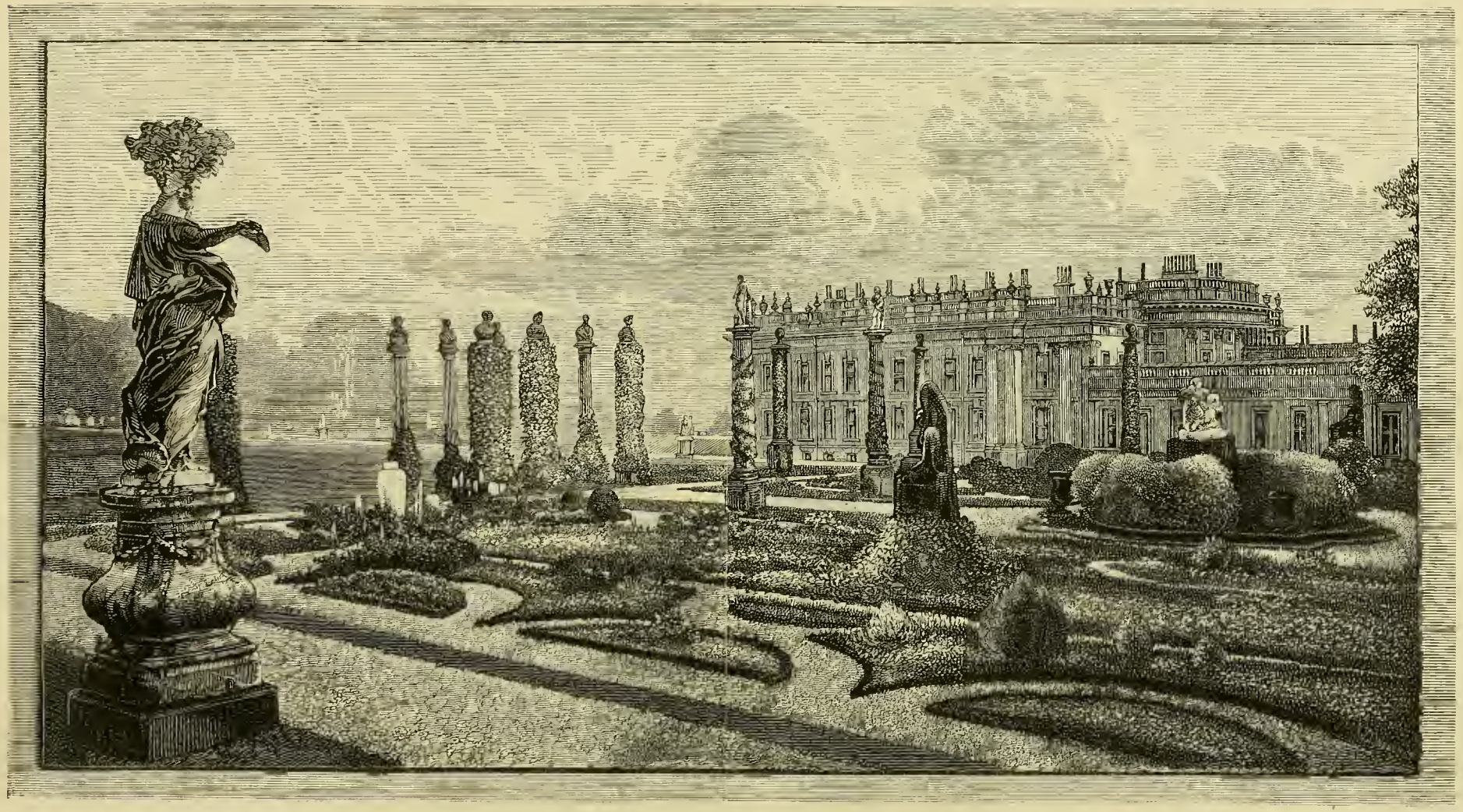
—— DIGRAPHIS ARUNDINACEA (PHALARIS).—I have gathered the striped form (known as Ribbon-grass) in company with the late Mr. JOSEPH HENDERSON, on the banks of Whittlesea Mere, on the Yaxley side, with Liparis Loeselii, Andromeda, Viola lactea, and other varieties. *M. J. Berkeley.*

—— PROPOSED FRUIT SHOW.—We understand that overtures have been made to the Council of the Royal Horticultural Society with a view to holding a large fruit show at South Kensington some time in October next. It is such a long time since the Apple crop has been so thoroughly satisfactory, and as Apples must always be the staple of a fruit show of any magnitude it seems a pity that advantage should not be taken of the circumstance to organise a thoroughly good and instructive display. Whatever is done in the matter should be done quickly, and we shall be glad to have an early opportunity of announcing that the promoters have succeeded in their aims.

—— BLACK CURRANTS.—It is some years now since black Currants fell to so low a price as they were selling at on Friday and Saturday of last week, when 2*s.* 6*d.* and 3*s.* per sieve were the ruling quotations. Indeed, so abundant is the crop, that for the first time in many years red Currants beat the blacks in the prices returned to the growers. Jam consumers may be interested to know that, as a result of the abundant yield and low price, jam manufacturers are this season really using the genuine article, and the growers hope that as the public will get "real jam" this season, it may be educated to the extent of acquiring a taste for the right thing, and so be induced in less bountiful seasons to pay a better price than growers or conscientious manufacturers have received of late years. It was unfortunate that the crop should have ripened up so near to the Bank Holiday, the loss of three days' work in the manufactories meaning a loss of many hundreds of pounds to the growers.

—— PARCELS POST BOXES.—The nursery and seed trades generally are much indebted to Messrs. BLAKE & MACKENZIE, of Liverpool, for introducing many most useful inventions which are largely in request. In order to meet the requirements of the new parcels post they have registered a box for the purpose, made after the same pattern as their cut-flower boxes, of tough leather board, with label for address, and a cloth-lined label at the side for the parcel's stamps, thereby avoiding the necessity of the postal authorities stamping the box—a process which has proved so fatal to the contents of many boxes of insufficient strength. And printed on the cloth label are full particulars as to rates of carriage, &c., and also a punched hole for passing the twine through, and at the side a gummed flap for securing the box against being tampered with. These boxes are manufactured in six sizes, from 10 inches by 5½ inches up to 15 inches by 9½ inches, the depth increasing from 4 inches to 6½ inches. They will be found most useful by the trade generally.

—— GERMAN FANCY CARNATIONS.—A remarkable strain of these, introduced by Mr. ERNEST BENARY, of Erfurt, Germany, has just come under



The Gardeners' Chronicle,] FIG. 28.—THE FRENCH GARDEN AT CHATSWORTH. (SEE P. 176.) [August 11, 1883.

notice. The plants are of a remarkably dwarf and yet stocky and vigorous growth, producing large, full, finely-formed flowers, some of which are decidedly distinct and novel in the markings. They are known in Erfurt as the Victoria strain, and they appear to be well adapted both for pot and for border cultivation. One of their chief characteristics is their stout, compact growth, forming a dense circle close round the base of the flower-stem. They are the result of careful selection during the past few years.

—— Reading Horticultural Society.—The summer show of this Society takes place on the 16th inst., and the interest attaching to it is heightened from the fact that Messrs. Sutton & Sons, Messrs. Carter & Co., and Messrs. Webb & Sons, all offer valuable special prizes—the former for collections of eight dishes of fruit, the second for Melons and Cucumbers, and the latter for vegetables. But it does seem a pity that a show so thoroughly good, held in a town having a large industrial population like that of Reading, should be closed so early as 6 P.M. The working classes have little chance of visiting the exhibition.

—— Anigozanthos rufa. — This is one of the many examples of a curious and interesting flora peculiar to Australia, the ornamental and horticultural value of which is often considerable. The narrow rigid leaves remind one of certain members of the Iris family—such, for instance, as the Libertias—but the long curved tubular flowers present a totally different character and appearance, while the rufous or orange-red colour is due to a dense coating of papillæ, or short fleshy hairs, of that colour, which give to the otherwise green and colourless perianth their own hue. If not remarkably brilliant, the flowers are sufficiently conspicuous to merit a place in a large greenhouse or conservatory, where they last for several weeks in good condition. It is to be seen at the present time in the winter-garden at Kew.

—— New Vegetable Products in Costa Rica.—In consequence of the unremunerative character of the Coffee crops during the past few years in Costa Rica, much attention, it is said, is now being given to the introduction and cultivation of other crops. New lands have been opened up on each side of the railway from Rio Lucio to Limon, where already there are about 240,000 Banana plants, which are calculated to yield 30,000 bunches monthly, besides which Tobacco, Sugar-cane, Pines, and Yams are also largely grown, and becoming articles of export. Potatos grow well in the highlands of the Republic, where they are cultivated, and are now being shipped to Colon, the West Indies, and the United States. "The Government is doing all in its power to promote the cultivation of new products, amongst which may be mentioned rubber, cocoa, ginger, vanilla, and ipecacuanha, the three latter of natural growth, and which it is to be hoped in time will considerably add to the prosperity of the country." A project has been submitted to Government for the establishment of a school of agriculture and a model farm. Instruction, it is said, is much needed "for the cultivation of the almost unknown and valuable products of Costa Rica."

—— Allamanda Hendersoni as a Creeper.—Never before, perhaps, has this handsome species been seen to better advantage than it is at the present moment in a large stove-house in Warwick Castle Gardens. Two fine plants in rare condition, one at each end, have filled the interior of the roof, and are now flowering in the most abundant manner from their short-jointed growths. They appear as if they would give a succession of their large corymbs of bloom for some months to come. So freely does this plant flower, that both are almost a mass of yellow, and the flowers are very fine. The value of this Allamanda for cutting purposes can scarcely be over-estimated; one can "cut and come again" without apparent diminution of its profuse bloom.

—— Royal Oxfordshire Horticultural Society.—At the summer show of this Society on the 2d inst., held in the beautiful gardens of Wadham, Carnations and Picotees were produced in large numbers and very superior condition. In addition to the contributions of members, which were more numerous and far better than in the previous year, when in the same gardens the National Carnation and Picotee Society (Southern Section) held its supplementary exhibition. Mr. Charles Turner, of the Royal Nursery, Slough, brought three boxes of twelve each from his 1st prize flowers of the Slough show, and Mr. E. S. Dodwell, of Stanley Road, Oxford, nine boxes of similar numbers; Mr. Dodwell further staging an interesting group of flowers with buds as cut from the seedling beds, illustrating the prolific floriferous character of the tribe, much apparently to the gratification of the many visitors to the show. In Mr. Turner's group were William Skirving, P.P.B. (Gorton); Rob Roy, R.F. (Gorton); Matador, S.F. (Abercrombie); and Mrs. Webb, Hybrid Rose Picotee (Fellowes), to each of which a First-class Certificate was awarded.

—— The Perforation of Leaves.—A great deal has been written at various times about the perforations which are so common in the leaves of shrubs and trees, and various reasons have been assigned for the same, all possibly, according to the several circumstances of each especial case, more or less correct. The matter has, however, come before us this year in an exceptional form, which attracted attention as the supposed work of an unusual plague of slugs and minute insects, but close attention showed that the surmise was without foundation. In some cases the perforations are very minute, and look like the work of some small caterpillar or other insect larva, but in other cases, where the unaffected portion is strong, the perforations are several inches wide; all, however, are attributable to one and the same cause, namely, partial defect in the formation of chlorophyll, in consequence of which those portions of the leaves which were affected decayed, leaving little punctures where the leaves were very young, and in older vigorous leaves, as in the Sunflower, where the affected spots were close to each other and numerous, a large portion of leaf perished, leaving a wide aperture. This was traced in a great variety of plants, and in one of Clematis Jackmanni on the coloured sepal, where they were similarly affected. We doubt not that, like ourselves, many attributed this appearance to the work of slugs or insects. Since the above was written, we find the petals of the common yellow Poppy perforated in the same way. *M. J. B.*

—— The Ferns of Socotra.—Dr. M. Kuhn publishes (*Berichte der Deutschen Botanischen Gesellschaft*, i., p. 238) an enumeration of the Ferns collected in the Isle of Socotra, by Dr. Bayley Balfour and Dr. Schweinfurth. Conjointly they collected the following:—Adiantum Balfouri, A. Capillus-veneris, A. crenatum, Pteridella involuta var. tripinnatisecta (Cheilanthes), Onychium melanolepis, Actiniopteris dichotoma var. australis, Doryopteris concolor, Pteris longifolia, P. biaurita, Asplenium Schweinfurthii, A. macrophyllum, Ceterach cordatum, Hypodematium crenatum, Aspidium molle var. violascens, Nephrolepis sp., Ceratopteris thalictroides, and Marsilia coromandeliana. Dr. Kuhn, who is a very keen pteridologist, takes a more restricted view of both genera and species than is taken in Hooker and Baker's *Synopsis Filicum*. Thus Adiantum crenatum is regarded by Mr. Baker as a variety of A. æthiopicum; Pteridella he refers to Cheilanthes, and Hypodematium to Nephrodium. Geographically the Fern flora of Socotra is strictly African. With the exception of Marsilia coromandelia (which, by-the-bye, is not a true Fern), a species having its area of distribution in the peninsula of India, all the species in the foregoing list belong to the east coast of Africa. The occurrence of Ceterach cordatum in Socotra is a noteworthy fact, as it was previously only known, according to Dr. Kuhn, from the Cape and Natal, though in the *Synopsis Filicum*, where it is referred to the genus Gymnogramme, it is also recorded from Angola and Bourbon. In the same place Nordstedt describes and figures a new species of Chara, C. socotrensis, collected by Dr. Schweinfurth.

—— North American Ferns. — We have received a Check List of the Ferns of the United States of North America, alphabetically arranged for exchanges. The author is Geo. E. Davenport, of Medford, Massachusetts, and he has drawn up a quite complete list as to species. Cheilanthes villosa has been omitted, he states, because its occurrence has not yet been fully established; and only the more important varieties have been given. The list includes thirty-two genera, 161 species, and twenty-four varieties. Cultivators of hardy Ferns will find it useful as a clue, at least, to additional hardy species, though of course many of them are too tender for our climate.

—— Paraffin as an Insecticide. — This is used by Mr. Greenfield at The Priory Gardens, Warwick, with excellent effect, as a means of keeping down mealy-bug. The interior of a span-roofed house is covered with a singularly free-blooming form of Stephanotis floribunda, in good condition; but in order to keep mealy-bug in entire subjection the place is occasionally syringed with a mixture of a wine-glass of paraffin added to about 3 gallons of water. With this the Stephanotis is freely syringed, the liquid dropping down on a quantity of stove plants beneath. A half hour or so after the whole is syringed with clear water. If any one should be led to suppose that the mixture dropping freely on to the plants below might do them any injury, they may be assured that this does not happen at The Priory Gardens. The small plants on the stages are clean and in the most luxuriant health, and not the slightest trace of harm is seen from the use of the paraffin, and any disagreeable smell soon passes away. Those who use paraffin in this way, however, must be careful to keep the mixture well agitated while using it.

—— Spiræa millefolium is a remarkable shrub, with compound leaves, much resembling those of our common Yarrow, Achillea millefolium, grey-green in colour, and covered on the under surface with pretty star-shaped hairs. It is a Californian shrub, which has but very recently found its way to British gardens. It may be seen in the Spiræa collection in the Kew Arboretum. In general appearance it is strikingly similar to another Californian shrub, which has, in all probability, disappeared from cultivation in this country. We refer to Chamæbatia foliolosa (*Botanical Magazine*, tab. 5171), which was introduced to this country by Messrs. Veitch. In the work just mentioned it is spoken of as a very strange and peculiar rosaceous plant, with flowers like those of a shrubby Potentilla, and finely divided leaves like those of some species of Milfoil. So much alike is the foliage of Spiræa millefolium and Chamæbatia foliolosa, that the former has been mistaken for the latter by more than one collector.

—— Limnanthemum nymphæoides. — Uncommon or rare British plants are always interesting to collectors, and occasionally also to horticulturists, if they possess any decorative value. The present species enjoys a wide range of distribution on Continental Europe and Asia, although in Britain it is confined to the southern part of England, except where originally planted. At first sight no one would recognise in it a Gentianwort, so closely do the floating leaves resemble those of a miniature Nymphæa. It grows very freely in the still waters of Richmond Park, Surrey, where the leaves, beautifully spotted with bronzy-purple, form a distinct and attractive groundwork for the yellow flowers which just emerge from the water. Under cultivation it responds readily to the cultivator's art, and blooms freely whether grown in pots or planted out. Any one possessing a tank of even moderate dimensions could do worse than give it a trial. There is a figure of it in *English Botany*, 217.

—— Watsonia rosea var. alba.—The white-flowered form of this lovely Cape Irid is rare in cultivation, and also—as we learn from one who is familiar with the plant in its native habitats—in a wild state. It is a fine Gladiolus-like plant, about 2 feet in height, with waxy-white flowers. The Watsonias do well as pot plants; good well-drained loam and leaf-mould suits them well, and they require to be kept quite dry during the season of rest, indeed the bulbs should be taken up and housed just as are the finer Gladioli. Although they succeed very well when grown in pots, they grow much more vigorously if planted out in spring in a cold frame or a warm sunny border.

—— Rosa Brunoniana is a singularly vigorous and handsome Himalayan Rose, which was sent to Kew by Dr. Wallich more than forty years ago; a characteristic figure appeared in vol. lxix. of the *Botanical Magazine*. In its early days it was planted against a wall facing west, and carefully sheltered during winter. No doubt it would succeed well under such conditions, but the proper place for so rampant a grower seems to be the wild garden or the back of the shrubbery border, where its long shoots

could ramble at will over and amongst the branches of small trees. Now and then during severe winters the grosser growths are killed down, but they soon spring up again, sometimes shoots 12 or 14 feet long being produced in a single season. On one of the Kew plants more than a hundred of the fragrant white blossoms were counted in a single inflorescence, and this was by no means an extraordinary one.

—— Linaria triornithophora. — Of the numerous species to be seen in cultivation, one way or other, probably few equal and none excel in size the flowers of this plant. Many of the Toad-flaxes, especially those of annual duration, are rather weedy in their nature, and, once allowed to ripen seeds within the precincts of the garden, they persist in cropping up in all sorts of positions, even on the walks, and in the crevices of old walls. Under such circumstances, however, if the flowers are at all brightly coloured, owing to their profusion of bloom, there is great temptation to tolerate their wantonness. L. triornithophora is, moreover, perennial and hardy, except in exceptionally severe winters. It is flowering in the herbaceous ground, Kew, where it withstood the winter without protection, and is conspicuous amidst a goodly number of species by its bold terminal racemes of purple flowers, which, from the upright position of the three lobes of the lower lip, and the pale yellow spreading spur, bear considerable resemblance to three birds on the perch. The plant is figured in the *Botanical Magazine*, 525.

—— Lathyrus tuberosus is a beautiful hardy perennial, similar in appearance to the Everlasting Pea, but smaller in all its parts. It is well worth a place in the shrubbery or mixed border, and is eminently fitted to take due care of itself; for this reason, in all probability, Curtis, in vol. iv. of the *Botanical Magazine*, gives it as his opinon that "it is, perhaps, better suited to decorate the unclipped hedge of the pleasure-ground than the border of the flower garden." In spite of the fact of this species having been cultivated so long in British gardens, and its being thoroughly naturalised in one or two places in Britain, it is far from common in herbaceous collections. In the work above quoted the author does not fail to warn gardeners that it must be cautiously introduced on account of its creeping roots, by which it is most readily propagated, rarely ripening its seeds with us. In some parts of the Continent it is cultivated for the sake of the tubers, which are edible, and an account of the method of cultivation is given in one of the earlier volumes of the *Transactions of the Horticultural Society*.

—— The Northern Section of the Carnation and Picotee Society will hold its annual exhibition in the Botanical Gardens at Old Trafford, Manchester, on Tuesday next.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending August 6, issued by the Meteorological Office, London :—The weather has been generally cloudy or dull, although the amount of rainfall reported has been small. Over northern and central England some thunderstorms have been experienced. The temperature, though higher than that of last week, has again been below the mean in all districts except "Scotland, E.," and "England, N.E.," the deficit ranging between 1° and 2°. The maxima, which were registered on different days in the various districts, ranged from 68° in "Ireland, S.," to 75° in "England, S.," and 77° in the "Midland Counties." The minima, which were also recorded on various days, ranged from 49° in "England, N.W.," to 46° in "England, S.W.," and 43° in the "Midland Counties." The rainfall has been slightly more than the mean in "Ireland, S.," but less elsewhere. Bright sunshine has been very deficient in all districts, the percentages of possible duration varying from 10 in "Ireland, N.," 14 in the "Midland Counties," and 15 in "Ireland, S.," to 33 in "Scotland, W.," and 34 in "England, N.W." Depressions observed :—At the commencement of the period pressure was highest over the South of France, and lowest over the North Sea, Scotland, and the greater part of England. As the week advanced the barometer rose generally, and the highest pressure gradually moved to the south-west of England, reaching Ireland by the 3d, the barometer at the same time being lowest over Sweden. After this date, however, depressions appeared off our north-western coasts, and the area of highest pressure was again slowly transferred to the South of France. The winds during the first two days were light or moderate from between N.W. and W., very light or moderate on the 2d and 3d, and during the remainder of the period generally moderate or light from the south-west or westward.

THE NATURALISED PLANTS OF THE AUCKLAND PROVINCIAL DISTRICT, NEW ZEALAND.*

The following condensed extracts are interesting as showing that the weeds of cultivation and domestic weeds, or such plants as grow near habitations, and roadside weeds are much the same at the antipodes as at home. It is also the same in North America.

The wonderful rapidity with which plants alien to New Zealand have established themselves in this country, the rate at which they have spread through the length and breadth of the land, and the marked effect they have produced and doubtless will continue to produce on the indigenous vegetation, are facts so patent that they cannot escape the notice of the most incurious person. And it is a remarkable circumstance that most of these plants are of European origin. A stranger landing at any one of the chief ports in the colony might almost fancy himself to be in a corner of the Northern Hemisphere, if the appearance of the vegetation were his only guide.

The sturdy and irrepressible plants that occupy the waste places and roadsides of a European town meet him on his arrival here ; the weeds of the pastures and meadows are mostly the same ; the cultivated fields and gardens are invaded by the same unwelcome and troublesome intruders here as there. And when he comes to carry his observations further into the country, and makes acquaintance with its true flora, still he finds, however far he may extend his travels, that there is no corner, remote and apparently inaccessible though it may be, into which some of these species of northern origin have not found their way, and thrust out a portion of the original possessors of the soil.

No part of New Zealand is better suited for studying this "replacement of species," as it is aptly termed by Sir Joseph Hooker, than the district of Auckland. Possibly in portions of the Canterbury Plains the destruction of the native plants and the establishment of foreign ones in their place may be more complete over large continuous areas than anywhere in Auckland ; but this is a consequence of extensive cultivation, coupled with sameness of physical conditions ; and the number of species naturalised is comparatively small. The mildness of the northern climate, warm and moist without being too hot, is not only favourable to the common weeds of Northern and Central Europe, some of which exhibit a luxuriance rarely seen in their native country, but allows many plants from warmer climes to become naturalised by their side, so that the total number of species introduced is large indeed.

To mention one instance — the little county of Eden, which includes simply the Auckland Isthmus, and cannot have a greater area than about 25,000 or 30,000 acres, supports nearly 350 naturalised plants, all of spontaneous origin, and maintaining themselves without direct assistance from man ; or, as in most cases it would be more correct to say, in spite of his efforts to destroy them. This is a number almost identical with that of the indigenous species of flowering plants found in the same area.

The only attempt hitherto made to catalogue the naturalised plants of Auckland is that of Mr. Kirk, who enumerates 292 species. In some subsequent papers Mr. Kirk adds a few additional species, raising the total to 314, from which I would deduct thirty-one as being indigenous or incorrectly recorded as naturalised. In an appended catalogue I give the names of 387 species, with particulars of their distribution, 104 being recorded for the first time. I have taken some little trouble in collecting statistics respecting these 387 species, and it will be useful to give a brief abstract before proceeding to discuss why it is that so large a number of foreign plants have been able to establish themselves here, and why they should have such an apparent advantage over the native flora.

First as to their origin. Naturalised plants, as a rule, have wide ranges, and are often found in an indigenous condition (so far as we can judge) over half a continent or more. Whether this is due to naturalisation at a remote period, through the agency of man, direct or indirect, or whether it is that in addition to possessing great flexibility of character, and consequent power of adapting themselves to varied conditions, they have also been able to spread widely by natural means of migration, it is now for the most part impossible to say—probably both causes have operated. Their wide ranges, however, make it difficult to state their distribution with exactness, but the following will be found a sufficiently close approximation. Two hundred and eighty are natives of Europe, many of them also ranging into temperate Asia and North America, and some of them into North Africa. Ten species, not European, are from the eastern portion of North America, and four are from the western side of the same continent. This will make a total of 294 species introduced from the north temperate zone. From Australia, notwithstanding its nearness to us, we have only received ten ; from Chili and the cool portions of South America nine, from the Cape of Good Hope twenty-one. Finally, there are fifty-three species from the subtropical and tropical portions of both hemispheres, most having a very wide distribution.

With respect to the habit and duration of the species, only thirty-one are trees or shrubs, the remaining 356 being herbaceous. Of this latter number 176 are annual, twenty-eight biennial, 152 perennial. The large proportion of annual species is noteworthy, as in the indigenous flora nearly all the herbaceous plants are of perennial growth.

If it is endeavoured to divide the species into groups according to the nature of their habitats, it will be found that nearly two-thirds fall, in about equal numbers, into three classes, namely, weeds of cultivated fields and gardens, of meadows, and of roadsides or waste places. Of the remaining third a considerable proportion are escapes from gardens, or other plants whose position it is difficult to define at present, and which occupy very various stations—littoral, paludal, sylvestral, &c.

Finally, we find that the species belong to 233 genera, arranged in sixty natural orders. The orders most strongly represented are — Gramineæ, sixty species ; Compositæ, fifty-one species ; Leguminosæ, thirty-five species ; Cruciferæ, twenty species ; Caryophylleæ, fifteen species ; and Rosaceæ, fourteen species. Of the genera no less than 182 are without indigenous representatives in this country, and sixteen of the orders are in the same position.

We have no space left to reproduce Mr. Cheesman's views respecting the reasons why introduced plants have an advantage over indigenous ones, and on the ultimate result of the struggle between the two elements ; but we may say that he does not think many native species will suffer extirpation in spite of some introduced plants having penetrated and become common in the most remote spots. An examination of his list shows that it consists largely of plants that are common "weeds" in their native countries, mostly possessing extraordinary powers of reproduction either from seed or spreading roots, or both. *H.*

* Extracted from an article by T. F. Cheesman, F.L.S., in the *Transactions and Proceedings of the New Zealand Institute*, vol. xv.

Tree Planting in Mexico. — The Mexican Government has concluded a contract with Mr. Oscar A. Droege to plant 2,000,000 of trees in the Valley of Mexico within four years, commencing March 15, 1884. Half a million trees a year are to be planted in such places as the Government shall decide. The contractor pledges himself to establish a number of nurseries, and to have in them each year at least 80,000 Ash, 35,000 Willows, 120,000 Poplars, 60,000 Eucalyptus trees, 60,000 Mountain Cypress Cedars, 60,000 Acacias, and 120,000 of miscellaneous varieties. The trees must be in plantations of from 50,000 to 100,000 each, and Mr. Droege has to maintain them for two years after planting. He is not compelled to plant trees along the highways, however. Three graduates of the School of Agriculture are to be received into the nurseries each year, there to study the science of forestry. He is also to raise fruit, and other useful plants, for free distribution. There is to be translated from the German every year a work on arboriculture of recognised merit. An inspector is to superintend, and Mr. Droege is to receive annually 40,000 dols. till the sum reaches a total of 200,000 dols. *Times.*

SUGAR AND BEAN-CAKE AT SWATOW.

Reporting on the trade of Swatow, China, for the year 1882, Mr. Consul Phillips says there are at Swatow two factories which merit notice—the sugar refinery and the bean-cake factory, both of which are doing a profitable business, and a stranger arriving at the port and seeing clouds of smoke issuing from the lofty chimneys has the impression left upon his mind that Swatow is a busy and a thriving place.

Large quantities of sugar are refined here. At first the out-turn was 25 tons a day of raw sugar, but now it makes 50 tons a day. The tables which accompany the report show that some 138,088 piculs of white sugar were sent to Hong Kong in 1882. Of this 113,000 piculs underwent a process of refining at the refinery. Up to the present this establishment has only had machinery adapted to cleansing the sugar from molasses and impurities by the Weinrich patent process, the cleansed sugar being all shipped to the refinery in Hong Kong, owned by the same company, where it undergoes the complete process of refining through animal charcoal, after which it is fit for direct consumption. Buildings are now being erected at the refinery at Swatow for the reception of these animal charcoal filters, and the necessary machinery in connection therewith, which will make the refinery a complete refining establishment capable of turning out the refined sugar in a finished state.

The cultivation of the Sugar-cane has been largely developed since the establishment of the refinery at Swatow, and much of the land formerly used for growing sweet Potatos, Rice, &c., has been put under sugar cultivation. Owing to the cheap rates of freight and steady steamer communication with the Rice producing ports, Rice can be laid down at such a price as to compete successfully with the home-grown article, and the tendency will be, now that the natives can depend on purchasers for their sugar, they will cultivate the article more and more. This will cause an increase in the trade of the port, for while there will be more sugar to export there will be more Rice to import, and also bean-cake, to be used as manure for Sugar-cane. This increased cultivation of sugar, besides offering scope for refining industry, commands the attention of merchants, as it is now frequently possible to export sugar with profit to the large markets of England and America, and this branch of business is yearly receiving more attention. Supplies of sugar from the smallest seaports in the neighbourhood are greatly increasing, doubtless attracted to Swatow by the certainty of a market, which results in what would be sent away in junks being to a certain extent transferred and exported in foreign steamers. A considerable quantity of sugar is still sent to Hong Kong in junks, the lowness of the duty when shipped by them (about half the foreign duty is charged) more than making up for the comparatively cheaper freight by foreign steamers. The quality of the sugar grown in the neighbourhood is very fair, comparing favourably with that of Manilla in price. Only a very small proportion of the crop is unclayed sugar, the manufacture and packing of clayed sugar being better understood and more largely engaged in than in any other port in China. There are some six Europeans and 100 Chinese engaged in the refinery.

The bean-cake manufactory is entirely a Chinese venture, and is situated among the foreign hongs at Swatow. It was first started some three years since. At its commencement it turned out only 200 cakes a day, in the second year of its existence 300 cakes a day, and last year 400 cakes a day. One thousand catties of Beans make nineteen bean-cakes, each weighing 47½ catties; besides which bean-oil to the amount of 112 catties is also extracted. The cakes are in the form of the Chefoo bean-cakes, and their cost is about the same as those imported from that port and Newchwang.

Clerodendron fragrans. — This is a most useful plant, not so much grown as it deserves to be, though it is perhaps natural that gardeners should give preference to the rapid-growing and free-flowering Clerodendron Balfourianum. C. fragrans is a plant of slow growth, doing best perhaps in a small state, when it is most useful for cutting from. It is grown in this way by Mr. R. Greenfield, The Priory Gardens, Warwick, and is a great favourite for indoor decoration. The rosette-like white flowers, with red centres, are borne in small clusters, and they are sweetly fragrant.

HOME CORRESPONDENCE.

Hybridising Campanulas. — I have tried and been successful in the hybridisation of many flowers, but like your correspondents, Mr. Brockbank and Mr. Wolley Dod (pp. 74, 75), cannot manage Campanulas. May I venture to suggest the difficulty? Does it not arise from this, that the pollen is shed and fecundation effected before the flower opens? That is my experience. I should like to know the opinions of others of your correspondents. Campanula turbinata has been supplied to me as C. Raineri, but the latter, as Mr. Brockbank states, is perfectly distinct, and to my taste much the best, though far more difficult to grow. Your correspondents do not mention C. Barrelieri, which is well worth growing—a trailing species, with large blue flowers and hirsute leaves. Can you tell me which is right—C. Wanneri, C. Vanneri, or C. Warneri? I have had this under each name. *A. Rawson, Windermere.* [It is figured and described as C. Wanneri in Rochel's *Plantæ Banatus Rariores.* Ed.]

Mauve.—This word is so often used in describing the colour of the flowers when either lavender or light purple is meant, that it is worth while to fix the colour. At the same time the word is repudiated by artists as a "milliners' term." Mauve is the French form of Malva, and is the popular name of Malva silvestris, or the common wild Mallow. It is to the ordinary colour of this flower that we must look for typical "mauve" colour. *C. Wolley Dod, Edge Hall, Aug.* 4.

Bundling Asparagus.—A few weeks ago, when "grass" was in season, Mr. Henry Eldridge, gardener, Chesterford Park, Saffron Walden, sent us a

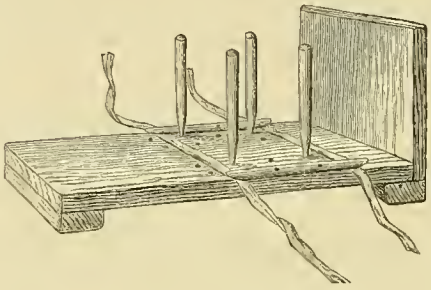


Fig. 29.—How to bundle asparagus.

specimen of a contrivance he uses to facilitate the operation of tying up Asparagus into bundles, and which bears a close resemblance to a similar implement which has long been in use in Covent Garden. That, however, need not prevent us from illustrating it, for the benefit of those who may not have seen such a handy thing before. Its construction need not be described, so simple is the whole apparatus, and to make one will give any young gardener employment for an hour some winter's evening.

Vegetable Crops.—Farmers are proverbial for grumbling and complaining, which they are now doing about the weather, quite forgetting that, although not exactly favourable for the ripening of grain, it is plumping the kernels, vastly benefiting the root crops, and helping to bring forth an abundance of feed for the autumn. Among gardeners there is general congratulation, especially with those located in light land districts, on how well the season is suiting them, for though the rain may force a few weeds, it saves the water-pot, which at best is not of much use, as it is very rare that sufficient soakings are given, and if they be they are not half so beneficial as those we get from the heavens, which not only succour the roots, but improve the atmosphere, and nourish the foliage, as may readily be seen by the healthy, luxuriant state it is in. As to vegetables, they could not possibly look better, for if we turn to Peas we see them rampant in their haulm, quite out-topping the sticks, and hung with pods, full almost to bursting. It is hardly warm enough for French Beans, but Scarlet Runners, like Peas, are not only travelling fast and getting aloft, but the racemes of blossoms seem all to set, and the Beans run out to great length, and are tender and delicious when cooked, which they cannot fail to be when they grow so quick, and swell in the rapid way they do now. Cauliflowers, that are generally so much trouble to get during summer, have turned in white and close, totally free from caterpillar and the "blues," so prevalent with these and other of the Brassicas when the weather is dry. Broccoli seem as if they could not help growing, and if they go on at the present rate they will be gigantic indeed, for some of the sorts in rows 4 feet apart have their leaves meeting, and the same may be said of Brussels Sprouts, which will soon have stems as thick as one's arm. Celery revels in wet, and is also making hasty growth, so that there will be no fear of its bolting, or being tough and stringy, as is generally the case when it gets checked in its progress. The maggot, which threatened to do so much harm some time back, has disappeared, at least it has so with us, but we perseveringly pinched the leaves whenever we saw any blister spots on the surface. Almost every one was anxious about Potatos some time back, as nearly all expected another visitation of the disease, and felt sure we should have it in a more virulent form, which, as it is favoured in its spread by thunderstorms and the condition of the atmosphere attending them, there was every reason to fear. Fortunately, the alarm felt has been groundless, and instead of the malady being worse this year the country is more free from it than it has been for a long time, and the Potato crop gives every promise now of being exceptionally heavy and good, as the tops look well, and the earth along the rows is cracking and rising from the upheaving and swelling of the numerous tubers. Asparagus, which generally suffers in hot summers, has top enough to hide a tall man, which fine growth bids fair for the making and developing the strongest of crowns, and gives every promise of big "grass" in the spring. Onions are swelling out their bulbs, which must be large, as the tops are yet green and full of health and vigour—a condition, perhaps, that may lead to their having bull-necks, unless they are bent over and pressed down by the back of a wooden rake, which is a good plan of treating them when they show a tendency to be big in the waist. Lettuces, instead of running away and aspiring to seed, are content to heart, and require no tying, as they fold over their leaves and shut out the wet, which they enjoy so much at their roots. As to quality they cannot be finer, for they are crisp, sweet, and juicy as any that are got in the spring. I am not, it should be understood, writing this of those under my charge, but of all I have seen, and having got so far through the summer, vegetables will not suffer much now, and cannot fail to be not only abundant but good for the rest of the season through. *J. Sheppard.*

Gardeners' Royal Benevolent Institution.—During the last few weeks the committee of this Institution have issued about 11,350 collecting cards in aid of the Pension Augmentation Fund. The cards have been sent to every person whose name could be found in the Horticultural Directories in the slightest degree connected with horticulture, and among this number were about 8000 gardeners. Up to this afternoon I have received ninety-nine replies, contributing the sum of £135 17*s.* 4*d.*—an average of £1 7*s.* 5*d.* to each collector. I am fearful if we do not receive better support than this from the gardening world it will be a very long time before the pensions can be increased. *Edw. R. Cutler, Secretary,* 14, *Tavistock Row, Covent Garden, W.C., Aug.* 8.

Australian and American Cress.—Australian Cress is a delicacy not nearly so well known, or if known not cultivated so much as it deserves to be, for it is mild and delicate in flavour, an excellent relish with bread and butter, and a very pleasant addition to a salad, not being so pungent as ordinary Cress. American Cress, so called, is a native of Britain, and is very nice indeed when eaten while still very young; it makes a capital salad in winter, when Watercress cannot be obtained. We sow the seed in June thinly in drills 1 foot asunder, or as an edging, thinning the plants soon after they are up to 9 inches apart. When the leaves are 3 inches long they are ready for use, picking them off as you would Parsley. When the plants are pretty strong, about the middle of August, a portion should be cut back so as to have a supply of young and tender leaves for winter use. By cutting back at three separate periods and protecting during severe weather with a few light twigs or branches, covering these with bracken or long litter, a succession may be kept up till spring. The American Cress, although but little cultivated—how often, for instance, do we see it in the market?—is a really useful and valuable food plant. *T. J.*

Aquilegia Skinneri.—Hybrid forms of A. canadensis or A. truncata are so often described under this name, that I again call attention to it. They often resemble it in the size and form of the flower, but never in the colours. A. Skinneri is just now (on August 4) in full flower in several parts of my garden, where it never yet flowered before July—and seldom flowered until late in July. The late flowering has this advantage, that it is the only Columbine from which I can depend on gathering genuine seed, though it seeds very sparingly. The flower-stalk is at most about 3 feet high, with horizontal branches, and candelabrum habit, and pendulous flowers.

Twelve flowers open at a time is the most I have ever seen. Dimensions just taken from an average flower give 3 inches from the top of the spur to the bottom of the anthers, which protrude nearly three-quarters of an inch, and 1 inch for the breadth at the mouth. The petals, including the spur, are clear red to within half an inch of the lower end, which, together with all the sepals, is bright pea-green. The leaves are much divided, and generally begin to wither as soon as the flowers begin to open, showing that the plant is not quite satisfied with my climate. I may add that the plants rarely flower until they are two and a half years old, and then only for one or two seasons, when they become worn out. *C. Wolley Dodd, Edge Hall, Aug.* 4.

Masdevallia Carderi.—The accompanying illustration (fig. 30) represents a plant of the new Masdevallia Carderi, exhibited this season at one of the meetings of the Floral Committee. The introduction of the species is due to Mr. E. Shuttleworth of the Orchid importing firm of Shuttleworth, Carder & Co., of Clapham, and it was described in our columns by Professor Reichenbach so recently as June 23 last, p. 784. The substance of the flower is described as being singularly fleshy and soft; the long tails yellow, spotted with dark blackish-purple; and the free triangular portions as being short, and the short cupula whitish outside, ochre-orange at the base, and bearing a blackish mauve-purple zone between those two areas. It is a species that all lovers of this singular genus will look forward to possessing.

Fig. 30.—MASDEVALLIA CARDERI.

Scotch Pansies.—The word "Scotch" having been mistaken for "seedling," we have been given (p. 146) undeserved credit for raising Pansies in the South of Ireland almost equal to some of the Scotch ones. Those sent last week were all named (Scotch) kinds, and sent in proof that it is less difficult to grow them in the South [of Ireland] than is often supposed. But Pansy culture is carried to such perfection in Scotland (as a visit to a Pansy show would clearly prove) that even were they much more difficult to grow it would be worth the trouble of trying different soils and positions likely to suit their needs when transplanted to a more southern climate. Young rooted shoots from plants pulled to pieces late in autumn or in spring do almost as well as cuttings. The latter, when struck in partial shade in the open air at this time of year make excellent plants for planting late in autumn. It is better never to leave plants undisturbed for two years running. One of the well-known growers of new Pansies in Scotland recommended soil in which Potatos had been grown the previous year as specially suitable. Here, having a gravel subsoil which is like a sieve, Pansies, like most other plants, require richer treatment than they might otherwise need; and a layer of turves, not chopped up, at the bottom of the beds, is also an advantage, by lessening the drainage in so dry a soil. *C. M. O.*

The Potato Disease has spread with great rapidity in this locality during the past week or so. The haulms of most varieties, except Sutton's Magnum Bonum, are much affected. Early Rose, Beauty of Hebron, Trophy, and Red Emperor, are the only ones at present in which it has reached the tuber. The past few days have been fine and dry, and seem to have arrested its progress. Good results having been obtained in former years by the pulling up of the haulms on its first appearance, many are acting on this experience and doing it this season largely. I have grown Sutton's Magnum Bonum since the second year of its introduction, and have never seen disease in the tuber yet. As I have stated in your columns before, it is the principal one grown in this district for the main crop, and from enquiries I have made personally from many growers, the disease has not been detected by them in it. The soil is a light sandy loam, with a red sandstone subsoil. *D. C. Powell, Powderham Castle, Kenton, Devon, Aug.* 7.

Potato Mona's Pride.—I am pleased to find that at length I have a true stock of this old and once popular Potato. I had seen it growing, and always well, some years since at Woodstock, and eventually got it from that locality, but in a greatly mixed condition. It is really a true Walnut-leaf kind, having green shoots and pale green stems and leafage, the latter curling inwards, and both in top and tuber is very distinct from any of the Ashleaf family. I find it to be very early, very robust, comes very regularly, and a good cropper. The tubers are somewhat rounder, and perhaps shorter than are those of the Ashleaf. I do not know how far Mona's Pride differs from the old Walnut-leaf—a kind that seems to be almost extinct, but no doubt there is considerable resemblance. Under this name it was introduced into commerce here by, I believe, Mr. W. Dean, then of Shipley, from the Isle of Man, but it seems never to have attained to the position as an early garden variety which it so much merits. The quality of the tubers from off our stiff clay soil when cooked I find to be first-rate. Another first early kidney that has yet to make a reputation, and I think will do so, is Midsummer Kidney. This is one of the very earliest, produces fine white tubers, long and roundish, and generally handsome. I saw some growing in Mr. McKinlay's garden the other day, from 8 to 10 oz. each, that were truly splendid. The top is short and distinct, and the quality of the tubers is excellent. I am inclined to think that if gardeners will give Mona's Pride and Midsummer Kidney a trial next spring with Ashleafs they will grow them again and again. *A. D.*

Ottelia ovalifolia. — Seeds of this interesting Australian aquatic were received at Kew last year from Sir F. von Mueller, who expressed a desire that the plant should become established in European aquaria, as it was a handsome garden plant. Although last year strong plants were grown from the seeds, only one bore anything like a flower with any pretensions to beauty, although all of them produced a large number of stout buds. It seemed not improbable that the desire of Sir F. von Mueller, that the plant should become popular, was not likely to be gratified by the success of the plant at Kew. Strangely enough, although the flowers were not developed a large quantity of seedlings came up in the tanks this spring, which had the effect of removing the suspicion that the plant was unisexual and not hermaphrodite as stated in botanical works. From these seedlings a batch has been grown on, and recently several very handsome flowers—handsome enough to justify Sir F. von Mueller's high encomium—have been developed at Kew. The seedling leaves are strap-shaped, resembling those of Vallisneria, and remain submerged. As the plant strengthens, petiolate leaves are developed with petioles from 9 inches to 1 foot in length and the blade elliptical, about 2 inches broad by 6 inches long, and floating on the surface. The flowers are borne on stout peduncles about 1 foot long, but no doubt varying in length according to the depth of the water. The outer segments are short and green, and the three inner ones or petals are 1½ inch long by 2 inches broad, with a reticulate nervation, pure white, with a deep crimson blotch at the base of each. In Bentham's *Flora Australiensis* they are described as being yellow. The flowers and general appearance of the plant resemble Limnocharis Humboldtii, to which it will form a worthy companion in tropical aquaria. The fugacious nature of the petals may possibly be made up for by the free production of flowers. D. ovalifolia is a native of Queensland, New South Wales, North Australia, &c. This species, along with a second, O. tenera, is endemic in Australia. O. alismoides, a third Australian species, is found also in India. The seeds of this plant were sent by Sir F. von Mueller, packed in three different ways—one lot in a bottle of water, the second in damp clay, and the third perfectly dry, and enclosed in an ordinary seed packet. To test the different methods of packing, the seeds of each were sown separately, and placed in the same tank. Of those sent in the bottle and in clay, not one seed germinated, but the seeds sent in an ordinary packet germinated in large numbers. With very few exceptions—at least, as far as I know—the seeds of most aquatics retain their powers of germination for a considerable time when kept perfectly dry — Nymphæas, Nelumbiums, Euryale, Trapa, Sagittaria, and many others germinating freely after having been kept dry for a long period. I have never tested the seeds of Victoria, but judging by the safety of the dry packing method for such seeds as those of Nelumbium, Euryale, &c., there seems no reason why Victoria seeds should not retain vitality for some time when kept dry. I have had seeds of the Victoria germinate after having kept them in a bottle of water for four years. *W. Watson, Kew.*

Bees and Monkshood.—Is it usual for bees to visit this flower? I was under the impression that all insects avoided it, but I have lately noticed in a neighbour's garden (I will not grow any of the poisonous plant in mine) that several large bushes of it in full bloom are daily visited by a considerable number of honey-bees. I have read that all animals refuse it, and that its foreign names, *Wolfswury* and *Wolfswortel*, as well as the English one of Wolfsbane, were applied to it because some wolves in Germany once in a time of great scarcity tore up the roots and ate them, the entire pack being found dead on the ground by some hunters. Is the honey likely to be injured by aconite? If I had bees I should not like to see them visit such a deadly poison, and I often feel astonished that, considering the large quan-

tity of the Aconitum Napellus cultivated in this neighbourhood, accidents are not general. A gentleman who came down from town this week exclaimed, on looking into my neighbour's front garden, "More than enough aconite to poison the entire parish of Liss!" Rather a dreadful idea, seeing that those flowers stand close to the footpath where so many school children pass daily. *Helen E. Watney.*

Large Egyptian Melon.—Amongst the various fruits placed before the distinguished visitors at Goodwood (including several members of the Royal family) during the past week was a Melon grown from seed sent me by General Sir Drury Lowe, and brought by him from Egypt. The fruit measured 49 inches round lengthways, and 35 inches in circumference; weighed 34 lb. 2 oz., and was considered by all who saw it to be the largest Melon grown in this country. The flavour was pronounced excellent, and the fruit altogether was much admired. I have just cut two more of the same variety, the two weighing 40 lb. *F. Rutland, Goodwood, Aug.* 7. [We do not know of any record of a heavier fruit having been grown in the country. Ed.]

FORESTRY.

A School of Forestry.—In the House of Commons on Thursday, August 2, Sir John Lubbock, discussing the subject of the Woods and Forests Vote, asked Her Majesty's Government during the autumn to consider the question of forest education in this country, and whether the national forests might not be utilised for this purpose. So much, indeed, had forestry been neglected, that in Scotland the words suggested deer, but no trees; while the idea of foresters in England was associated with the members of an excellent provident institution. Of course the Crown forests formed but a small portion of the subject. There were altogether, in round numbers, 2,500,000 acres of woods and plantations in this country, so that the subject was one of vast importance. Moreover, it was calculated that in Scotland and Wales there were 5,000,000 or 6,000,000 acres at present almost valueless, and which, if judiciously planted, would give large results. In the science of forests we were, he feared, far behind most foreign countries, especially France and Germany: and he was very anxious that our landed proprietors should benefit by the experience which other nations had acquired. But let him ask where was a country gentleman who owned woodlands to obtain information as to their management or to procure trained assistants? We had no forest school in this country; we had no class of persons specially trained and instructed in the formation and management of woods. It was, he feared, still true that, as the House of Commons' committee of 1854 reported, timber is "everywhere worse managed than any other species of property." Unless something were done this state of things would continue. On the other hand the highest authorities had expressed a very strong opinion that we might make our woodlands much more profitable; they showed one step which was a necessary preliminary. The highest English authorities were strongly in favour of the establishment of a forest school, and had forcibly pointed out the loss which our present system of management, or rather mismanagement, entailed on landowners. Mr. Brown, in his standard work on forests, observed that "if our forests had been judiciously managed we should not find so great a part of the woodlands of Great Britain in the unprofitable state in which they are." We were the only important nation in Europe without a forest school, and yet if we included our colonies our forests were the largest and most valuable in the world. It appeared to be a very strong argument in favour of the establishment of a forest school in this country, that at present the young men who were going out to manage our Indian forests had to be sent for instruction to the great French forest school at Nancy. No doubt that was most excellent institution, and we were indebted to the French Government for the courtesy with which they had received our English students; but the system of education given there naturally contained some branches, as, for instance, the study of French law, that were not adapted to English students, while there were many other considerations, such as climate, which rendered a Continental school less suitable for English requirements. He might add that no young Englishmen, as a matter of fact, went there excepting those intended for the Indian service. For our colonies, again, the establishment of a good forest school here would be of very great importance. A judicious management of their woods would add considerably to their income. French foresters had recently been sent to the Cape of Good Hope and Cyprus, it having been found impossible to obtain any countrymen of our own with the necessary knowledge. Perhaps, however, he should be asked why the establishment of such a forest school, if it were so urgently needed, should not be left to private enterprise. The reason was clear. A properly equipped forest school must have attached to it a large extent of forest in various stages, and having a variety of climates and soils. This, it was obvious, no private institution could supply. He did not, however, say that this would necessarily involve the establishment of a Government school. He understood that the Government contemplated an arrangement with the Cooper's Hill College, but he trusted that before instituting a Government school they would inquire whether such colleges as Cirencester could be made available for the purpose, and possibly some arrangements might be devised by which, under careful regulations, the professors and students attached might periodically visit our national forests. He might mention, in illustration, that lately the Cape of Good Hope Government determined to appoint a Forest Commissioner, with an income of £800 a year. They could not, however, find any qualified Englishman, and were obliged to appoint a French gentleman, even though he could not speak English. The Society of Arts had memorialised Her Majesty's Government on the subject, and the presence in this country of Dr. Brandis and Colonel Pearson rendered the moment one of which it was desirable to take advantage. He hoped, therefore, Her Majesty's Government would not think him unreasonable if he asked them to consider this important question.

Mr. A. Balfour thought the committee were much beholden to the hon. baronet for having called attention to this question. The question of timber all over the world was one of great importance, for the simple reason that the natural forests were everywhere diminished, and that it would be necessary to supplement them by forests planted by the hand of man. The Highland Society had done good in Scotland, and in a report of what it had accomplished the Society said that it would hail with pleasure the organisation of a system of instruction for the benefit of this country and of the colonies. It had encouraged forestry by the institution of examinations, certificates, and prizes, but of course its operations were inadequate to meet the necessities of the case. There was great room for improvement in the management of the vast forests in England, and they furnished a field for the teaching of what could not be acquired from book knowledge. Ths subject was one well deserving of attention.

Mr. Courtney acknowledged the value of the suggestions put forward by the hon. baronet, the member for the University of London. The Treasury, however, had not seen their way to do anything in the matter. Indeed, there were great difficulties in the way of doing anything. It must be borne in mind that the forests of the country were not very large, and that there was not that large opening for a school of forestry which the hon. baronet hoped to set on foot. The observations of the hon. baronet were not to be despised, and he might rest assured that the subject would not be lost sight of.

Bravoa geminiflora.—This is a beautiful Amaryllid from Mexico, and the only species of the genus. In the *Botanical Magazine*, tab. 4741, it is said to be easily cultivated in a warm greenhouse, but there can be no doubt that the plant is much more at home in a cool place or even in the open air. At Kew in a dry warm border it has stood out without any protection since the spring of last year, and the tubular rich orange-red blossoms are now being produced in abundance.

ON THE CHEMICAL COMPOSITION OF VINERY SOILS.*

The subject which I lay before you this evening is in continuation of my former papers. Previously we have considered the market garden, and to some extent the greenhouse, and will now give our attention to the vinery.

One of your members in conversation mentioned the difficulties which lay before the Grape grower, and suggested that the time at my disposal this season might with advantage be spent on the consideration of the soils most suited to the growth of the Vine, at the same time showing how these differed, chemically or otherwise, from soils obtained from houses the borders in which were acknowledged to be unsuccessful. I have had placed at my disposal four samples of soil, and have made very full chemical and mechanical analyses of these. The first sample is one from a vinery known to be a failure; the second from a most successful border; and the third and fourth from old and well-tried sources. The results are given in Table A.:—

Table A.—Vinery Soils.

I. *Analysis of Portion Soluble in Water.*

	No. 1.	No. 2.	No. 3.	No. 4.
Chlorine (Cl)	0.021	0.028	0.019	0.015
Sulphuric anhydride (SO_3)	0.052	0.073	0.155	0.188
Ferric oxide (Fe_2O_3) ..	0.139	0.145	0.127	0.067
Calcic oxide (CaO) ..	0.084	0.092	0.065	0.038
Magnesic oxide (MgO) ..	0.029	0.043	0.036	0.049
Potassic oxide (K_2O) ..	0.236	0.432	0.354	0.323
Sodic oxide (Na_2O) ..	0.146	0.171	0.142	0.186
Carbonic anhydride (CO_2)	0.254	0.187	0.166	0.124
Total	0.960	1.169	1.064	0.920

II. *Analysis of Portion Soluble in Acids.*

	No. 1.	No. 2.	No. 3.	No. 4.
Ferric oxide (Fe_2O_3) ..	5.892	10.877	6.742	7.379
Aluminic oxide (Al_2O_3) .	2.388	3.718	2.388	2.309
Calcic oxide (CaO) ..	1.552	3.854	1.437	1.961
Magnesic oxide (MgO) ..	0.319	0.416	0.216	0.204
Phosphoric anhydride (P_2O_5)	0.204	0.474	0.333	0.294
Carbonic anhydridde (CO_2)	1.408	3.009	1.032	1.659
Total	11.763	22.348	12.148	13.606

III. *Portion Soluble after Treatment with Dihydric Sulphate* (H_2SO_4).

	No. 1.	No. 2.	No. 3.	No. 4.
Ferric oxide (Fe_2O_3) ..	0.639	1.752	0.733	0.932
Aluminic oxide (Al_2O_3) ..	1.288	1.692	1.480	1.269
Calcic oxide (CaO) ..	0.012	0.007	0.006	0.006
Magnesic oxide (MgO) ..	0.008	0.005	0.004	0.005
Total	1.947	2.456	2.223	2.212

Vinery Soils.

	No. 1.	No. 2.	No. 3.	No. 4.
I. Soluble in water ..	0.960	1.169	1.064	0.920
II. Soluble in acids ..	11.763	22.348	12.148	13.606
III. After H_2SO_4 treatment	1.947	2.456	2.223	2.212
*Organic matter ..	10.931	13.933	7.073	7.439
Silica	74.391	60.094	77.492	75.823
	100.000	100.000	100.000	100.000
*Ammonia ..	0.549	0.658	0.401	0.479

Mechanical Analyses.

Vinery Soils.

	No. 1.	No. 2.	No. 3.	No. 4.
Coarse sand	22.864	49.631	35.884	38.761
Fine sand	37.562	20.193	28.361	31.594
Clay	28.643	16.263	28.682	22.206
Organic matter	10.931	13.933	7.073	7.439
	100.000	100.000	100.000	100.000

* "On the Chemical Composition of Vinery Soils, with Notes on the Best Classes of Soil, and of the Composition of the Varieties of Manures suited to the Cultivation of the Grape Vine." By W. Ivison Macadam, F.C.S., F.I.C., &c., Lecturer on Chemistry, and Analytical Chemist, Edinburgh. Read before the Scottish Horticultural Associaton, Edinburgh, October, 1882.

Preliminary Examination.
Vinery Soils.

	No. 1.	No. 2.	No. 3.	No. 4.
Moisture	16.639	20.241	27 972	23.463
Organic matter	9.112	11.113	5.094	5.694
Mineral matter	74 249	68.646	66.924	70 843
	100.000	100.000	100.000	100.000

The figures do not show a very great difference between Nos. 1 and 2, but the balance of favour lies with the second. In considering the usefulness or otherwise of a soil, you require to look not to one or two of the ingredients necessary to the life of the plant, but to all, and the absence of any one of the elements may determine between fruitfulness and comparative sterility. The analyses of the ash of the cane and trunk of the Vine grown in a French vineyard, and which are given on Table B., show that the plant requires for its growth large proportions of potassic oxide, calcic oxide, and phosporic anhydride with smaller quantities of magnesic oxide, ferric and aluminic oxides, with the presence of sodic oxide, sulphuric anhydride, and traces of chlorine.

Table B.—Analyses of Ash of Vine Canes and Trunk. (J. L. W. Thudicum, M.D., &c.)

	Canes.	Trunk.
Potassic oxide (K_2O)	18.0	36 9
Sodic oxide (Na_2O)	0.2	0.4
Calcic oxide (CaO)	27.3	10 7
Magnesic oxide (MgO)	6.1	2 2
Ferric oxide (Fe_2O_3) .. .. } Aluminic oxide (Al_2O_3) .. .. }	3 8	3.4
Phosphoric anhydride (P_2O_5)	10.4	10.7
Sulphuric anhydride (SO_3)	1 6	5 4
Chlorine (Cl)	0.1	0.4
Carbonic anhydride (CO_2)	20.3	12 4
Sand	10 9	15.3
Loss	1.3	2.2
	100.0	100 0

On now looking at the results of the analyses given in Table A., it will be seen that the amount of potassic oxide in No. 1 soil is very much lower than in the other three samples. The same remark is true of the phosphoric anhydride, and to a less degree of the calcic oxide. The remaining ingredients are present in all of the soils in quantities sufficient to yield an excess to the plant, so that no special attention need be drawn to them. The result, therefore, of these investigations is to show that No. 1 soil is deficient in potassic and calcic oxides and in phosphoric anhydride; in fact, that the soil requires to have these ingredients added to it, and this may be most successfully done by the use of superphosphate of lime and sulphate of potash.

In my previous papers I have called attention to the analyses of greenhouse mould, and I have now calculated the figures previously given, so that they may be compared with the vinery soils on Table A. The results are on Table C.

Table C.—Composition of Greenhouse Mould.

	No. 1.	No. 2.	No. 3.
I. *Soluble in Water.*			
Chlorine (Cl)	0 004	0.001	0.01
Sulphuric anhydride (SO_3) ..	0.182	0.186	0.28
Ferric oxide (Fe_2O_3)	0.087	0.084	0.09
Calcic oxide (CaO)	0.242	0 186	0.34
Magnesic oxide (MgO)	0.033	0.028	0.04
Potassic oxide (K_2O)	0.221	0.110	0 13
Sodic oxide (Na_2O)	0.184	0.113	0 08
Carbonic anhydride (CO_2) ..	0.124	0.084	0.13
II. *Soluble in Acids.*			
Ferric oxide (Fe_2O_3)	2.148	2.060	2.45
Aluminic oxide (Al_2O_3)	0.842	1.049	1.72
Calcic oxide (CaO)	1.005	0.663	0.77
Magnesic oxide (MgO)	0.215	0.154	0.12
Phosphoric anhydride (P_2O_5) ..	0.821	0.485	0.62
Carbonic anhydride (CO_2) ..	0.174	0.918	0 33
*Organic matter	13 660	12.490	14 17
Sand and silicates	80.058	82.189	78.72
	100.000	100 000	100 00
*Ammonia	0.156	0.110	..

From this table it will be seen that the principal ingredient wanting is potassic oxide, all the other substances being present in sufficient quantity to grow the Vine.

I have also made comparison analyses of two samples of sandy agricultural soils of medium quality, and which show the reason why in constructing Vine borders so much trouble is involved and such large quantities of manurial agents are requisite to bring the soil into a fit condition for the growth of the Grape.

Table D.—Analyses of Agricultural Sandy Soils.
I. *Portion Soluble in Water.*

	No. 1.	No. 2.
Chlorine (Cl)	0.063	0.013
Sulphuric anhydride (SO_3)	0 015	0 009
Ferric oxide (Fe_2O_3)	0.057	0.018
Calcic oxide (CaO)	0.108	0.047
Magnesic oxide (MgO)	0.004	0.017
Alkalies	0.027	0 052
Carbonic anhydride (CO_2)	0.094	0.047
	0.388	0.203

II. *Portion Soluble in Acids.*

	No. 1.	No. 2.
Ferric oxide (Fe_2O_3)	3.733	5.636
Aluminic oxide (Al_2O_3)	1.708	0.482
Calcic oxide (CaO)	0.866	0.743
Magnesic oxide (MgO	0.407	0.129
Phosphoric anhydride (P_2O_5)	0 361	0 284
Carbonic anhydride (CO_2)	0.212	0.186
	7.282	7.460

III. *Portion Soluble after Treatment with Dihydric Sulphate* (H_2SO_4).

	No. 1.	No. 2.
Ferric oxide (Fe_2O_3)	1.059	0.933
Aluminic oxide (Al_2O_3)	1.274	1.348
Calcic oxide (CaO)	0.083	0.087
Magnesic oxide (MgO)	0.070	0 046
	2.486	2 434

The composition of an ideal soil containing all the elements necessary for the Vine and in the proportions best suited to produce the greatest results is shown on Table E., which gives the analysis of an artificial mixture made by the chemists Wiegmaon and Polstor, and on which they successfully grew several varieties of Vines.

Table E.—Artificial Soil (Wiegmann and Polstorf).

Potassic oxide (K_2O)	0.018
Sodic oxide (Na_2O)	0.006
Calcic oxide (CaO)..	0.632
Magnesic oxide (MgO)	0.238
Manganic oxide (MnO)	0.250
Ferric oxide (Fe_2O_3)	1.000
Alumioic oxide (Al_2O_3)	1.034
Chlorine (Cl).	0.006
Sulphuric anhydride (SO_3)	0.089
Phosphoric anhydride (P_2O_5)	1.034
Carbonic anhydride (CO_2)	0.702
Organic salts of metallic oxides	2.892
Organic matter (not combined)	5.000
Sand (quartz)	86.126
	99.027
Water of hydration..	.973
	100 000

Analysis of Agricultural Sandy Soils.

	No. 1.	No. 2.
I. Soluble in water	0.388	0.203
II. Soluble in acids	7.285	7.450
III. After H_2SO_4 treatment	2 486	2.434
Organic matter	5.035	5.181
Silica	84 804	84 722
	100.000	100.000

Mechanical Analyses.
Agricultural Sandy Soils.

	No. 1.	No. 2.
Small gravel	5.994	11.667
Cosrse sand..	6 873	6 730
Fine sand	68 577	61.959
Clay	13 521	14 463
Organic matter	5.035	5.181
	100.000	100.000

Preliminary Examination.
Agricultural Sandy Soils.

	No. 1.	No. 2.
Moisture	12 42	15.46
*Organic matter	4.41	4 38
Mineral matter	83.17	80.16
	100.00	100.00
*Ammonia	0 023	0.020

Mr. W. Thomson in his *Practical Treatise on the Grape Vine*, p. 19, gives the details of the method for making a successful Vine border. His recipe is :—

Compost, 10 loads	=	22,400 parts
Lime rubbish, 1 load	=	2,240 ,,
Farmyard manure, 1 load	=	2 240 ,,
Bones (1 inch square), 4 cwt. ..	=	448 ,,
Horn shavings, 2 cwt.	=	224 ,,
		27,552 ,,

These calculated to percentages will give the following results :—

Compost	81.3 per cent.
Lime rubbish	8.1 ,,
Farmyard manure	8.1 ,,
Bones	1.6 ,,
Horo shavings	0 8 ,,
	99 9 ,,

Looking at the composition of the various ingredients in the mixture, and considering each of these separately, we would obtain the results given below.

Compost.—This body is to be made in proportions which are so various in their composition that it is difficult to approximate the percentage of the ingredients. In allowing the presence of one-third per cent. of phosphoric anhydride (P_2O_5), one-half per cent. of potassic oxide (K_2O), and one-half per cent. of ammonia, full justice will be given the mixture. In the above soil these proportions would yield 0.271 of phosphoric anhydride, 0.406 of potassic oxide, and 0.406 of ammonia.

Lime Rubbish, containing say 0.25 per cent. o ammonia, would yield 0.020 ammonia to the soil.

Farmyard Manure.—A good sample of this body would contain, when fresh, 0.30 per cent. phosphoric anhydride, 0.52 per cent. of potassic oxide, and 0.54 per cent. of ammonia. The substance, when added to the extent of 8.1 per cent. of the soil, would give 0.024 phosphoric anhydride, 0.42 of potassic oxide, and 0.043 of ammonia.

Bones would contain, if of the very best quality, 54 per cent. of calcic phosphate, 0.02 per cent. of potassic oxide, and 4.50 per cent. of ammonia. When added to the soil according to the formulæ given, the phosphoric anhydride would be equal to 0.393, potassic oxide 0.003, and ammonia 0.072.

Horn Shavings contain about 0.3 per cent. phosphoric anhydride, and 16 per cent. of ammonia; and these would yield 0.002 phosphoric anhydride and 0.128 of ammonia.

Tabulating these figures we have the following percentage results :—

Phosphoric Anhydride.

Compost	0.271
Farmyard manure	0.024
Bones	0.393
Horn shavings	0.002
Total phosphoric anhydride ..	0 590 per cent.

Potassic Oxide.

Compost	0.406
Farmyard manure	0 042
Bones	0.003
Total potassic oxide	0 451 per cent.

Ammonia.

Compost	0 406
Lime rubbish	0 020
Farmyard manure	0.043
Bones	0.072
Horn shavings	0 128
Total ammonia	0.669 per cent.

Comparing these figures with those obtained from the vinery soils it is evident that the latter (with the exception of No. 1) do not differ greatly from the soil recommended by one of our most successful growers, We have been looking only to the chemical properties, but must not forget the mechanical condition of the soil. The mere presence of certain bodies in the soil will not ensure that the crop will be large, for if these are distributed in a bulk of material, which, from its mechanical condition, stores them up and

refuses to the plant its food—in other words, if the soil is not so stiff and clayey as to render it difficult for the root spongioles to penetrate and seize the necessary supplies, the mineral food might almost as well be absent. On the other hand, if the soil be too sandy and open, the necessary watering at the early part of the season will dissolve the soluble salts, and by passing them into the drains cause starvation in the plant. No. 1 soil was received in a damp condition, and belongs to the stiff clay class. No. 2 is a fine medium sandy soil. Nos. 2 and 3, although they contain large proportions of clay, are open and altogether unlike No. 1.

Dr. Thudicum, in his *Origin, Nature, and Use of Wine*, draws attention to the fact that "the most luxuriant growth of the Vine and its richest bearing power are met with in the paludal districts of the Gironde," and shows that this is due to the Vine requiring "for its upper and main roots a territory which must not be clogged with water, but be pervious to it, and admit air at frequent intervals. But at the same time it requires a constant supply of water within easy reach of the roots. It, therefore, lives best on ground which, although not itself soaked with water, can constantly attract it from the subsoil by means of the capillary attraction due to porosity." A soil, therefore, similar to No. 1 is not suitable for the growth of the Vine; first, because it will not allow of water finding its way upwards from the subsoil; secondly, because it will not allow of the excess of water passing through it to the drains; and, thirdly, because it does not allow of the atmospheric air passing through or into it.

The geological formation on which a vinery stands is most important, as upon that depends very greatly the preliminary operations and additions necessary to ensure success. The carboniferous sandstone, old and new red, oolitic and chalk formations form congenial soils which can readily be worked up. The boulder clay is most successful, but requires in many cases, where stiff, much preliminary handling. Too much care cannot be taken to have thorough and efficient drainage. This must not, however, be got by a large admixture of sand, but should rather be obtained by burning clay, when an open semi-porous mass is obtained, with the potash salts rendered more available to the plant root. Another great advantage is that the excess of animal life, as also the dangerous plant life, more especially fungoid growths, are destroyed by the heat, and thus one great pest of Vine life reduced to a minimum.

No 2 soil deserves notice from its peculiar position. The vinery is situated on the slope of a hill, which at that part consists of trap rock. The soil is laid directly on the rock, which comes so close to the surface that the site for the vinery required to be blasted out, and the stokehole could only be drained by similar means. Yet the house has been eminently successful, and the reason does not seem far to seek. The drainage water finds its way by natural gravitation downwards, leaving the soil always friable and open. At the same time the position of the houses on the side of a hill insures a supply of water from the upper portions, but which only reaches the Vine roots growing close to the rock. Another cause is the open nature of the soil. The mechanical analysis shows the presence of 49.631 per cent. of coarse sand, 20.193 per cent. of fine sand, and 16.263 per cent. of clay. These ingredients should be more correctly given as "trap particles," for they are made up of finer and coarser portions of disintegrated rock. The potash salt is mostly derived from the natural soil. Whilst this house is at present extremely fruitful it will be very necessary to carefully feed the plants so as to retain it in its present condition. It differs from sandy agricultural soils in open borders by the moisture being obtained by capillary attraction from below, and carrying with it the soluble ingredients from the soil of the upper part of the hill. At the same time the upward movement of the water will tend to carry with it the soluble salts of the Vine soil, which with ordinary drainage would be lost.

The position of this house on the rock, with little if any natural soil, seems to be one of the best suited to Grape culture. On the Continent some of the most successful vineyards are those at high elevations—perched on a ledge of rock on a hillside, with so little natural soil that what the plant requires must be carried from the plains below, and many times afterwards retained in its place by basket-work, yet with all these seeming disadvantages yielding a crop many of our gardeners would envy. In such cases little or no manure is given, for the natural denudation caused by rain is such as to compel regular supplies of fresh soil obtained from the alluvial plains. These soils are mostly from volcanic districts, and contain much potash in combination. Not unfrequently the hills themselves are extinct volcanos. In planting a vinery on the side of a trap hill, and with alluvial soil from the district, we are simply taking advantage of Continental experience, and provided the house have a proper exposure to the sun, the results must be successful.

All the authorities I have consulted advocate the manuring of the borders during autumn as being the time calculated to yield the greatest results. The manures differ much. Drs. Thudicum and Dupré advocate the employment of farmyard manure, and draw attention to the farms attached to some of the Continental vineyards, and which are specially kept up for the purpose of supplying the manure necessary. M. Ville, in his excellent *Treatise on Artificial Manures*, recommends two manures which he has found successful in his experiments on the Vine, and which are composed according to the following recipes:—

	No. 1.	No. 2.
Calcic superphosphate	528	352
Nitrate of potash	440	176
Nitrate of soda	..	396
Calcic sulphate	352	220
	1.320	1.144

Difficulty will be experienced in compounding these mixtures, as nitrate of potash is both costly and difficult to obtain, whilst its place cannot be taken by any single salt.

Thomson's Vine Manure.

Potassic oxide (K_2O)	1.144
Calcic oxide (CaO)	18.926
Phosphoric anhydride (P_2O_5)	29.144
Carbonic anhydride (CO_2)	2.165
Sulphuric anhydride (SO_3)	6.902
Sodic oxide (Na_2O)	1.901
Silica	7.640
Moisture	9 480
**Organic matter, &c.	22.698
	100.000
**Yielding ammonia	4.41

Very good results have been obtained by Mr. Malcolm Dunn, of Dalkeith, from the use of a manure manufactured from a formulæ of my own. Besides Mr. Dunn several other members of this Association have also tried the compound, and it has given satisfaction to all. Since last session I have changed the manure slightly, adding one more element and arranging the proportions of the other bodies to correspond. This compound has been in Mr. Dunn's hands during the past season, and has proved itself superior to the old mixture. It has also been employed under my own supervision on Vines and general greenhouse plants, such as Pelargoniums, Fuchsias, Carnations, Camellias, &c., and has yielded splendid results. My own greenhouse plants have been in full flower all the season, and are now showing good heads. The Camellias are especially well budded.

In applying these concentrated manures it is advisable to give a dressing during autumn, and after the buds begin to swell a regular small dose once a week, this latter being simply sprinkled over the surface of the soil. M. Ville says that the absence of any one of the indispensable elements of a plant food lays the plant open to be attacked by disease, and instances his experiments on the non-presence of potash salts on the Vines, &c. The leaves of the plants did not attain full development, whilst the stems were not one-fourth the size they should have been. By July the leaves became red, spotted with black, and then dried up so as to be easily pulverised in the fingers. What is true of potash salts is equally true of the other mineral ingredients. The stem cannot thrive without calcium salts, or the fruit without phosphates, and the sap must contain nitrogen, as a life-giving property.

Impatiens Sultani as a Bedding Plant.—If plants of this handsome Balsam were carefully grown in a cool-house, and well hardened off before being bedded-out, there seems but little doubt that they would be a success in many places, particularly in tolerably dry and warm situations in the South. At Kew several plants—by no means well prepared beforehand—have grown well and flowered freely in a dry border near a dwelling-house.

Reports of Societies.

Liverpool Horticultural Association. — The fifth annual summer show of the above Society was held in Sefton Park on the 4th and 6th inst., the entries being numerous in nearly all the classes—a sufficient number of plants, flowers, fruit, &c., being brought together to fill three large tents, and a most creditable exhibition was the result. The excellence of the stove and greenhouse plants was above the average, especially at such a late season. Orchids, as was to be expected, were but poorly represented, only two classes being provided in the schedule, and in them even there was but a small amount of competition. Cut flowers were a very meritorious feature, especially the hardy herbaceous flowers, and flower show committees would do well to encourage much more liberally than they do at present such exhibits. Fruit and vegetables formed a very material portion of the show, the excellence of the former in particular being beyond question. The Grapes, although not represented by any very heavy bunches, were of excellent form and colour, and did great credit to the growers. Without entering into all the details of the prize list we give below a brief account of the more important prize takers.

Stove and Greenhouse Plants.—Twelve foliage and flowering plants (open), six of each.—1st, C. W. Neumann, Esq., Wyncote, Allerton, Liverpool (gr., Mr. W. Mees), with splendid examples of Erica retorta major, Vinca oculata, Clerodendron Balfourianum, Bougainvillea glabra, Allamanda grandiflora, and Statice profusa—flowering; and Latania borbonica, Croton Queen Victoria, C. variegatus, C. Weismanni, Gleichenia Mendelli and Areca lutescens—foliage; the Crotons were remarkable specimens. 2d, Mr. James Cypher, nurseryman, Cheltenham; 3d, H. Timmis, Esq., Holmleigh, Aigburth (gr., Mr. G. Leadbeater), whose exhibit was very good and very close upon the 2d. Ten foliage and flowering plants (local).—1st, T. Moss, Esq., Aigburth (gr., Mr. B. Cromwell), with Kentia Fosteriana, Anthurium crystallinum, Croton Weismanni, Alocasia metallica, Anthurium Scherzerianum, Bouvardia Vreelandi, Erica Irbyana, Clerodendron Balfourianum, Thrinax excelsa, and Erica æmula; 2d, W. H. Watts, Esq., Wavertree (gr., Mr. A. C. Cox), also with an excellent lot. Six plants in flower (open).—1st, C. W. Neumann, Esq., with fine examples of Statice Butcherii, Stephanotis floribunda, Allamanda Hendersoni, A. nobilis, Erica Ne Plus Ultra, and Bougainvillea glabra; 2d, Mr. J. Cypher, Cheltenham. Four plants in flower.—1st, T. Moss, Esq.; 2d, Mrs. Horsfall, Grassendale, both staging excellent plants. One stove plant in flower, for which there were less than five entries.—1st, H. Timmis, Esq., with a fine specimen of Dipladenia Brearleyana; 2d, C. W. Neumann, Esq., with Allamanda Hendersoni; 3d, F. H. Gossage, Esq. One greenhouse plant in flower.—1st, James Cunningham, Esq., Mossley Hall, with a grand plant of Kalosanthes coccinea; 2d, E. Lawrence, Esq., Aigburth, with Lapageria alba; 3d, H. Timmis, Esq., with Statice profusa.

Six fine-foliage plants.—1st, C. W. Neumann, Esq., with Croton Disraeli, C. Williamsi, C. Prince of Wales, Thrinax elegans, Alocasia metallica, and A. macrorhiza variegata—an excellent lot; 2d, F. H. Gossage, Esq., Woolton, Liverpool (gr. Mr. J. Jellica). One Palm or Cycad, in which there were not less than nine entries.—1st, J. T. Cross, Esq., Aigburth, with a fine specimen of Kentia australis; 2d, W. B. Bowring, Esq., Aigburth, with a well furnished plant of Phœnix rupicola; 3d, W. Rutter, Esq., Aigburth, with Areca Baueri (named A. aurea).

Ferns were well shown. In the class for eight exotic species there were two entries, the 1st prize falling to T. Moss, Esq., Aigburth (gr. Mr. B. Cromwell), with very fine examples of Adiantum Farleyense, A. Veitchi, Pteris scaberula, Gleichenia flabellata, Nephrolepis davallioides furcans, Alsophila excelsa, Asplenium Nidus and Lomaria zamiæfolia; 2d, Mrs. Horsfall, Grassendale. Six exotic Ferns, distinct.—1st, W. Rathbone, Esq., M.P., Wavertree, Liverpool, with Davallia Mooreana, Alsophila sp., A. excelsa, Cibotium Schiedei, Dicksonia antarctica, and Adiantum cuneatum; 2d, W. H. Watts, Esq., Wavertree; 3d, W. B. Bowring, Esq., Aigburth. One tree Fern.—1st, Mrs. Alison Johnson, with a good specimen of Dicksonia antarctica. One exotic Fern.—1st, J. T. Cross, Esq., Aigburth, with a very large Goniophlebium subauriculatum; 2d, T. Moss, Esq.; 3d, W. Burnyeat, Esq., with a very handsome specimen of Gleichenia glauca. For six hardy Ferns, E. Lawrence, Esq., Aigburth; Mrs. Alison Johnson, and T. Moss, Esq., were 1st, 2d, and 2d, respectively, the former staging a beautiful collection, consisting of Onoclea sensibilis, Athyrium Filix-fœmina cristatum, corymbiferum and Fieldiæ, Osmunda regalis cristata, and Polystichum proliferum. For six pans of Lycopods, W. B. Browning, Esq., was 1st, his being the only lot staged.

Orchids were but sparingly represented. In the class for four exotic Orchids in bloom only two competed—1st, Dr. S. Watkin, Rodney Street, Liverpool, with Saccolabium Blumei majus, Cattleya Mossiæ, Aërides suavissima, and Odontoglossum Alexandræ; 2d, J. Reynolds, Esq., West Derby, Liverpool (gr., J. Wilson), with Disa grandiflora, Cattleya crispa, Miltonia spectabilis, and Odontoglossum phalænopsis. One Orchid in bloom, in which there were seven competitors.—1st, C. W. Neumann, Esq., with a good plant of Saccolabium Blumei majus; 2d, Mrs. Alison Johnson, with a very nice piece of Cattleya Leopoldi; 3d. J. M. Heap, Esq., with Saccolabium Blumei.

Ericas occupied two separate classes. For four distinct varieties (open), only Mr. James Cypher, of Cheltenham, entered, staging well grown specimens, including E. æmula and E. tricolor profusa. Three greenhouse Ericas.—C. W. Neumann, Esq., was 1st, and T. Moss, Esq., 2d, the former staging very handsome specimens of E. metulæflora, E. insignis, and E. æmula.

Fuchsias were represented by very poor specimens. For six distinct varieties the 1st prize was withheld; 2d, T. C. Ryler, Esq. Three Fuchsias.—1st, W. B. Bowring, Esq.

Zonal Pelargoniums were well shown. In the class for six varieties there were four competitors—1st, Mrs. Horsfall; 2d, J. T. Cross, Esq.; 3d, W. B. Bowring, Esq.—all staging good plants and varieties. Six zonals, pyramids,—1st, J. T. Cross, Esq., with excellent examples; 2d, Mrs. Lockett, Grassendale House. Three zonals.—1st, J. T. Cross, Esq., with well-grown even specimens.

Tuberous Begonias formed a conspicuous feature. Six distinct varieties (open).—1st, W. B. Bowring, Esq., with Emperor, Souvenir de Ouwelde, Souvenir d'un Ami, Lady Hume Campbell, Crimson Gem, and Paul Musurel. Three varieties, distinct.—1st, C. W. Neumann, Esq., with Vesuvius, Empress, and Lady H. Campbell; 2d, Mrs. Lockett; 3d, E. Lawrence, Esq. For one tuberous Begonia the 1st prize again fell to C. W. Neumann, Esq. Special prizes for nine varieties, offered by Messrs. J. Laing & Co., Forest Hill, brought three competitors: 1st, W. B. Bowring, Esq.; 2d, Mrs. Horsfall; 3d, Mrs. Lockett—all staging excellent collections, the plants belonging to the 1st being especially well grown and flowered. Gloxinias were also a very pleasing feature, several meritorious groups being staged. Six plants.—1st, J. Cunningham, Esq., with six excellent seedlings; 2d, C. W. Neumann, Esq.; 3d, Mrs. Watts, Aigburth.

In the class for four pans of Achimenes C. W. Neumann, Esq., took the premier place, with very fine pans of longiflora major, Admiration, Celestial, Fran Brunan, coccinea grandiflora, and Mauve Perfection. Cockscombs were well shown, H. Timmis, Esq., securing the 1st place, with well grown plants; 2d, Mrs. Watts; 3d, J. Cunningham, Esq. Two classes were provided for Petunias for single and double varieties. Six single varieties.—1st, W. B. Bowring, Esq.; 2d, J. Lewis, Esq., Aigburth. Six double varieties.—1st, Mrs. Horsfall; 2d, J. Lewis, Esq. In the class for six Caladiums there were three competitors, the premier position falling to C. W. Neumann, Esq., with fine examples of Auguste Lemoine, Belleymei, bicolor magnifica, Chantini, Prince Albert Edward, and Meyerbeer; 2d, Tyndall Bright, Esq., Aigburth; 3d, Mrs. Horsfall.

Miscellaneous groups arranged for effect, with plants in or out of flower, not exceeding 150 square feet.—1st, C. W. Neumann, Esq., with a very tastefully arranged group, consisting of Ferns, Palms, Dracænas, Crotons, &c., nicely lit up with Rhodanthes, Francoas, &c., the margin fringed with dwarf Campanulas, Selaginellas, &c., the whole presenting a very elegant and graceful appearance, highly deserving the honour conferred upon it; 2d, W. H. Watts, Esq., Wavertree—Campanula pyramidalis was fittingly employed in this group: 3d, H. Timmis, Esq., whose group was also very commendable, reflecting great credit upon Mr. G. Leadbeater, his excellent gardener. In the class for a circular group, occupying a space not exceeding 250 feet, Messrs. R. P. Ker & Sons were the only exhibitors, their group well representing the high-class work of that firm; a large number of choice plants were most tastefully arranged, far too numerous to notice.

For the best collection of hardy shrubs and trees the Society's gold medal was offered; Messrs. James Dickson & Sons, Newton Nurseries, Chester, were the only exhibitors, and, as might be expected, with their vast resources, a magnificent collection was effectively arranged, consisting of choice Conifers, Euonymuses, Hydrangeas, Olearia Haastii, Japanese Maples, in splendid varieties; Acer Negundo variegata, &c., the whole forming a grand exhibit, well deserving the award given.

Cut Flowers.—Roses, forty-eight varieties (open).—1st, Messrs. Perkins & Son, Coventry, with excellent flowers well arranged; 2d, Messrs. R. Mack & Co., Catterick Bridge, Yorkshire; 3d, Messrs. Cranston & Co., Hereford. Twelve vars. (open)—1st, Messrs. Cranston & Co.; 2d, T. B. Hall, Esq., Rock Ferry; 3d, E. Claxton, Esq., Allerton. Twenty-four vars. (local).—T. B. Hall, Esq., with first-class blooms in every respect. Twelve blooms, one var., dark.—1st, Messrs. James Dickson & Son, Newton Nurseries, Chester, with splendid examples of Alfred Colomb, without doubt the finest Roses in the show; 2d, Messrs. R. Mack & Co. Twelve blooms, one var., light.—1st, Messrs. James Dickson & Son, Chester, with excellent blooms of Comtesse de Serenye; 2d, Messrs. Mack & Co., with the same variety. Class 47: The best and most tastefully arranged box of Roses.—1st, E. Claxton, Esq., Allerton, who showed a very handsome box, mostly Teas, happily arranged with Fern; 2d, A. Tate, Esq., Woolton, a very handsome lot; 3d, T. B. Hall, Esq. Prizes for this series were offered by Messrs. Cranston & Co., Hereford. Stove and greenhouse cut flowers.—1st, C. W. Neumann, Esq., with most charming boxes, conspicuous amongst them being bunches of Disa grandiflora, Lapageria alba, Miltonia spectabilis, Dipladenia amabilis, Allamanda grandiflora, Cattleya crispa, &c.

Hardy Herbaceous Flowers, twenty-four vars. (open).—1st, C. W. Neumann, Esq., with gorgeous trays, including Gladiolus brenchleyensis, G. Colvillea alba (The Bride), Gaillardia hybrida splendida, Lilium auratum, Dianthus hybridus Napoleon III., &c.; 2d, Enoch Harvey, Esq., Aigburth. Twelve vars.—1st, A. Tate, Esq., whose collection was also very attractive, including Lilium testaceum, Campanula Hendersoni, Gladiolus The Bride, &c.; 2d, J. Lewis, Esq.; 3d, W. H. Watts, Esq. Hand bouquets, two (open).—1st, Mr. James Cypher, Cheltenham, with excellent specimens. Twenty-four Pansies.—1st, C. W. Neumann, Esq.; 2d, J. Lewis, Esq. Eighteen Carnations and Picotees.—1st, T. Hargreaves, Esq., Rock Ferry; 2d, C. W. Neumann, Esq.; 3d, J. Lewis, Esq. The premier collection contained excellent flowers of Clipper, John Keet, Mary Ann, Charles Turner, John Ball, and other leading kinds.

Fruit and Vegetables.—These were quite an exhibition in themselves, but space will only allow mention being made of the primary exhibits. Eight dishes of fruit, distinct (open).—1st, the Duke of St. Albans, Bestwood Lodge, Nottingham, gr., Mr. Edmonds, with excellent examples of Black Hamburgh and Muscat of Alexandria Grapes, Peach Chancellor, Nectarine Violette Hâtive, Fig White Marseilles, Melon Best of All, Morello Cherry, and Queen Pine; 2d, Earl of Harrington, Elvaston Castle, Derby (gr. Mr. J. H. Goodacre); 3d, T. H. Oakes, Esq., Alfreton, Derbyshire. An extra prize was given to T. H. Sykes, Esq., Cheadle. Four bunches of Grapes, two black and two white.—1st, T. H. Oakes, Esq., Alfreton, Derbyshire (gr. Mr. J. Ward), with excellent bunches of Black Hamburgh and Madresfield Court Muscat. There were six other entries in this class, of excellent form and colour. Two bunches Grapes, Black Hamburgh (open).—1st, Mr. Alderman Raynes, Rock Ferry (gr. Mr. J. Barker), with very fine bunches; 2d, H. Cunningham, Esq., Gateacre; beside which there were not less than ten other competitors. One dish of six Peaches (open).—W. G. Holland, Esq., New Brighton (gr. Mr. J. Dilworth), 1st, with a grand dish of Bellegarde; 2d, A. R. Gladstone, Esq., Broad Green, with the same variety; 3d, Sir Thomas Earle, Bart., Allerton Towers. Seven other entries. One Melon.—1st, R. C. Naylor, Esq., Hooton Hall, Cheshire, with Best of All; 2d, Lieut.-Colonel Wilson, St. Michael's Hamlet, with Dell's Hybrid. Vegetables: Collection of twelve varieties (open).—1st, Mr. J. Richardson, Boston, Lincolnshire; 2d, Colonel Wingfield, Onslow, Shrewsbury; 3d, C. W. Neumann, Esq. Six dishes of Peas, thirty-six pods, distinct (open).—1st, L. T. Turner, Esq., Woodslea, Bromborough, Cheshire; 2d, C. W. Neumann, Esq.; 3d, Colonel Wingfield, Shrewsbury. Six dishes of Potatos, three round and three kidneys (open).—1st, Colonel Wingfield, Shrewsbury, with excellent dishes of Blanchard, Beauty of Hebron, Covent Garden Perfection, International, Porter's Excelsior, and Schoolmaster. 2d, C. W. Neumann, Esq.; 3d, J. Richardson, Esq., Boston, Lincolnshire. Three dishes of Tomatos (open).—1st, Earl of Ellesmere, Worsley Hall, with Dedham Favourite, Stamfordiana and Orangefield; 2d, W. Chambers, Esq., The Grange, Wallasey; 3d, W. Burnycat, Heyton.

Miscellaneous exhibits, not for competition—Messrs. R. P. Ker & Son, Aigburth Nurseries, Liverpool, staged a very excellent lot of choice stove and greenhouse plants, noticeable among which were Ficus elastica alba variegata, a highly decorative and prettily variegated plant, and to which the judges rightly awarded a First-class Certificate. The handsome Adiantum Pacottei and Davallia fijiensis, were noticeable among Ferns, and the very rare Palm, Pritchardia Vuylstekeana. Messrs. J. Laing & Co. exhibited their excellent strain of Tuberous Begonias. The Liverpool Horticultural Co. exhibited a group of Roses in bloom, and a large collection of other useful plants. Messrs. F. & A. Dickson & Son, Upton Nurseries, Chester, staged a very attractive collection of stove and greenhouse plants, the Dracænas, Crotons, &c., being particularly well grown and coloured, while a series of table plants were all that could be desired for the purpose, including Calamus ciliaris, an excellent Palm in a young state, for the purpose; Aralia Veitchii, Crotons, &c.; and last, but by no means least, the excellent group of Ferns staged by the excellent Secretary of the Society, Mr. J. Gore, for which a special prize was awarded. We can only wish the committee every success in their labour of love, and judging from the number of visitors we trust the balance will be in their favour. *Visitor.*

Northamptonshire Horticultural: *Aug. 6 and 7.*—This, the second annual show of the Society, was held in Delapre Park, Northampton, the residence of the President for the year, J. A. S. Bouverie, Esq. On this occasion there was a good display of plants. In the open class for stove and greenhouse plants, six in bloom, and six fine-foliaged, Mr. Day, gr. to A. Seymour, Esq., Norton Hall, was 1st, with a healthy well-grown lot, amongst which Ixora Dixiana, Statice profusa, Clerodendron Balfourianum, and Allamanda Hendersoni, were very well flowered. Messrs. Ball & Co., Bedford Road Nursery, who were 2d, likewise staged a well-grown collection, the best of which were Stephanotis floribunda and Anthurium Scherzerianum; 3d, Mr. Farr, gr. to Sir R. Knightley, Fawsley Park. For a group of miscellaneous plants suitable for conservatory decoration, confined to a limited space, Mr. Miller, gr. to R. Loder, Esq., was 1st, with a nicely arranged collection in which both the flowering and fine-leaved plants were suitable for the purpose; 2d, Mr. Thomas, gr. to Lord Overstone; 3d, Messrs. Ball & Co. Of fine-leaved plants there was a good display. Here again Mr. Day came in 1st, his best examples being Areca Baueri and Gleichenia Speluncæ; Mr. Farr was 2d. Ferns were nicely shown by Mr. Miller and Mr. Holland, who were equal 1st, both staging well-grown specimens.

In the class for ten stove and greehouse flowering and ornamental foliage plants, confined to gentlemen's gardeners in the county of Northampton, Mr. Day took the lead with a handsome group containing the pretty white-flowered Erlea jasminiflora, Allamanda Hendersoni, and Ixora Regina. Mr. Holland, who was a close 2d, had Erica Marnockiana and Rondeletia speciosa in nice order. Six stove and greenhouse plants, three in flower and three fine-leaved.—1st, Mr. Thomas, in whose collection was a remarkable plant of Stanhopea insignis, bearing some twenty spikes of flower, open, or on the point of opening, with others coming on. At a time when these most singular old-fashioned Orchids are little grown, it is a pleasure to see such a well-managed example as this. Mr. Farr, who ran the winning group very close, had in an even lot a dense, well-coloured example of Croton Weismanni. In the class for six Ferns, confined to the county, Mr. Holland was 1st. For six Begonias, Mr. Day was 1st, with medium-sized, nicely-flowered plants; and for six Coleus, Mr. Day again came to the front with a highly coloured half-dozen. In the class for six Fuchsias Mr. Garfirth came in 1st with moderate-sized plants, nicely flowered, and grown in the form this fine old decorative plant should be, with no further training than a single stick to support the leading stem, leaving the side branches, which were dense and full, drooping in a mass over the sides of the pots. For plants grown in suspended baskets Mr. Thomas took 1st honours with Stanhopea insignis. Of zonal Pelargoniums, Achimenes, Petunias, and others of like character, there was a moderate display. Table plants shown in collections of twenty-four were collectively not well adapted for the purpose, the kinds chosen being too heavy.

Cut Flowers.—Of Roses there was a limited competition. Collections of cut flowers in twenty-four varieties were shown by several exhibitors, Messrs. Ball & Co. taking the 1st prize in one class, Mr. Thomas, Mr. Holland, and Mr. Garfirth receiving the prizes in the order of their names in another.

Fruit.—In the class for nine dishes, Pines excluded, Mr. Day took the lead, his best dishes being Black Hamburgh and Muscat of Alexandria Grapes, Peaches, Nectarines, and Figs. With six dishes, Pines excluded, Mr. Thomas was 1st, Mr. Farr 2d. Three bunches of black Grapes.—1st, Mr. Miller, with Black Hamburghs nicely coloured. Three bunches of white Grapes.—With these Mr. Day took the lead, staging Foster's Seedling, very well done, good bunches, well coloured. Mr. Thomas, who was 2d, likewise showed Foster's Seedling. Mr. Miller was 1st for a very fine dish of Peaches, Mr. J. R. Lock being 2d. With Nectarines Mr. Day was 1st.

Vegetables were present in great force and excellent condition, both the large and also the smaller collections. With fifteen dishes Mr. F. S. Ingram was 1st, Mr. Day 2d. Eight dishes.—1st, Mr. S. Allen; 2d, Mr. Thomas.

Messrs. John Perkins & Son, Billing Road Nursery, filled a good-sized tent with a large and beautifully grown collection of miscellaneous stove and greenhouse plants, consisting of Eucharis amazonica, Pelargoniums, zonal and Ivy-leaved varieties, associated with Palms, Crotons, Ferns, Caladiums, and others of like character. From Messrs. Ball & Co. came a nice group of flowering and fine-leaved plants of a decorative character.

The exhibition collectively was a large one, comprising some 125 classes, including cottagers', who came out in force with vegetables, window plants, outdoor flowers, hardy fruit, and wild flowers. There was also an exhibition of seedling Potatos, about which, so far as either the quantity or the appearance of the varieties shown, little comment is required.

Buckingham Floral and Horticultural: *July 31.*—This was the fifty-seventh annual exhibition of what is probably one of the oldest societies in the United Kingdom, and the site of the show was, as usual, in the grounds of G. R. Ellis, Esq., quite in the heart of the town, and access to which is had from the market place. It was one of the best exhibitions the Society has ever held, but the enjoyment of it was sadly marred by a deluge of rain, which fell soon after the grounds were open to the public.

A few classes—about sixteen in number—are open to all comers, and as the prizes are pretty good for a provincial show some good contributions were forthcoming. The leading class was for twelve ornamental foliage-plants, and here Mr. Miller, gr. to R. Loder, Esq., Whittlebury, was 1st, with a very good lot, comprising Croton interruptus, C. angustifolius, Acalypha musaica, finely grown and coloured; Pandanus utilis, Phyllanthus roseo-pictus, very good; Cycas revoluta, Latania borbonica, &c. 2d, Mr. Haskins, gr. to His Grace the Duke of Buckingham, Stowe, who had good examples of Alocasia metallica, Pandanus Veitchii, Caladium Lowi, a fine Screw Pine, Croton variegatus, &c. The best six plants came from Mr. W. H. Small, gr. to A. Byass, Esq., Buckingham, whose best specimens were Latania borbonica, Croton Weismanni, and C. variegatus. Mr. Small also had the best six Ferns, having capital plants of Neotopteris Nidus, Adiantum Farleyense, A. cuneatum, and Lygodium scandens. Strange to say, though good prizes were offered for six greenhouse plants in bloom, not a single collection was forthcoming.

The best specimen foliage plant was Chamærops Fortunei from Mr. Small, Mr. Miller being 2d with Alsophila excelsa: but in the class for a specimen flowering plant Mr. Miller had a capital plants of Allamanda Schottii, Mr. Small coming next with a well-grown Begonia. Tuberous-rooted Begonias here, as elsewhere, are finding great favour, and Mr. Small was placed 1st with a very good half-dozen in competition for the special prizes offered by Messrs. J. Laing & Co. Other flowering plants comprised Fuchsias, Pelargoniums, Balsams, Petunias, &c., on the whole fairly well grown.

Groups of plants arranged for effect were a good feature, and Mr. Haskins showed the possession of excellent taste by setting up a very creditable group

admirably displayed; the 2d prize went to Mr. J. De Fraine, nurseryman, Aylesbury. From Claydon House, the residence of Sir Harry Verney, Bart., M.P., came a very good collection of miscellaneous plants, consisting of Dracænas, Crotons, Ferns, flowering plants, &c., that was highly commended.

Table decorations are always an attractive feature at Buckingham. On this occasion Mr. J. Prewett, florist, Hammersmith, was 1st, with three pieces of a very meritorious character; Mr. Haskins being 2d, and Mr. W. J. Prewett, Banbury, 3d. The former had the best bouquet, Mr. Haskins being again 2d; and the same order was maintained with six button-holes—and very nice they were.

Cut flowers were numerous, and in the Rose classes there were some excellent flowers. Mr. John Mallock, florist, Oxford, had the best twenty-four varieties, three blooms of each, staging superb examples of Marie Baumann, La France, Dupuy Jamain, Louis Van Houtte, Alfred Colomb, Charles Lefebvre, Marie Van Houtte, Rubens, Etienne Levet, Duke of Edinburgh, Comtesse de Sereneyi, A. K. Williams, Beauty of Waltham, &c. In addition this exhibitor staged four boxes of charming Tea and Noisette Roses, including Madame Lambard, Marie Van Houtte, Jean Pernet, Comtesse de Nadaillac, Anna Olivier, Souvenir d'Elise Vardon, Perle des Jardins, and others. The same exhibitor also staged the best twelve cut blooms. Boxes of twelve bunches of cut flowers were finely shown by Messrs J. Prewett and Haskins; and the first-named exhibitor had the premier box in another class also, Mr. S. Bloxham, gr. to the Hon. P. Barrington, being 2d. There were many other classes for cut flowers, but they contained nothing worthy of special mention.

Some very good fruit was shown. Mr. Bloxham had the best eight dishes, staging Black Hamburgh and Muscat of Alexandria Grapes, Peaches, Nectarines, Melon, &c.; Col. the Hon. J. Drummond, Nantwich, was 2d. Mr. Bloxham had the best two bunches of black Grapes, staging well-finished Hamburgh; Mr. Miller being 2d. In the white class Mr. T. P. Willis, of Winslow, had two very good bunches of Foster's Seedling; Mr. J. Richardson, Brockley, being 2d with the same variety. Peaches were very good, and all hardy fruits, excepting Apples and Pears, which appear to be unusually late this season, were very fine.

In all the departments vegetables were superb, the Potatos numerous and very fine. In not a few cases the vegetables shown by cottagers were equal to those produced by gardeners. The soil about Buckingham appears to be particularly favourable to the production of fine vegetables. In all the Potato classes International Kidney was to the fore; while the new red kidney, Mr. Bresee, was in excellent form. Onions, Carrots, Peas, Lettuce, Beans, and all the leading vegetables were not only very fine but remarkably numerous. In the cottagers' tent were some capital collections of wild flowers, named with great care and correctness; and it is said there is a rich collection of wild flowers about Buckingham, and some excellent botanists in the villages.

Warwick Amateurs' and Cottagers' Society: *Aug.* 1.—When it is stated that this was the third exhibition of this Society, that the competition is open only to *bonâ fide* amateurs and cottagers who reside within the borough of Warwick, and that the entries were nearly a thousand, it must be admitted that great success has attended the efforts of the promoters. The show was held in the spacious Corn Exchange, but it has outgrown the dimensions of the building, and next season the Society will be compelled to betake itself to canvas tents in some one of the many suitable places round Warwick.

The appearance of the hall was enhanced by the judicious arrangement of some fine Palms, Ferns, and flowering plants, furnished by Mr. A. D. Christie from Warwick Castle Gardens. These were arranged along the centre of the middle table, and gave a finished appearance to it. All the bays round the external walls were filled with a number of stove and greenhouse plants from Mr. R. Greenfield, gr. to T. Lloyd, Esq., The Priory Gardens. Mr. Moorhouse, gr. to G. N. Nelson, Esq., also sent a good group of plants, and in all these cases not one for competition.

Of the plants staged on this occasion much need not be said, but they were, on the whole, decidedly creditable to the exhibitors, seeing that no gardeners are allowed to compete. There were a great many classes for plants both for amateurs and cottagers, and while the former could not compete in the cottagers' classes the latter could enter all those for amateurs.

Cut flowers of many kinds were shown, also Epergnes, bouquets, button-holes, and in all cases considerable interest was awakened in the various competitions. Mr. Thomas Haynes, of Tulip renown, formerly of Derby, and now of Warwick, was foremost with Carnations, Picotees, Pansies, and Stocks, defeating all opponents in the amateurs' division.

Throughout hardy fruits and vegetables were very fine. Potatos were a great feature; but in the cottagers' classes, though some were very good, there was too much coarseness. Woodstock Kidney, International Kidney, Ashleaf, Mr. Bresee, and the American Rose were very good among kidneys; the leading round varieties were Blanchard, Grampian, and Schoolmaster. The best collections in the dealers' class for twelve varieties of Potatos, and in the amateurs' for six, had to be disqualified through staging International Kidney twice—once under the name of Woodstock Kidney; and it was said to have been bought from a seed house under the latter name. In the cottagers' class for three dishes of Potatos there were twenty-one exhibitors, Mr. W. Wilcox being 1st, with very good samples of Woodstock Kidney, International Kidney, and Beauty of Hebron. Mr. H. J. Banks was very successful as an amateur, having the best dish of round Potatos in Blanchard, and the best dish of kidney in Woodstock Kidney.

An excellent collection of fruit was staged by Mr. C. Wilson, nurseryman, Warwick, in the dealers' division for not less than twelve varieties; and he was also 1st for the best collection of vegetables. Both were highly praiseworthy

Mr. T. Perkins, nurseryman, Leamington, staged, not for competition, several boxes of Roses, comprising some remarkably fine blooms of Duchess of Bedford, a glowing crimson variety of great merit; Reine Marie Henriette, Prince Camille de Rohan, Thomas Mills, Senateur Vaisse, very fine; Magna Charta, Cheshunt Hybrid, Madame Lambard, Jean Ducher, Anna Olivier, Innocente Pirola, &c., and also some very fine bouquets. These were a great attraction to the numerous visitors; indeed, the spacious Corn Exchange was most inconveniently crowded during the latter part of the day, but by no means to the dissatisfaction of the promoters.

Beckenham Horticultural: *Aug.* 6. — Held on Bank Holiday, in some elevated and charming grounds at Beckenham, and in the midst of some of the most beautiful of suburban residences and scenery, it was difficult not to deplore that such a first-rate locality should be represented by but a third-rate show. We fear in this case the views of the promoters are very narrow-minded, and inasmuch as the committee is almost exclusively composed of local exhibitors, it does seem as if selfish interests were more studied than the interests of horticulture. It is enough to say that were the district properly represented both on committee and in the show, one of the very best around London, and quite equal to the fine shows held at Ealing, Richmond, and elsewhere, ought to be seen at Beckenham. The cottager element at this show is always a good one, because it includes all the residents on the Alexandra estate at Penge, and these have unusually large cottages, and many of them good allotment gardens also, so that not only are these so-called cottagers of a very superior type socially, but their exhibits are of an excellent kind.

Amongst the most attractive features of the show was a fine group of plants sent by Messrs. John Laing & Co., Forest Hill, and inclusive of some boxes of capital cut Roses set in a dense border of Palms, Crotons, Begonias, Gloxinias, &c. From the same firm also came some good black and white Grapes and cut blooms of Hollyhocks. Messrs. H. Cannell & Sons, Swanley, sent boxes of fine show, bouquet, and single Dahlias, the latter specially exhibiting some very rich colours. Plant groups were more gay than decorative in the best sense, and though the first collection of plants came from Mr. Steer, gr. to R. Reed, Esq., Beckenham, the most attractive one had for its centre one of the best grown lots of white, mauve, and blue Campanula pyramidalis we have seen for many a day. Gardeners who go in for grouping at this time of the year should make a note of these hardy plants, for as shown they were truly beautiful. These were staged by Mr. Pascoe, gr. to W. Roberts, Esq., Beckenham. The competition for Mr. Laing's showy Begonia pictures, the best six plants of Begonias, stout and well flowered, came from Mr. Wright, gr. to J. W. Perkins, Esq., and included of named sorts, J. W. Farren, Mrs. Stonor, and Thomas Brassey, and some good seedlings. Mr. Spreadbury, gr. to Mrs. Pearce, Beckenham, had a capital lot of plants also; and the only, but an excellent lot, of Achimenes came from Mr. Steer. The best flowered bedding Pelargoniums—but at Beckenham still dubbed Geraniums—came from Mr ,Daisley, gr. to R. Pamphilon, Esq., Beckenham, and Mr. J. Wright's second best were all good doubles.

The class for stove and greenhouse plants in flower brought some good Orchids, Mr. W. Reed, gr. to J. Goddard, Esq., Elmer's End, having good Cattleya crispa, Oncidium crispum, and Epidendrum nemorale majus; Mr. Steer, who had the 2d best lot, having the two former kinds, a huge Gloxinia, &c. In this class an equal 1st was awarded to Mr. Spreadbury for a fine half-dozen of greenhouse plants, inclusive of two finely-flowered Campanula pyramidalis, two fine Begonias, and a very handsome Fuchsia. There were as usual lots of uninteresting Ferns and other foliage plants, of which show frequenters are pretty well satiated, and heartily wish were anywhere else. Far more beautiful than a big lot of these was a simple wicker basket filled with flowers of the most lovely colours of the Salpiglossis and Maidenhair Fern; and hardly less pleasing was a trumpet vase filled with single Dahlias and ornamental grasses. Of double Dahlias there were many fine flowers from local growers, as also Roses and other cut flowers.

Fruits were very good indeed, and specially fine was a dish of Noblesse Peaches.

Vegetables were excellent, and the competition for Messrs. Jas. Carter & Co.'s prize was good, but the exhibits were all too much crowded in flat baskets. In the Potato classes were many capital samples; the best white kidneys were Cosmopolitan and International, and coloured kind Beauty of Hebron. Vicar of Laleham took all the prizes in the class for coloured rounds, and Porter's Excelsior and Schoolmaster were the best white ones. The cottagers' vegetables were generally first-rate.

Portmadoc Horticultural: *Aug.* 3.—In propitious weather this Society held its fourth annual meeting, which proved a thorough success, the arrangements being very efficient, and the exhibits brought together from the principal gardens in the three counties to which competition is open, viz., Merioneth, Carnarvon, and Anglesey, would have done credit to a more pretentious show. In the open class for the best collection of fruit Lord Newborough (Mr. Hartwell, gr.) took 1st honours, Mr. Bennett, gr. to the Hon. C. Wynn, Rhug, Corwen, being 2d; but it is fair to state that Mr. Bennett's collection suffered much from an accident in transit. For black and white Grapes Mr. Hartwell was again 1st, Mr. Cooke, gr. to J. Vaughan, Esq., Nannau, Dolgelly, being an excellent 2d for black, and Mr. Severn, gr. to F. S. Percival, Esq., 2d for whites. All the Muscats shown were deficient in finish. Mr. Bennett took the 1st prize for Peaches and Nectarines, with splendid fruit; and Mr. Hartwell was 1st for Pine-apple and Melon. For the best collection of vegetables Mr. John Jones, gr. to — Findlay, Esq., Abergwynant, Dolgelly, took the lead for the third year in succession; very fine collections were also staged by Messrs. Bennett, Cooke, Severn, and others. The best group of plants arranged for effect was by Mr. J. Jones, Abergwynant. The prizes for table plants were taken by Mr. Hartwell and Mr. Bennett. Prominent amongst cut flowers were some very fine trusses of zonal Pelargoniums from Nannau, Mr. Cooke securing the 1st prize, and also for some stands of remarkably fine Pansies; Mr. J. Jones had also some very good ones. Bouquets and table decorations were a good feature of the show, Mr. Bennett's and Mr. Hartwell's examples being much admired. The cottagers' and amateurs' classes were well filled. The vegetables were of excellent quality, which must in a great measure be attributed to the favourable season. Messrs. James Dickson & Sons, Chester, staged a nice lot of miscellaneous plants, not for competition; and some stands of Roses from Messrs. Francis & Arthur Dickson, Chester, were much admired. A nice group of plants, not for competition, from W. E. Oakley, Esq., Langbwlch, were noteworthy. All the exhibits were arranged in three spacious marquees in the park. *T. L.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, August 8, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Aug.	In.	In.	°	°	°	°	°	°	°		In.
2	30.02	+0.27	72.0	52.2	19.8	59.9	− 2.4	51.8	75	W.; W.NW.	0.00
3	30.04	+0.29	69.0	55.5	13.5	62.3	+ 0.1	47.9	59	S.W.	0.02
4	30.04	+0.29	70.0	55.0	15.0	60.9	− 1.3	50.2	50	S.W.	0.00
5	29.91	+0.17	68.0	56.5	11.5	61.4	− 0.7	58.1	90	W.SW; S.W.	0.05
6	29.73	−0.02	70.1	59.5	10.6	62.6	+ 0.5	56.9	79	W.S.W.	0.07
7	29.82	+0.07	71.5	53.2	18.3	60.9	− 1.1	56.6	87	S.W.; W.NW.	0.00
8	29.59	−0.16	61.0	51.0	10.0	55.9	− 6.1	51.1	84	W.; W.S.W.	0.18
Mean	29.88	+0.13	68.8	54.7	14.1	60.6	− 1.6	53.2	75	S.W.	0.32

Aug. 2.—Dull day and night, but fine and warm.
— 3.—Fine and bright at times; rain falling occasionally. Fine warm night.
— 4.—Fine bright, warm day; nearly calm. Fine night; windy.
— 5.—Drizzling rain in morning: dull day. Fine. Overcast at night.
— 6.—Drizzling rain in morning. Fine and bright day; warm. Rain from 9.50 P.M. to 10.10 P.M.
— 7.—Fine bright, warm day. Fine night; dark. Lightning at times.
— 8.—Fine and bright till 11 A.M.; rain throughout the day and night. Thunderstorm at night.

London: *Atmospheric Pressure.*—During the week ending August 4 the reading of the barometer at the level of the sea decreased from 30.07 inches at the beginning of the week to 29.94 inches by 9 A.M. on the 29th, increased to 29.97 inches by 3 P.M. on the same day, decreased to 29.63 inches by 9 A.M. on the 30th, increased to 30.21 inches by 9 A.M. on August 2, decreased to 30.20 inches by 3 P.M. on the same day, increased to 30.23 inches by 9 A.M., and decreased to 30.22 inches by midnight on the 3d, increased to 30.25 inches by 9 A.M. on the 4th, and was 30.19 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.84 inches, being 0.14 inch lower than last week, and 0.07 inch above the average of the week.

Temperature. — The highest temperature in the shade in the week was 75°, on July 31; on July 30 the highest was 66°. The mean of the seven high day temperatures was 70°.1.

The lowest temperature in the shade in the week was 48°, on July 29; the lowest, on August 3, was 55°.5. The mean of the seven low night temperatures was 52°.9.

The greatest range of temperature was 23°, on July

29; the smallest was 13°.5, on July 30 and August 3. The mean of the seven daily ranges was 17°.2.

The mean temperatures were—on July 29, 58°.6; on the 30th, 57°.9; on July 31, 62°.2; on August 1, 59.°2; on the 2d, 59°.9; on the 3d, 62°.3; and on the 4th, 60°.9; and these were all below (excepting on August 3, which was 0°.1 above its average) by 3°.7, 4°.4, 0°.1, 3°.1, 2°.4, and 1°.3 respectively.

The mean temperature was 60°.1, being 3°.4 higher than last week, and 2°.1 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 130°.6, on July 29. The mean of the seven readings was 110°.8. The lowest reading of a minimum thermometer placed on grass, and fully exposed to the sky, was 42°, on July 29. The mean of the seven readings was 45°.8.

Rain.—Rain fell on six days, to the amount of 0.27 inch.

England: *Temperature.*—During the week ending August 4 the highest temperatures were 78°.2, at Cambridge, and 75° at Blackheath and Hull, the highest at Liverpool, was 67°.2, at Bolton, 68°.5, and at Preston 69°. The general mean was 72°.

The lowest temperatures in the week were 42°.5 at Cambridge, 43° at Nottingham, and 43°.1 at Wolverhampton; the lowest temperature at Liverpool was 52°.1, at Brighton 51°.8, and at Preston 51°. The general mean was 47°.6.

The greatest ranges of temperature in the week were 35°.7 at Cambridge, 31°.6 at Nottingham, and 28° at Hull; the least ranges were 15°.1 at Liverpool, 18° at Preston, and 20°.5 at Bolton. The general mean was 24°.4.

The mean of the seven high day temperatures was highest at Cambridge, 73°; at Brighton 71°.9, at Nottingham 71°.3; and was lowest at Bolton, 64°.5, at Liverpool 64°.7, and at Bristol 65°.2. The general mean was 68°.1.

The mean of the seven low night temperatures was highest at Preston, 55°.6, at Liverpool 54°.9, and at Brighton 54°.5; and was lowest at Nottingham, 49°.2, at Hull 49°.4, and at Wolverhampton 49°.9. The general mean was 52°.

The mean daily range of temperature was greatest at Cambridge, 22°.7, at Nottingham 22°.1, and at Hull 20°.9; and was least at Liverpool, 9°.8, at Preston 10°.4, and at Bristol 12°.4. The general mean was 16°.1.

The mean temperature was highest at Brighton, 61°.4, at Blackheath 60°.1, and at Cambridge 59°.9; and was lowest at Bolton, 55°.6, at Wolverhampton 56°.1, and at Bristol 57°.2. The general mean was 58°.3.

Rain.—The largest fall was 1 inch at Bradford, 0.79 inch at Leeds, and 0.70 inch at Bristol; the smallest falls were 0.03 inch at Preston, and 0.05 inch at Cambridge and Liverpool. The general mean fall was 0.34 inch.

Scotland: *Temperature.*—During the week ending August 4 the highest temperature was 73°, at Dundee and Perth; at Paisley the highest temperature was 66°.5. The general mean was 69°.4.

The lowest temperature in the week was 43°, at Perth; at Leith the lowest temperature was 50°.2. The general mean was 46°.3.

The mean temperature was highest at Dundee, 58°.9; and lowest at Edinburgh, 56°.7. The general mean was 57°.8.

Rain.—The largest fall was 0.72 inch, at Edinburgh, and the smallest was 0.05 inch at Greenock. No rain fell at Glasgow or Paisley. The general mean fall was 0.28 inch.

JAMES GLAISHER, F.R.S.

The Hop Crops.—The *Kentish Observer* of Thursday says:—We cannot this week report as favourably as we had hoped to do respecting the Hop plantations in Kent and Sussex. The last six or eight days have been the critical time for the crop—the period during which the fate of the coming growth is generally decided one way or another. Reports from the different districts vary a good deal—some say the gardens have done well, others that prospects have considerably diminished; some speak of freedom from mould or vermin, others of the presence and extension of both mould and lice. The weather is certainly not of that settled and clear character so much needed for the Hops, and a few days like that of Sunday would no doubt very soon bring about a blight. As it was it greatly assisted the spread of vermin in many gardens. We have been shown pieces of foliage taken from grounds hitherto most promising in appearance, which, on examination, are found to be literally covered with lice. Growers are naturally averse to making known the full extent of the mischief that has arisen, but we have ascertained from independent sources that a large proportion of the acreage in both counties has within the last few days been visited by swarms of vermin, and that great alarm is felt by planters lest the young Hop flowers should be attacked. What is wanted to avert this calamity is plenty of hot sunshine, with occasional thunderstorms.

Enquiries.

He that questioneth much shall learn much.—Bacon.

Blood Manure.—Will some of your correspondents kindly inform me as to the best method of using blood as a manure? My soil is a light sandy loam, and very poor, having been a Larch plantation for thirty or forty years. I intend using the land for nursery purposes, and have the opportunity of getting a quantity of blood from a slaughter-house near. Will any one having had experience with it kindly give me the benefit of it? *John Charlton, Summer Vale Nursery, Tunbridge Wells.* [Mix it with good loam, dry powdered clay, or road-scrapings, and let the heap stand until the blood has become decomposed. Ed.]

Fruit Preserving Without Sugar.—Will some of your readers kindly inform us how fruit is put down for preserving without sugar, in what is termed a half-boiled condition? Also please say if the use of salicylic acid is necessary in the process, and what kind of vessels (casks, tins, &c.) are best to store it in? *W. & S.*

Fruits for a South Wall in Ayrshire.—Will some of your correspondents name the three best Plums, Cherries, and Pears respectively for a good wall facing south-west, the border being formed of fresh loamy turf? Flavour and free-bearing qualities are essential, size of fruit is not. *Disappointed, Ayrshire.*

Answers to Correspondents.

Carnation and Picotee Seedlings: *Thomas Smith.* 1, White, delicately pricked with pink; form and quality good; a pleasing variety. 2, Rosy-salmon on shaded buff ground; large and full; fimbriated; very attractive.—*T. M. Carnations:* 1, Pale C.B., too thin in substance, though pleasing in colour. 2, A very promising scarlet flake; full of colour; smooth, and of good substance. 3, Crimson bizarre, finely marked; very promising. 6, Rose flake of a pleasing shade: try all. 7, Rich C.B. or P.P.B.; good petal; well marked; fine colours. 8, Lt. C.B.; pretty, but wanting in the rich coloration of Nos. 7 and 3. 9, P.P.B.; small, but of exquisite quality; with good growth may attain a high place in its class. *Picotees:* 13, 14, and 15, pretty border varieties, nothing more. 13 and 15 are from shop seed. Carnations Nos. 3, 7, and 9 should be carefully preserved; well developed they may attain a high place in their class. *E. S. Dodwell.*

Cyclobothra pulchella: *Botanic.* A bulbous plant, native of California, and procurable at any of the large nurseries or seed establishments.

Cytisus: *Inquirer.* Put in cuttings of half-ripened wood now, or a little later. Insert them in well-drained pot sfilled with sandy peat, and with about an inch of silver sand on the top. Cover them with a bell glass, and keep them in a moderately warm house or close frame.

Gentlemen's Gardeners: *Rival* asks if a ladies' gardener is eligible to compete for a special prize offered for competition in a class stated in a schedule to be "open to gentlemen's gardeners." Why, certainly! What is there to prevent him?—the terms quoted being always understood to aim only at the exclusion of nurserymen and trade growers generally.

Insects.—The patch of eggs on the leaf of a Green Gage Plum are those ot a moth, most probably the brown-tailed Bombyx chrysorrhœa. *I. O. W.*—*H. G. B.* Your Fir trees are attacked by the common Chermes Laricio, which secrete the white downy matter at the bases of the leaves. We cannot advise any precise treatment to get rid of the insects, but we doubt if the red colour of the leaves of some of the branches is caused by those insects, as those sent show no signs of them. The trunks of the trees might be washed with a solution of soft-soap and lime-water. *I. O. W.*

Lettuce: *G. M.* writes:—"I was a judge lately at a local show, and one of my colleagues wanted to disqualify all the collections of vegetables that contained Lettuces, on the ground that they were not vegetables, but he was overruled. Which of the judges were right?" Those, of course, who ruled that Lettuces are vegetables. We never heard of such a contention before.

Melons: *N. G. N.* Without fuller details as to management we cannot say with any degree of certainty what is the matter with your Melons. With plants growing vigorously the fruits may fall off from a deficiency of bottom-heat; from syringing or watering them overhead in the period between setting the fruit and their becoming the size of a hen's-egg; or from non-fertilisation. Your soil and temperature seem to be quite proper. Fertilise the female blooms with the pollen from newly-opened flowers between 10 A.M. and 11 A.M., and permit no wetting of the blooms for a week.

Names of Plants: *J. J. W.* Oncidium dasytyle.—*W. F. Brooks.* Trachelium cœruleum.—*J. A. C.* Malva moschata.—*H. H.* Ononis arvensis.—*Subscriber.* 1, Selaginella Braunii; 2, S. Martensii? 3, indeterminable; no fruit.—*J. H. K.* Pteris semipinnata.—*S. Y.* Veronica longifolia.—*J. Hibbard.* A good form of Vanda suavis and Oncidium incurvum: the others are—1, specimen insufficient; 2, Achillea ptarmica flore-pleno; 3, Centaurea montana, var. albida; 4, Lychnis coronaria; 5, Cephalaria tatarica, probably, from the miserable scrap sent; 6, Kerria japonica var. variegata.—*R. O'C.* 1, Spiræa sorbifolia; 2, S. callosa; 3, S. ariæfolia.—*F. R. K.* Phalænopsis roseum.—*E. K.* Quercus rubra, the North American Red Oak.

Potting: *J. C.* If well done we should consider about fifty as good work.

Vines: *D. J.* The leaf-galls on your young Vine leaves are those of the dreaded Grape-louse (Phylloxera vastatrix). Pick off all the leaves having galls on them, and burn them at once. Where did you get the young Vines from?

*** All communications intended for publication should be addressed to the "*Editor*," and not to the Publisher or to any member of the staff personally. The Editor would also be obliged by such communications being *written on one side only of the paper* and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

☞ Foreign Subscribers sending Post-Office Orders are requested to send them to the Publisher of this journal, 41, Wellington Street, Covent Garden, and to make them payable to William Richards, at the post-office, Drury Lane, London, W.C.

Intelligent Readers, please note:—*Letters relating to* Advertisements, *or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editor.*

CATALOGUES RECEIVED.

Dammann & Co., Portici, near Naples—Vegetable and Flower Seeds.

Waite, Nash, Huggins & Co., 79, Southwark Street, S.E.—Flower Roots, Wholesale.

James Dickson & Sons, 32, Hanover Street, Edinburgh—Dutch Flower Roots.

Strike & Hawkins, 62, High Street, Middlesborough—Bulb Catalogue.

Alfred Legerton, 5, Aldgate, London, E.—Dutch and other Flower Roots, Wholesale.

J. & R. Thyne, 60, Buchanan Street, Glasgow—Bulbous Roots and Spring Flowering Plants.

R. & G. Cuthbert, Southgate, N.—Dutch Flower Roots.

Little & Ballantyne, Carlisle.—Roses, Clematis, and Herbaceous Plants.

R. & G. Neal, Wandsworth Common, S.W.—Cape, Dutch, and other Bulbs.

Dicksons & Co., 1, Waterloo Place, Edinburgh—Flower Roots and Spring Flowering Plants.

Haage & Schmidt, Erfurt, Germany—Flowering Bulbs and Roots, &c.

C. W. Meitzsch, Dresden—Roses, Hardy Trees and Shrubs, &c.

Wm. Paul & Son, Waltham Cross, N.—Dutch and other Bulbs, Camellias, Azaleas, &c.

Louis Van Houtte, Ghent, Belgium—Bulbs and other Flower Roots.

Communications Received.—H. Correvon.—A. H.—C. T.—W. O'B.—Paul.—C. W. D.—A. O.—Botanic.—J. E.—T. S. W.—S. J.—A. Dallière.—B. S. W.—H. E.—M. F.—J. T. R.—B. Y.—W. Thompson.—J. A.—W. M. C.—M. T. M.

Markets.

COVENT GARDEN, August 9.

[The subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. Ed.]

Market still heavily supplied. Prices lower in the early part of the week, but now steady. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	1 6- 2 6	Gooseberries, ½-siv.	2 6- 3 3
Cherries, ½-sieve	7 0-13 0	Lemons, per case	15 0-20 0
Currants, Black, ½-sieve	2 6- 3 0	Melons, each	1 0- 3 0
— Red, ½-sieve	3 0- 4 0	Peaches, per doz.	2 0- 6 0
Figs, per dozen	2 0- ..	Pine-apples, Eng., lb.	2 0- 3 0
Grapes, per lb.	1 0- 3 0	— St. Mich., each	3 6-10 0
		Strawberries, per lb.	0 3- 0 9

Vegetables—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	2 0- 3 0	Lettuces, Cabbage, per dozen	1 0- ..
Beans, French, lb.	0 4- ..	— Cos, per dozen	1 6- ..
— Scarlet, per lb.	0 4- ..	Mint, green, bunch	0 6- ..
Beet, per doz.	1 0- ..	Mushrooms, p. baskt.	1 0- 2 0
Cabbages, per doz.	1 0- 2 0	Onions, per bunch	0 6- ..
Carrots, new, p. bun.	0 6- ..	— Spring, per bun.	0 6- ..
Cauliflowers, English, dozen	2 0- 3 0	Parsley, per bunch	0 4- ..
Celery, per bundle	1 6- ..	Peas, English, quart	1 0- ..
Cucumbers, each	0 4- 0 8	Radishes, per doz.	1 6- ..
Endive, French, per dozen	2 0- ..	Small salading, pun.	0 4- ..
Garlic, per lb.	1 0- ..	Spinach, per bushel	3 6- ..
Herbs, per bunch	0 2- 0 4	Sweet Potatos, lb.	0 6- ..
Horse Radish, bund.	3 0- 4 0	Tomatos, per lb.	1 0- ..
		Turnips, new, bun.	0 4- ..
		Vegt. Marrows, each	0 3- 0 4

Potatos.—Jersey Potatos much diseased, and trade bad; Kent Kidneys, £5 to £6 per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	12 0–24 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 0
Asters, per doz. ..	4 0– 8 0	Fuchsias, per dozen	4 0– 9 0
Begonias, per doz. ..	6 0–12 0	Hydrangea, per. doz.	9 0–24 0
Bouvardia, doz. ..	12 0–18 0	Lilium longiflorum, per dozen.. ..	18 0–42 0
Caladiums, per doz.	6 0–24 0	Liliums, various, doz.	12 0–36 0
Calceolarias, dozen..	4 0– 9 0	Lobelias, per dozen	3 0– 6 0
Cockscombs, doz. ..	4 0– 9 0	Marguerite Daisy, per dozen	12 0–24 0
Coleus. doz.	3 0– 6 0	Mignonnette, doz. ..	4 0– 6 0
Dracæna term. doz.	30 0–60 0	Myrtles, per doz. ..	6 0–12 0
—viridis, per doz. ..	12 0–24 0	Palms in variety, each	2 6–21 0
Erica, various, doz.	12 0–36 0	Pelargoniums, scarlet, per dozen ..	2 0– 6 0
Euonymus, various, per dozen	9 0–18 0	— decorative, doz.	6 0– 8 0
Evergreens, in var., per dozen	6 0–24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Marguerites, 12 bun.	6 0– 9 0
Asters, 12 bunches..	4 0– 6 0	Mignonette, 12 bun.	6 0– 9 0
— French, per bun.	1 0– 3 0	Marigolds, 12 bun...	2 0– 4 0
Bouvardias, per bun.	1 0– 1 6	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 0
Canterbury Bell, bun.	1 0– 2 0	Pansies, 12 bunches	0 9– 1 6
Carnations, 12 blms.	1 0– 3 0	Pelargoniums, 12 spr.	0 6– 1 0
— 12 bunches ..	3 0– 6 0	— zonal, 12 sprays	3 0– 6 0
Cornflower, 12 bun..	1 6– 4 0	Picotees, 12 bun. ..	2 0– 6 0
Dahlias, 12 bun. ..	4 0– 8 0	Primula, double, bun.	1 0– 1 6
Delphinium, p. bun.	0 6– 1 0	Pyrethrum, 12 bun..	3 0– 6 0
Eucharis, per doz. ..	4 0– 6 0	Roses (indoor), doz.	2 0– 6 0
Eschscholtzia, 12 bn.	2 0– 4 0	— (outdoor), 12 bun.	3 0– 6 0
Gardenias, 12 blms..	3 0– 6 0	— coloured, doz. ..	3 0– 8 0
Gladioli, 12 spikes..	1 6– 4 0	Stephanotis, 12 spr.	2 6– 4 0
Heliotropes, 12 sp. ..	0 6– 1 0	Stocks, 12 bunches..	3 0– 6 0
Lapageria, white, 12 blooms	3 0– 6 0	Sweet Peas, 12 bun.	3 0– 6 0
— red, 12 blooms..	1 0– 3 0	Sweet Sultan, 12 bun.	4 0– 6 0
Liliums, 12 bun. ..	12 0–18 0	Tropæolum, 12 bun.	1 0– 2 0
Lavender, 12 bun. ..	6 0– 9 0	White Jasmine, bun.	0 6– 1 0

SEEDS.

LONDON: *Aug.* 8.—The seed market to-day was quite of a holiday character, there being scarcely any business doing. New French Trifolium is rather dearer. This season's Essex Rape seed is both cheap and good. There is a better trade for sowing Mustard. New Rye is now offering. Operations in bird seeds are restricted. Feeding Linseed is steady *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

Monday being a Bank Holiday there was no business done at Mark Lane. On Wednesday the supply of English Wheat was light, and firmly held. Foreign did not sell largely, but sales in some cases were effected at prices not obtainable on Friday last by about 6*d.* per quarter. Flour was fairly steady, but with a slow sale. Beans and Peas sold in retail at previous value. Barley was without quotable change. There have been good arrivals of Oats, but prices were upheld, and there was a steady trade.—Average prices of corn for the week ending August 4:—Wheat, 43*s.* 3*d.*; Barley, 30*s.*; Oats, 23*s.* 10*d.* For the corresponding period last year:—Wheat, 51*s.* 3*d.*; Barley, 29*s.* 1*d.*; Oats, 25*s.* 3*d.*

CATTLE.

At Copenhagen Fields on Monday the trade for beasts was not brisk, and prices in some cases rather easier than on the previous market day. Sheep brought about late value. Of calves, best qualities sold steadily, plain sorts badly. Quotations:—Beasts, Canadians, 5*s.* 4*d.* to 5*s.* 8*d.*; Danish, 4*s.* 8*d.* to 5*s.* 6*d.*; Gothenburg, 4*s.* 10*d.* to 5*s.* 2*d.*; British, 4*s.* 6*d.* to 5*s.* 4*d.*, and 5*s.* 6*d.* to 6*s.* 2*d.*; calves, 5*s.* to 6*s.* 6*d.*; sheep, foreign, 5*s.* 3*d.* to 6*s.* 4*d.*; British, 5*s.* 6*d.* to 6*s.*, and 6*s.* 4*d.* to 7*s.*—On Thursday trade showed greater vitality, both beasts and sheep meeting with more attention, and quite as dear as on Monday. Calves and pigs were steady at late quotations.

HAY.

Tuesday's Whitechapel Market report states that there were moderate supplies of Clover, and trade dull, especially for inferior qualities. Quotations:—Prime meadow hay, 80*s.* to 92*s.*; inferior, 40*s.* to 65*s.*; prime Clover, 100*s.* to 120*s.*; inferior, 60*s.* to 75*s.*; prime second cut, 90*s.* to 108*s.*; and straw, 30*s.* to 40*s.* per load.—On Thursday there was a large supply, and trade was very dull.—Cumberland Market quotations:—Superior old meadow hay, 86*s.* to 98*s.*; inferior, 65*s.* to 76*s.*; new, 65*s.* to 84*s.*; superior old Clover, 112*s.* to 120*s.*; inferior, 80*s.* to 95*s.*; new, 75*s.* to 100*s.*; and straw, 36*s.* to 40*s.* per load.

POTATOS.

The holidays have somewhat interfered with business, but the following represents the average prices realised:—English kidneys, 70*s.* to 100*s.* per ton; English rounds, 50*s.* to 80*s.* per ton; English Beauty of Hebron, 60*s.* to 90*s.* per ton; and English Roses, 60*s.* per ton.

COALS.

The following are the prices current at market during the week:—East Wylam, 16*s.*; Walls End—Tyne unscreened, 11*s.*; Lambton, 18*s.* 6*d.*; Wear, 17*s.*; Thornley, 18*s.*; Tees, 19*s.* 3*d.*

Government Stock.—On Monday there was no business on 'Change. Consols closed on Tuesday at 99⅞ for delivery, and 100 for the account. Wednesday's final figures were 100 to 100⅛ for delivery, and 100⅛ to 100⅜ for the account. The closing quotations of Thursday were 99⅞ to 100⅛ for delivery, and 100⅜ to 100¼ for the account.

HORTICULTURAL SHEET GLASS.

21 oz. Foreign, of the following sizes, in boxes of 100 and 200 feet, 3ds and 4ths qualities always kept in stock:—

14×12	20×12	20×14	20×16	20×18
16×12	16×14	20×15	22×16	22×18
18×12	18×14	18×16	24×16	24×18

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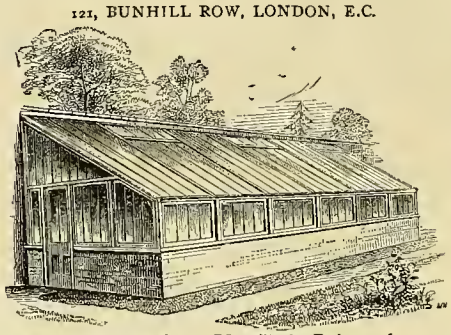

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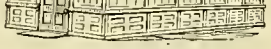
Illustrated Lists of Wooden Buildings, Greenhouses and Conservatories, and Concrete Slabs for walls, paths, and stages, sent post-free on application.

TENANT'S FIXTURE GREENHOUSES,



made in lights and easily erected, lower part framed and panelled; painted two colours. Improved Ventilating Gearing for houses over 12 feet long. Glazed with 21-oz. Glass, and Painted 3 coats of good oil colour.

Specimen size, 12 feet by 8 feet, £25 3*s.* 6*d.* For brickwork, £20.

LEAN-TO HOUSES

for building against existing walls, similar to above, 15 ft. by 10 feet, £24, or for brickwork, £19. Portable Cucumber Frames, painted 3 coats, glazed 21-oz. glass, 2-light Frame, 6 feet by 8 feet, £3 4*s.* 6*d.* Cases 4*s.*, allowed when returned.

All the above Carriage Paid to nearest Railway Station.

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PRICES FREE

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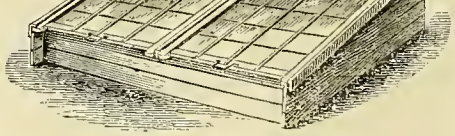

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Prices, delivered to any station in England:—

		£ s. d.
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3-light frame, 12 feet by 6 feet		5 5 0
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The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.

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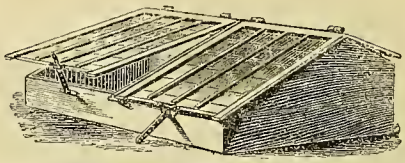

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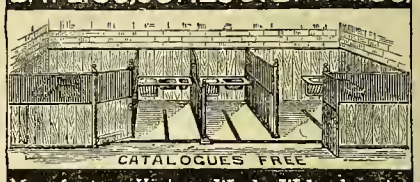

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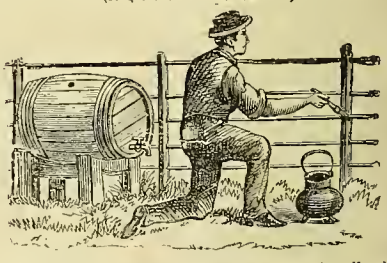

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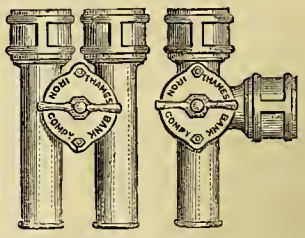

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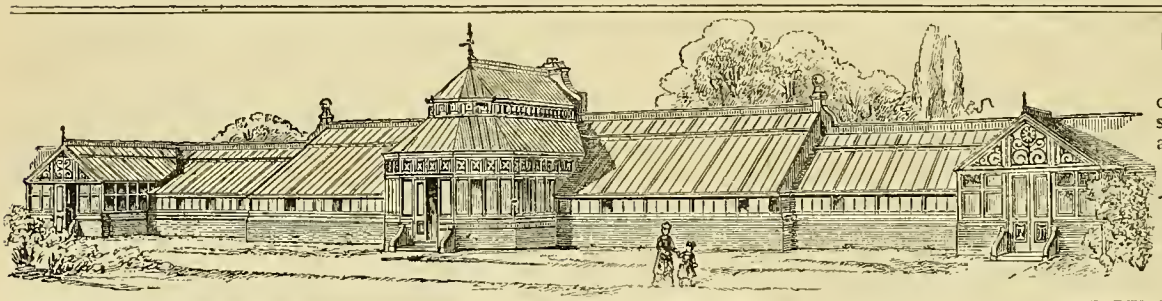

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R. AND A. MORRISON, The Nurseries, Elgin.

CREEPERS for WALLS, TRELLISES, &c., in great variety. See Descriptive LIST. Most of these plants being in pots, may be moved now.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ORCHIDS.—We invite intending Purchasers to pay us a visit and inspect our Houses.
The NEW PLANT AND BULB COMPANY, Colchester.
Send for our NEW LIST, No. 63.

Tea Roses—Tea Roses.

THE LIVERPOOL HORTICULTURAL COMPANY (John Cowan), Limited, have this year a splendid stock of Tea and other Roses in pots. Prices and full particulars on application to
The MANAGER, The Vineyard, Garston, Liverpool.

KELWAY AND SON, Langport, Somerset, offer HERBACEOUS PLANTS, DAHLIAS, single and double; PYRETHRUMS, single and double; PHLOXES and TEA ROSES; CALCEOLARIA and CINERARIA SEED.
CATALOGUES gratis and post-free.

Hyacinths, Tulips, Narcissus, Lilies, &c.

BUDDENBORG BROS., Bulb Growers, Hillegom, near Haarlem, Holland.
Wholesale CATALOGUE now ready, and will be sent post-free on application.

R. H. VERTEGANS' Descriptive Pocket CATALOGUE of Alpines and Hardy Perennials. Post-free on application.
Chad Valley Nurseries, Edgbaston, Birmingham.

Lælia purpurata

W. F. BOFF, 203, Upper Street, Islington, N., offers good pieces of LÆLIA PURPURATA, 5s. each; a few hundreds, smaller, at 12s. per dozen.

To the Horticultural Trade and others.

WILLIAM DENMAN, HORTICULTURAL AGENT, Covent Garden, W.C., will be pleased to receive Commissions from Continental and Provincial Nurserymen and others, in any matters connected with Horticulture.
Large quantities of LILY of the VALLEY, SPIRÆAS, PALMS, and numerous other stock, to offer at low prices.
Special offers on application.

MESSRS. SQUELCH AND BARNHAM, Fruit and Flower Salesmen, Covent Garden Market, W.C., are open to RECEIVE CONSIGNMENTS of choice FRUIT and FLOWERS. Baskets and Labels supplied.
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WANTED, CUTTINGS of the following PELARGONIUMS:—Robt. Fish, Mrs. Wright, Henri Jacoby, Newland's Mary, White Clipper, Amaranth, and Mad. Chas. König, Duchess of Bedford and Duchess of Edinburgh, Price per 100 to CHAS. BENNETT, Beshorough, Cork.

WANTED, CUTTINGS of Vesuvius, Silver-leaved, Pink, White, Tricolor, and Bronze GERANIUMS. State lowest price per 100 to
The MANAGER, The Nurseries, New Beckenham, Kent.

WANTED, 600 5-inch and 400 6-inch FLOWER POTS, rough make, for market purposes. Delivered free for cash to Troon Station, Ayrshire.
PETER COCKBURN, The Gardens, Barassie.

WANTED, PEACHES, NECTARINES, PINES, MELONS, GRAPES, TOMATOS, &c. Also EUCHARIS, Maréchal Niel ROSES, ORCHIDS, &c.
WISE AND RIDES, Fruit & Flower Salesmen, Covent Garden.

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PARCELS POST.—CARTERS' SPECIAL ORDER ROOMS and Parcels Post-office now open.

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EARLY FORCING BULBS.

JAMES CARTER AND CO. have RECEIVED THEIR FIRST CONSIGNMENTS of the above in splendid condition. See Advertisement on page 197.

CARTERS, The QUEEN'S SEEDSMEN, and by Royal Command to H.R.H. the Prince of Wales.
237 and 238, High Holborn, London, W.C.

Double White Sweet Scented

NARCISSUS BULBS for SALE, £1 per 1000. Apply to
T. MILLS, Market Gardener, Chiswick, Middlesex.

EIGHTY THOUSAND CLEMATIS, in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants.
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PINES.—To be sold, cheap, good clean stock including Queens, Jamaicas, smooth-leaved Cayennes and C. Rothschilds—4½ dozen Fruiting, 5 dozen Successions 12 months old, and 6 dozen suckers 6 months old. Apply to
Mr. JOHNSTON, The Gardens, West Lavant, Chichester.

POINSETTIA PULCHERRIMA, at 20s. per 100, £8 per 1000; now ready for 48's.
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ADIANTUM GRACILLIMUM, very large plants, in 24-pots, full of matured fronds, for furnishing or to cut from, 30s. per dozen; cheaper per hundred.
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Railway Stations—Catford Bridge, 5 minutes' walk: Forest Hill, 15 minutes to Stanstead Park Nursery, Forest Hill.

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REINE MARIE HENRIETTE, NIPHETOS, ISABELLA SPRUNT, RÊVE D'OR, &c. Strong plants, 12 to 15 inches high, 7s. per dozen, or 4 for 2s. 6d., carriage paid.
MAIRIS AND CO., Weston-in-Gordano, Bristol.

Hyacinths, Tulips, Crocus, Lilies, &c.

C. G. VAN TUBERGEN, Jun., Haarlem, Holland. Wholesale CATALOGUE now ready and may be had on application to
Messrs. R. SILBERRAD AND SON, 25, Savage Gardens, Crutched Friars, London, E.C.

Dutch Bulbs at Wholesale Prices.

BEFORE PURCHASING YOUR BULBS send for my PRICE LIST of Market Varieties of TULIPS and HYACINTHS. Over a Quarter of a Million Bulbs now in stock, and for Quality and Cheapness not to be surpassed.
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SPECIAL INVITATION.—Our Nurseries being now at their best, are open to all who may be interested in the cultivation of Fruit Trees and Roses.
The journey from London is an easy one, by the Great Eastern Railway to the Harlow or Sawbridgeworth Station.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

WHITE CLOVES for FORCING.—10 000 of the Hybrid White Clove (Mrs. Sinkins), large, bushy stuff, 1-yr. old, transplanted, 6s., 9s., and 12s. per dozen. The Trade supplied. Cash or suitable Exchange.
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STRAWBERRY RUNNERS, from Twenty Choice Varieties. Price LIST on application. Sample box of plants with fruit, 4d. "Manual on Strawberry Culture," 6d.
W. LOVEL AND SON, Strawberry Growers, Driffield.

SALES BY AUCTION.

Roman Hyacinths and Eucharis candida.

MESSRS. PROTHEROE AND MORRIS will include in their first BULB SALE at their Rooms, 67 and 68, Cheapside, E.C., on MONDAY, August 20, 3000 fine Roman HYACINTHS, and 300 fresh imported bulbs of EUCHARIS CANDIDA, true.

Monday and Thursday Next.

DUTCH BULBS.—SPECIAL TRADE SALES.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY and THURSDAY NEXT, at half-past 11 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other ROOTS from Holland, of the best quality, and lotted specially to suit the Trade and other large buyers.

On view mornings of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Friday Next.

CATTLEYA TRIANÆ ALBA.

MESSRS. PROTHEROE AND MORRIS have been instructed by Mr. F. Sander to SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, E.C. (next door but one to Bennett's clock), on FRIDAY NEXT, August 24, at half-past 12 o'Clock precisely, a very fine importation of CATTLEYA TRIANÆ ALBA, ONCIDIUM KRAMERIANUM, BURLINGTONIA DECORA, CATTLEYA INTERMEDIA varieties, ODONTOGLOSSUM ALEXANDRÆ, &c.

On view morning of Sale, and Catalogues had.

Southgate, N.—By Order of the Trustees.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Nursery, Chase Side Cottage, opposite the "Crown Inn," Old Southgate, N., about twenty minutes' walk from Palmer's Green Station, on WEDNESDAY, August 29, at 1 o'Clock, without reserve, the erections of 11 GREENHOUSES, containing about 10 000 feet of Glass and Woodwork, 2800 feet of 4-inch Hot-water Piping, 3 BOILERS, BRICKWORK, and effects.

May be viewed the day prior to the Sale. Catalogues had at the "Crown Inn," and of the Auctioneers, 67 and 68, Cheapside, E.C., and 8, New Broad Street, E.C.

Clearance Sale, Upper Holloway, N.

To GENTLEMEN, FLORISTS, and OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Francis C. Boff, who is disposing of his ground for building purposes, to SELL by AUCTION, on the Premises, The Nursery, Magdala Road, Upper Holloway, N., close to the "Archway Tavern," on WEDNESDAY, September 5, at 12 o'Clock punctually, without reserve, the whole of the GREENHOUSE PLANTS, 11 newly erected GREENHOUSES, thousands of feet of 3 and 4-inch Hot-water PIPING, BOILERS, some thousands of BRICKS, upwards of 100 LIGHTS, nearly new PITS, BOXES, and UTENSILS in trade, &c.

On view previous to Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, E.C.

Wednesday Next.

DUTCH BULBS, &c.—SPECIAL TRADE SALE.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, August 22, at half-past 12 o'Clock precisely, 18 cases of first-class Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, and early ROMAN HYACINTHS, just received from well known farms in Holland, in lots to suit the Trade and private buyers; also a consignment of BULBS from Germany, few GREENHOUSE PLANTS, quantity of GARDEN IMPLEMENTS, &c.

On view morning of Sale, and Catalogues had.

Thursday Next, August 23.

TWO NEW and BEAUTIFUL ORCHIDS.
ODONTOGLOSSUM VELLEUM, PERISTERIA EPHIPPIUM.

MR. J. C. STEVENS has received instructions from Mr. F. Sander, St. Albans, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, August 23, at half-past 12 o'Clock precisely, the entire lot living of ODONTOGLOSSUM VELLEUM and PERISTERIA EPHIPPIUM, both from Peru, and both are very beautiful novelties; also CATTLEYAS, a fine lot of ODONTOGLOSSUM ALEXANDRÆ, and other ORCHIDS; also a fine lot of CATTLEYA AMETHYSTINA, &c.

On view morning of Sale, and Catalogues had.

Saturday Next.

DUTCH BULBS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, August 25, at half-past 12 o'Clock precisely, a large consignment of first-class DOUBLE and SINGLE HYACINTHS, TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, early white ROMAN HYACINTHS, &c., just received from well known farms in Holland, in lots to suit all buyers.

On view morning of Sale, and Catalogues had.

The Wood Green Nursery and Potteries, Waltham ABBEY, ESSEX.—WITHOUT RESERVE.

The entire stock of GREENHOUSE and OTHER PLANTS, including 3500 Maidenhair and other Ferns, several choice specimen Azaleas, Camellias, Stephanotis, Gardenias, Eucharis, Euphorbias, Spiræa Roots, &c.; also many hundred Casts of FLOWER POTS, FLOWER POT STANDS, SEED PANS, &c.

MR. S. CHETWOOD will SELL the above by AUCTION, on the Premises, on WEDNESDAY and THURSDAY NEXT, August 22 and 23, at 10 for 11 o'Clock each day.

Catalogues of the Auctioneer, Waltham Abbey.

FOR SALE, SIDCUP HILL NURSERY, Foot's Cray, Kent. Established over fifty years, and widely famous for the culture of Ferns. In consequence of the death (without issue) of the late Mr. Robert Sim, the Stock, Leases, Business Structures, &c., of this Nursery are to be immediately disposed of.

For particulars apply to Miss SIM, at the above address.

FOR SALE, a NURSERY and FLORIST BUSINESS, in the North of Scotland. The Grounds extend to 11 acres, held on 11 years leases, the greater part of the terms being unexpired. The subjects include 3 Greenhouses, with Hot-water Appliances, and a number of Frames. The Stock, which is in first-class condition, consists of several millions of Seedling and Transplanted Forest Trees (for the prime quality of which the nursery is well-known), Ornamental and Fruit Trees, Shrubs, Bushes, and Flowers of every description. The sale is rendered necessary by dissolution of partnership, and offers a splendid opportunity for acquiring a good going established business.

Further particulars from GRIGOR AND YOUNG, Solicitors, Elgin, N.B.

FARMS, Kent (near Dartford), rich deep Loamy Soils suitable for Market Gardening, Fruit Growing, Hops, &c. Fine Corn Land. 224 acres—60 acres together or separate, and 192 acres respectively.

Further particulars of Messrs. BUCKLAND AND SONS, Land Agents, Auctioneers, &c., 11, Adam Street, Strand, London, W.C., and Windsor.

Lunesdale, North Lancashire.

TO LET, Furnished, or Partially, a Complete, Small, Old-fashioned HOMESTEAD, good Garden, small Greenhouses—all in good condition. Near church, station, post; good society, good fishing. Country beautiful. Address, C. R. MELLING, Carnforth.

Kent.

Station (S.E.R.) 10, London 35 minutes.

TO BE LET, 30 Acres of matured Orchard, Grass, and Market Garden LAND, with or without Residence.

K. N. 64, Messrs. Deacon's, 154, Leadenhall St., London, E.C.

In Kent.

TO BE LET, a well stocked NURSERY and FRUIT PLANTATION. Good soil. Lease. Rent and Taxes low. The reason, partner through ill-health going abroad; or a PARTNERSHIP if preferable. Eighteen miles from London.

Apply, PROTHEROE AND MORRIS, New Broad Street, E.C.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

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

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DIRECT FROM THE GROWERS.

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Before ordering Dutch Bulbs, read ANT. ROOZEN & SON'S CATALOGUE for 1883, which their Agents, Messrs. MERTENS AND CO., 5, Billiter Square, London, E.C., will forward Post-free on application.

AURICULAS, CALCEOLARIAS, CINERARIAS, PRIMULAS, strong plants, carriage free, 1s. 3d. per dozen, 7s. 6d. per 100. Double WALLFLOWERS, strong, 2s. per dozen.—The PENNY PLANT AND SEED COMPANY, East Dereham, Norfolk.

SPIRÆA PALMATA, for Forcing.—The finest crowns grown are offered to the Trade at 10s., 15s., 20s., and 25s. per 100.

CHARLES NOBLE, Bagshot.

TO BE SOLD, CHEAP.—100 CROTONS in varieties—plants from 1 foot to 3 feet. Also 100 DRACÆNAS, from 6 inches to 18 inches, all well coloured. The above must be sold for want of room. Full particulars will be sent as to varieties and sizes.

HY. NOBLE, Paradise Nurseries, Boston Spa, Yorkshire.

Wholesale Bulb Catalogue.

WATKINS AND SIMPSON, WHOLESALE SEEDSMEN and BULB MERCHANTS, Exeter Street, Strand, W.C. Their Wholesale BULB CATALOGUE is now ready and may be had on application. Contains prices of Lily of the Valley crowns or clumps, American and African Tuberoses, Double and Single Snowdrops, Winter Aconites, Spiræa, many sorts of Narciss, Tulips, Lilies, Gladioli, and all the leading varieties of Dutch, English, French and Japanese Bulbs. Special quotations for large quantities.

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LITTLE & BALLANTYNE,
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WHITE ELEPHANT TRIPOLI.

The largest White Onion known. Grows 2 ft. in circumference.

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Secretary.—Mr. James O'Brien, Harrow-on-the-Hill, to whom all communications should be addressed.

Subscriptions since those acknowledged.

A. H. Smee, Esq., The Grange, Hackbridge	£2	2	0
Mr H. Hurrell, The Dell Gardens, Staines	0	5	0
Mr. Holdway	0	5	0
Mr. Pitts, Berry Hill	0	5	0
Mr. Barr	0	5	0
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Mr. Gray	0	5	0
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Mr. T. Shields, Birmingham	0	5	0
Mr. Cooper, Birmingham	0	5	0

Intending subscribers are requested to send in their names to the Secretary as soon as possible, as the list will be closed early in September.

To the Trade only.

E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, Holland. The Wholesale CATALOGUE (No. 365A) of Dutch Flower Roots and Miscellaneous Bulbous and Tuberous rooted Plants for 1883-84 is now ready, and may be had free on prepaid application by Nurserymen, Florists, and Seedsmen.

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Carriage Free.

Just to hand.—Plant now.—Early Winter White Flowers. Splendid quality.

SINGLE WHITE ROMAN HYACINTHS, which will produce 3 to 6 spikes per bulb, 21s. per 100, 3s. per dozen (not the puny Italian so largely distributed).

PAPER WHITE NARCISSUS, charming and useful companion to preceding, 12s. 6d. per 100, 2s. per dozen.

The early consignments are always the finest. Apply at once.

GEO. P. DARBY, Importer, Hertfordshire Seed and Plant Establishment, Watford, Herts.

To the Trade.

BAUMFORTH'S SEEDLING RASPBERRY.

Special Prices for Orders before September 1 may be had on application.

EDMUND PHILIP DIXON, Hull.

SPIRÆA JAPONICA, strong Clumps for forcing, 15s. per 100, £6 per 1000. ROSES, Standards, Half-standards, and Dwarfs, in first-class varieties. Hardy Ghent MOLLIS and Indian AZALEAS and RHODODENDRONS, in splendid collections of the most showy sorts, and strong plants with buds. Will supply the above named articles in quantity in the next season, at the lowest prices. Price on application. Apply to ED. PARRÉ, Nurseryman, Ghent, Belgium.

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GENTLEMEN, GARDENERS, and Others, by ORDERING IMMEDIATELY, may obtain the FINEST BULBS at strictly WHOLESALE PRICES.

Write for PRICE LIST to THE CITY FLOWER, SEED, and BULB DEPOT, 162, Fenchurch Street, and 80, St. Paul's Churchyard, London, E.C.

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ARECA LUTESCENS.—This year's Seedlings, 20s. per 100.

CEROXYLON NIVEUM.—2-yr. strong plants, £10 to £15 per 100.

CATALOGUES of PALMS on application.

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BAUMFORTH'S SEEDLING RASPBERRY.

From the great reputation this New Raspberry has attained for size, quality, and heavy cropping, I fully anticipate again a very large demand for Canes.

I recommend Orders to be sent in at once, to secure a supply.

PRICES:—

Planting Canes ... ... 25s. per 100
Fruiting Canes, extra strong 35s. per 100

Special Prices to the Trade on application.

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FRUITS, VEGETABLES, ROOTS, &c.

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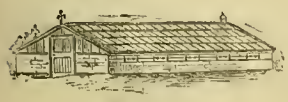

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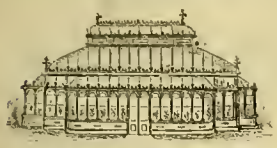

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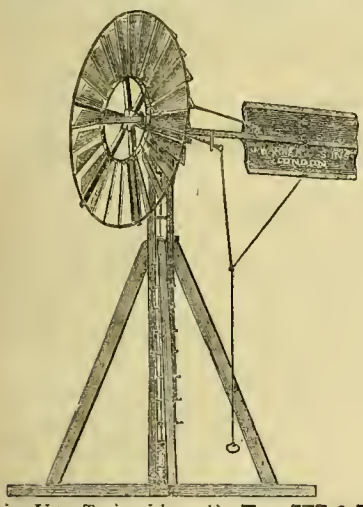

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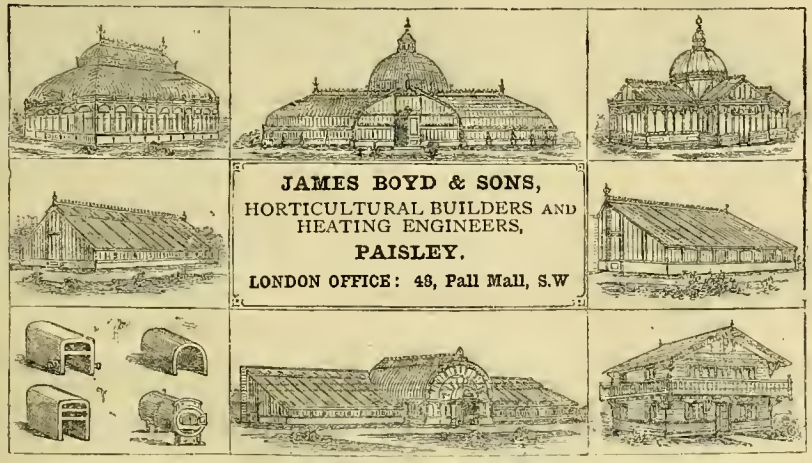
HORTICULTURAL STRUCTURES of EVERY DESCRIPTION, in EITHER WOOD or IRON, or BOTH COMBINED.
WOODEN CHAPELS, SHOOTING LODGES, COTTAGES, TENNIS COURTS, VERANDAHS, &c.

Orders for shipment carefully fitted and packed, and delivered f.o.b. Glasgow. Illustrated Circulars post-free. Complete Catalogue, 3s.



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ORNAMENTAL TREES, SHRUBS,

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Inspection invited. Special prices on application.

LITTLE & BALLANTYNE,
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TEA ROSES IN POTS.—Several thousands to offer, clean, healthy, and full of buds, including a fine lot of Maréchal Niel and Niphetos—the latter in several sizes. Prices on application.
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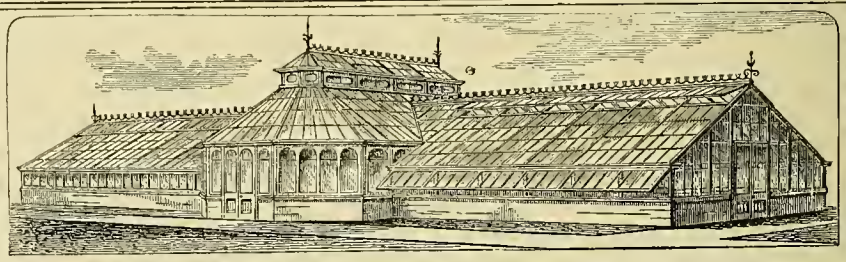

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PAPAVER UMBROSUM, fine new purple Seed, 6d. per packet, post-free 7d. One packet each umbrosum, Flag of Truce, white as a snowball, and Indian Banner, vivid scarlet, both very double, 1s. 2d. post-free.
THOMAS BUNYARD, Ashford, Kent.

ALEXIS DALLIERE, NURSERYMAN, Ghent, Belgium, has a large quantity of his Special Cultures for disposal this season, such as :—
Azalea indica, Azalea mollis, Camellias, Rhododendrons, Bouvardia Alfred Neuner, the whole well budded; also Alsophila australis, Aspidistra fol. var., Araucaria excelsa, Cybutium princeps, Dracæna terminalis, and other sorts; Latania borbonica, Corypha australis, Phœnix rechinata and tenuis, Seaforthia elegans, Ptychosperma Alexandræ, Ficus elastica, Spiræa (Hoteia) japonica, very strong. The whole in well cultivated plants. Prices and sizes of plants will be immediately sent on application.

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Single White .. .. per dozen, 3s. 6d.; per 100, 25s.
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Late J. B. GUILLOT, SEN.—Established in 1837.
ROSES THE GREAT SPECIALITY.
JOSEPH SCHWARTZ, ROSE GROWER, Route de Vienne, 7, à la Guillotière, Lyon, has to offer NEW ROSES, obtained from Seed at his Establishment, and which will be sent out on November 1 next :—
HYBRID PERPETUAL ROSES.
COLONEL FELIX BRETON.—Vigorous shrub, having the appearance of Charles Lefebvre. Large flower, full, petals regularly imbricated, velvety red-garnet—exterior petals shining velvety pale amaranth, the underside dull amaranth. Entirely new colour.
MONS. BENOIT COMTE.—Very vigorous shrub, having the appearance of Alfred Colomb. Flower large, full, globular, in the form of a cup, brilliant poppy-red, shaded vermilion in the interior, exterior of petals poppy-red, covered with a plum-like bloom. Remarkable for the brightness and beauty of its colour.
MONS. FRANCISQUE RIVE.—Very vigorous plant, somewhat like Marie Baumann. Very large, full, well-formed flowers, bright cherry-red, shaded carmine; petals concave, underside glaucescent. Very fragrant. A successional bloomer.
PRÉSIDENT SENÉLAR.—Very vigorous shrub, of peculiar appearance. Large flower full, deep cherry-red, sparkling velvety tinge, passing to purple-shaded cinnabar. Magnificent variety.
SECRÉTAIRE J. NICOLAS.—Very vigorous Large full flower, well shaped, globular, of a beautiful dull purple red, bright velvety tinge; reverse of petals pale plum-coloured amaranth. Very fragrant. Has a grand effect. Free flowerer.
ROSA POLYANTHA or MULTIFLORA (Dwarf Climber) JEANNE DRIVON.—Very perpetual flowering shrub. Flowers in corymbs, very double, somewhat resembling those of the Camellia Balsam, large (relatively) for the genus, white edged, and shaded rose; the reverse of the petals white. Colour unique. Plant very distinct from the varieties of the same group now in commerce. Suitable for groups. Extra variety.
These Novelties have this year obtained the following awards :—First-class Certificate, Société d'Horticulture pratique du Rhône, June 9; First-class Certificate, Association Horticole Lyonnaise, June 17.
Price, each variety, per plant, 25 francs; the set of six, 120 francs. N.B.—Purchasers of four plants of the same variety will receive a fifth gratis.
NEW ROSES sent out by J. S., in the autumn of 1882 :—Hybrid Noisette, Madame Fanny de Forest, 3 fr. each, 30 fr. per dozen; Hybrid Perpetual, Marguerite de Roman, 2 fr. 50 c. each, 24 fr. per dozen; Hybrid Ayrshire Climbing, Madame Viviand Morel, 2 fr. 50 c each, 24 fr. per dozen; Polyantha, non-climbing, Bijou de Lyon, 2 fr. each, 18 fr. per dozen.
NOTICE.—A very large quantity of Dwarf Roses, Standards and Half-Standards, ready for sale in the Autumn.
General CATALOGUE sent post-free on application.

CHADBURY EARLY CABBAGE SEED.—This seed has been grown by careful selection for sixteen years, and planting the stems where the produce would not be likely to be affected by Bees. It is liked by the Evesham gardeners, who are good judges of what pays them best, and is recommended to Farmers as a safe crop to plant—selling the Cabbages if they can grow them early enough and good enough—feeding them off by sheep if they cannot. Price 7s. per pound in small quantities; 5s. 6d. per pound for 20 lb. and upwards For Cash only. Apply to
Mr. RANDELL, Chadbury, near Evesham.

JOSEPH BAUMANN, NURSERYMAN, Ghent, Belgium, offers the following Plants :—AZALEA hardy MOLLIS and hardy Ghent, A. INDICA, RHODODENDRONS, CAMELLIAS, KALMIA LATIFOLIA, dwarf with flower buds; fine Sweet BAYS, Standards and Pyramids; fine LATANIA BORBONICA, ARALIA SIEBOLDI and VARIEGATA, ARAUCARIAS, ILEX, MAGNOLIAS, PÆONIES, ROSES, SPIRÆA JAPONICA, &c.
CATALOGUE free.

THE
Gardeners' Chronicle.

SATURDAY, AUGUST 18, 1883.

STRATTON PARK.

ABOUT the beginning of the century two members of the house of Baring purchased two contiguous properties in Hampshire, which are now owned by their descendants, the Earl of Northbrook, of Stratton Park, near Micheldever, and Lord Ashburton, of The Grange, near Alresford. The former property was granted at the Dissolution, when the immense revenues of the Church at Winchester were dispersed to the Wriothesleys, the head of the family bearing the title of Earl of Southampton. His heir and daughter, Rachel, resided at Stratton with her husband, Lord William Russell, and, from a clump of Hornbeams in the high ground behind the house, known now as Lady William Russell's clump, and commanding glimpses of the Winchester Road, she used to watch for the messenger bearing letters from her husband previous to his execution. Lord John Russell passed some of the years of his boyhood here. After this distinguished family a new one followed, destined perhaps to become as famous. Sir Francis Baring, "the first merchant of the world," bought the property, improved the grounds, and erected a good, square, plain house, long famous for its pictures, and still remarkable for works of art, and for its comfort and convenience.

Mr. R. Mudie wrote a history of Hants in 1838, in which he speaks carpingly of Stratton Park. The situation of the house is too low, he says; one would rather say that the main points required in a house are warmth, shelter, ventilation, and sufficient size; that a water-tight roof and a dry foundation are essential, and that in some cases a large number of well-proportioned, well furnished rooms is desirable. Above all things comfort is the first essential. Deepdene, near Dorking, answers this description exactly, and Stratton Park is not far behind it. Mr. Mudie, perhaps, would have preferred a house ten times too big for any private family, and built on the plan of a hospital or asylum, big but not beautiful, with an outbreak of tawdry turrets on the roof. He says the house stands too low, which can hardly be, since the subsoil is of chalk. Putting a house on the top of a hill is a vulgar error, opposed to all fitness and convenience. The only argument in favour of a house on a hill, where your horses' hearts and knees must both be broken in going up and down, is that the prospect is better up there! Just as if the main object in going indoors was to stare out of the windows. He says, too, that the house agrees with the artificial part of the landscape rather than with the natural. He would have had a house built of logs, to "agree" with native timber. As all houses are artificial, from the topmost chimney-pot to the lowest brick—and as the lawns, parterres, and grounds are of the same character, while even the park outside is rendered more ornate by artifice than the country beyond, though even that is usually a cultured tract, and not the domain of Nature—the criticism seems meaningless.

Speaking of Sir Thomas Baring's habit of "muffling up" the churches with timber and planting flowers on graves, he says that the latter practice is a mockery of the dead. All that need be said of these crotchets is, that man has worshipped in groves from the earliest ages, and that flowers are dedicated to the dead as emblems of the highest beauty and perfection, hence the public taste repudiates the theory of Mr. Mudie, and the practice of the members of the Baring family of fifty years since has become general. A charming clump of shrubs and timber in the park half conceals the little church and the schools near it.

Mr. Gandy, the head gardener, did the honours of his department, and showed us over the gardens and grounds. His predecessor under Sir Thomas Baring was Charles MacIntosh, author of several horticultural works thirty years ago, who was here three or four years, going from this place to Claremont, and thence to Dalkeith. A seven-branched Magnolia, a beautiful tree 60 feet in height, which even Flaxman's sculptures in the church do not excel in beauty, was planted from a flower-pot by MacIntosh. A trellised walk, covered with Roses and creepers, Hops among them, passes from the park close by this fine tree to a gate opening in the Winchester road; and the lords of Stratton, who have been Chancellors of the Exchequer, First Lords of the Admiralty, or Viceroys of India, have loved the privacy of this walk—a fit spot for retired pacing up and down and for political meditation. In Rose bowers like this deep-laid schemes are hatched by lovers in early life, by politicians later on.

In a comparatively small garden Mr. Gandy manages with great skill to produce the fruit and flowers which his noble employer, now high in office, requires during the season, and he won the 1st prize this year at the Royal Counties show for a miscellaneous collection. The orangery is a very pretty house, planted with many Ferns and creepers. We went through a house of beautiful foliage plants in capital condition, and through a Melon-house, among others, and an Orchid-house, containing a good collection sent home by Lord Northbrook from India, when he filled the Vice-regal chair during the visit of the Prince of Wales.

The park is a very pretty one, of the larger size—about 300 acres, I believe, and none of them level. The site is chalk, with a rich covering of soil, especially in the valley, that bears fine timber. As you approach the house by a footpath from the kitchen garden, most of our forest trees grow, right and left, in fine clumps or as specimen trees standing alone. The Hickory, Plane, Acacia, Sycamore and Beech Sweet Chestnut, Oak and Cedar of Lebanon are all here, and there are noteworthy examples of them all. One of the Sycamores measures 14 feet above the spurs of the trunk, and at 24 feet from the ground it branches, throwing out first three great limbs, which become divided and form a grand head 24 yards in diameter. Two adjoining tall Sycamores are nearly as large, but less spreading. The largest Chestnut measures 17 feet round the trunk, and grows tall as well as stout. The largest Oak on the estate is situated in this same beautifully timbered corner of the park. But the Oak is not the tree of this district, and it is not so large as some of the specimens already mentioned. At the moment when Sir Francis, the founder of the family, breathed his last, a great limb of this tree fell to the ground; and it is said that the same thing happens whenever a chief of the family dies. May it lose its limbs slowly!

Some unexploded shells on the terrace recalled last year's bombardment of Alexandria. They were fired into Fort Pharos on July 11, 1882, and were given to the First Lord of the Admiralty by Lord Alcester. The house looks out upon the beautiful timber of the thickly planted park, whose boundaries can nowhere be seen. It is sheltered by rising ground on the north and east, and by a dense bank of lofty Limes on the further side of a wide lawn planted with ornamental shrubs and Cedars of Lebanon. From the water-tower on the highest ground the distant country comes into view, and The Grange, the seat of the other peer of this family, is marked by the timber of its park. A Beech avenue extends from these grounds to the London lodge, one mile, and the double avenues of tall trees within the grounds form an impenetrable shelter fence and a nesting place for rooks. The soft velvety turf of the chalk adds to the beauty of the grounds where, among acres of shrubbery and hundreds of specimens, not too thickly planted, on a sloping site carpeted with this soft turf, the Princess of Wales planted the latest of the trees of Stratton, a Thuia dolabrata, which already seems quite at home. Near it is a wonderful Cedar of Lebanon, branching from the ground into a vast head 33 yards in diameter.

When Cobbett rode through Micheldever and Stratton, in 1822, Sir Thomas Baring being in possession, the estate well cared for, the cottages neat and nice, and the children well taught, he abated some of his accustomed thunder, and declared the estate was "in very good hands." And so it is now. An experiment of small farming, tried by Sir Thomas, is still continued, but cannot be said to prosper, as small farmers in this part of the country labour under disadvantages. *H. E.*

New Garden Plants.

LYCASTE SMEEANA, *n. hyb. nat.?*

This is undoubtedly a very interesting plant. It has the bract of Lycaste Deppei, and nearly the shape of its flower, though it is wider, but the colour is white excepting the lip, which has a light purple border of the triangular acute undulate anterior lacinia, rows of small purple stripes, and spots over the whole surface. The callus is nearly as in Lycaste Deppei, having a very short free portion, not a long one, as in Lycaste Skinneri, and an obscure keel on its middle. The petals, too, have on the inside some purple spots. The column is white, with some purple spots at the base. Those who know Lycaste Deppei and L. Skinneri will suggest its being intermediate between them. The bulb and growth are described as being in the way of those of Lycaste Deppei, while the column, the shape of the petals, the sepals, and lip, remind one of Lycaste Skinneri and Deppei. I remember well Lycaste Deppei punctatissima, sent by Mr. Williams in October, 1881. It has the genuine lip and sepals and petals of Deppei.

I had this plant from Mr. A. H. Smee, The Grange, Hackbridge, Surrey, the son of the author of *My Garden*, and feel pleased to name the plant Lycaste Smeeana, hoping its possessor may observe it further, since he was so struck by it at its *début*. *H. G. Rchb. f.*

Peristeria ephippium, *n. sp.**

It was in 1831 that Sir William Hooker established the fine genus Peristeria upon the Dove Orchid, El Spirito Santo, which had been sent to him by Mr. Harrison and Mr. Arnold Harrison from Liverpool. In 1836 came Peristeria pendula, Hook., in 1837 Dr. Lindley named Peristeria cerina. In 1838 Messrs. Knowles and Westcott described their Peristeria guttata, a plant no one appears to have seen since. From that day to this no new Peristeria has appeared. I, indeed, named in 1852 Peristeria cerina guttulata as a variety, and in 1856 Dr. Lindley described his Peristeria fuscata. Even if we followed him, which I do not think it right to do (there being no connecting links), this plant was an old subject, Anguloa squalida, Popp. and End., published in 1835, hence also belonging to the decennium of Peristerias. I proposed in 1852 the genus Lycomormium for it, a genus corroborated by a second species in my herbarium. And now, in 1883, I have before me a new Peristeria. A fine raceme has been sent to me in alcohol, and I hope soon to see the living plant. It comes from Western South America, and is the sister of Peristeria pendula, Hook., since it is only the second species with such broad, linear, fleshy arms to the column, which will, no doubt, be recognised as toys for insects by some people. The epichile of this species is totally distinct from anything seen hitherto in the genus. It is rhomboid, broader at its anterior retuse end, where it is equally three-lobed, hence I may be excused for calling it retuse. From its base arises a very curious, broad, nearly triangular callus, with about six ribs and five furrows in the middle, and this is prolonged in the middle into a narrow thick line, which ends as an umbo on the median apiculus of the blade. Another novel feature is the presence of a low transverse triangular body at the summit of the column. Dr. Lindley would have compared it to an old-fashioned three-horned hat—as for me I am reminded of the modern head-cover of the Italian *carabinieri*. Between the basilar oblong wings there is a pyriform callus, broader under the column, deeply channelled in its median longitudinal line.

Mr. F. Sander has just imported living plants of this. The flowers appear to be decidedly destitute of spots, but whether they are white, or ochre, or light yellow in colour I cannot say. No doubt they will have a fine perfume. It is one of the most interesting of recent introductions. *H. G. Rchb. f.*

* *Peristeria ephippium*, n. sp.—Aff. Peristeriæ pendulæ, Hook.; hypochilii alis semioblongis, callo pyriformi canaliculato interjecto: epichilio subrhomboideo antrorsum dilatato, retuso trilobo; callo maximo sellæformi imposito triangulo, basi latissimo, 4–6 obtusissime carinato, antrorsum in lineam incrassatam descendente; columnæ brachiis linearibus porrectis, apiculo transverso triangulo humili in apice columnæ. *H. G. Rchb. f.*

Odontoglossum velleum, *Rchb. f.; supra*, 1874, i., 406.

When I published this species I distinctly stated that I knew nothing about the inflorescence. Happily, after nearly ten years, this rare plant comes once more into my hands, Mr. F. Sander having sent me a fine dense raceme, informing me that there are several living plants. The flowers remind me of those of Odontoglossum Karwinski, but those are arranged in a lax inflorescence. The general shape of the flowers is similar. The sepals and petals are yellowish, with numerous sepia-brown spots and lines. The blade of the stalked labellum is ligulate, broader at the top and apiculate, a little undulate, neatly hairy, white, and covered with numerous purple-mauve lines and blotches, as is seen in those Trichopilias which are called in the garden world Helcias. There are some crests at the base of the blade. The column is very short. I believe the inflorescence must make a gay and novel impression. The colours may be compared to that of the flowers of Aspasia variegata, though the lines and spots are far more marked and the lip much finer. *H. G. Rchb. f.*

CANDYTUFTS.

These are among the most showy and useful of our common hardy annuals; they are of symmetrical and compact growth, blooming most profusely, and continuing in flower for a long period. In looking over Messrs. Carter & Co.'s seed farms in Essex recently, nothing was more striking than the rich beauty of the masses of Candytufts of different colours, and especially of that brilliant form known as Dunnett's crimson. This was originally a dark coloured selection from the crimson, but has now taken its place, and so we get a hue of purple-crimson almost perfect in its richness, producing large trusses of singularly showy well shaped flowers. What is known as the purple Candytuft is actually of a very pleasing shade of lilac, very distinct, and worthy a place in every garden. As in the case of the preceding, so here—selection has done a great deal in the way of giving a fixity of high-class character to this variety. Of the white Candytufts the White Rocket is perhaps the best, being large and of fine shape in regard to its flowers, which are produced in long rocket-like trusses—hence its name. It makes a very attractive mass of white, and forms an excellent contrast to the brighter-coloured varieties.

A few years since Messrs. Vilmorin-Andrieux & Co., of Paris, sent out some very fine hybrid varieties, producing large well-shaped flowers, borne on very fine and symmetrical trusses of bloom. These were the flesh-coloured, rose, and white. The former is best known in this country under the name of the New Carmine, and a very fine thing it is—perfectly distinct in colour, and most attractive, with striking bold trusses of large well-formed flowers. But all these French introductions are well deserving of a more extended cultivation.

The Candytufts are very good town plants. In Cambridge Terrace, Paddington, there are to be seen in the enclosed gardens along this line of route very fine patches of the lilac Candytuft that are blooming very freely indeed, and much more freely than the Tropæo-

lums and other annuals. Even in the more crowded districts of London we have seen these pretty Candytufts in forecourt gardens flowering profusely, regard being had to the surroundings.

With very little trouble a good succession of bloom of the Candytuft can be had. Some seeds sown in autumn where the plants are to stand will, in common with the Eschscholtzias, give a wealth of bloom in early spring. Seed sown in February will afford plants that can be transplanted to beds to give a rare display in May, and as soon as the flowers begin to fade the plants can be removed and dwarf Asters substituted for them. But we sow the seeds of these fine hardy annuals much too thickly, and the plants are left to unduly crowd each other. This is a great mistake, and should be remedied. If single plants could have more room in which to develope themselves they would give finer heads of bloom, and be more valued in consequence. Annuals are too often sown in poor ground, as if anything was good enough for them; this is a great mistake, and especially with the Candytufts. Annuals will always well repay good cultivation. Give them good soil and they will shine forth with a lustrous beauty unknown to those who grow them only in starved soils.

THE POTATO CROP.

Just as exceptions are said to prove the rule so may we accept as evidence the very few complaints of disease in the Potato crop yet to hand as evidence of the general prosperity and good health of that crop to which so much prominence has but recently been given. Naturally it will be said that there is yet ample time for the fungus to work ill amongst the tubers, but on the other hand there is the very unusual fact that we have reached close upon the middle of August with so far a clean bill of health except from some ill-favoured district where there has been either excessive rain storms or the nearness of rivers and streams has promoted vapoury exhalations that are, at night especially, found to be so favourable to the Peronospora and so destructive to the Potato plants. We were but the other day favoured by witnessing the lifting of roots of all the various named and seedling kinds so well grown at Chiswick this year for the benefit of the Fruit Committee and also the Seedling Committee of the International Potato Exhibition, and could not fail to be struck with the interesting fact that while leaf-spot was so absent, out of hundreds of roots lifted and in almost every case showing wondrous crops of tubers only one small tuber showed evidence of the genuine rot or decay—a marvellous thing to have to report from Chiswick, where as a rule the disease manifests itself both early and in a very virulent form.

Owing also to the general continuation of dry weather, the foliage is ripening or drying off, and there is ample evidence that on all except the very late and usually impervious kinds, growth is nearly complete, and skins are hardening. When such is the state of things it becomes obvious that should the Peronospora manifest itself late, and with virulence, that the greater bulk of the earlier Potatos will have got beyond the stage of injury, and that no great amount of harm can result. We may, however, doubt whether any such visitation is in store for us. It is a fact that the worst years for Potatos have invariably been those when the attack of the enemy has been early, when the plants were full of vigour and sap, and when also the tubers were far less fitted than now to offer to the spores serious resistance. Perhaps the greatest danger which just now besets Potatos is the one of supertuberation, for evidences of such tendency on still luxuriant growing late kinds are not wanting. The exceeding dryness of the soil has tended very much to check growth, even though the tops may look fresh, green, and vigorous.

A thorough soaking would naturally excite root action generally, and no great harm might result, but partial rains damping the soil on the surface only tend to promote vitality in the eyes of those tubers that are nearest the surface, and from those other tubers are developed. Except, however, in the North, the great mass of these late kinds have already tubers of fairly good size, and therefore the danger of supertuberation may be localised by cutting off the tops, and thus checking growth entirely, or in huge breadths a severe check may be given by running a heavy roller over the tops, and thus so far crushing the stems as to render further growth very improbable. The Champions would, perhaps, be in worse case, but the Magnum Bonums, of which there are such immense quantities being grown, are even now fit to lift as far as size of tuber is concerned, though the skins need hardening, and the tubers maturing.

Not less pleasant at Chiswick than the absence of disease, was the abundant evidence found that raisers are to the fore with wondrously productive kinds, that have in the majority also that important element—most excellent quality. It must not be assumed, that because few certificates may be granted to new kinds, that therefore the average quality of the bulk is low. So far from that being the case, it is rather the very high position now taken by at least the Seedling Committee of the International Potato Exhibition, and the general average excellence of the new kinds brought under its notice, that renders the granting of such honours as that body are permitted to award, necessarily difficult to obtain. We have a wondrous wealth of good cropping kinds, but now, inasmuch as none may secure honours till they have obtained the full number of marks when cooked, it is hoped that henceforth the award of a Certificate of Merit will never be made to any kind but such as shall, wherever grown, prove to be first-rate in all points.

In relation to Potatos alone Chiswick is thus enabled to perform, not merely to gardening but to the nation at large, inestimable benefit. Whilst to Potato growers a heavy clean crop of tubers must bring ample satisfaction, even though, as is already the case, prices rule very low, to the vast body of consumers the matter is one for warm congratulation. We seem just now on the point of gathering in a good harvest of corn. We have had a huge crop of serviceable early fruit, and have yet to gather one of the heaviest crops of Apples—the most popular and useful of all hardy fruits—that has weighed down our trees for several years; and finally, and far from least, we have the promise of the most abundant crop of healthy Potatos on record. With these facts before us it is not difficult to understand that they mean millions of money saved to the nation and the same millions spent in other, and, we trust, correct channels must again help to bring to all sections of the community that run of prosperity which for the past few years seems to have been rather retrograde than progressive. There will be an abundance of food for the poorest and to spare. Let us hope that from the present year may date the beginning of a series of brighter seasons, especially to all those engaged in horticultural pursuits.

THE CHATEAU DE GONVILLE.

The fine domain of Le Comte de Germiny, Château de Gonville, is situated at Fontaine le Bousy, in the province of Normandy, a portion of France which is of much historical interest to Englishmen. The country is intersected by broken hills, narrow valleys, and streams, which make the scenery very picturesque. From the interesting old town of Amiens to Rouen is a four hours' ride by rail, and Rouen is 12 miles from the Château de Gonville. The scenery between the two towns is much varied and beautiful; Apple orchards abound, and the fruit is plentiful. Some of the Apples are used for cider-making, and others are dried as Normandy Pippins. At Rouen we hired a conveyance, and, proceeding through the more modern streets, soon reached rising ground. On each side of the road are beautiful residences with gardens well planted with trees and flowers. This continues for about 2 miles, and each peep obtained when near the top gives a splendid view of the distant hills studded with villa residences, while below is a fine view of Rouen, the river Seine, its sailing vessels and steamers, all helping to make a pretty and animated picture. Reaching the high road on the summit of this pretty spot, we found ourselves in a fine open country, well cultivated with corn, and on each side of the road good orchards of Apples and Pears well cropped with fruit. Here also are many fine woods or forests, and the trees being in full beauty, together with the chalky hills, reminded one of Kent without its Hop fields.

In due time I reached the domain of the Comte de Germiny, and entered a long avenue of trees in a park studded with fine timber. A pretty lake soon comes into view, and then the mansion, standing on a hill well backed with fine trees and faced with a beautiful lawn well studded with fine beds of Rhododendron, the variegated Acer, Golden Hollies, and Coniferæ. From the front of the Château a grand view presents itself for miles round, and M. le Comte may say, "All you now behold is mine." In the valley below is a fine piece of water, with islands well dotted with trees, which add a charm to the scene. From the opposite side on some rising ground with fine trees a splendid view of the mansion and grounds in front is obtained. The pleasure grounds are well planted; in fact, it is so situated that at each point a fine landscape may be obtained. In the lakes and streams below salmon are cultivated in all stages—from small fry to fish fit for the table.

Adjoining the Château is the conservatory, well planted with fine Palms and Tree Ferns, with their beautiful leaves and fronds. Towering above, where one can promenade and admire the beauties of the scene, I noticed two good specimens of Cyathea medullaris with tall stems. Underneath them are seats on which one can lounge while admiring the beautiful plants around. In the centre bed are large specimen of Dicksonia antarctica, a noble plant of Areca Baueri, also Raphis flabelliformis and other fine species. Under these is a tastefully planted bed of fine-foliage plants, such as Ferns, Begonias, &c. Intermixed is a collection of Gloxinias in full bloom and other flowering plants, which looked well arranged in this way. One of the sides as you enter this house is filled with Todea superba, pellucida, and intermedia. It is a good idea to plant these in shady places, where they love to luxuriate. About 50 yards from the conservatory is a large house called the winter garden, a span-roofed structure well laid out with natural looking rocks leading up to a kind of rock-mound and waterfall, from whence one can look down and admire the handsome plants below. The roof is being covered with climbers, such as Lapageria rosea and alba, and other showy kinds. This house has but recently been completed. When the plants get more established, in a year or two's time, the appearance will be very effective. Some distance from this, across the lawn, is the principal range of glass houses, which I entered one after the other. The first is a span-roofed house filled with Caladiums, all well grown and the best sorts in cultivation; I may say it is the finest collection of these plants I have seen, and when grown as these are no one can help admiring them for the colour of their foliage, which is most brilliant; the sorts were too numerous to mention. Adjoining is another span-roofed house filled with fine-foliaged and flowering plants, including good Crotons and an Anthurium Scherzerianum, 3 feet across, which produced a large number of blooms upon it during the spring and summer: it must have had a noble appearance, being a grand variety. Next comes a long span-roofed house with a path down the centre, the tables on each side filled with Gloxinias in full bloom, in nearly all shades of colour and of fine shape, some of the blooms measuring 5 inches across; there are many hundreds of them, and the succession is kept up during the season by growing a great quantity in pits in different stages, which are brought into the house as the others fade. These Gloxinias are M. Rondeau, the gardener's, own seedlings, which he tries to improve every year by hybridising and careful selection.

Leaving this gorgeous sight behind, I entered another house filled with fine-foliaged and other plants. I noticed a specimen of Massangea tigrina showing bloom, the spike was 12 feet high; it is the finest plant known: by the side of this are large specimens of Clivea of the new kinds, such as Madame Van Houtte. Then came the grandest house of all—one that I was longing to see, having heard so much of it, and I must acknowledge that it is the finest and largest house of East Indian Orchids I have ever seen. It is span-roofed, 80 feet in length, 24 feet wide, and of good height. One is struck on entering with its noble appearance, and with the arrangement of the plants. The house is entered by a flight of steps leading from a lobby where you can see from one end to the other, with fine specimens arranged on each side of the centre bed; it is like looking through a glen, with a fine verge of foliage and flowers underneath, the Orchids hanging above. Near the entrance a grand specimen of Anthurium Andreanum arrested attention. It was in full bloom: each

spathe measuring 8 inches long and 5 inches in width. Then the eye ranged over two noble plants of Anthurium Veitchii, with its handsome drooping green foliage, together with the curious and rare Nepenthes sanguinea, finely in pitcher and well coloured; and a fine plant of N. Rafflesiana, suspended from the roof, with other kinds, which give a tropical character to the scene. Of Vandas there is a fine collection of specimens, ranging from 5 to 9 feet high, in two rows, the whole length of the house. Noticeable among them were V. suavis, several varieties, and some in bloom; V. tricolor, V. t. superba, V. t. the Dalkeith var., also Dr. Paterson's var.—in fact all the best varieties that can be procured. When this collection is in full bloom the appearance must be grand. Besides Vandas there are some wonderful specimens of Saccolabiums, such as retusum, 4 feet high, also S. guttatum, S. Blumei major, S. præmorsum, S. giganteum, and most of these specimens produce many spikes. We also noticed some fine specimens of Angræcum sesquipedale, 2 feet high; and Saccolabium curvifolium, a mass 2 feet across, with its orange-scarlet flowers; Vanda Batemanni, a noble specimen; also V. suavis in bloom, 9 feet; V. tricolor insignis, finely in bloom. On the side stages were some fine examples of Cattleya Skinneri, and other good specimens.

In the next house was a miscellaneous lot of flowering Orchids, and some fine specimens were in full bloom; two of Cattleya labiata pallida, one with forty-eight expanded flowers and the other with twenty-eight—the two finest specimens and varieties I have seen. Associated with these was a plant of Sobralia macrantha, with thirty spikes of its bright coloured flowers. I also noticed a fine variety of Oncidium divaricatum, with the flowers more dense on the stem and of a brighter colour than usual. Epidendrum prismatocarpum was showing fourteen spikes. By the side of this was the beautiful Epidendrum vitellinum majus, on a block, with twelve spikes of its charming flowers; also several plants of Epidendrum nemorale majus, with many spikes in full bloom, and Dendrobium suavissimum, with bright yellow sepals and petals and dark lip. This was in full beauty, and there were several other Orchids in bloom, which produced a gay effect.

The next house contains Cattleyas and Lælias, among them a Cattleya Trianæ with seventeen sheaths—a grand specimen; C. crispa finely in bloom, as also a fine variety of Cattleya Mendelli and C. Harrisoni violacea, a beautiful showy Cattleya. There were some fine plants, showing sheaths, of C. Dowiana hanging from the roof. There had been in bloom just before my visit 390 flowers of Cattleya Mossiæ, C. Mendelli, C. Warneri, and others, which must have made a grand show; also C. citrina, with different plants, bearing fifty-two flowers, and the plants are well grown. In the same house is a large specimen of Chysis bractescens, with enormous growths, and some fine plants of Lælia elegans; also a fine specimen of Cattleya Warneri, which produced twenty-four good flowers, and many other good examples The Dendrobium-house contains many fine plants making their growth for the ensuing year. The last house in this range is a span-roofed one, for greenhouse and intermediate plants; the centre is prettily laid out with rocks, and has a stream of water and a fountain playing in it, which produces a cool and refreshing feeling after the hotter houses. Plants are placed here, such as Liliums and other good flowering plants. On the sides was a good show of Pelargoniums; at one end were fine plants of Clivea miniata, which, when in bloom, must be a grand sight. There were some Orchids, including Cœlogyne cristata in large masses; also a large specimen of Arpophyllum giganteum, 4—5 feet across. A fine plant of Rhododendron Princess Royal, 3 feet across, full of flower-buds, here attracted attention; this is a most useful plant, as it blooms twice a year. There are Fuchsias planted to each rafter, so that the house is getting covered with their graceful forms and flowers, and as these plants get age the effect will be finer. Leaving this enjoyable house the visitor comes to the open space where the specimen plants are arranged for their summer quarters, to make them more vigorous for the coming season. We noticed many fine specimen Azaleas, and grand plants of the greenhouse Rhododendrons trained as pyramids, such as R. Maddeni, also R. Veitchii, well set with bloom-buds—it is one of the most beautiful when in flower; Rhododendron Countess of Haddington, 7 feet high and 4 feet through, and other fine plants.

A very fine span-roofed house, just built for Roses, comes next; in this there are many good specimens, and smaller ones coming on. When these plants are in bloom next year they will be worth seeing.

Two more ranges of small span-roofed houses contain Orchids, fine-foliage and flowering plants. One of them was filled with Odontoglossum vexillarium, Masdevallias, and other cool Orchids. Many plants of O. vexillarium were in bloom, among them some good varieties; also Masdevallia Veitchii, and its fine variety superba, which has a much larger flower; and M. Harryana, which did its best to make a show with its bright colours, M. Lindeni, and others. Among the Odontoglots are some good plants of O. Alexandræ and other kinds, all looking in vigorous health. A fine plant of Cephalotus follicularis — the Australian Pitcher-plant—is here to be seen; and in the same range are an assortment of the best varieties of variegated Begonias, some beautiful plants in bloom of the different kinds of Hæmanthus, and a fine lot of Gloxinias. Passing through some other houses, I was delighted to come upon one full of Phalænopsis, and which when in bloom must have been a grand sight. They have been grown from imported plants, and they do the gardener great credit, for their growth is strong and robust. Among them are P. Schilleriana with foliage 18 inches long; also fine plants of P. amabilis, some in full bloom, associated with P. violacea, with fine flowers of good colour. In the same house are some plants in bloom of Cypripedium Lawrenceanum, which is one of the best when a good variety is obtained.

I must not omit to allude to the chimneys of the houses in this place; they are often unsightly in a gentleman's place, but here they are made in the shape of old trees, which gives them a rustic appearance, and people go away with the idea that they are real decayed trees. I left the flowers and plants for the more useful department, but also an ornamental one—for the kitchen and fruit gardens are well worth seeing, as they contain a fine collection of fruit trees, well trained and cared for; also good vegetables. At the end of the gardens is a fine long range of new fruit-houses. A very long vinery has only been planted a short time, but is in a promising condition. The next range is filled with trees in pots, such as Peaches, Nectarines, and others. The Peaches and Nectarines had some fine fruit on them just ripe; there were also many out in the kitchen garden which had fruited, and were making their growths for next year.

Many more interesting things might be enumerated, but space will not permit of it, so I must finish by thanking the Comte de Germiny and his family for their kind reception, also Mons. Rondeau for his courtesy and attention. *B. S. Williams.*

THE MOOT.

This pleasant residence, standing at the eastern entrance of the small town of Downton, near Salisbury, was erected about the period of the Restoration, which recalls an interesting event in the life of Sir Richard Shuckburgh, knight of the shire for Warwick, and ancestor of the Shuckburghs of Wilts, who long resided at The Moot.

The ill-fated Charles I., marching through Sir Richard's county before Edgehill, saw him hunting through the fields. "Who is that gentleman hunting so merrily, while I am obliged to fight for my crown?" the king inquired; and he ordered Sir Richard to be called, and so pleased and roused him by a most gracious reception that the knight returned home, armed his tenants and retainers for the field, and joined Charles at Edgehill. The Moot is now owned and occupied by Mr. Squarey.

Opposite the house, and forming its shrubbery and garden, are the once strong, and now ornamental, earthworks which in the early Saxon era commanded the valley of the river Avon, running from Salisbury through Downton, to Christchurch, skirting the New Forest on its way. The story of the earthworks, which have proved invaluable in the formation of the gardens of The Moot, is obscure. Sir Richard Hoare, in his *History of Wiltshire*, suggests that there was probably a natural elevation here, and he thinks that the principal mound—a huge conical earthwork, was raised artificially, and that it formed the keep of a Saxon fortress, other mounds for outposts, or civil purposes, having been alterwards added. The Moot, in all probability, formed the site of the principal fortress of the South Saxons, and of Cerdic their great leader, and its name further indicates that it included within the inner foss the witenagemote of Cerdic's kingdom.

The primitive courts and councils called the witenagemotes were held on natural or artificial mounds, like the moot hills of Scotland, and the "parle," or parling hills of Ireland, just as the British courts of judicature were assembled within circles of stones, as at Stonehenge, or in an amphitheatre of turf. The earliest of the Saxon courts were probably established on what is now the smooth turf of Mr. Squarey's lawn, which the mowing-machine shaves close. The particular slope, benched in turf, which is believed to have formed the place of assembly, ascends from the margin of an ornamental pond where Water Lilies blossom in profusion. At the top of the steep mound a summer-house commands a long view down the historic valley of the Avon, and overlooking Charford. Another mound affords a bird's-eye view of the adjacent town of Downton, and commands a pleasing landscape beyond. Charford is a small place, but readers of Green's *History of the English People* may remember it as the Hastings of the early Saxons. They may remember that amid the numerous assaults upon the country by successive bodies of invaders, on the retirement of the Romans, that of Cerdic proved the most successful. The conquest of South Britain was, in fact, effected by a band of Saxons who struggled under Cerdic from Southampton Water in 495 to the Downs, where Winchester offered a rich prize. Not less than 5000 Britons fell in the fight, which opened the country to the invaders, and a fresh victory at Charford, a few years later, set the crown of the West Saxons on the head of Cerdic. It was here, therefore, close to The Moot, that the earliest known ancestor of Queen Victoria ascended the throne; and it is not improbable that the ceremony of his coronation was performed in Mr. Squarey's garden.

Cerdic was himself, no doubt, the first president of the English parliament that met on these grassy slopes; and when his descendant granted the fee of the Hundred of Downton to the Church, long before the Norman Conquest, the nobleman who became the Church's chief tenant, or lessee, would have here exercised those judicial rights which, in the course of our progress, have now quite passed away from the ownership of land.

The site of The Moot now exhibits an extensive collection of exceedingly ornamental earthworks and fosses extending over many acres, partly planted, and partly covered with smooth lawn. The predecessor of the Shuckburghs—a Mr. Coles, who laid out the gardens a hundred years ago, which the present owner has most tastefully kept up—found a favourable site for his operations, and turned it to the best account.

In wandering through these pretty grounds it is interesting to reflect that historic memories are characteristic of the country houses of old England, and that, like the natural advantage of a fine site or pure water, they enhance the charm, and even increase the value, of property. The very ancient history of The Moot, and its attractive gardens, may well suggest comparisons of past and present, of rude and insecure times and of modern refinement and social advantages; and perhaps such contrasts are never more vividly presented to the mind than on the occasion of those annual and time-honoured festivals when the grounds we have endeavoured to describe are thrown open to all neighbours, rich and poor, when all join in the same games, and when high and low dance together on the same velvet turf where Cerdic and his grim warriors held council. *H. E.*

CHRYSANTHEMUM CORYMBOSUM.

This is a robust herbaceous plant with elegantly cut foliage and white and yellow flower-heads (fig. 31), known also in gardens as Pyrethrum corymbosum. Under cultivation it grows about 4 feet high, and probably higher in rich soil. It is as hardy and persistent as the allied species, C. Parthenium, syn. Pyrethrum Parthenium, of which the Golden Feather is a variety. In a wild state it grows from 1 to 3 feet high, and it is a common plant in Central and Southern Europe, ranging from Portugal to Switzerland, Austria, and Turkey. Our illustration was taken from a plant in the herbaceous ground at Kew, where we recently noticed it as the best and most effective of its near allies.

WILD PLANTS OF THE BRISTOL DISTRICT.

The communications which have appeared in your columns from time to time respecting the flora of other districts having been of interest to me, a few lines with reference to some of the more interesting plants of this neighbourhood may be acceptable to other readers. Bristol is a capital district for botanising in, as it includes such a variety of soils—Oolite, Lias, Red Sandstone, Conglomerate, Pennant, and Mountain Limestone all combining to diversify the country and render it as prolific in species as it is well possible to be in the neighbourhood of a large city; indeed, it is probable that no other large port in England has such beautiful scenery in such close proximity as Bristol has—precipitous cliffs, well wooded and upland downs, with wild heaths sloping to the marshlands and meadows that border the Severn. In spring time the woods are blue with the blossoms of the wild Hyacinth (Scilla nutans), whilst the lanes and some of the woods are perfectly carpeted with the beautiful flowers of the Primrose; and although the district cannot be called the home of the Orchis in the same sense as the south-east of England and the Wiltshire Downs are so denominated, the order is yet fairly represented, nearly one half of the British species being found here.

Orchis Morio is plentiful and generally distributed, varying a good deal in colour and location, occurring often in meadows with the Cowslip, when it presents a pleasant contrast. In favourable situations it sometimes attains the height of a foot, in which case it approaches O. mascula, from which, however, it may with a little practice be readily distinguished. The last-named is plentiful in some localities, preferring woods and moist lanes. Though having a rather sickly odour it is a beautiful species, and does not appear to vary so much as some of the others, and certainly not so much as O. maculata, which is widely distributed and generally abundant, varying in size from a few inches high to over 2 feet, fine specimens having frequently upwards of a hundred flowers on the spike. This species, like O. mascula, sometimes occurs in groups of half a dozen or so; in the former I could trace no connection between the tubers, and should suppose the propagation to be from seed; this is borne out by the fact that it is very abundant in places where the grass is not cut. Orchis latifolia is frequently to be found growing with O. maculata, where its broad green leaves, dull purple flowers, generally more robust habit, and hollow stem, characterise it from its closely allied neighbours. O. incarnata is not so common, and is, I presume, the true marsh Orchis referred to by Mr. Webster as being conspicuous from the beautiful colour of its flowers.

Fig. 31.—Chrysanthemum corymbosum: flowers white. (see p. 200.)

Habenaria viridis is a singular plant, and well worthy of study; the beautiful adaptability of the two lateral glands for securing the removal of the pollinia must strike every one who examines the plant carefully, indeed its structure is astonishing when viewed by the light of Mr. Darwin's researches. The pollinia are much slower in becoming depressed than is the case with the other species, upwards of half-an-hour elapsing before they become nearly horizontal. It is a scarce plant about here, and occurs in company with Gymnadenia conopsea, which is much more plentiful in the few localities where it occurs; the latter is powerfully fragrant, and is a beautiful species, but its fragrance is not so sweet as that of the large Butterfly Orchis, Habenaria chlorantha, which grows sparingly in a few of the woods, and should rank, I consider, as high as any of our native plants, not only for its beauty and structure, but for its sweet scent. I have seen it in two localities, and had specimens given me from a third; all those seen had lax spikes of white flowers, the labellum of every flower being tipped with pale green. Being desirous of comparing this species with H. bifolia, in consequence of the difference of opinion respecting it, I was fortunate in finding a good locality for the smaller species, though informed the day after that it was not to be found here. Externally the two plants are much the same excepting that H. bifolia often has a nearly dense spike, but it may be at once distinguished by its parallel anther cells. The pollinia of the one species can be distinguished from that of the other by the naked eye; that of H. bifolia usually splits into halves soon after being withdrawn from the flower, these spread out or diverge in such a manner that the fertilisation of both stigmas may probably be effected by a single pollinium, though the possibility of such a thing did not occur to me until it was too late to put it to the test. O. pyramidalis grows plentifully in a few localities. Mr. Darwin gives the premier position to this plant, since he says of it, "As in no other plant, or, indeed, in hardly any animal, can adaptations of one part to another and of the whole to other organisms widely remote in the scale of Nature, be named more perfectly than those presented by this Orchis," &c. After being kept in water three weeks, the pollinia of some of the upper flowers exhibited movement, though, as might be anticipated, much slower than when the plants were freshly gathered.

In company with the last named may usually be found the Bee Orchis, Ophrys apifera, which, however, is less plentiful, though more generally distributed, being sometimes solitary; one specimen I gathered had a flower with the labellum uppermost, the pollinia hanging harmlessly outside—another had the sepals united, and the pollinia in their cells. Of about forty plants which I have examined this season as they grew, the flowers of all were adapted for self fertilisation, excepting in the two cases mentioned. It is remarkable what a length of time the fertilised ovaries of this and other Orchids remain green in the driest situation after the plants are gathered. I noticed in one or two instances the ovaries apparently matured in this way, and liberated seed when they became dry. Epipactis latifolia is very scarce near the city; up to last week I had only seen three plants, and these were growing alone in widely separate positions, thus bearing out Mr. Bentham's remark to the effect that it is often a solitary plant; but on Friday last I found it growing luxuriantly in a moist wood, some of the specimens being very fine, one plant being over 2½ feet high, another had thirty-five flowers on the spike, twelve of which were open: the bottom flower was withered, but none of the others had the pollinia removed; this may be accounted for by the fact that wasps seem to be late this year, *i.e.*, presuming that they are the only large insects that visit the flowers. Listera ovata is the commonest Orchis about here, and is widely distri-

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buted. Neottia Nidus-avis is to be found by looking for it, but must be described as rare: I have only seen three plants of it, the first underneath a Hazel bush, and the other two amongst Ivy; the last were the finest plants, and were in seed. Of other species of the order recorded as having been found in the neighbourhood may be mentioned Orchis ustulata, Ophrys muscifera, Epipactis palustris, Cephalanthera grandiflora, and Spiranthes autumnalis. The last named grows plentifully on some parts of the Mendip Hills, about sixteen miles from Bristol; from these hills splendid views of the surrounding country can be obtained, including the Bristol Channel and the Steep Holmes, where formerly the Pæony grew, but which is now probably extinct there. This plant was gathered in 1856 on the Great Ormes Head. A few weeks ago I found one or two plants of Pæonia growing wild in a wood; they were not in flower, but may probably be P. corallina.

Of Cheddar it is needless to speak as a well-known locality for rare plants, especially of the Cheddar Pink, Dianthus cæsius, which is becoming scarce, owing to the cottagers gathering it for sale. The pretty little Maiden Pink, D. deltoides, grows within a few miles of Bristol, though its existence here seems to have been entirely overlooked, which is surprising considering the attention which the local flora has received; its presence over several square yards close to where people pass daily, without having been discovered, leads one to infer that local botanists must botanise somewhat in the same way that Bristol men are said to sleep, viz., with one eye open. Another interesting Mendip plant is the little round-leaved Sundew—Drosera rotundifolia—which flowers about this time. Towards autumn the hills are a beautiful sight with the yellow flowers of the Gorse, intermingled with which are large patches of the purple Heath with occasionally its white-flowered variety, the air being redolent with the perfume of these flowers, especially of that of the Gorse.

A plant which grows nearer Bristol than it has for many years been credited with doing is the Yellow Bird's-nest, Monotropa Hypopitys, yet it is dispersed over upwards of 20 square yards, and has evidently grown in the locality for years. The classification of this plant with Ericaceæ seems a singular arrangement, its separation as by Bentley and Balfour being much more natural.

The Marsh Valerian is a common plant. I refer to it, as an opinion seems to prevail here that "the male plant is smaller than the female, in consequence of the more transient function it has to perform." This is, I think, a mistake, as in the plants seen by me the reverse has been the case, the staminate plants being double the size of the pistillate, and having larger flowers.

Bristol is a good locality for the Stonecrops, one of the species—Sedum rupestre—being restricted to the district. In one locality I found S. album, S. reflexum, S. dasyphyllum, S. acre, of course, and S. Ewersii, all within a few yards. Though the last-named was wild in the locality referred to, it is not a native plant. S. Telephium occurs in a few places, and also S. sexangulare, whilst Cotyledon umbilicus is plentiful, and generally distributed. The scarcest of the species named seems to me to be S. dasyphyllum, though it is said to be plentiful in some parts.

Of other uncommon plants I have found in the neighbourhood this season, all in flower except Thalictrum, may be mentioned Daphne laureola, Polygonum Bistorta, Primula vulgaris var. caulescens, Scilla nutans alba, Paris quadrifolia, Euphorbia Lathyris, Thalictrum flavum, Lathyrus Nissolia, Vicia Bithynica, Ornithogalum pyrenaicum, Rumex scutatus, Linaria repens, Hypericum calycinum, Epilobium angustifolium, and Anagallis tenella; and last autumn, Malachium aquaticum, Drosera rotundifolia, and Veronica spicata. *Frank Gunning, Bristol, August* 14.

Death of Mr. T. H. Corry.—From the daily papers of August 1 we learn the sad news of the death, by drowning, of Mr. T. H. Corry, who not long since succeeded Mr. Hillhouse, as Assistant to the Professor of Botany, Mr. C. C. Babington, at the University of Cambridge. It is stated that he, and a friend named Dickson, in pursuit of their studies, took a boat on Lough Gill, a picturesque lake near Sligo, when by some unexplained means the boat was overturned, and the occupants drowned.

BRITISH ORCHIDS AND THEIR CULTIVATION.

(*Continued from p.* 702, *vol.* xix.)

The genus Ophrys is especially worthy of notice, on account of the resemblance of the flowers to the various insect forms whose names they respectively bear. Of the three or four native species, the Bee Ophrys, O. apifera, is perhaps the most elegant, and derives its popular name from the form and hairiness of the lip, which not inaptly resembles a bee. It is a frequent occupant of meadows and pastures in chalky or limestone districts, but is strangely uncertain in its appearance, frequently disappearing from localities where it has been known to exist for years. The tubers of this, as well as the other species of Ophrys, are ovate or globose, and generally somewhat downy. The stem rises about 1 foot in height, with a few oblong or lanceolate leaves, diminishing in size from the base upwards. The different species of Ophrys are usually considered difficult to cultivate, which is certainly the case to some extent, but by imitating, as nearly as possible, their native soil and habitat, success, to a great extent, may be relied upon. Indeed, this should be the first study in cultivating these plants, and to which, as well as at first procuring strong, well rooted specimens, we attribute much of our success with some of the more difficult kinds. The Fly Ophrys, O. muscifera, is altogether a more slender plant than the above, with narrower and more glaucous leaves. The stem, which is from 9 inches to 1 foot in height, and somewhat leafy, bears three or four rather inconspicuous flowers, placed rather distant, and with a striking resemblance to some sort of fly. It is occasionally to be met with in the adjoining island of Anglesey, from whence we have received good specimens, and it is also abundant in some of the eastern counties of England.

Another distinct and beautiful species will be found in the Spider Ophrys, O. aranifera, which to some extent, especially in stature and foliage, resembles O. apifera. The flowers are, however, totally different, the form and colour, which is light brown, resembling that of the common spider. O. arachnites, another spider Ophrys, is a rarer and more beautiful plant than the last, with dark red and blue flowers.

Several species of Helleborine are very ornamental and well worthy of a place amongst a collection of our British Orchids. The broad leaved Epipactis, E. latifolia, is a strong, tall-growing plant, frequently reaching 3 feet in height, though more commonly half that size. The leaves, which are very plentiful, are broadly ovate at the base, the upper ones gradually becoming smaller and more lanceolate, of a pleasant green colour, smooth, and strongly ribbed. The flowers are pendulous, in a one-sided raceme, and tinged with brown or dull purple. The finest specimens of this plant we have seen were growing in stiff loamy clay, where the ground was thickly carpeted with Ivy. We have also noticed it thriving luxuriantly in rough gravel, on a retentive subsoil. We have frequently found a highly ornamental and conspicuous form of this Orchid with white flowers, closely resembling those of Habenaria bifolia. The stem of this plant is of a peculiar ash colour, and quite distinct from the ordinary form, which is almost green; no perceptible difference is, however, noticeable in the foliage of the two plants. The marsh Epipactis, E. palustris, is a more ornamental plant than the above, with fewer but larger flowers, nearly white and striped with crimson. It has much the same habit as E. latifolia, but the stem, which rarely rises above 1 foot in height, is covered with narrower unplaited leaves. Both species are readily cultivated, the latter, however, requires a peaty soil, and moist shady situation.

E. (*or Cephalanthera*) *ensifolia*—for the only real difference between the two seems to be in the flowers of this genus standing erect whilst those of Epipactis are pendent—is rather a rare plant, occurring but sparingly, in usually mountainous woods, in several counties of England and Scotland. The flowers are pure white with a yellow dash on the lip, and standing nearly or quite erect.

Habenaria.—Three species are included in this genus, of which H. bifolia, the Butterfly Orchis, is the largest and most ornamental plant. It is found abundantly in this locality, growing on soils of different qualities, but preferring rich brown or clayey loam. As the name indicates, this species has usually only two leaves, although we have several specimens with three, all equally well formed. It is a very ornamental plant, with greenish-white flowers, placed rather loosely on stems of from 12 to 15 inches in length. The flowers are sweet-scented, especially in the evening after a shower, when at several yards distance their delicious fragrance, resembling that of Honeysuckle, can be distinctly felt. They are easily grown in good loam, but require to be carefully transplanted, as the long Carrot-shaped tubers strike to a good depth in the ground.

Certain classes of soils seem to alter the general appearance of this Orchid, and the name of H. chlorantha has been given to that in which both foliage and flowers are much larger than those usually found. That strong heavy loam does produce a more robust growth in this plant we readily admit, but a comparison of specimens from different soils has certainly convinced us that no real difference exists, and that the extreme type is simply the result of soil in every way suitable for the healthy development of the plant. Strong growth may be induced in this, as well as in other Orchids, by not allowing the seeds to ripen on the plant. In some parts of the park here, where the grass is cut just as this plant has ceased flowering, it is wonderful how luxuriant and healthy the specimens appear, indeed more so than in other parts where left undisturbed. We were always of the opinion that stem and leaf were indispensable in the formation of the new tuber, but certainly this fact, which came under our notice two years ago, seems to prove otherwise. The same we have also noticed in O. mascula, O. maculata, and O. latifolia. [The apparent discrepancy is explained by the peculiar mode of growth of the tubers—too elaborate a matter to be more than referred to here. Ed.]

H. albida is a diminutive plant, rarely exceeding 6 inches in height, with a leafy stem and tiny white flower. It is pretty abundant in this district, in usually mountain meadow or pasture land, but seems to prefer a raised mound or hillock amongst short grass, in which to grow.

The green Habenaria, H. viridis, is another insignificant plant, found plentifully in Anglesey and some other parts of Wales. From its grass-like appearance and low stature this Orchid is readily passed unnoticed, and for this reason may be more plentiful than is generally supposed. The whole plant rarely exceeds 6 inches in height, with deep green, ovate or elliptical leaves. The flowers are rather lax, and for the most part green and inconspicuous, with a long, cloven lip of a greenish yellow colour. This and the latter species are easily grown in rather dry loamy soil, and should be transplanted with a good ball of earth attached.

The Musk Orchis, Herminium monorchis, is rather a local plant, occurring chiefly in the chalky districts of England. The stem seldom rises more than 3 or 4 inches in height, with two lanceolate radical leaves at or near the base. The tuber of this Orchid, which is globular, and not larger than a good-sized Pea, is produced at the end of one of the fibres proceeding from the crown, and is therefore at some distance from the original plant. Great care is requisite in transplanting this Orchid so that none of the fibrous rootlets, especially the one at whose extremity the new tuber is forming, be disturbed. The flowers are numerous though small, and of a yellowish-green colour, giving out—especially in the evening—a not unpleasant odour.

The Man Orchis, Aceras anthropophora.—In this will be found rather an interesting plant, from the resemblance of its flowers to the human form. It usually grows about a foot in height, with four or five rather long spreading leaves, of a light green colour, smooth and shining. From the dull greenish yellow colour of the flower this plant is rather inconspicuous, and resembles to some extent, especially in the size and colour of flower, the Tway-blade, Listera ovata. A more ornamental form, having the lip tipped with brown or red, is rarely to be met with. We are not aware that it has been found in this district, being chiefly confined to a limestone or chalky formation.

Tway-blade.—The common Tway-blade, Listera ovata, is of frequent occurrence in Britain, and usually found in rather moist, shady woods and pastures. The root is composed of numerous long, clustered fibres, generally lying horizontally. Stem from 1 to 2 feet in height, with two large broadly ovate leaves, placed nearly midway up the stem, and terminating in a

rather long raceme of green flowers. It is a common plant in this neighbourhood, indeed in some cases it is a nuisance, and luxuriates in damp, shady woods. We have frequently found it with three, and in one case five, leaves placed irregularly on the stem, the two lower ones being largest.

Listera cordata, or the heart-leaved Listera, is a much smaller and more slender plant than the above, with slightly heart-shaped leaves. It is also less common than L. ovata, and usually found on mountain heaths growing in turfy loam.

The English Lady's-slipper, Cypripedium Calceolus, is the only British representative of the genus, and now, unless in one or two preserved localities, where long may it remain, almost extinct. We felt rather annoyed lately to see the locality, nay, even the exact spot, where this, one of our rarest British plants, was to be found, recorded in one of your contemporaries, the editor of which would have deserved a deep debt of gratitude from lovers of our British flora had he censured instead of published such an article. The flower, for there are rarely two, is large and conspicuous, of a rich dark brown colour, the lip alone being yellow and spotted. In the cultivation of this plant we have been singularly unsuccessful, which may be attributed, at least to a great extent, to our inability to procure good hardy specimens, many of those sold by dealers in such being grown under glass, and consequently unfit for outdoor planting. With a batch of, to all appearance, strong healthy roots we hope to be more successful in the future.

Neottia Nidus-avis: the Bird's-nest Orchis.—We are not aware that this plant has been successfully cultivated by any one; indeed, its true nature does not seem to be properly understood. Some suppose it to be parasitical; indeed, the whole plant has the pallid hue, destitute of green, peculiar to parasitical plants in general. On several occasions we have attempted to establish this Orchid but without success. Mr. Malan, of Cheam, Surrey, to whom we are indebted for specimens, has furnished us with the following information regarding this peculiar plant:—"The opportunities of observing this most curious plant are certainly few and far between, for, besides its acknowledged scarcity, it does not always reappear in those peculiar localities where it professes to grow. No doubt this accounts for the very limited information we possess. I have as yet only been able to find it in one place—namely, in a small Oak wood near Cheam, Surrey. The soil is cold, hard, uncompromising clay, which, after a short absence of rain, becomes cracked, and on the surface like stone. Beneath it retains its moisture and is terribly sticky. The difficulty of taking up a plant uninjured is therefore rather great. The appearance of the flowers is exquisite; growing together in clusters or singly among the Ivy, with which the ground is covered, there is an airy grace about them which is rather bewitching—their faint colour, their faint, foxy odour, their minute gold streak where the pollen masses lie ensconced, make a picture of great beauty.

I cannot say that I have been able to observe the Birds'-nest Orchid very accurately, for those plants which I placed in pots did not thrive, nor did others which I transplanted when just above-ground ever increase. I cannot say either that I have found them attached to the roots of trees, for the specimens above mentioned were free in the clay. The roots present the appearance of vermicelli, all twined together and extremely brittle. They proceed from a rough, premorse stock, which stock has a few eyes or new plants showing. I am of opinion that the plant requires the tannin of Oak or Beech leaves to ensure its growth, which, if correct, may account for the failure of my attempt to grow them in pots. The whole plant is fawn-coloured, with nothing green about it. It has no leaves, but scales or bracts in place of leaves. The stalk is tough. The spot where the plants grew in 1880 was entirely destitute of them in 1881 and also in 1882; but quite in a separate part of the wood both this summer and last many fine single plants were to be observed. In all the specimens I have observed the supply of seed has been most bountiful. Each seed is contained in a careful case of fantastic structure, exactly similar to the seed of O. mascula."

The Lady's-tresses, Spiranthes autumnalis, a small but deliciously fragrant Orchid, is a native of dry, hilly pastures in many parts of England as well as Ireland. The leaves, three or four in number, are rather crowded at the base of the stem, spreading and ovate. From alongside these leaves issues the flowering stem to a height of 6 or 8 inches, and bearing small white flowers in a single spiral row.

Goodyera repens is a rare and beautiful British plant, occurring in only a few counties of Scotland, and there very sparingly distributed. The leaves are evergreen, ovate and smooth, beautifully speckled with light brown, and distinctly ribbed. The flowers are sweet-scented, small, and nearly white or tinged with green. It is easily grown in a damp, shady situation among leaf-mould and sand, but requires thorough drainage, as neglect of this we have found fatal to the plant.

The two-leaved Liparis, L. Lœselii, is a larger plant than the above, with bright green, lanceolate leaves and flowers of a pale yellow or lemon colour. The bulb of this Orchid, which is enveloped in soft scales, sends up a triangular flower-stem to about double the height of the leaves. We grow this species under similar circumstances and alongside Goodyera repens, both having flowered well with us during the past season. *A. D. Webster, Llandegai, Bangor, N. W.*

NEW GARDEN PEAS AT BOREATTON PARK.

Those who are acquainted with Mr. Henry Eckford, and know something of his good work with the Verbena, Dahlia, Pelargonium, &c., in times past, will not be surprised to learn that he is still actively engaged in making judicious crosses, and seeking in every way in his power to improve some, at least, of the plants he cultivates so well. He has secured a very fine break of main crop Peas that appears likely to be of great service for general garden, and especially for exhibition purposes. The fact that the Fruit and Vegetable Committee of the Royal Horticultural Society have recently awarded Mr. Eckford a First-class Certificate for Duke of Connaught, one of his new varieties, is ample proof that the strain is a valuable one. Duke of Connaught is a strong growing, free-bearing variety, with large, long, well-filled, pale green pods, square at the end, and very fine for the exhibition table. It grows about 5 feet in height. This resulted from a cross between Champion of England and G. F. Wilson.

Another very fine variety, not included in the Chiswick trial, has been named Progress. It came from a cross between Ne Plus Ultra and G. F. Wilson; grows 5 feet in height, and is a very fine late variety of the Ne Plus Ultra type, with very large broad pods that are well filled; and this also will be of great value for exhibition purposes: a vigorous grower, and a very free bearer.

Another very fine variety has been named Magnificent, and it appears to be one of the very finest of the main crop wrinkled marrows in cultivation. It has very large, broad, long, well filled and singularly handsome pods of a pale green colour, square at the end, and unrivalled for exhibition purposes. It came from a cross between Telephone and Ne Plus Ultra, and grows to a height of 4½ feet. In this we get a very fine-looking Pea of the Telephone type, but entirely destitute of that puffy appearance about the pods that so often proves deceptive. Invincible, sent to Chiswick under the name of Home Ruler, has square-topped, large, pale pods, having nine to ten fine Peas in each on an average. This, like the foregoing varieties, fills well, and cannot yield a poor crop if well grown. It came from a cross between G. F. Wilson and Hair's Dwarf Mammoth, and averages 4½ feet in height. A variety named Duchess of Albany comes near to Duke of Connaught, and therefore need not be described.

A dwarf variety, named Victor, grows to a height of 3 feet. It has very fine, well-filled, square-topped pale green pods; a prolific bearer, and stands well. This came from Champion of England crossed with Advancer. Another, named Perpetual—which is not a good name, seeing there is already a variety in cultivation named Walker's Perpetual—is of dwarf growth, has fine pods of the Veitch's Perfection type, and bears until quite late in the season. This came from Ne Plus Ultra and William the First. Tested with Walker's Perpetual, which appears to be a late selection from Veitch's Perfection, it appeared to be a more profuse bearer, and gave larger pods.

And that Mr. Eckford should have a reliable standard by which to judge of the value of his own seedlings, he has this season cultivated a few of the newer introductions of Peas of late years. Robert Fenn, 3 feet, is a remarkably fine main crop variety, producing fine well filled pods, a free bearer, and of vigorous growth. The appearance of this fine Pea fully justified the award of a First-class Certificate by the Royal Horticultural Society. Culverwell's Giant Marrow is a fine late Pea, with long well filled pods, somewhat pointed; but, good as it is, surpassed by Eckford's Magnificent. A few other new sorts, though grown with great care, were decidedly disappointing.

Mr. Eckford has now grown these Peas for two or three years, and it can be stated they are uniform and fixed in character. They deserve to win their way into the front rank. In prosecuting his crosses Mr. Eckford aims at attaining to certain definite results, and he has succeeded in a remarkable degree. It now remains for the public to endorse by an appreciative approval the work so carefully and successfully performed with such satisfactory results. They are dealt with in this paper only after a very careful personal inspection.

No doubt the fine development of the Peas grown by Mr. Eckford is due, to some extent, to his practice of thin sowing. All his new varieties are of a singularly free branching character, and the seeds are sown well apart; but they produce marvellous plants, that fill out the line as densely as do varieties sown much more thickly, and these plants produce crops startling in their profuseness. *R. D.*

YEAST FUNGI.

Dr. Oscar Brefeld, whose work, *Botanische Untersuchungen über Schimmelpilze*, is well known, has just published the fifth part of the same work under the modified title of *Botanische Untersuchungen über Hefenpilze Fortsetzung der Schimmelpilze*. The alteration in the title was made with the object of bringing the work under the notice of a wider circle of readers likely to be interested in the fungi of fermentation. This part is devoted to researches on the Ustilagineæ, with especial reference to the smut diseases of corn. It is preceded by a disquisition on the artificial cultivation of parasitic fungi, and followed by an essay on the morphological value of the yeasts. In his preface the author states that his investigations prove that the various kinds of yeast hitherto described and regarded as independent fungi, are nothing more than the conidial forms of other fungi. The yeasts, or yeast conidia-forming fungi, belong to the most different groups of fungi, as, for example, the Ustilagineæ or smuts, the Tremellineæ or jelly fungi, and the Ascomycetes. They are characterised by possessing the capability of forming, in or upon nutrient solutions, conidia, which propagate themselves by direct germination.

The multiplication of the yeasts continues in an indefinite number of generations as long as the nutrient matter in the solutions lasts, without producing any other forms. In this work only those yeast-forms are dealt with that are conidia-fructification of various smuts. Dr. Brefeld goes on to say that the apparent exclusive occurrence of forms of smut on determined parts of certain plants has naturally led to the assumption that the conditions essential to the existence of these fungi are only found in these so-called hosts or nurse-plants, and therefore that these fungi were parasites in the strictest sense; but his investigations show that this view is preconceived and erroneous. These fungi grow in any artificial nutrient solution with the greatest freedom, and the majority of them exhibit therein an unlimited reproduction. In consequence of the extreme facility with which these parasites develope on other matrices, and the indefinite multiplication of their germs in the form of yeast conidia, the views concerning the whole subject of their life and distribution and the smuts they cause, undergo a complete modification. The work is illustrated with thirteen quarto plates crowded with drawings, affording evidence of an enormous amount of labour.

Two full years, the author states, were devoted to the experiments and researches, and when we consider that Dr. Brefeld had lost the sight of one eye entirely before he began them we are filled with admiration of his courageous perseverance with difficult microscopic work under such adverse circumstances. Part 6 will appear shortly, dealing with a new type of the Myxomycetes, and containing the complete life history of a new Entomophthora, which the author has been able to follow in artificial cultivation through every stage of its development; and Part 7, for which most of the work is nearly finished, will be a continuation of the researches on yeast fungi.

LIST OF GARDEN ORCHIDS.

(*Continued from p.* 152.)

71. Epidendrum (Euepidendrum — Amphiglottideæ) ellipticum, Graham; Hook., *Exot. Fl.*, t. 207; Lindl., *Fol. Orch.*, n. 230; *Walp. Ann.*, vi., p. 395; Lodd., *Bot. Cab.*, t. 1276. *E. crassifolium*, Hook., *Bot. Mag.*, t. 3543.—Brazil. Sent to the Edinburgh Botanic Garden by Captain Graham in 1824; flowered in 1826. Flowers rose-coloured or purple, half an inch across, about a dozen clustered at the top of a long scape. Differs from E. elongatum in its elliptical, blunt leaves. Hort. Kew.

72. E. (Euepidendrum—Amphiglottideæ) elongatum, Jacq., *Ic. Pl. Rar.*, iii., t. 604; Lindl., *Fol. Orch.*, n. 231; *Walp. Ann.*, vi., p. 395; *Bot. Mag.*, t. 611; Lodd., *Bot. Cab.*, t. 986. *Amphiglottis secunda*, Salisbury, *Trans. Hort. Soc. Lond.*, i., p. 294. *E. secundum*, Linn.; Jacq., *Stirp. Amer.*, t. 137.—Mexico to Venezuela and in the West Indies. Cultivated in this country at the beginning of the century. Flowers about half an inch across, bright rose, clustered at the top of a long scape, occasionally branching at the tip. Hort. Kew.

73. E. (Euepidendrum—Sessiliflorae) equitans, Lind., *Bot. Reg.* 1838, Misc., p. 44; *Fol. Orch.*, n. 237; *Walp. Ann.*, vi., p. 397.—Mexico. Sent to the Horticultural Society of London by Mr. Hartweg. In habit this is like a Fernandezia; and it has solitary, sessile, dull chocolate-brown flowers. Hort. Kew.

74. E. (Aulizeum — Schistochila) erubescens, Lindl.; Hook., *Journ. Bot.*, iii., p. 87; *Fol. Orch.*, n. 95; *Walp. Ann.*, vi., p. 350; Batem., *Orch. Mex. and Guat.*, t. 32.—Mexico, 7530—8000 feet. A fine plant, having very large panicles of delicate rose-coloured flowers about 2 inches across. I believe this very handsome Orchid has never borne flowers under cultivation. It is one of the Orchids that collectors should look after.

E. esculentum Hortul. = aciculare.

75. E. (Encyclium) euosmum, Rchb. f., *Linnæa*, xli., p. 79.—Brazil. Sent by Mr. Blunt to Messrs. Low; flowered by Mr. Day. Allied to E. alatum; flowers having the odour of Violets.

76. E. (Euepidendrum — Amphiglottideæ) erectum, Rchb. f., *Bot. Mag.*, t. 5902; *Gard. Chron.* 1873, p. 646.—New Grenada? Cultivated at Kew many years previous to being figured in 1871. A showy species, with ample racemes of rich purple flowers; lip deeply fringed, the central lobe again divided into two spreading segments. Hort. Kew.

77. E. (Aulizeum—Schistochila) falcatum, Lindl., *Ann, Nat. Hist.* 1840; *Fol. Orch.*, n. 91; *Walp. Ann.*, vi., p. 348. *E. lactiflorum*, A. Rich. and Gal., *Ann. Sc. Nat.*, série 3, iii., p. 22. *E. Parkinsonianum*, Hook., *Bot. Mag.*, t. 3778. *E. aloifolium*, Batem. *Orch. Mex. and Guat.*, t. 25; *Gard. Chron.*, n. s., ix., p. 724.—Mexico and Guatemala. Introduced by Mr. J. Parkinson, Consul at Mexico, and cultivated by the Duke of Bedford. Flowers about 5 inches across, greenish-yellow, with a brighter yellow labellum that is not fringed. Hort. Kew.

78. E. (Aulizeum) fallax, Lindl., *Orch. Linden*, p. 9; *Fol. Orch.*, n. 110; *Walp. Ann.*, vi., p. 353. *E. Lindeni*, Lindl., *Ann. Nat. Hist.*, xii., p. 397.—New Grenada, at 6000—10,000 feet. Introduced by Linden in 1842. Lindley distinguishes two varieties, one having a purple lip edged with white—the other a white and yellow lip.

79. E. (Euepidendrum — Amphiglottideæ) fastigiatum, Lindl., *Fol. Orch.*, n. 175; *Walp. Ann.*, vi., p. 376; *Ill. Hort.*, xxviii., p. 96.—New Grenada. Introduced by Mr. Linden in 1843. Very like E. paniculatum, but with a more erect stiffer panicle and shorter flowers.

80. E. favoris, Rchb. f., *Gard. Chron.*, n. s., ii., p. 98.—Mexico. Imported by Mr. Backhouse, Holgate House, York. Near E. Boothianum, differing in its one-leaved pseudobulbs. Flowers small, yellowish, mottled with brown.

81. E. (Euepidendrum) fimbriatum, H.B.K., *Nov. Gen. et Sp.*, i., p. 351; *Walp. Ann.*, vi., p. 406; Lindl., *Fol. Orch.*, n. 263. *E. alternans*, Lindl.; Hook., *Journ. Bot.*, iii., p. 88.—New Grenada to Peru, at 8000—11,000 feet. Introduced by Mr. Linden in 1843. A slender plant, about 6 inches high, with small racemose pale rose-coloured flowers.

82. E. (Encyclium — Holochila) flabellatum, Lindl., *Fol. Orch.*, n. 15; *Walp. Ann.*, vi., p. 324.—Mexico. Cultivated by Mr. Harris. Flowers the size of those of E. odoratissimum, dull yellowish-brown; lip yellow, with crimson lines.

E. flavidum = leucochilum.

E. flexuosum = imatophyllum.

83. E. (Euepidendrum — Paniculatæ) floribundum, H.B.K., *Nov. Gen. et Sp.*, i., t. 86; Lindl., *Fol. Orch.*, n. 293, in part; *Bot. Mag.*, t. 3637. *E. ornatum*, Lemaire, *Jard. Fleur.*, iv., Misc., p. 67, with a figure.—Mexico. Imported and cultivated by Messrs. Loddiges before 1838. Sepals and petals olive-green; lip and column white, dotted with crimson. The petals are very slender, as in E. polyanthum. Hort. Kew.

E. formosum = alatum.

84. E. (Aulizeum—Holochila) fragrans, Swartz; Lindl., *Fol. Orch.*, n. 122; *Bot. Mag.*, t. 1669; Lodd., *Bot. Cab.*, t. 1039; Andrews, *Bot. Rep.*, t. 645. *E. cochleatum*, Curtis, *Bot. Mag.*, t. 159, not of Linn. *E. æmulum*, Lindl., *Bot. Reg.* 1898. *E. lineatum*, Salisb., *Prodr.*, p. 10.—Widely dispersed in Tropical America. Cultivated in this country towards the end of the last century. Flowers very fragrant, pale green or cream, with crimson streaks on the lip, variable in size. Pseudobulbs probably always only one-leaved, though two are shown in the *Bot. Mag.*, fig. 152. Lindley distinguishes a variety megalanthum, having very large flowers, with vivid stripes of rich crimson on the lip. Hort. Kew.

85. E. (Encyclium — Hymenochila) Friderici Gulielmi, Warsc. and Rchb. f., *Bonplandia*, 1854, p. 110; *Xenia Orch.*, i., p. 158, t. 51; *Ill. Hort.*, n. s., t. 48, copied in *Puydt les Orch.*, t. 19; *Gard. Chron.* 1873, p. 646.—Peru, at 6000—8000 feet. Discovered by Warscewicz, and subsequently introduced by Wallis for Mr. Linden. Flowers dark purple with some white and yellow at the base of the lip.

86. E. (Euepidendrum) frigidum, Linden, *Bot. Reg.*, 1845, Misc., p. 76; Lindl., *Fol. Orch.*, n. 286; *Walp. Ann.*, vi., p. 411; *Ill. Hort.*, xxviii., p. 96.—Venezuela. Introduced by Mr. J. Linden, who found it growing on wet rocks at but little distance from the eternal snow, at the height of 13,000 feet above the sea. Flowers pale rose, in long drooping panicled racemes.

87. E. (Encyclium — Hymenochila) fuscatum, Lindl., *Bot. Reg.* 1838, Misc., p. 15; *Fol. Orch.*, n. 36; *Walp. Ann.*, vi., p. 330. *E. Sagræanum*, A. Rich, in *Ram. de Sagra Fl. Cub.*, t. 75. *E. affine, l.c.*, t. 78, and *E. hircinum*, t. 77.—Cuba. Introduced by Captain Sutton and cultivated by Sir Charles Lemon, in whose garden it first flowered in 1837. Flowers small, dull yellow, tessellated, with a pink spot in the centre of a white lip.

E. Fuchsii = Skinneri.

E. fulgens = Schomburgkii.

88. E. Funkii, Rchb. f., *Linnæa*, xxii., p. 839; *Walp. Ann.*, vi., p. 377; Lindl., *Fol. Orch.*, n. 178; *Ill. Hort.*, xxviii., p. 96.—New Grenada. Introduced by Linden in 1846. Near E. blepharistes, Flowers whitish, tinged with violet.

E. funiferum = polyanthum.

89. E. (Euepidendrum — Amphiglottideæ) fuscatum, Swartz; Lindl., *Fol. Orch.*, n. 206; *Walp. Ann.*, vi., p. 385; *Bot. Reg.*, t. 67; Lodd., *Bot. Cab.*, t. 887; *Bot. Mag.*, t. 2844; Andrews, *Bot. Reg.*, t. 441; Smith, *Spicilegium*, t. 23. *E. anceps*, Jacq., *Amer.*, t. 138. *Amphiglottis lurida*, Salisb., *Trans. Hort. Soc. Lond.*, i., p. 294. *E. virescens*, Lodd., *Bot. Cab.*, t. 1867. *E. musciferum*, Lindl.; Hook., *Journ. Bot.*, i., p. 6. *E. viridipurpureum*, Hook., *Bot. Mag.*, t. 3666.—Widely spread in Tropical America. Cultivated by Loddiges and others. A species of no value as an ornamental plant. Lindley distinguishes three varieties, of which the best is *E. viridipurpureum*. Hort. Kew.

90. E. (Encyclium—Holochila) fusiforme, Rchb. f., *Walp. Ann.*, vi., p. 322.—Native country not recorded. Cultivated by Colvill; the specimen in the Lindley Herbarium.

91. E. (Encyclium—Hymenochila) gallopavinum, Rchb. f., *Bonplandia*, 1855, p. 219; *Walp. Ann.*, vi., p. 336.—Rio Janeiro. Imported and cultivated by Consul Schiller, of Hamburgh. A handsome plant, having large racemes of brown flowers, with a yellow lip.

92. E. (Encyclium — Holochila) Ghiesbreghtianum, A. Rich. and Gal., *Ann. Sc. Nat.*, série 3, iii., p. 19; *Gard. Chron.* 1868, p. 815. *E. tripunctatum*, Lindl., *Bot. Reg.* 1841, Misc., p. 66; *Fol. Orch.*, 11, 12.—Mexico. First flowered in the garden of Mr. R. Harrison, at Aigburth, near Liverpool. Flowers small, dull-coloured. Hort. Kew.

E. giganteum = E. Guilleminianum.

93. E. Gireoudianum, Rchb. f., *Bonplandia*, 1856, p. 327.—Peru. Introduced by Warscewicz, and cultivated by Mr. Gireond. Near E. cochlidium. Flowers rose-purple.

94. E. (Encyclium—Sarcochila) glaucum, Lindl., *Bot. Reg.* 1840, Misc., p. 29; *Walp. Ann.*, vi., p. 325. *E. brachiatum*, A. Rich. and Gal., *Ann. Sc. Nat.*, série 3, iii., p. 20. *Epithecia glauca*, Knowles and Westc., *Fl. Cab.*, ii., p. 167, t. 87. *Prosthechea glauca*, Knowles and Westc., *l. c.*, iii., p. 111.—Mexico. Imported and cultivated by Mr. G. Barker. Flowers in drooping panicles, small, scentless, green stained with purple.

E. glaucum = campylostalix.

95. E. globosum, Jacq., *Stirp. Amer.*, p. 222, t. 133, fig. 1; *Refug. Bot.*, ii., t. 140. *Isochilus globosum*, Lindl., *Gen. and Sp. Orch. Pl.*, p. 112. *Cymbidium globosum*, Sw., *Fl. Ind. Occ.*, p. 1467.—West Indies. Cultivated by Mr. W. W. Saunders. Habit of a miniature Isochilus.

96. E. (Aulizeum—Holochila) glumaceum, Lindl., *Bot. Reg.* 1840, t. 6; *Fol. Orch.*, n. 123; *Walp. Ann.*, vi., p. 358.—Brazil. Imported and cultivated by Messrs. Rollisson. Pseudobulbs two-leaved, with several large brown scales at the base of the flower-scape. Flowers fragrant, white, tinged with pink and striped with rose. Hort. Kew.

97. E. glumibracteum, Rchb. f., *Hamb. Gart. Zeit.*, xix., p. 11.—Costa Rica. Cultivated by Consul Schiller at Hamburgh. Near E. clavatum.

E. glutinosum = odoratissimum.

98. E. (Encyclium—Hymenochila) gracile, Lindl., *Bot. Reg.*, t. 1765; *Fol. Orch.*, n. 48; *Walp. Ann.*, vi., p. 335.—Bahamas. Sent to the Horticultural Society of London by John Campbell Lees in 1833. Flowers green and brown; lip yellow, lined with red. Hort. Kew.

E. Grahami = phœniceum.

99. E. (Aulizeum) grammatoglossum, Rchb. f., *Linnæa*, xxii., p. 837; *Walp. Ann.*, vi., p. 350; Lindl., *Fol. Orch.*, n. 97; *Ill. Hort.*, xxviii., p. 96.—Venezuela. Introduced by Linden in 1847. A slender species, 6 to 9 inches high. Flowers yellow, the remarkable lip marked with six or eight deep red spots.

100. E. (Encyclium — Hymenochila) gravidum, Lindl., *Journ. Hort. Soc. Lond.*, iv., p. 114; *Fol. Orch.*, n. 65; *Walp. Ann.*, vi., p. 340.—Mexico. Introduced by Hartweg for the Horticultural Society. Lindley describes the flowers as green and never opening. Reichenbach suggests that it was an abnormal condition of some species.

E. guatemalense = oncidioides.

101. E. Guilleminianum, Lindl., *ex* Planchon, *Hort. Donat.*, p. 164. *E. giganteum*, Hort., for which a reference to the *Journal of the Horticultural Society* is given, I have not found there nor elsewhere.

102. E. (Encyclium — Hymenochila) Hanburii, Lindl., *Bot. Reg.* 1844, Misc., p. 46; *Fol. Orch.*, n. 77; *Walp. Ann.*, vi., p. 344; Regel, *Gartenflora*, t. 398.—Mexico. Cultivated by Mr. R. Hanbury, of Stamford Hill. Sepals and petals deep dull purple; lip rose, veined with crimson.

103. E. (Encyclium) hastatum, Lindl., *Hook. Journ. Bot.*, iii., p. 82; *Bot. Reg.* 1841, Misc., p. 44; *Gard. Chron.* 1841, p. 436; *Fol. Orch.*, n. 21?—Mexico. Imported by Messrs. Loddiges. Racemes a foot long; flowers fragrant, purple and white or green, purple and white. I am not sure that the plant described in the *Folia* is the same.

104. E. (Euepidendrum) Harrisonæ, Hook., *Bot. Mag.*, t. 3209; Lindl., *Fol. Orch.*, n. 172; *Walp. Ann.*, vi., p. 373. *E. aeridiforme*, Booth, *Bot. Reg.* 1845, Misc., p. 12.—Brazil. Introduced by Gardner and cultivated by Sir C. Lemon at Carclew. Flowers green and white.

E. Helleri, Fenzl = gracile.

105. E. (Euepidendrum spathaceæ) heterodoxum, Rchb. f., *Bonplandia*, 1854, p. 20; *Walp. Ann.*, vi., p. 362.—Venezuela. Cultivated by Mr. Geitner, of Planitz. Flowers green.

E. hircinum = fucatum.

106. E. (Euepidendrum — Amphiglottideæ) hymenoides, Lindl., *Fol. Orch.*, n. 181; *Walp. Ann.*, vi., p. 378; *Ill. Hort.*, xxviii., p. 96.—New Grenada. Introduced by Mr. J. Linden. This has long grass-like leaves, and dirty-white flowers.

107. E. (Euepidendrum — Amphiglottideæ) ibaguense, H.B.K., *Nov. Gen. et Sp.*, i., p. 352; Lindl., *Fol. Orch.*, n. 233; *Walp. Ann.*, vi., p. 396; *Ill. Hort.*, xxviii., p. 96; *Fl. Mag.*, t. 390.—New Grenada to Peru. Introduced by Mr. Linden in 1844. Allied to E. elongatum, but much handsomer, having orange-scarlet flowers with a yellow labellum. Messrs. Backhouse flowered this, probably the first time in England, in 1868. Hort. Kew.

108. E. (Euepidendrum—Amphiglottideæ) imatophyllum, Lindl., *Gen. and Sp. Orch. Pl.*, p. 106; *Fol. Orch.*, n. 222; *Walp. Ann.*, vi., p. 391. *E. flexuosum*, Meyer, *Fl. Essequeb.*, p. 260; *Tijdschr. Natuurk. Wetensh.*, iv., p. 65.—Guiana, Brazil. Flowers pale rose, with sometimes a green column, larger than those of E. ellipticum.

109. E. (Euepidendrum—Strobiliferæ) imbricatum, Lindl., *Fol. Orch.*, n. 243; *Walp. Ann.*, vi., p. 401.—Brazil. Cultivated at Kew in 1870. Spike almost like a cone; flowers white.

E. imperator, Hortul. = Catillus.

E. incumbens = aromaticum.

E. indusiatum = lacertinum.

110. E. (Pleuranthium) infaustum, Rchb. f., *Hamb. Gard. Zeit.*, xix., p. 13.—Bahia. Introduced and cultivated by Consul Schiller. Insignificant. This should have been included in the genus Pleuranthium.

111. E. (Encyclium) insidiosum, Rchb. f., *Linnæa*, xli., p. 80.—Native country unrecorded. Cultivated by Mr. W. Bull. Sepals and petals olive-green, marked with dark brown; lip yellow, veined with dark purple.

112. (Aulizeum — Holochila) inversum, Lindl., *Bot. Reg.* 1839, Misc., p. 85; *Fol. Orch.*, n. 124; *Walp. Ann.*, vi., p. 358.—Brazil. Imported and cultivated by Messrs. Loddiges. Flowers straw-coloured, with a few purple streaks. Hort. Kew.

113. E. (Encyclium—Hymenochila) ionosmum, Lindl., *Bot. Reg.* 1838, Misc., p. 49; *Fol. Orch.*, n. 73; *Walp. Ann.*, vi., p. 342.—Guiana. Imported and cultivated by Messrs. Loddiges. Flowers rather large, dull reddish-green; the lip delicately streaked with deep lilac. The odour that of the sweetest Violets.

114. E. isochilum, Rchb. f., *Bonplandia*, 1856, p. 326.—San Domingo. Imported and cultivated by Consul Schiller, of Hamburgh. Allied to E. aureum.

115. E. (Encyclium—Hymenochila) Jenischianum, Rchb. f., *Fl. des Serres*, ix., p. 98; *Bonplandia*, 1854, p. 89; *Walp. Ann.*, vi., p. 343.—Bahia. Cultivated by Senator Jenisch. A handsome species; flowers white and rose outside, lilac inside; lip veined with purple.

E. Karwinskii = bicameratum.

(*To be continued.*)

VEITCHIA JOANNIS.

In consequence of the time and trouble entailed in the preparation of dried specimens of Palms, many of the genera and species under cultivation are imperfectly defined. This is the case with the genus Veitchia, established by Wendland about twenty years ago. Four species are imperfectly known, and of these the authors of the *Genera Plantarum* had flowers only of V. Storckii and a fruit of the present species, which commemorates the late John Gould Veitch, who first succeeded in introducing it into European gardens. All four species inhabit the Fijian Islands and the New Hebrides. Veitchia Joannis has never been figured before, and it has been—in books, at least—from the first more or less confused with Kentia exorrhiza. Wendland, who describes our Palm in Seemann's *Flora Vitiensis*, p. 271, gives the following account, which we reproduce to show how little is known of it:—"This Palm was discovered by Dr. Seemann, who carried young plants of it to Sydney, where some of them were placed in the Botanic Garden of that town; but the others perished during the voyage to England. Mr. J. Veitch, more fortunate, succeeded in introducing the species into our European gardens. The fruits were first described by me in the *Bonplandia* as those of Kentia exorrhiza—a mistake for which the discoverer assumes the responsibility. Seedlings have from the first a straight stem, their sheath, petiole, and rhachis being of a dark blood-colour, and covered, when young, with a grey tomentum, which is interspersed with lancet-shaped, thin, dark red scales. The leaf-segments are at the point obliquely truncate, minutely dentate, and their midrib terminates in a small curve. The fruit is ovoid-ellipsoid, $2\frac{1}{3}$ inches long by about $1\frac{1}{4}$ inch in diameter, surrounded at the base by the thickened and enlarged remains of the flower, glabrous and bright orange-coloured. The mesocarp is rather thick, and consists of a number of delicate fibres. The kernel is ovoid-ellipsoid, tapering into a rather blunt point about $1\frac{1}{4}$ inch long and $1\frac{3}{4}$ inch in diameter, and is attached, from the base to the apex, to the endocarp by means of the raphe, from which proceed a number of delicate white vascular bundles, which are at the base placed parallel to each other, and towards the point overlie each other. The albumen, surrounded by a porphyry-coloured skin, is hard, white, even, and in the lower part encloses a straight embryo."

Seemann adds:—"This Palm is found all over Viti, and there is reason to believe that it is also found in the Tongan group, where, as in Fiji, it is known by the name of Niu sawa, I am told; sawa signifying red in Tonguese (and having no meaning in Fijian), doubtless in allusion to the fruit, which merges from bright orange into red. The spadix, on which the minute monœcious green flowers are inserted, is much branched, and the branches form large bunches, which, when loaded with ripe fruit, are rather weighty. As many as eight of these bunches, in various stages of development, are often seen on a tree at one time. The fruit is about the size of a Walnut. At first green, it gradually changes into bright orange, and ultimately merges into red at the base. The kernel has a slight astringent taste, and is eaten by the natives, especially by the youngsters. The wood is used for spars."

Fig. 32.—Veitchia Joannis.

Kentia exorrhiza is figured in Seemann's *Flora Vitiensis*, as well as Veitchia Storckii, and the miniature portraits of these two Palms are so alike that one would pass for the other were it not that the former has numerous stout roots proceeding from the lower part of the trunk into the ground, like those from the trunk of a Screw Pine.

Horne, in his little book, *A Year in Fiji*, cites the name Niu sau for Kentia exorrhiza; and it would seem from the following quotation that Niu is the Fijian equivalent for Palm:—"There are comparatively few genera of Palms indigenous to Fiji, but the several species are numerously represented. The Niu sau, Kentia exorrhiza, is a tall graceful Palm, frequently rising to a height of 80 feet in favourable situations. It is most common in low-lying districts, but may be found on the tops of the highest mountains. Pritchardia pacifica, the Niu masie of the Fijians, and the Fan Palm of the settlers, although not rare, cannot be said to abound in the wild state. Some species of Otychospermum are very handsome trees; one or two species attain the dimensions of the Niu sau, while others do not exceed the size of a stout cane."

Horne also mentions the Fijian Sago Palm, Sagus vitiensis, yet not a word does he say respecting the genus Veitchia. If Seemann was right in his statement that Veitchia Joannis was found all over Viti, then it would seem to follow that Horne has confused two, or perhaps even more species, in his remarks on the distribution of Kentia exorrhiza.

Our illustration (fig. 32) was prepared from a coloured plate sent us by Mr. Charles Vuylstecke, of Loochristy, near Ghent, who has been so fortunate as to acquire a considerable number of seeds, and so has obtained a fine stock of young plants, some of which were exhibited at the late Ghent show.

HARDY PLANTS WHICH DO NOT ENCROACH.

On soils which are rich and strong many mixed herbaceous borders are now an untidy jungle of stalks and green leaves. It has too commonly been supposed that it is one of the merits of hardy plants that a border once planted with them may be left to itself for several years with no other attention but occasional weeding and tying. But if plants are to be left to themselves for more than two years great care must be taken about the selection of kinds. Catalogues generally give the height of plants, but neglect to give the breadth, which is an important consideration in their arrangement, but it is still more important to know at what rate they increase at the root, if symmetrical appearance is any object. This rate of increase varies very much with the soil, and plants which may be left to themselves without any attention for several years in sandy soils will soon monopolise, in retentive and fertile soils, far more room than they were intended to take.

I propose to mention a few good plants which, in this garden, where everything has a tendency to grow coarse, go on for several years without increasing immoderately. It is a good plan to assign a separate border to plants of this class, especially where neatness of appearance is an important object. I am speaking only of herbaceous plants proper, without including bulbs or shrubs, and confine myself for the present to a few which flower in summer and autumn:—

Callimeris incisa.—A plant of great merit, $2\frac{1}{2}$ feet high, with large Aster-like flowers of lavender colour, produced abundantly at different heights throughout July and August. It increases so slowly that I find small spring cuttings the best way of getting a stock, and have never ventured to divide a plant.

Gentians.—G. asclepiadea seems to do well anywhere. I have it in many soils and aspects, and it thrives in them all, but likes partial shade. It is easily increased either by seed or division, but will be contented to be left alone for several years. It is about 2 feet high here, but the white variety grows more vigorously, and is 6 inches taller. G. septemfida is a very variable plant. I grow it in large quantities from seed, and the flower varies from very light to very dark blue, and the height from 6 to 18 inches. It likes to be left alone.

Inula.—Three or four of these are neat and compact plants. I. hirta, about a foot high, bears long-rayed yellow flowers, 2 inches across, on upright stalks. I. ensifolia resembles it, but flowers later. I. Vaillanti has similar flowers, but is nearly twice as tall, and has branched flower-stalks. None of these spread much at the roots.

Catananche.—These are easily raised from seed, and give variety in colour. There are C. cœrulea, C. bicolor, and C. alba, which come from one another's seed. They are not long-lived plants, but retain the height and width with which they flower the year they are sown, and are easily replaced when

worn out, a little fresh soil being given to the new plant.

Coreopsis.—Many specific names are given, but only one, C. lanceolata, need be grown, and it is never either untidy or encroaching. C. tenuifolia is a plant of some merit, but seems to require a warmer soil than mine.

Chrysocoma.—The native Goldilocks, though its flowering time is short, is one of the most brilliant September plants, growing in a compact mass 2 feet high, and increasing slowly.

Gillenia (*Spiræa*) *trifoliata.* — A neat and elegant, though not a showy plant, 2 feet high, with small white flowers. I have had it growing for five years in one spot, and it has never seemed divisable.

Anthericum. — Nearly all these, but especially A. liliastrum, are slow to increase. A. liliastrum majus is one of the handsomest border plants I know, and well deserves its rank.

Aconitum autumnale.—Unlike some of its genus, which grow fast, this species retains a moderate size. It is 4 feet high, has flowers of a very good blue, and is the best of the Aconites.

Adenophora. — These seem to be of many names, but of few kinds. The flowers are like those of the Harebell, but stiffer and less elegant, though better displayed, being on tall branching stalks 2 feet high. A useful compact plant, easily grown in well-drained soils.

Platycodon. — For a long time these would not flower with me, but good drainage and soil have enabled me to master them. There are many shades, from dark purple to white. They require support, and are about 18 inches high. They flower from July to September, the later flowering variety being called autumnale, but I cannot see any other difference.

Scabiosa caucasica has very large flowers, sometimes 4 inches across, of delicate lavender colour. In fine calm weather the flowers are beautiful, but are easily spoilt by bad weather. Grows about 2 feet high, and spreads slowly.

Grindelia grandiflora, 2 feet high, a most abundant flowerer; flowers the size, and nearly the colour, of those of the Corn Marigold. It is of very good and manageable habit, one of the best yellow Composites of its kind.

Helianthus. — Three may be mentioned as not spreading beneath: H. multiflorus, 4 feet high; H. lætiflorus, 6 feet high; and H. orgyalis, 8 feet high, or more, never confining itself here to the 6 feet which its name denotes.

Asters.—The names of these are so misleading that I will mention only three, all very good and compact: A. pyrenæus, light blue, large-flowered, and early, 2 feet high, generally called sibiricus; A. sericeus, slender stalks, silvery leaves, and delicate growth; and A. bicolor, barely 6 inches high, suited for edging, never spreads.

Other plants compact at the roots are all the Linums, Dictamnus, Lychnis Haageana, Rudbeckia subtomentosa, Campanula Van Houttei, Veratrum, oriental Poppies, one form of Physostegia speciosa, though other varieties run; Echinacea purpurea, Arnebia, and Liatris. Any of these may safely be planted without fear of producing a wilderness. *C. Wolley Dod, Edge Hall, Malpas, Aug.* 13.

HEDYCHIUM CORONARIUM.

This fine plant is now a conspicuous feature in one of the stove houses at The Priory, Warwick, and Mr. Greenfield states that he finds it very useful for cutting from. The flowers are white, and not like those of a Dendrobium, for there is a broad divided lip, two small petals, and two narrow sepals, with a long white pistil issuing from between the two petals. It is singularly delicate in appearance, and slightly fragrant. The plant is of very free growth, and is potted in a good strong fibry loam; it absorbs copious supplies of water, and when growing is treated to plenty of liquid manure. The flowers are borne on the points of the strong growths thrown up from the crown of the plants on the old growths. It is an easy plant to grow, and really gets but little attention. Strange to say, this undoubtedly valuable plant finds no place in Mr. B. S. Williams' *Stove and Greenhouse Flowering Plants*, though it has a place in his catalogue. It is one of not a few fine and useful things that deserves to be better known; but which, from some cause or the other, are but little grown.

Orchid Notes and Gleanings.

Odontoglossum vexillarium Hillianum.—This very pretty variety is now in bloom at Messrs. Shuttleworth, Carder & Co.'s nursery, Park Road, Clapham. The specimen is a large one, having several good spikes of its chaste, almost pure white flowers. The middle of the flower is marked with rose and brown rays. The variety seems to bloom later than the ordinary O. vexillarium, and to come in with the variety rubrum, a good batch of which is in bloom beside it.

Odontoglossum hebraicum, and many other very fine hybrid Odontoglossums, are in bloom in Messrs. Shuttleworth, Carder & Co.'s long Odontoglossum-house. There are some specially fine forms of O. mulus and other nondescript Odontoglossums, in which the collection here seems particularly rich.

Dendrobium Dearei, that lovely snow-white Dendrobe, has been timed by Mr. Shuttleworth to last in bloom (the same spike) over three months. A plant or two of it at the nursery, arranged among good specimens of Odontoglossum cordatum, O. Alexandræ roseum, Cypripedium niveum, Dendrochilum filiforme, Cattleyas, Masdevallias, Burlingtonia candida, &c., serves to show not only its own beauty, but the valuable assistance it gives in heightening the effect of other plants arranged with it.

Oncidium Warneri.—This is one of those old and comparatively rare species, seldom met with in collections at the present time. It appears to have been originally imported from the cooler regions of Mexico about 1845, and seems never to have been very abundant in this country, or if so the plants have dwindled away, and are rarely seen now. It is a showy species, having bottle-shaped bulbs of a dull lead colour, rendering it very distinct from the majority of its congeners. It produces spikes in great profusion, about 6 to 10 inches long, bearing six to twelve small crimson and yellow flowers, of which the fish-tail-shaped labellum is the most attracting feature. It is of a hardy constitution, thrives well when grown in company with O. cheirophorum, and never fails to yield an abundance of flowers about the end of July or the beginning of August. The plant has been in flower with Mr. Peacock for upwards of three weeks, and it will retain its beauty for fully three more to come. *W. Gostling, Sudbury House, Hammersmith.*

Epidendrum brassavolæ.—Amongst the numerous and varied species that bloom from time to time in the Orchid-houses at Kew, although incomparable with the matchless colour of E. vitellinum, this one may with propriety be reckoned amongst the best from a decorative or ornamental standpoint. The sepals and petals are narrow but of great length, and, notwithstanding their dusky yellow colour before expansion, become eventually of a shining deep amber-yellow on the inner face. The labellum is broader and white with a purple tip. Considering the enormous number of known species and the consequent similarity of allied forms, this one stands out prominently and distinctly from the rest, as a subject deserving the cultivator's best attention. Like most of the species the flowers possess the property of lasting for weeks in excellent condition. E. brassavolæ is figured in the *Botanical Magazine*, t. 5664.

FRUIT NOTES.

Free Bearing Apples.—Amidst the wealth of Apples found everywhere this season there may first for the moment perhaps be a tendency to forget those sorts that in scarce years prove to be our best friends; there is the more need to remember these, because scarce years, as we now find to our cost, must largely prevail, and were our almost certain fruiters to fail us as often as the irregular ones do, it would be a poor look-out for the Apple growers. It is pleasing, however, to find that whilst some old friends that are stedfast and enduring are being brought to the front again, newer kinds are introduced, that when better known will become very popular, and of these few perhaps none excel Lord Suffield, Ecklinville Seedling, and Stirling Castle. We saw the latter fruiting the other day at Chiswick in marvellous form, and it was mentioned that so astute a grower as Mr. F. Dancer is working it on to the stems of many irregular kinds largely. Market growers especially who want reliable bearers and early ones, should grow this Apple, and either by planting, or working it on to their old and uncertain kinds, soon secure a big stock of it. Lord Suffield is cropping again in magnificent style, but the demand for Ecklinville is, we hear, causing Lord Suffield to be propagated in less numbers in the fruit tree nurseries. Of old and, except in the east of England, little known sorts, that never fail a crop, none is more worthy of notice than the Harvey Codlin, or Dr. Harvey as it is sometimes called. This is a fine conical yet handsome kind, has very much of the Lord Suffield growth, but is far hardier and more enduring. It shows some neglect on the part of trade growers that there are many lists in which this kind does not figure, and yet it will be found by those who henceforth may grow it to be second to none as a reliable bearer, producing fine handsome fruits, fairly early, and of capital looking quality.

The Fruit Crops.—Alas! there is, as the old saying puts it, many a slip 'twixt the cup and the lip; and it would appear that the same disappointment awaits us with regard to the fruit crop, at least that portion now remaining consisting of Apples and Pears, which are being knocked from the trees and beaten about by the wind in a most cruel and deplorable manner. Here, for the past two days, it has been blowing very strong, and this evening (the 10th), while I am writing, the pressure is as great as it has been since the gale first set in. Many Apples and Pears are lying on the ground, and it can plainly be seen that those hanging are chafed and bruized in the skin, which injury is sure to check and interfere with their swelling, as well as damage their appearance when ripe. Fortunately most trees could spare some, but I greatly fear, where they are growing in anything like exposed places, the loss will be severe, and the worst part of it is that the fruit at this stage is not of much use, except it may be that of a few early kinds, which may perhaps be kept a short time before being cooked. One satisfactory feature about Apples and Pears is that, the trees, notwithstanding the load they had on them, are making good growth, and the leafage is not only ample, but clean and bright—which all promises well for another year, as with so much vigour and strength yet in them they cannot fail to develope and set plenty of bud, which they are rarely able to do when taxed with a crop. *J. Sheppard.*

Early Peaches.—Although the season is somewhat late, we have been gathering Early Rivers' Peach outdoors for the last week, the first being ready on August 4, and the rest have followed on so quickly that most, not pulled, have fallen into the net under the tree, which they leave as soon as they are at all ripe. Although not of first-class flavour, the fruit is very juicy, and it is convenient having a Peach that will come in on the open wall at the season it does. The tree being young last year, I thought it would be a small sort, but the Peaches are as large as most of the late kinds, the fruit being much depressed at the crown, and the skin pale, with only faint streaks of colour where it is exposed to the sun. Early Beatrice and Louise were in about the same time, but both are too small to be of much value unless they were of far better flavour. Alexander is said to be the best of all the early Peaches, and I shall be glad to hear how it has turned out with those who are growing it, and whether it really deserves to be planted, as the time will soon be here for such work to be done. *J. Sheppard.*

The Kitchen Garden.

In all gardens of any pretensions whatever a good and continuous supply of salad is expected the year round, and Lettuce must form the main portion. On or soon after the 22d of this month is considered the best time to sow winter Lettuce, and a south border is the best place to sow them on, in 4 feet beds. We sow, of Cabbage kinds, the Tom Thumb, for planting-out in frames, and Lee's Immense Hardy Green, a variety which no winter has ever killed here; and All the Year Round is another good kind, a somewhat later sort, which comes in fine with a little protection. Of Cos kinds we sow the Brown Cos, the Sugarloaf, and Hicks' Hardy White, which are best sown rather thinly, and left in the seed-beds till spring. Two

conditions are, however, necessary to their well-being: first, see that the beds slope sufficiently to throw off the winter rains, and, secondly, keep a constant look-out for slugs. It is well to get a considerable breadth of border dug, because, on the same day, and under the same conditions, the sowing of Cauliflower for next year's summer supply must be got in. The Early Forcing, Early Erfurt and Stadtholder make a fine succession. One or more beds ought also now to be sown of American Cress, Corn Salad, and red Cabbage, and if the winter Onions and Spinach are not sown, as advised in our last, not a day should be lost in getting them in. The Onion crop in many localities will now be ripe, and when thoroughly dry the bulbs should be stored away in the Onion-loft, where, in arranging them, see that late-keeping kinds, such as James' Long Keeping, are kept separate for use late in the spring. It matters not how cold the loft is for storing Onions provided it is dry and airy; the ground from whence the crop has been harvested is a capital place on which to plant Coleworts at 1 foot apart. These will afford a good supply of greens for winter use. As fast as Peas are finished clear them off the ground, and continue to plant Broccoli and Borecole; the Lapland Kale is most useful for a late supply. Scarlet Runners and late Peas will in many localities need watering and mulching to keep them bearing, and the dwarf French Beans sown last month should be well looked after, as they will be invaluable during October and November; indeed, this crop is indispensable when venison is in the bill of fare. Continue to earth-up early Celery, and, if the weather is dry, water late kinds. Pass the hoe through late Parsley and the last sowing of Carrots, to induce them to grow strong before winter sets in. Where Radishes are used during winter this is the best time to sow them, and the Turnip-rooted kinds are the best for that purpose. Tomatos will still need nailing up and to have superfluous shoots removed, and those under glass should be gathered three times a week. If not already done, let the early Potatos all be dug up and sorted, and where a sufficient breadth of Leeks has not been got in they may still be planted; also get the last batch of Endive planted out in various situations, and somewhere where it can have a little protection in extra severe weather. Keep the hoe going to encourage growing crops and keep weeds under, and let neatness and order prevail everywhere. See that the refuse vegetable heap is kept covered up, as nothing is more pestilential than a reeking mass of decaying vegetable matter. *J. Rust, Eridge Castle.*

Melons and Cucumbers.

Melons.—Late plants which have just set their fruit should, as soon as they commence to swell, have them thinned out to three or four on each plant, leaving, of course, the best and most even-shaped fruit. Let the plants, when necessary, have a good soaking of weak liquid-manure while swelling-off their fruits. Damp the plants and the house in which they are growing mornings and afternoons during bright days, and when the temperature is likely to fall below 70° at night let the fires be lighted. Ventilate freely on all favourable occasions, and shut up about 3 P.M. during sunshine with a temperature of 85°, which may be allowed to run up to 90°, with plenty of atmospheric moisture. Plants growing in dung frames should have water applied to them very sparingly now that the days are getting shorter, with a consequent prolongation of atmospheric moisture, which must necessarily arise in frames so heated. Moreover, plants grown under such circumstances are not likely to suffer for want of water at the roots. As the chances of ripening late crops of fruits satisfactorily in these frames depends in a great measure upon the character of the weather, which is now favourable to their development, every opportunity available should be embraced with the object of achieving a satisfactory result; therefore close the house early every afternoon, and, if the day be bright and sunny, damp the plants lightly at the same time. *H. W. Ward, Longford Castle Gardens.*

Cucumbers.—The house in which winter Cucumbers are to be planted should be thoroughly cleansed—the woodwork washed with soft-soap and warm water, and the brickwork and plaster with hot lime—for the reception of the plants. See that the drainage is perfect before putting in the compost, which should be composed of the ingredients and in the proportion recommended in my last Calendar. Choose a dry day for mixing and getting it into the house, previous to which the drainage immediately over the hot-water pipes should be covered with turves, placed grassy side downwards. This should be made into a ridge in the centre of the pit, or space allotted for the bed, and formed into hillocks, in accordance with the number of plants intended to be planted thereon, and within the required distance of the glass, making due allowance for the subsiding of the soil. If the seeds have been sown and subsequently treated as recommended in these columns on the 4th inst., they will be ready in a few days for shifting into their fruiting pots and boxes, or for planting on the hillocks. The plants, having been watered some time previously to being turned out of the pots, should have their roots disturbed as little as possible in the process of planting, pressing the soil firmly around each plant at the time of doing so, after which they should be supported by small sticks, which can be fastened to the first wire of the trellis. Should the sun be bright at the time the plants are being shifted it will be advisable to shade them for a few hours daily for a few days until they have established themselves, when it can be discontinued altogether. *H. W. Ward, Longford Castle, Wilts.*

Plants and their Culture.

Ferns.—It will be necessary to keep a watchful eye against the depredation of insect pests amongst these plants now more especially, though at all times this essential work should not be overlooked. If brown scale or black thrips gain a foothold to any extent the fronds will be disfigured for the rest of the season, and as many of these cannot be removed now with the hope of advantageously replacing them by a vigorous young growth, the endeavour should be made to keep the matured fronds as clean and healthy as possible. Where it is thought necessary to give any a further shift this year, no delay should now be allowed in performing this work, in order to have the plants well established before winter comes on. In most cases, however, it will be found preferable to assist those that have become pot-bound with slight stimulants; weak liquid manure or Peruvian guano will act beneficially on free-growing kinds. Nearly all the exotic Ferns that are most popular will, when in a healthy condition, and the pots are well-filled with roots, take a liberal quantity of water. Gymnogrammas should be closely looked after in this respect, and be well supplied at the root, but kept dry overhead. The fronds of these ornamental Ferns quickly wither up if overlooked; and the same remarks apply with equal force to Pteris scaberula. Adiantum Farleyense needs also a liberal supply. If this Fern has suffered at any time it will be observed afterwards that portions of the fronds are dried up. We used to attribute this to the dense growth, but now feel convinced it was caused through the plant being allowed to get too much on the dry side. All Ferns that are being grown in baskets will also need the closest attention. If any of these are suspended over a pathway where the drip is an inconvenience, the better plan will be to give them a good watering overnight.

Tree Ferns should also be well looked after; in a healthy state they will take an almost unlimited supply of water; the stems and fronds should likewise be well syringed at least once a day. Where this cannot at all times be conveniently done the stems can be well moistened through a fine rose attached to the water-can. It is grievous to look at a Tree Fern that has been allowed to suffer through want of sufficient water. Those that are carrying large crowns of foliage may, as a safeguard against this occurring so easily, have the stems bound up with sphagnum moss; the roots will quickly take hold of this, and the plant will not be so dependent on drawing its supply from the pot or tub in which it is for the time being grown. Gleichenias that have become dense in foliage with a large amount of under-growth should be gone over carefully to remove any that have become stale or are decaying. We make it a practice to untie ours once a year, and cut out such as are unsightly, and then re-arrange the plant into shape once more. When this is being done the rhizomes that have extended beyond their limits should be carefully pegged inwards again, and have a slight shaking of sandy peat sprinkled over them. By thus thinning out the old foliage more room will be given for the young fronds to push up strongly from the base.

Keep the stock of decorative Ferns, and such as are being grown for supplying cut fronds, as light and airy as possible with safety to the plants. Adiantum cuneatum in particular should be thus treated when any great quantity has to be provided for cut supplies. The fronds of this Fern are far more durable when thus grown in light and air. Give attention to the removing of all old fronds to avoid damping-off occurring later on in the season, and do not overcrowd the plants to any undue extent. Take every opportunity of increasing the stock of the more useful Davallias, such as D. bullata, D. elegans, and D. dissecta. These are amongst the most valuable Ferns grown and should be more cultivated than they generally are to supply cut fronds, lasting as they do for a week or ten days in perfect condition. Seedlings of many Ferns will be found springing up in different directions, by pricking these off at once they will become nicely established by winter. For furnishing work look after such as Asplenium bulbiferum and A. flaccidum; these can be readily increased from the old fronds. Pteris tremula and P. cretica are two very useful plants, so is Hypolepis repens, with Nephrolepis tuberosa and N. pectinata for vases. Of the Filmy Ferns, Todea superba is an excellent subject under a glass case for growing in a living-room. Any such that have filled their present position should be allowed more room before any of the young fronds become crippled through want of this essential extension.

Greenhouse Plants: Camellias. — The present is a very good time to shift any of these plants that may require this attention. We prefer to perform this work after the growth has been made for the season, rather than at the commencement of the same. If done when starting into growth, the chances are, that an extra strong shoot might be the result, terminating in a cluster of wood-buds in place of the necessary flower-buds. The roots will still be found to be in an active state if the plants are in good health, and will quickly lay hold of the new soil. This should be of the best description; we use turfy yellow loam and sound fibrous peat as our staple compost, with a goodly amount of silver-sand added. In this mixture ours are thriving well, with vigorous dark green foliage. In potting use every precaution to work the fresh soil firmly around the old ball, and allow a goodly amount of drainage, as Camellias in a healthy state require abundance of water. Plants that are standing out-of-doors should be syringed on hot days towards the evening; guard them also against being blown over by the wind, especially if just fresh potted. Where there are signs of white-scale take the first chance of getting rid of the same by an extra strong dose of any approved insecticide that has previously been found efficacious. Roman Hyacinths, Paper-White and Roman Narcissus should be procured and potted up without delay if an early bloom is required. We have ours in, and shall get them in their pots as soon as possible; then to be plunged in cocoa-fibre just above the pots, where the warmth of the sun's rays penetrates into the soil. Thus treated root-action soon commences, and the flower-spikes appear without any forcing at all. When advanced so far they can be easily brought on as required. Lachenalias for an early batch may be shaken out, re-assorted, and potted up again. Though this bulbous plant will not bear forcing, an early potted-up lot can be had in flower a bit earlier than usual. *James Hudson, Gunnersbury House, Aug. 14.*

Peaches and Nectarines.

It is very essential at this season of the year to keep early and second houses as cool as possible. If the roofs are fixed keep all the ventilators and doors open to the fullest extent, but if the roof is made with movable sashes (which is very desirable for early houses) they may, if not already done, be now taken off altogether, with great benefit to the inmates. A good opportunity is also afforded to get the lights thoroughly cleaned and painted, and any necessary repairs done to them that may be required, which are much more easily effected than when they are on the roof. Examine borders in succession-houses, and if at all approaching dryness, give liberal supplies of water. Keep all young shoots in late houses tied-in close and straight, and carry out the directions given in last Calendar. *J. Wallis, Keele Gardens, Aug. 14.*

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Aug. 20	Trade Sale of Dutch Bulbs, by Protheroe & Morris.
Wednesday,	Aug. 22	Trowbridge Horticultural Society's Show. Sale of Dutch Bulbs, at Stevens' Rooms.
Thursday,	Aug. 23	Basingstoke Horticultural Society's Show. Dundee Horticultural Society's Show (three days) Flower Show in Bowood Park, Calne. Sale of Imported Orchids, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
Friday,	Aug. 24	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
Saturday,	Aug. 25	Sale of Dutch Bulbs, at Stevens' Rooms.

OUR remarks on the uselessness of most of the collections of Wild Flowers exhibited at flower shows having been misconstrued as condemnatory of all encouragement of wild flower competitions, we hasten to assure our correspondent, "W. P.," and others interested in the matter, that they have our heartiest sympathy and support in all their efforts to foster a love for wild flowers, and especially in their endeavours to create a taste for the beautiful. In proof of this we need only refer to p. 89 of the same issue, in the report of the Ealing Horticultural Society, where, commenting on the stands of cut flowers, we say, "Specially charming was a stand dressed solely with wild flowers and grasses, sent by Mrs. Hayward, of Ealing—a few blooms of the blue Cornflower, Buttercups, Ox-eye Daisies, wild Roses, and some grasses making up a pretty arrangement."

What we had in view at the time we penned the statements alluded to by our correspondent, and what may be seen at nine out of ten of the flower shows at which prizes for wild flowers are offered, were the "collections of wild flowers," consisting of bunches of the various sorts huddled up together in the most tasteless manner imaginable, and the truly hideous "bouquets of wild flowers," in which the dominating idea is to crowd together a mass of flowers without any regard to the disposition of the colours. Then there were on our mind those still uglier monstrosities called "floral devices." The memory alone of what we have seen exhibited under this denomination is sufficient to give us a chill—elephants, towers, shields, crosses, crowns, and a variety of other "devices" have come under our observation; and the perpetrators of such absurdities have been awarded prizes, and thereby stimulated to devise something still more fantastic and outrageous. Such are the competitions we discourage and wish to see discontinued.

In the place of collections of wild flowers we should like to see selections of wild flowers, the number of different kinds or species being defined in the schedule for each class, if more than one. Correct names here, as in the classes for cultivated flowers, should count for much, but the taste exhibited in the selection and arrangement should count for more. That the nature of the competition be clearly defined and limited in the schedule is of the first importance, otherwise competitors start in the dark, and to some extent on unequal terms. The amount of space allowed, the number of kinds to be exhibited in a given class, whether names (English or Latin, or both) will be considered essential, are all points to be remembered by the framers of a schedule. It would also be well to point out whether mere rarity would influence the judges. As to this latter point, we should strongly discourage any procedure which might lead to the extermination of a rare plant. These details are as necessary for the judges as for the competitors, because they serve to lighten the duties of the judges, and their decisions would be more likely to give general satisfaction. According to the locality in which the show is to be held, prizes might be offered for selections of maritime plants, of aquatic plants, of plants mainly confined to the chalk or other formation. For horticultural societies to attempt purely botanical work is, in our opinion, speaking generally, a mistake; for, as "W. P." observes, the judges of cultivated plants are unwilling to pass judgment upon exhibits of wild flowers, though we believe their unwillingness proceeds more from the consciousness that correct naming—a point they cannot determine—counts for more than everything else—than contempt for wild flowers. Time was, within our memory, when many of the more intelligent gardeners did not appreciate the beauties of wild flowers; but it should be remembered that gardeners were not alone in defective taste.

To return, however, to the botanical side of the question, to offer prizes for the "largest and best named collection of wild flowers" is not the way to advance botany (that is, a knowledge of plants), nor is it calculated to promote or diffuse artistic taste. We repeat, it encourages mere collectors, many of whom know nothing of the plants beyond their names, which they painfully copy from a book. It also tends to the extirpation of rare plants; and a fully competent botanist is necessary to act as judge if there are several competitors. On the other hand, we believe that it is possible in almost every district to find amateur botanists qualified to speak to the naming of such selections as we recommend—we mean, to the same extent as the ordinary judges are qualified to criticise the naming of the exhibits of cultivated flowers. With regard to judging purely ornamental arrangements of wild flowers there should be no difficulty, or at least no greater difficulty than in judging ornamental arrangements of cultivated flowers. And offering prizes for ornamental arrangements of wild flowers is, perhaps, the surest way of encouraging children, or even adults, to acquire that kind of knowledge of them that will be serviceable and pleasurable to persons who are not training for botanists. Inculcate a love for wild flowers, and it will lead to inquiry and research.

—— Rose Queen of Queens.—In the illustration on the opposite page our engraver has succeeded admirably in the reproduction of one of Mr. H. Fitch's characteristic sketches. The variety represented is the new Rose, Queen of Queens, which has been exhibited on various occasions during the present summer, and which is a continuation of the series of novelties which have been introduced by Messrs. Wm. Paul & Son, of Waltham Cross. Its position as a desirable novelty has been recognised by the award of a First-class Certificate by the Royal Botanic Society of London. It is of a somewhat different strain to the ordinary run of hybrid perpetual Roses, being a cross between a hybrid perpetual and the Maiden's Blush. The flowers are pink, edged with blush, of large size, with smooth, well-rounded petals, closely and evenly arranged from the circumference to the centre of the flower. It is distinct, very sweet, and quite a show Rose, but even of more value as a garden Rose, on account of possessing a hardy constitution, and flowering abundantly in late summer and autumn, in which quality many of the hybrid perpetual Roses are deficient.

—— International Exhibition at Nice.—An International General Exhibition is to be held at Nice, opening on December 1, 1883, and closing May 1, 1884; and we have received from Mr. A. Mazel, the Secretary of the Horticultural Division, a copy of the regulations and rules to be observed at the permanent and temporary exhibitions of the products of horticulture and objects connected therewith. These rules and regulations are much the same as those with which exhibitors at Continental shows are familiar, but persons wishing for further information should apply to the gentleman named above. The programmes and schedule of prizes are to follow shortly.

—— Dahlias at South Kensington.—The fine size and quality of the Dahlia flowers shown by Mr. C. Turner on Tuesday last, proved beyond doubt that the present summer is bearing fruit in the shape of a remarkably fine Dahlia bloom. It is said the plants are vigorous, clean, and healthy, and when this is the case fine flowers are certain. We may therefore confidently expect that the Dahlia Show, to take place at the Crystal Palace on August 31, will be one of exceptionally high quality. The stands of single varieties shown by Mr. Turner and also by Mr. Ware, were highly attractive, fine in form, varied and brilliant in hue. In Mr. Turner's collection Morning Star, rich scarlet; Alba, white; Huntsman, crimson; Rob Roy, brilliant crimson; Rosalind, salmon-orange; and the fine old unbeaten Paragon, were particularly noticeable. There were other varieties of excellent merit also; and the double bouquet Dahlias were very pleasing also, being in good variety and excellent character. Mr. Ware had, as usual, a very fine lot of single varieties, some shown for the first time. Among them were Ellen Terry, bright pink, very fine; Orangeman, clear orange; Henry Irving, rich bright crimson, very fine; Negress, glowing maroon, very fine; Lucy Ireland, bright rosy-purple, and others. Shown in bunches they were very effective, and they afforded great delight to such of the visitors to the Fisheries Exhibition as found their way into the conservatory.

—— Amsterdam International Exhibition, 1883.—We understand that the whole of the grounds round the Exhibition buildings were sown with Sutton's grass seeds, and the Messrs. Sutton have just received the announcement that the highest recompense, viz., the Diplome d'Honneur, has been awarded them. We are also informed that Messrs. Bakker Brothers, bulb growers, of Bennebroek, near Haarlem, have been awarded a gold medal for their collection of bulbs.

—— Successful Flower Shows.—It is sometimes said that a decline is manifest in the case of great exhibitions held in London, and that while to a great extent maintaining their high character as displays of horticultural produce, they are not so successful financially as the promoters could desire. On the other hand, some country shows are great successes in regard to their finances, and this is perhaps not so much because of their character as shows—for this is sometimes poor—but because the occasion of the show is made a district holiday. Thus, at Atherstone, Warwickshire, a small town noted for its hat manufactories, a flower show was held at Merevale Park on Bank holiday, the large sum of £140 was taken at the gates, another £10 being taken by the sale of tickets; but, in addition to the flower show, there were provided certain outdoor entertainments, winding up with a display of fireworks. This last especially attracted the people from the surrounding villages, and despite the great attraction of Lady Godiva at Coventry, hundreds came from Tamworth, Nuneaton, Polesworth, Hinckley, &c. There are persons who look with something like horror upon any proposal to add to a flower show anything beyond the plants and flowers; but in many parts of the country the flowers of themselves fail to attract. Is it not wise, therefore, to make the exhibition the central feature, and add to it something of an entertaining character in the evening? Let it be remembered that flower shows are held generally in the long days of summer, and that it is necessary to close the tents by 7 o'clock in the evening, in order to admit of the removal of the plants, &c. It is then that something is needed to attract the notice and engage the attention of sight-seers. It is not difficult to add some entertainment of a pleasant character, and promoters of flower shows find that one great advantage at least results from this—that the tents are cleared at removal time, that there is less of pilfering in consequence, and that exhibitors work with a greater sense of comfort and convenience in the important matter of the safe removal of their exhibits.

—— Poisoned Soil.—At the Middlesex Industrial Schools, Feltham, there may be seen an interesting example of the effects of coal-gas upon soil. It seems that a few years since a pipe for the carrying of gas was laid across a piece of ground devoted to farm crops, and in some way or other there was a small local escape, the gas permeating the soil, and apparently poisoning it through an area of about 4 feet square. As a result nothing will grow on the infected soil, and during the past season there has been seen the curious spectacle of a big hole or barren patch of soil in the midst of a luxuriant crop of Barley, for not even the coarsest of weeds will thrive on it. This one example is worth thousands, if needed, to show how very destructive to plant life is coal-gas, and that in towns and suburban districts, where service pipes are laid, and with none too much of care, the worst results to trees and shrubs follow.

FIG. 33.—ROSE QUEEN OF QUEENS: FROM A DRAWING BY W. H. FITCH. (SEE P. 208.)

Some of the gas companies now lay their service mains in a coating of pitch. All who have such mains laid within their gardens or grounds should be careful that a similar precaution is taken. The companies do this to save their own pockets, although they make the customer pay for the additional precaution. But it is evident that gas-escapes into soil in which vegetable life is existing must be most dangerous and harmful. It is bad enough to have beautiful flowers and foliage withered and destroyed by its products after combustion, but the effects of the gaseous compound upon the soil and what is within it seems to be even worse. We keep the plants from the gas, and we must be not less careful to keep the gas from the soil.

—— New Varieties of Gladioli.—Messrs. Kelway & Son, Langport, and Messrs. Vilmorin, Andrieux & Co., Paris, made a rare display of these at the Royal Horticultural Society's meeting on Tuesday last. The Langport flowers were numerous and superbly beautiful, bold and striking in their proportions, and rich in colour. Her Majesty, a delicate blush variety heavily flaked with purple, and Duke of Teck, pale red flaked with maroon, well deserved the First-class Certificates awarded to them. All were so good that the Floral Committee must have had some difficulty in making a selection. In the collection from Paris were some very fine varieties, and the same award was made to two of them, viz., André Leroy, deep rose flaked with delicate lilac, and Grand Rouge, bright salmon-scarlet, the throat flamed with purple, very fine and distinct. But for its rich brilliancy of colour what could compare with Ball of Fire in Messrs. Kelway & Son's stand? Its brilliant vermilion hue could be seen some distance away: it is one of the most striking varieties in cultivation.

—— Biddles' New White Rocket Candytuft.—Under this name Messrs. Biddles & Co., florists, &c., of Loughborough, exhibited at the meeting of the Atherstone Horticultural Society a vigorous growing and very distinct looking annual Candytuft; it is of a distinct habit of growth, quite unlike that of the ordinary annual Candytufts, and is characterised by a vigorous development; the snowy whiteness of the flowers, their large size and form, and by the long rocket-like trusses of bloom, which reach a length of 6 inches, and are at the same time very symmetrical—one could almost imagine that the blood of Iberis gibraltarica had been infused into it, as the strong foliage and manner of growth suggests this, but it is an annual and not a perennial. It is said to be perfectly hardy, and stands the winter well, and therefore seed should be sown in autumn and again in spring. This desirable Candytuft is next season to be distributed by Messrs. Biddles & Co. Its parentage is not known, but it is supposed to have originated in Scotland, and was selected by the Loughborough firm. At Atherstone it was awarded a First-class Certificate of merit, as a new and desirable plant.

—— Clematis Jackmanni.—For several weeks past travellers by the loop line of the South-Western Railway have not failed to notice a truly beautiful display made by Clematis Jackmanni in the Wood Lane nursery of the firm of Messrs. Charles Lee & Sons, Isleworth. On either side of a long path are stout poles up which the plants are trained, and from the tops of the poles run the entire length stout strips of wood all of which is covered with growth and flowers, presenting an effect that is unwonted and beautiful. As the Clematis growth forms a cluster at the top of each pole natural arches are formed between, and it does but need that there should be beneath each a stout pyramid or bush plant of other equally robust late summer blooming kinds to complete that which has been so well begun. Few arrangements can better tend to illustrate the rich merits of Clematises than does the one under notice.

—— Mignonette.—At the Bedfont Seed Grounds there is now growing a breadth of the Giant White strain of Mignonette, the plants of which, raised in a frame, were dibbled out in the month of May, each one about 15 inches from the other. It is supposed that Mignonette transplants badly, and as the young plants seem at the first to almost disappear there seems so far ground for the impression that they soon die. Several years' experience of dibbling out from the seed-pan at Bedfont, however, has shown very contrary results, and this season the growth is as robust and as fine as it is possible to conceive. All the plants have grown into a mass of leafage and flower, and the spikes of bloom, all of great size and of the finest quality, stand up all over the bed, which, in fact, literally bristles with the pointed heads of bloom. There are many branches of seed-pod and flower quite 12 inches in length. The soil is far from being rich, and during the present season has been very dry, yet there is absolutely no comparison whatever between the growth of plants, standing, of course, much more thickly where sown, and those transplanted thinly. One reason for this transplanting is that the soil is in winter very retentive, and in the spring usually forms a cold rough seed-bed, and seed often fails to germinate, or does so very late. The plan of dibbling out overcomes this difficulty, and no doubt it might be adopted with advantage in all gardens where otherwise Mignonette does not thrive.

—— Dasylirion glaucum.—A few weeks ago at Kew the female plant of this noble Lily-wort produced a fine panicle of flowers, which is now covered with well developed although necessarily abortive fruit, because of the then impossible means of fertilisation. A second plant now flowering has proved itself to be the male plant. This inflorescence is necessarily of the same construction, with this difference, that the secondary or lateral spikes of the panicle are more slender and flaccid than that of the former, assuming a spreading or reclining direction, while that of the former are nearly erect. For decorative or garden purposes, as far as the inflorescence is concerned, the male plant is by far the most ornamental, as the stamens are bright yellow, and, seen in a mass, are productive of good effect. The perianth in both plants is small and inconspicuous, so that there is an absence of colour in the female flower till the three-angled and winged fruit is considerably developed, when it assumes a fuscous or dull purple colour. The fruit bears a remarkable resemblance to that of a Rheum or Rumex, and the two separate inflorescences are certainly interesting from a botanical or from a horticultural point of view.

—— Arrangement of Plant and Fruit Houses.—In the erection of plant or fruit houses at the present day, the span, standing north and south, meets with general approval as the best form and position for all purposes. And where several are being erected at the same time a not unusual course is to place them in a series side by side, connecting the whole with a span or oftener a lean-to corridor running across the northern ends of the entire block. This plan has much to commend it, not alone for convenience and comfort in reaching the whole during all weathers without exposure to the open air, but also for the lengthened promenade it affords, and above all for the number of fine climbing plants which can usually be better accommodated in a place of this description than in either a stove or greenhouse of the ordinary description—for such a structure is generally kept at a temperature in winter intermediate between the two, and thus meets the wants of the many fine intermediate-heat plants that are often absent for want of a suitable temperature; but where this kind of arrangement exists the houses that thus abut on the corridor at their northern end should always stand far enough apart to allow the admission of the necessary light through the side glass. Where the great and irremediable mistake is made of attaching the houses together side by side, with no intervening space between them, the amount of light indispensable to the plants is impossible, as there is only the roof through which it can enter, and this is insufficient, unless in very narrow houses, only required for growing small stock, where, consequently, the stages can be kept within a short distance of the glass at the eave of the roof. Recently we saw a place where near upon a dozen large roomy houses had been lately erected side by side abutting each other, the side wall and glass of each house acting as a division betwixt it and the next adjoining; the result of which was, that the plants on the side stages of the whole received little more than half the light they required. In the case of some of these houses an attempt had been made to mitigate the evil by raising the side stages, so that the plants stood almost on a level with one's shoulders when standing in the path, having, needless to say, a very unsightly effect, and only to a limited extent correcting the mischief. In another place, where an extensive lot of houses had been similarly connected with a corridor, a space was left between each of the houses of some 25 feet, and where, as a consequence, side-light was admitted in full volume. In both cases the houses stood north and south, and nothing had been spared in either workmanship or material; but the difference amounts to this, that in the range where the structures stand abutting each other, all the cultural skill and attention possible will never bring out the plants in a condition equal to that which they will reach with ordinary care where plenty of side-light reaches them as well as through the roof.

—— Ononis Natrix.—Few of the species of this genus are at all popular in gardens, which is all the more wonderful seeing that their cultivation is of the simplest. The present one was originally introduced to British gardens about 200 years ago, but seems to have made little or no headway whatever in its dissemination amongst private places. It is of a sub-shrubby nature and procumbent in habit, which latter characteristic points to its suitability for the rock garden, where advantage may be taken of its branching shoots to cover or partly hide the larger stones. Here also it will be seen with the best effect, and like other species it roots so deeply that there is no danger of starving it through want of moisture. The standard of the bright yellow flowers is remarkably large, and beautifully marked externally with longitudinal forking red veins, so that it forms the chief feature of the whole bloom in the folded state both before and after flowering. The plant is figured in the *Botanical Magazine*, t. 329, and a fine specimen on the new rockery at Kew keeps up a succession of bloom nearly the whole summer.

—— Echinops Ruthenica. — Without doubt this is one of the best of the Globe Thistles, which are so distinct in appearance from the general run of Composites that every collection of any pretensions ought to include a few of them at least. They derive their name from the arrangement of the inflorescence, which is an aggregation of flower-heads, each with its own special involucre, and not in a single head as in the predominant mode of arrangement. These flower-heads in the present instance have the involucral leaves of a deeper blue than the florets themselves, and in consequence serve to keep the plant gay and attractive for some time both before and after flowering. In ordinary soils that are comparatively dry this species does not exceed a height of 2 or 3 feet, and being of erect habit and moderately slow of increase it may be admitted to the best kept part of the herbaceous border without danger of its interfering with the other occupants. It is to be seen in the Kew collection and a few neighbouring gardens.

—— Turnips.—In spite of thunder showers here and there we are getting a dry spell of weather generally, and because of its continuance there is danger that our customary winter supply of Turnips will be small. Apart from the difficulties which attend upon the germination and growth of Turnip seed and plants when the soil is parched and dry, we know that the beetle which preys upon the plant soon decimates it, and renders the crop, if not void utterly, at least valueless. It is also a fact that sowings after the end of August are useless for winter bulbing, though available for spring topping, and hence not absolutely profitless. If, therefore, the dry weather should continue throughout the present month, delightful as it will prove for holiday makers, the harvest, and the Potato crop, it will render Turnips scarce; and thus we shall find, at least, one not inconsiderable fly in our otherwise satisfactory pot of ointment. In some localities, and we note its introduction recently into West Middlesex, there exists the practice of sowing Turnip seed amongst Broad Beans when the latter are some 18 inches in height, but a late sown breadth of Beans is best. The plan has these advantages—first, that the shade thrown by the Beans keeps the soil cool and moist; and second, the beetle seldom attacks Turnips so sown. The result is, where seed is sown thinly, a capital plant and a full crop of Turnips following upon the Beans. In not a few cases such sowings promise to be the only crop of Turnips of the season.

—— Cobæa coccinea.—Among the plants at Kew from the rich collection of the late Mr. Joad, is one bearing the above name. By the aid of Pritzel it was easy to find the place of its publication, as a figure of a flower is given with the description of the plant. This is in the *Illustration Horticole*, ii. (1855), p. 71, where Lemaire, the then editor,

states that the plant was cultivated under that name, but by whom it was given was a mystery. Lemaire was only able to describe male flowers, which are very remarkable for the steeple-like receptacle on which the stamens are inserted; but he correctly referred the plant to the Schizandreæ. This being a small group, we soon found that Cosbæa coccinea was identical with Kadsura chinensis of Hance in Bentham's *Flora Hongkongensis*, but not Kadsura chinensis, Turcz., which is the hardy Maximowiczia chinensis, Rupr., otherwise Schizandron chinensis, Baill. After getting thus far we had occasion to refer to Baillon's *Histoire des Plantes*, and there we found that the author had anticipated our identification; and as he reduces the genus Kadsura to Schizandra he was under the necessity of giving our plant a new specific name, because there was already a Schizandra chinensis; so he proposed the name S. Hanceana. However, we should prefer retaining the genus Kadsura, as it is readily distinguished by its different fruit, which is a spheroidal mass of fleshy carpels. In K. chinensis, Hance, the fruit is 4 inches in diameter. The fruit of Schizandra is very singular. After flowering the receptacle bearing the carpels grows into a slender body 2 to 3 inches long, so that the carpels are separated from each other, and have all the appearance of being the fruits of so many distinct flowers. Kadsura chinensis is an evergreen shrubby climber, having leathery light green leaves, like some of the Hoyas, and green flowers with some scarlet at the base. The flowers are about 1½ inch long, with an envelope consisting of about fifteen parts not distinguishable into calyx and corolla. Being a native of Hong Kong and South China this plant will need a warm greenhouse or stove.

—— Sweet Pea, New Carmine Rose.—This very charming and distinct new variety, shown by Messrs. Hurst & Son, 152, Houndsditch, E.C., at the meeting of the Royal Horticultural Society, was rightly awarded a First-class Certificate of Merit. No information appeared to be forthcoming as to its origin, but its beauty and distinctive character were acknowledged by all. It is a self-coloured variety, the standard and wings being of a soft pinkish-rose, retaining its colour well, bright and pleasing to the last, the flowers large and of fine form. It is a most useful addition to our list of Sweet Peas, and there is no reason why it should not be indefinitely extended. Mr. Eckford and others appear bent on doing some acceptable work in this direction.

—— Rhaponticum cynaroides. — Several species of this genus are to be found in gardens, and to hardy plant lovers they form very distinct and massive-looking subjects for mixing with others of a more slender and graceful habit of growth. No one would recommend them for general cultivation to supply the wants of the cut flower basket, but for a general display out-of-doors they have much to recommend them. The foliage of all is more or less felted underneath with a white tomentum, and the generally one-flowered stems range from one to several feet in height. The subject of this note, to be seen in the herbaceous ground, Kew, averages about 2 feet, and bears up its great purple flower heads without any attention in the way of support, or danger of being blown about by unseasonable weather. As a prominent plant for the bolder parts of a rockery it is most suitable, as well as select enough for any herbaceous border, and, being a native of the Pyrenees, it is quite hardy.

—— Veronica parviflora. — Amongst the numerous species belonging to this, the shrubby evergreen section of the genus, few are more readily distinguishable from its closely related congeners than the subject of this notice. Under the same circumstances and treatment it flowers later than V. salicifolia, for a narrow-leaved variety of which it might at first sight be mistaken. The long linear leaves, however, are three-nerved and entire, not penninerved and serrate, as in V. salicifolia. A profusely flowered plant is to be seen on the new rockery at Kew, the flowers of which are white, faintly tinged with lilac, forming a beautiful contrast to the deep purple stamens. As this is the second season of the plant in its present position, and having withstood the severity of March last without the slightest protection whatever, it must be reckoned hardy enough to encourage its cultivation under favourable circumstances in the open air to a much greater extent than at present we find it. There is a narrow-leaved variety in cultivation (whether permanent or not) under the name of V. parviflora angustifolia.

—— Viguiera rigida. — There was much puzzlement amongst the quidnuncs the other day at Slough in getting at the correct name of a plant growing in one of the herbaceous quarters of the Royal Nursery, which was then carrying some large yellow single flowers of the most æsthetic mode; and, apart from all floral crazes, very striking and beautiful they were. There was about the leafage no inconsiderable resemblance to that of a Gaillardia, and some thought it must belong to that genus. Then again it was declared to be a Sunflower, and hence a Helianthus; whilst it was not less confidently asserted that it was a Rudbeckia. It was not the common difficulty of finding the plant to answer to the name, but rather the name that would answer to the plant. Mr. Turner in but few instances keeps his stocks of myriads of things under names, as the writing thereof would be productive of great labour, and consequently it was resolved to invoke the aid of the stock-book. This produced showed that the correct name of this fine hardy plant was Viguiera rigida, commonly called Harpalium rigidum, although there seemed to be a general conviction that one might call it pretty much as one liked, and not be far wrong. Not a few who have seen this Viguiera—but it is very far from being common—may recognise its description as carrying fine single yellow flowers, each one having a black disc, to a height of about 3 feet, and on single stems. It well merits a place in every hardy plant border. A figure of it will be found at p. 397, vol. xvi.

—— Acroclinium album flore-pleno.—With reference to this novelty, noted by us at p. 145 as having been received from Messrs. Hooper & Co., we are reminded by Mr. J. C. Schmidt, of Erfurt, that he received a First-class Certificate for it from the Floral Committee last year. It is to be put into commerce during the coming season.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending August 13, issued by the Meteorological Office, London:—The weather has been fair in the southern and south-eastern parts of England, unsettled and rainy in the other English districts, and exceptionally wet, especially during the last few days of the period, in Ireland and Scotland. The temperature has been below the mean in all districts, the deficit ranging from 2° to 4°. The maxima were registered at all except our north-western and northern stations on the last day of the period; over England they were much higher than of late, the thermometer rising to 79° in the "Midland Counties," and to 81° in "England, E.," and "England, S." In Ireland and Scotland, however, the maximum readings were no higher than 65°, 66°, or 67°. The minima, which were recorded in most places on the 12th, were as low as 40° in "Scotland, W.," 41° over eastern, central, and north-western England, and between 43° and 45° elsewhere. The rainfall has been rather less than the mean in "England, E.," and "England, S.," and about equal to its normal value in "England, S.W.," but in all other districts an excess is reported. In Scotland and Ireland the fall has been unusually heavy, amounting to more than three times as much as the mean. Bright sunshine shows a considerable increase in duration in the south-west, south, and east of England, and a slight increase in most other districts. The percentages of possible duration varied from 26 in "Ireland, N.," and 29 in Scotland, to 55° in "England, E.," and "England, S." Depressions observed:—Barometric pressure has fluctuated considerably over the western and northern parts of our area, while to the southward of our islands it has been comparatively high and steady. A series of rather deep and important depressions has passed over our western and northern coasts from the Atlantic, and some small subsidiary disturbances over our southern districts. The winds, which, excepting on the 7th, have been generally fresh or strong at nearly all stations, have varied between S.W., S., and S.E., as the depressions appeared, and veered to W. or N.W., as they have travelled eastwards over the North Sea. On some of the more exposed parts of our western and northern coasts the wind occasionally increased to the force of a gale.

—— Gardening Appointments. — Mr. T. Curtiss is leaving the service of Earl Sondes, Lee's Court, Faversham, with the intention of setting up in business in Glasgow.—Mr. W. Smythe, son of Mr. Smythe, Gardener at Basing Park, Alton, will succeed Mr. Curtiss at Lee's Court.

SHIPLEY HALL, THE SEAT OF E. MILLER MUNDY, ESQ.

This place is situated in Derbyshire, about 9 miles from the county town, 2 miles from the Shipley Gate station of the Midland Railway, and a similar distance from Ilkeston, to which there is also railway communication, and from which the road leads through a well cultivated district until it enters the park, which, from the natural undulations of the surface, and the advantages that have been taken thereof, is highly picturesque in appearance. The land is rich and fertile, well wooded, with plenty of breadth of water to give the required effect. The mansion stands on a plateau of considerable extent, elevated on all sides high above the surrounding valley, beyond which the land again gently rises for a long distance, presenting an extended natural panorama such as is rarely at the command of the landscape gardener, but where existent and turned to good account it is of vas assistance.

The estate has been several hundreds of years in the hands of the present family. The mansion is a roomy substantial stone building, that from its elevated position commands the surrounding landscape for many miles. However desirable it may be to live on a hill, still without shelter from the western gales and cutting north-eastern winds, such positions are by no means comfortable in all weathers. This the occupants of Shipley Hall in generations past have been alive to, and fully provided for, as evident by the extended groves of splendid Beech and other trees which occupy the western side of the plateau, effectually sheltering the house and grounds. The force of the eastern winds has been equally shut out by trees judiciously planted. These Beeches are deserving of something beyond a passing note. They occupy a considerable space, irregular in outline, and are magnificent old trees, with thick straight trunks, the bark on them as smooth and shining as gun barrels; many of them have clean trunks 30 feet before coming to the lowest branches, yet with enough room to develope correspondingly fine heads. Some of them have reached 110 to 120 feet in height, and are full of life and vigour. Due care is taken to preserve them: wherever a crack or defect is discernible sheet-lead and cement are used to keep out wet, and when doubts are felt of a limb withstanding the gales iron braces are applied. They are a feature of the place, and deserve all the care that can be bestowed on them. With them are a number of sweet Chestnuts, which, like the Beeches, are handsome trees with clean straight trunks. Associated with these trees are quantities of immense old green Hollies that have attained unusual size, and still are as full of vigorous growth as ever, stretching out their branches far on the grass—let, as such things ever should be, to extend without interference. Gold and Silver Queens are proportionately large in size, with the foliage unusually bright and well marked.

From the north front an uninterrupted distant view presents itself over the surrounding country, mostly in grass, which in this part differs materially from the hilly districts of the country, being extremely luxuriant. On the south-east side of the house, which may be termed the garden front, the grounds have been much altered and extended within the last few years, and large numbers of selected specimens of the best coniferous trees have been introduced, many of the newer kinds of which have been obtained of larger size than usually met with; amongst these the following are a few of the best:—Retinospora obtusa aurea nana, 7 feet high; R. obtusa, 12 feet; R. plumosa, R. plumosa aurea, R. squarrosa, R. filifera, R. filicoides, R. leptoclada, all in large beautifully furnished specimens; Picea lasiocarpa, 12 feet; Taxus Donastonii, 7 feet; Abies polita, 5 feet; A. Engelmanni glauca, 8 feet; A. Alcoquiana, 8 feet; Cupressus Lawsoniana lutea, 9 feet. Of Biota aurea elegantissima there are several from 5 to 10 feet high. The true Picea concolor, with many others, in which nothing has been spared either in the plants themselves or in the preparation of the ground to insure their doing well. Some of the above are associated in large clumps, others dispersed over the extensive stretch of lawn at considerable distances apart, so that the objectionable dotting, not unusual in this sort of planting, is avoided. Golden Yew, with Gold and Silver Queen Hollies, and the best green-leaved varieties, of large size, have been freely used in the planting, and already are very effective. In one

of the clumps occupied by the above-named Conifers, Lilium auratum in good sized masses are unusually strong, and promising to bloom freely; Hydrangea paniculata grandiflora, in the shape of dense bushes 6 feet high and 10 feet through, was coming on with hundreds of flower-spikes that when in bloom cannot fail to be extremely effective. From the dressed ground on this side the park slopes quickly for several hundred yards to a fine sheet of water some 60 acres in extent, which, seen as it is from the lawn above, has a very fine effect. The western side of the pleasure grounds is also bounded by the park, and separated from it by a long terrace walk and low wall. On this side Yews of large size are associated with the Hollies, which here again are conspicuous. Rhododendrons and Ghent Azaleas, of which latter there are many that measure not less than from 10 to 12 feet through, and which from their vigorous appearance cannot fail to give a dense sheet of bloom annually. Here again the ground descends considerably, and somewhat more distant is another large piece of water, covering some 70 acres. These lakes are beautifully clear and free from weeds, with an absence of the objectionable murky appearance not unusual in still water. A large outlay has been incurred in preparing and stocking one of these pieces of water with trout. Of Oak, Elm, and Ash there are numbers of handsome old trees in the park, with Thorns of immense size that tell their own tale as to the nature of the soil.

There is a large extent of glass devoted to plant and fruit culture, in which latter especially Mr. Elphinstone, the gardener here, has shown his abilities in the grand examples he has from time to time so successfully exhibited. The conservatory is connected with the mansion by a curvilinear span-roofed corridor some 60 yards long; the side walls of this glass-covered way are in part clothed with Ferns planted in tufa, interspersed with Begonias of the Rex type. Other portions of these side walls are covered with such plants as Brugmansias, Fuchsias, Habrothamnus, Bambusa nigra, and similar plants, which drape the roof as well; the whole, thriving well, have a natural and pleasing appearance. Flowering Begonias suspended in baskets from the roof are used here with good effect; in no way are their drooping flowers seen to better advantage. The conservatory, recently built, is a roomy and lofty structure, with curvilinear roof. The arrangement consists of a large central bed surrounded by a wide path, and a flat slate stage in front; the whole substantial and constructed with a view to lasting. The centre is filled with plants turned out, consisting of Palms, Cycads, and others of a like character, amongst which are a grand pair of Seaforthia elegans, Encephalartos caffra, E. villosus, E. Lehmanni, Dracæna lineata, Musa Cavendishi, Tree Ferns, Asplenium nidus, and others of similar description, in specimens which are getting well established, and will no doubt soon give a fine tropical effect.

Adjoining this conservatory is a fernery, with the walls all round some 10 or 12 feet high; the whole of the occupants are planted out. The walls are well covered with Ferns, Lycopodiums, and close growing plants, such as Ficus repens, that, in addition to its merits for clothing a wall, hangs in graceful festoons from the roof. The centre is occupied by a beautiful plant of Dicksonia squarrosa, one of the best of tree species for such a situation, as it does not grow so large in the head as to overshade everything beneath it. Microlepia heterophylla, a fine Fern, with tall black stems some 5 feet high, and large feathery fronds, is here seen to advantage, as also Woodwardia radicans, another elegant Fern, with creeping rhizomes and immense drooping fronds; the house collectively is well furnished, and has a natural appearance.

Adjoining this are two good sized, wide lean-to vineries, the first of which was planted with Muscats this spring; they have done well, having already reached the top of the roof, after being twice stopped. The next house is occupied by established Vines, Gros Colmar, Lady Downe's, Black Alicante, Golden Queen, and Muscat Hamburgh, bearing a good crop; Muscat Hamburgh especially was carrying a grand lot of bunches, with berries as black as possible. Golden Queen does well with Mr. Elphinstone, colouring in a way not always seen. In this house was by far the finest plant of the scarce Davallia parvula I have met with, densely filling a large pan covered with a bell-glass, which Mr. Elphinstone finds it will not do well without. It is a close growing, very small-fronded species, the fronds minutely divided, and almost as hard to the touch as the leaves of a Lomatia; it is a beautiful and most distinct Fern, like nothing else but itself. After this is a long lean-to range filled with winter-flowering plants, the back wall covered with Tomatos, the front planted with Roses, which are growing away freely. Then comes a span-roofed range, the first division of which is used for propagating, and is now filled with Calanthes of the different winter flowering kinds; with these are some large baskets of Lælia anceps, said to be an unusually fine dark variety: the plants are in the best possible condition. The next division is mostly occupied by Orchids that do in an intermediate temperature, such as Cymbidium eburneum, Odontoglossum pulchellum, Epidendrum vitellinum, &c. Then comes a house devoted to Dendrobiums, Cypripediums, Lælias, Zygopetalums, Trichopilias, and the like. The last of this range is now filled with Melons, to be followed with Gardenias for winter blooming.

A short distance from this is a range, consisting of three lean-to curvilinear-roofed vineries, each 40 feet long by 16 wide, with high back walls; and three Peach-houses, similar in size, with a curvilinear span-roofed stove in the middle of the range, standing at right angles with the vineries and Peach-houses, the former of which are at the eastern side, the Peach-houses to the west. Beginning at the eastern end the Vines in the first house were lifted last autumn, and have made good progress. The next division are Muscats, the crop nearly cleared, but what remained were good bunches, beautifully finished. When the crop is off these Vines are to give place to Figs, a number of large plants of which are ready in hand. The adjoining house is all Black Hamburghs and Foster's Seedling, bearing a good crop of fruit, finished up to the mark. The stove contains a selection of the smaller growing Palms, Dracænas, and other plants, in a free, thriving, healthy condition. The front trellises in the Peach-houses are about 8 feet high at the back, terminating in the usual way at the path; this, combined with the high back walls, which are some 15 feet, admits of the large trees on the back getting plenty of light, so as to keep them in a healthy fruitful state. The trees in the first house were ripe in May; the condition of the wood and healthy state of the foliage, green and free from insects, gives promise of a full crop next season. The trees in the next division were carrying a splendid even crop of fruit both back and front, highly coloured and nearly ripe. The remaining house is the last, and is also carrying a full crop. Here the back wall is furnished with Coe's Golden Drop Plums, bearing well. At a short distance there is a good sized hip-roofed house, filled with cool Orchids, principally Odontoglossums and Masdevallias, doing well. Fronting this house are several narrow houses filled with Primulas, Cyclamens, and other things of a like description for winter blooming. Under a roomy glass-roofed shed, supported on stout iron pillars, open at the front and ends, were stood a fine lot of specimen and half specimen Azaleas, nicely grown and subjected to little training, as these plants should be when only wanted for home decoration, having little more support than a single stick to the leading stem. Several good span-roofed houses are in course of erection for Orchids and other plants. Recently an excellent gardener's house has been built, that has not only the merit of being good-looking, but is also fitted up with every convenience to make it a comfortable home.

Without saying anything to disparage the bedding-out system of flower gardening where kept within due limits, and confined to places where it is not incongruous, still it is a relief to meet with a garden where it is absent. Here there is no lack of flowers of good herbaceous kinds, Roses and bedding Carnations in quantity, with others of a like character, but no bedding of the usual description; and at Shipley Hall there is nothing lost by its absence.

The kitchen garden is moderate in size, and surrounded with good walls furnished with the usual kinds of fruit trees that succeed best in the district. The cultivation of culinary vegetables is here looked on as of equal importance with other matters of a less utilitarian character, and equally well managed. Mr. Elphinstone uses manure for Mushroom growing made from stables where the compressed sphagnum moss is used, and likes it much; it is used fresh, just as it comes to hand, without any preparation, not heating violently like the ordinary material. A bed which I saw in full bearing in a shed, with mats hung round it, was literally covered with beautiful Mushrooms.

An air of order and good management is apparent in every department. A new kitchen garden is now being made, in an open position at a short distance from the old one, and which will doubtless be an advantage in giving more room for the production of these indispensable crops. *T. B.*

PLANTS IN FLOWER.

Campanula Tommasini.—A rare Bell-flower, frequently seen under the name of C. Tenori; under the latter designation I received it from Zurich, but having some doubt as to its accuracy I sent specimens to J. G. Baker, Esq., of Kew, who kindly furnished me with the name here adopted. It is a native of the Tyrol, and, unlike many plants from that region, it is quite happy under the conditions provided. Its hardiness is, I think, beyond question; I have plants upon the rockery and in a mixed border, the latter being much more vigorous. The stems grow about 6 to 9 inches long, but, owing to the abundance of flowers, they are quite drooping and leafless at the base. Leaves linear-lanceolate, 1 to 1½ inch long, distantly serrate. Flowers drooping, cymosely arranged; corolla about three-quarters of an inch long, tubular-campanulate, with the segments slightly spreading, of a pale blue-purple colour. Owing to the abundance of flowers, the plant lasts a long time in a blooming state; it is now one of the prettiest plants in the rockery. *T.*

Pelargonium Endlicherianum.—This is now flowering very freely, after standing outside since July, 1882; most likely it will withstand the severity of our climate outside. I have been told on more than one occasion that a plant has existed upon the alpine garden at York for several years. Should it prove hardy in most parts of the country it will be a most interesting plant for all alpine cultivators, as it is by no means inconspicuous, with a free branching habit. It produces a large number of flower trusses, each carrying several flowers, which are structurally very interesting; the two upper petals may be said to constitute the flower in a decorative sense, they are about 1 inch long, almost fan-shaped or broadly spathulate, of a bright pink colour, veined with crimson; the three lower petals are very small, not more than 3 lines long, and very fragile. It is really a pretty, and certainly most distinct plant, and will be in bloom at least for a month or six weeks to come. *T.*

Helenium pumilum.—This is much dwarfer than any other Helenium I know, as it only grows from 12 to 15 inches high; of course in strong damp soils it may get taller. My plants are now thickly set with rich golden-yellow heads, about 2½ inches across, the ray-florets large, closely set, and imbricated, so that the outline of the flower is prettily fringed. I regard it as one of the most useful and showiest hardy perennials for the late summer months, as it is most serviceable in a cut state. *T.*

Tigridia speciosa alba.—This is, I think, the handsomest of all the "tiger flowers," producing flowers about the size of those of the typical form, the three outer perianth divisions broad, and nearly all pure white; about one-fourth of the length at the base is spotted with reddish-purple, the inner divisions are copiously spotted with the same colour. It is equally as fugacious as all the other tiger flowers—a great pity they are so short lived, as otherwise their marvellous markings would be more appreciated. In many dry sunny positions they are quite hardy, but they enjoy an abundance of moisture during the growing season. I remember a tuft used to make its appearance every year at the foot of an old hedge in the herbaceous ground at Kew. *T.*

Origanum dictamnus: "The Dittany of Crete."—This is a very handsome plant, with its roundish tomentose variegated leaves, and bracteate heads of pink-purple flowers; overhead the plant is not more than a foot high. I have it planted out in a dry position on the rockery, but keep a duplicate stock in pots, which are placed in a frame during winter, as very severe weather is apt to destroy it. As an old inhabitant of our gardens it is still largely appreciated. A good figure of it occurs in *Bot. Mag.*, t. 298, in the year 1795, and Mr. Curtis writes of it as "having been known in this country for a long time as a medicinal plant." Turner, whose *Herbal* was published in 1568, writes thus concerning it:—"I have sene it growynge in England in Maister Riches gardin naturally, but it growethe nowhere ellis that I know of saving only in Candia." Mr. Curtis says:—"It is usually increased by cuttings, which strike readily," but the ready method has not yet been discovered by ourselves, or by many others.

Home Correspondence.

Single Hollyhocks.—I should like to arrest the attention of lovers of good old flowers, to ask them to admire Hollyhocks 6 and 7 feet high, and between the leading and secondary stems clothed from the ground to the top with their broadly expanding blooms. A friend sent me from Sussex, two years since, a large package of his own saved seed, got from choice plants. I sowed them early last year, but the majority did not bloom until the present. Many are double, but a considerable number are single, and, from being prejudiced against single flowers, I must confess in future I shall grow all I may chance to have. In variety and brilliancy, especially the fine orange-yellow centre—absent in doubles—my doubles are much behind the singles; and, what I have never seen noticed before, not only are the singles more vigorous, but the dreaded Puccinia is absent altogether. *W. J. Murphy.*

Ribbon Grass.—I was interested in the note on "Gardeners' Garters," or "Ribbon Grass." It was only a week to-day that my friend Mr. Spinks enlightened me as to the fact that there are two variegated forms. One has a white margin to the leaves, the other a green margin, and both are distinct and constant. I believe there are two varieties of Yucca aloifolia variegata, which vary in like manner. *F. W. Burbidge.*

Bees and Monkshood.—There is nothing unusual in bees visiting the flowers of Monkshood, Aconita Napellus (see p. 180), but whether they do so for the purpose of gathering honey or for pollen, or for both, I am unable to say; if for honey, however, I should think it highly improbable that the latter would contain any element of poison sufficient to be injurious to any one partaking of it, *i.e.*, supposing it is intermixed—which it necessarily must be—with honey gathered from other flowers. If it were possible for a hive of bees to collect the whole of their supplies from such poisonous species as A. toxicum and A. zooctonum, it is more than likely that honey from such a source would prove very injurious, if not fatal to persons partaking of it; still this is mere conjecture, and the idea regarding a hive of honey from these species, it must be admitted, is very far-fetched, and a thing which is never likely to happen in England. I may add that some writers give A. lupicidum and A. Lycoctonum as being the true Wolf's-bane; it may also be interesting to some of your readers to learn that there are other species which have the word "bane" applied to them, but bearing a different prefix to the above-mentioned—viz., A. cynoctonum and A. commutatum (tall Dog's-bane), A. theriophonum (Beast's-bane), A. tragoctonum (Goat's-bane), and A. vulparia (Fox-bane). It is difficult to say what is the origin of these different names, but one would naturally think that each species is poisonous to the animal whose name is associated with it. *J. Horsefield, Heytesbury.*

Polypodium vulgare, var. trichomanoides.—Has this variety been raised from spores, or has it been found as a wild plant? If so, some kind of general indication (should anything more definite be thought undesirable) of the locality in which it was discovered would add to the interest of this Fern. Is it distinct from the var. cornubiense? *W. O'B.* [The plant in question is, so far as we can learn, a selection from P. v. cornubiense, and not a wild plant. Those who have seen P. v. trichomanoides say they cannot distinguish it from P. v. cornubiense Fowleri, described in the *Florist* Register of Novelties last year, and which has very finely divided fronds. Ed.]

Iberis gibraltarica hybrida.—The singularly robust habit of this beautiful Candytuft is well illustrated by the seedling plants I have here, which, raised from seed sown under glass early in April, and dibbled out into the open ground at the end of May, are now varying from 6 inches to 12 inches across, all very dwarf and compact, yet of a spreading habit, and promising to make a beautiful show next spring. Some, however, are blooming a little already, and I shall not be surprised to find many doing so late in the autumn. Should that surmise prove to be correct we may easily have it flowering both in autumn and spring by sowing very early, and again in June. We can hardly term it other than biennial in character, as although plants denuded of their flowers break again, yet all those which carry bloom and seed soon die. *A. D.*

Phacelia campanularia.—As the figure given at p. 135 of the Phacelia campanularia scarcely flatters it, I venture to send you a few specimens from plants raised in the open ground, that you may judge of its beauty and vigour when grown under such conditions. You will note that the corolla is shorter in the tube, and broader than in your figure, though there is a slight variation of proportions in different plants. Owing to its branching habit, the plant continues in bloom for a considerable period. Unfortunately this deplorable weather is by no means conducive to its welfare, so far as ripening of seed is concerned. *W. Thompson, Ipswich.*

Armeria cephalotes, var. bracteata.—In one of Mr. Ware's copious displays of ornamental hardy plants at South Kensington, recently, we lighted upon this singular variety (fig. 34). The peculiarity consists in the circumstance that some of the involucral bracts are prolonged into green leaves quite similar to those at the base of the stem. We can find, at the moment, no reference to the variety, which, however, is a great curiosity, and even from an ornamental point of view the green leaves encircling the head of rich rose-pink flowers must be admitted to be singularly effective. We had hoped that the variety might have elucidated the nature of the curious membranous sheath prolonged from the base of the bracts, but in this we were disappointed.

Fig. 34.—Armeria cephalotes, var. bracteata.

Tuberous Begonias, and How to Grow Them.—I have been an admirer, and limited grower, of tuberous Begonias since their introduction—and what vast strides on the road of improvement have been made within those last half-dozen years! A lady, who manages them herself, invited me to see a greenhouse wholly devoted to them, lately. I drove over with some gardening friends, and have been asking myself since, as I then asked the hostess, "What is the secret of your success, madame?" I had, and have, some fine blooms, 3 or 4 inches across, both outdoors and inside, others around had better, with more time and facilities, but those I refer to, both in size and floriferousness, but especially in the great fleshy substance of the petals, far outdistanced all. This opinion is, like every such, comparative—that is, you compare mentally what you admire, what is under consideration, with some others you have seen or heard of. I have seen hundreds of collections in Ireland, England, and France—they are in almost every garden around here—and I have last year seen the best Dublin or London had to show: so much for my facilities of forming a correct estimate. Now the practical and important question is arrived at, Can every one grow such, and how? And first, generally, what were they like? Vast Azalea-like pyramids, 3 feet through, and more in height, and grown in pots from 10 to 15 inches. Many must have had upwards of one hundred perfect, fully expanded blooms—and such blooms! quite a number must have been between 5 and 6 inches across. And these were not the common long pendulous blooms, but the round-petalled upright growers. The colours run through every shade, from a pure, clear-veined white, through lemon, buff, orange, rose, to deep red and scarlet. A particular beauty was a variety shaded from pure white to crimson-rose; and another shaded orange-red. I cannot give the names, as they are nearly all seedlings, and raised on the premises, from fertilised (hybridised) seed. Two years ago the then gardener gave me some seed of this strain as well as two others—well, they cannot compare with those, though properly treated. The secret is not in the strain, or variety of seed, neither is it in the soil, potting, or winter treatment, nor do I think it is in the time of "starting" to grow in February, though all these points are material. I inquired into all these and find the treatment not essentially different. I have come to the conclusion, then, that tuberous Begonias, when once launched into active growth, if I may so speak, are voracious feeders, and are endowed with an enormous number of fibrous roots. At Armerville the plants are watered, with tolerably strong guano-water, two or three times a week. I have three beds of them out-of-doors, and am watering one with an artificial "fertiliser," and the other two with a liquid from horse manure; already the effect is becoming conspicuous. Everything else being properly attended to, I therefore look on systematic feeding with some concentrated manure as indispensable to have the success referred to. I look on these Begonias as having a bright future before them, and if I am right, the query arises, If they are to be grown, why not grow them to their best, rather than lose the same time and labour with poor worthless specimens? *W. J. Murphy, Clonmel.*

Laxton's Standard Pea.—This is a variety that should commend itself to market growers as a late cropper, and, judging by my experience of it here, one that stands drought well. I have a large piece cropping capitally, the pods large, curved, and full; all borne in couples, a very special feature of this capital Marrow. In the same field, owing to the remarkable dryness of the soil here this season, Potatos of all kinds are giving out and ripening very rapidly, and yet this Pea is showing capital growth, and has not a trace of mildew upon it. Coupled with its medium height (about 3 feet), and its admirable cropping qualities, this fact shows that it is a first-rate late Pea. *A. D.*

The Fruit Crops in Midlothian.—The fruit crop has turned out much better this year than could have been anticipated after such a cold and wet season as 1882. After the severe storm in December, when the thermometer fell to zero, and snow lay on the ground fully 2 feet deep, there was very little of either frost or snow, and nothing to injure vegetation. Fruit trees were late in flowering, and the blossom escaping any damage from spring frosts, set well and swelled nicely till the cold and heavy rains at the end of June and beginning of this month caused many of the Apple and Pear trees to drop a large number of their fruit. Still, in most instances, there is a good crop left and the fruit particularly fine and clean. All kinds of fruit trees have made a strong and healthy growth, and have suffered less from insects, or blight of any kind, than they have done for a good many years. Almost every sort of Apple is bearing, and mostly a good crop. The heaviest crop and finest fruit are upon Warner's King, Lord Suffield, Ecklinville, Stirling Castle, Tower of Glamis, Keswick Codlin, Alfriston, King of the Pippins, Blenheim Pippin, Hawthornden, Duchess of Oldenburg, Northern Greening, Wellington, Mank's Codlin, Yorkshire Greening, Oslin, Cambusnethan, Lord Clyde, Red Calville, and Cox's Orange. Pears promise to be much finer fruit than usual, but many trees on walls have very few upon them, and some sorts which bear well in most years are not bearing well this year. Much the heaviest crops are upon standard trees. The best are Napoleon, Marie Louise, Williams' Bon Chrétien, Beurré Hardy, Beurré d'Aremberg, Easter Beurré, Glou Morceau, Brown Beurré, Beurré Diel, Catillac, Swan's Egg, and Hessle. Plums are a fine crop in most places. The best are Transparent Gage, Jefferson, Kirke's, Victoria, Coe's Golden Drop and Early Prolific. Cherries are also a fine crop, the best being Governor Wood,

May Duke, Frogmore, Early Bigarreau, Black Tartarian, Elton, and Bigarreau Napoleon. Peaches and Nectarines are a thin crop on walls, and Apricots are almost a failure. Small fruit is very abundant and fine, Gooseberries being the exception, with a light crop upon many sorts, although the following are bearing heavily and are all excellent kinds:—Reds: Industry, Keens' Seedling, Speedwell, Forester, and Crown Bob; whites: Whitesmith, Overall, Hebburn Prolific, Souter Johnny, and Snowdrop; yellows: Leveller, Drill, Gipsy Queen, Railway, and Peru. Currants are extra good, the best black, Black Prince; best reds: Victoria, La Versaillaise, Warner's Grape, and Red Dutch; the best whites, Cut-leaved and White Dutch. Raspberries are a very fine crop, the best being Northumberland Fillbasket, Fastolf, Carter's Prolific, and White Antwerp. Strawberries were very abundant, but the recent heavy rains have spoilt a good many of them; the finest and heaviest bearers are James Veitch, Garibaldi (Vicomtesse Héricart de Thury), and Keens' Seedling. *M. Dunn, Dalkeith.*

Sun versus Shade for Lilium auratum.—Mr. Wilson has always told us that shade is best for L. auratum, whilst Mr. Ewbank, who certainly does not live in a sunless quarter, says that he finds they do well in full sun. I have contended that whilst the bright suns of Weybridge Heath may be too much for them, they cannot get too much sun in Cheshire. After making a circuit of gardens and noticing L. auratum especially in them all, I have come to the conclusion that Mr. Wilson is right. At Heatherbank, in the middle of thick Fir woods I saw two large beds containing perhaps 200 bulbs each of L. auratum, which had reached flowering not only without the smallest symptom of spot, but without losing or turning a leaf. These Lilies got absolutely no sun, and I never saw so healthy a lot. On returning to my garden, where heavy rain, alternating with hot sun, has prevailed ever since St. Swithin's Day, I find many of the L. auratum badly affected with spot, which first showed itself about the middle of July. They are generally attacked in some part of the flower-bud, which of course spoilt. L. pardalinum, on the other hand, of which the flowering was far advanced, has the stalk and leaves chiefly attacked, and suffers, comparatively little from it. On going round the garden, in every part of which I now have Lilies, I have no doubt at all that there is most spot where the Lilies are most exposed to the mid-day sun. I felt sure that the disease would come, as it always does when growth is checked by cold and wet just before flowering time; but, considering all the circumstances of this and previous attacks, I believe that what Ovid said of corn-rust is true of Lilies—that neither wind nor rain nor frost are so injurious to them as the rays of the mid-day sun striking upon the wet leaves and stalk. In my Lily pit, the glass of which is obscured with buttermilk and lime, there is not a symptom of spot; but there they are free from chills, which I suspect are at least a predisposing cause. *C. Wolley Dod, Edge Hall, Malpas, August 8.*

Annuals.—These are regarded by most people as very evanescent and ephemeral in their nature, and, I readily admit, a good many of them are; but although this is so, there are others that are among the very best plants for embellishment anyone can have in a garden. Take the China Asters, for instance, and what can be finer or more showy than they, or Zinnias, which are gorgeously beautiful, especially when seen in masses in large beds with the sun shining on them, when they are quite dazzling, so bright and effulgent is the rich glow of their colours. Not only is this so, but they bloom profusely and continuously from July to quite late in the autumn, the only help they require to enable them to do this being rich deep soil, with now and then a good soaking of water, or, perhaps, what answers even better, is to have the ground mulched. Asters, to have them good, need much the same treatment, as, like all annuals, they are fond of good living, and for them to do really well it is very important that they be liberally fed. Tropæolums seem to be an exception to the rule, as they not only grow but flourish in very poor soil, as may be seen when planted or sown by the sides of some trees, up which they run and soon clothe their branches with beauty. Striking instances of the value of these plants for this work may be witnessed any day now in the pretty little gardens of F. Vulliamy, Esq., of Southbank and Admiral Mason, in Ipswich, where they are used with the greatest effect and have a great many admirers. Besides being quite at home up certain thin habited trees, which they help much to adorn, Tropæolums of the climbing kinds are equally adapted for mounds, rockwork, or any positions of that nature, which they set aglow with their beauty. The old Canary Creeper is exceedingly chaste, and blends well with the fiery scarlets, as it does also with Clematis Jackmanni, with which it associates well when the two are allowed to commingle and have plenty of room. Among others of more lowly growth, the Tom Thumb or dwarf section are grand, and embrace many colours, all the several varieties being specially suited for bedding, as they are remarkably floriferous and last long in perfection. In cases where these kinds grow too freely, as they often do in good rich soil, it is a good plan to pinch off some of the leaves from time to time, which checks them and lets up their blossoms more readily. Salpiglossis are also splendid annuals, especially for light warm soils and situations, where if sown or planted moderately early they send up their large, lovely veined, Lily-like flowers in the greatest profusion till frost or cold weather stops them far on in the autumn. What I desire to call particular attention to now is the hardy annuals, the time for sowing most of which has now arrived, if they are expected to be strong and flower well in the spring. One of the best is the Sweet Pea, which is quite indispensable, for besides its utility in borders, where it produces a very fine effect in climbing up twiggy sticks in the foreground of shrubs, it is among the very choicest things one can obtain outdoors for cutting, as a packet of seed affords almost endless variety of colours, and the flowers are of that light pleasing character which renders them specially suitable for bouquets or vases. The secret of success in growing them is to sow in deep soil, in which there should be plenty of manure, and if they have a mulching as soon as dry weather sets in, they will continue blooming till quite late in the summer. For spring bedding there are few annuals that are more sweetly pretty than the Silene, which raised now and grown on to the period of the year named, becomes a mass of blossom, and the same may justly be said of the Virginian Stock, also most useful for the same kind of work. Godetias, too, make a very fine show, the best being G. Whitneii, G. Lady Albemarle and The Bride, all of which bear large flowers that have rich glossy petals. Nemophila insignis is quite unrivalled for the lovely blue of its blossoms, and a bed of it arranged with white Daisies as an edging is a pleasing sight on a lawn. These latter, and other annuals raised now, are best sown in a warm sheltered spot; from which they can be lifted and transplanted with good balls early in spring. *J. Sheppard.*

Ruta patavina.—Referring to an article on p. 140, I beg to state that my opinion of this fine plant is somewhat different, in so far as I consider it one of the showiest plants of my garden. It is quite hardy, and wants loamy soil and full exposure to hot sunshine; it will not grow well in other soil than sandy loam, or even stiff loam, and will not flower well if shaded anyhow. My bushes, about a half to 1 foot across, are about 5 to 6 inches in height, and the foliage nearly hidden by thousands of flowers coming on from June till November. It increases by underground stems, and if a plant is taken up in October it may be divided in many bits, but these must not be replanted in the open, but be potted and wintered in a frame. Planted out in spring they form in a year or two nice bushes again. It does not often produce seeds. *Max Leichtlin, Baden-Baden.*

The Hybrid Raspberry.—Your correspondent, Dr. Wm. Focke (see p. 150), is certainly at sea in his surmises respecting my seedling hybrid Raspberry; he is no doubt correct in describing the plant as *forma inermis*, but quite wrong in connecting it with Rubus idæus; the foliage is obtuse enough certainly, and the glaucous appearance of the leaves gives it the pure form of a Strawberry leaf. The following will show you that the plant is a *bonâ fide* seedling, as I described it to you when I sent you the shoot. Some few years since I fertilised the flowers of a Raspberry with the pollen of a large-fruiting Strawberry, which set freely, and in due time sowed the seed; the result was about a dozen plants, all more or less showing that the cross was complete between the two plants. From these three plants were selected, giving the preference to those most resembling the Strawberry in leaf, and, luckily, I can send you the three forms with this, which will show your correspondent that my statement to you was correct. The plants all flowered the second year, but without setting any fruit. In the following year they flowered profusely, with the same result. The flowers, if I remember rightly, are pretty much in bunches, like the flowers of the Strawberry, on a stem of about 2 feet high. Finding it was no use as a fruit no care was taken of them after they had been planted in an out-of-the-way place. Still they grow, and if you wish it I hope to be able to send you a shoot with the bloom on it next spring. [Pray do.] I have nine forms of the hybrid Currant now growing, all distinct; two only have a faint smell of the black Currant. *William Culverwell, Thorpe Perrow.*

Tarquin and his Lilies.—Two or three friends have written to me questioning the accuracy of my Roman history, when I say that Tarquin knocked off Lily heads. I ask to be allowed to give a general answer. The original of the story to which I referred is to be found in *Herodotus*, Book v., chapter 92, but he tells it of Periander, despot of Corinth, who lived a century before Tarquin. Wondering how a neighbouring despot managed to rule so quietly, Periander sent a friend to ask the secret. This neighbour took the messenger into a cornfield, and walked about knocking off the tallest ears, but returned no verbal or written reply. Periander, however, understood the allegorical act, and from time to time made away with the most prominent of his subjects. This story found its way into the Roman legends, and was transferred to the most tyrannical of the kings of Rome. Livy, it is true, says the flowers he decapitated were Poppies, but Ovid (*Fasti*, Book ii., line 705) says:—

> "Illic Tarquinius mandata latentia nati
> Accipit, et virga *lilia* summa metit."

We may at any rate infer that Lilies and Poppies were the most conspicuous flowers in the Roman gardens 2000 years ago. *C. Wolley Dod, Edge Hall, Malpas, Aug. 9.*

Cranberries.—Long ago, in your journal of November 26, 1842 (p. 789), a correspondent notes that in a then recent visit to Hastings he saw fresh Cranberries in the fruiterers' shops, and learned that they were the surplus produce of a nobleman's estate in the neighbourhood. Being fully aware of the superiority of fresh berries over the bottled fruit, finding it recorded in Loudon's *Arboretum* that "during the latter end of the last century Cranberries from Lincolnshire and the north-west corner of Norfolk were sold in the streets of Norwich by cart-loads," and observing in Trimmer's *Flora of Norfolk* the plant noted as growing "in very great abundance at the side of the heath adjoining Wolferton at Dersingham," and, according to Watson, *Botanist's Guide*, "at Wreatham plentifully," I thought that an inquiry at Norwich market would either bring me a supply of the fruit, or, if the time of Cranberries is not yet, inform me about what time and at what stall in the market I might hope soon to find them. But diligent inquiry by a zealous friend resulted only in my learning that one ancient lady deposed that many years ago, when she kept Cambridge market, she once had some sent. Lightfoot records that at Longtown, in Cumberland, for five or six weeks together not less than £20 or £30 worth were sold every market day. I should be much obliged to any correspondent who would give name and address of any keeper of shop or market who would take my order and despatch the fruit, safely packed, by rail before the season is over. I observe Loudon gives the time of flowering May and June, and of ripening its fruit in August and September, and Sir Joseph Hooker, in the *Student's Flora*, flowering August. At Hastings doubtless they will be much earlier than at Longtown. *Guilleross.*

Novelties.—"What's in a name? That which we call 'a Rose,' by any other name would smell as sweet." These are words pregnant with wisdom, put into the mouth of the gentle Juliet by the immortal Shakespeare, and the quotation has become familiar to us by its aptness. Botanical blunders are frequently amusing enough, but they are not always printers' errors. Here is an instance which suggests sublime innocence, in matters botanical, upon the part of a recent critic, who ventures to speak with authority upon the merits of a collection of Roses in a provincial nursery. I take the extract from a local paper. The writer in a lengthy article has squandered his adjectives lavishly upon the more ordinary specimens which have presented themselves, and then introduces an old familiar friend under the title of "Captain Christi*er*—we presume he has reserved "Captain Christi*est*" for the superlative representative of the family. We are then introduced to a startling novelty in the following terms:—"Among the white, or nearly white, we noticed some strong blooms, proceeding (*sic*) of course from equally strong stocks, as . . . . and Julius' Finger, a white finely-formed Rose, with just the faintest blush of pink in the centre, sent out as an improver (*sic*) on Captain Christie (*sic*); but whence its singular name we are not informed." Dear me! This is a piece of exquisite criticism, original to a degree, and happily quite unique. But if you want a genuine joke, here it is. Rodum sidum was, as your readers are aware, a very popular novelty in the zenith of its fame, but here is a new claim out for the attention of the seekers for "something new"—and a perennial! The following paragraph is from the *North Wales Chronicle*:—"Not far from Bettws-y-Coed stands a house, on the walls of which grows a lovely scarlet creeper. Tourists passing by have been curious to know the name of the creeper, and for their especial benefit the owner of the house has gone to the expense of having the following displayed in a prominent position:—Wotanassua curiosus.—Perennial; var. com., Linnæus. Supplied by principal London florists. Flowers from May till August and October. Directions:—Trench soil lightly with soap dregs; with growing plants curl tendrils with slips of lead on to lattice. Part evenly at base." A demand has already been created, and the unsuspecting innocent is to the fore, seeking this new beauty for his borders. The cultural directions are not particularly clear, but the introduction of the

domestic "stimulant" is the art of artlessness, and the very inelegance of diction is probably only a veil —a subtle device of the wit, whom we picture sitting behind the parlour curtain, watching the enthusiasts "taking notes!" That "creeper" deserves a place among the permanent records, and I have ventured thus to send you a note of the novelty. Of course everybody is not satisfied, and one party at least is inclined to say, *par nobile fratrum. Ardyn-y-Mowadd.*

Caprices of the Weather, as Illustrated by the Fruit Crops.—This becomes very obvious, as one reads the lucid notes of your correspondents in different parts of the country. Nor are the varied results at all surprising or different to what might have been expected. Reports covering such a wide area must necessarily record widely varying experience and results, and no one familiar with the weather expects the temperature to prove uniform over any very extensive area; and were it so, there are many other destructive influences more subtle, it may be, but hardly less destructive, than mere cold. Among these are exposure, air currents, moisture, prevailing winds, character of the soil, modes of culture, amount and character of manure, varieties of vegetation, as trees, flowers, vegetables, &c. But it is not of these that I would now write, but of the almost infinite and distinct varieties of results within a few yards at times, and very often within a quarter or half a mile. This March, for example, our Apricots were nearly cleared of fruit, and several of the trees killed, one tree only escaping—the Royal, a variety not at all noted for its hardiness; whereas another of the same sort interlacing it was not only cleared of its fruit, but killed outright. Again, for nearly thirty years we have not had a total failure of Gooseberries in these gardens; this year nearly the whole crop on espalier fence and rough bushes and pyramids were cleared off. There is nothing wonderful in that—no; but less than a quarter of a mile off, in the garden at the lodge, the bushes had to be supported under their tremendous loads of fruit; and similar contrasts are seen in all directions this year. Currant bushes in the same rows of the same varieties are distinguished by a full crop, half a crop, quarter crop, no crop. A curious result is also seen on a north-east border furnished with three rows of Currants and one of Gooseberries. The black against the wall is pretty full, the red being half a crop, the white fewer, the Warrington Gooseberries against the walk few or none. This may partly be attributed to the shelter of the wall, and the greater hardiness of the black and red Currants, though I am by no means sure that they are more bushy; but similar results have often been seen among Plums and Pears. Unfortunately, among the first fruit we have no Plums left this year, and but very few Pears, though I see Mr. Sheppard, of Woolverston, writes of abundance of Pears; but there are wide differences of soil and climate between Hardwicke and Woolverston. The noble tidal river of the Orwell alone exerts a powerful ameliorating influence on the climate of Woolverston, sufficiently potent probably to save the Pear crop; but if so, why not also the Plums? Before now we have Plum crops saved and Pear crops lost side by side—this season, writing broadly of our Pears, both are gone. But of all capricious results, perhaps the Apple crop is the most striking. The bloom this season was so late that it is impossible to hold the March frosts responsible for the partial or complete loss of the crop here and in many other gardens. The trees were pictures of health and beauty when in bloom. All promised well for some time afterwards, and then they simply dropped, and the fruit is still dropping in the most disheartening manner; and many of the dropped ones are to all appearance on dissection sound. The trees are clean and free from insects, only they lack a full crop of fruit, and those they have keep falling. Were this universal all round one could understand it, but every now and again one comes on a garden or orchard laden, almost broken down with Apples; and within sight or over the wall from this is another garden or orchard almost wholly fruitless. This absolute disparity of results within closest proximity baffles and puzzles the cultivator beyond measure. It is all very well to write or talk of stratas, zones, and currents of air, but they are often perforce so close together that it is physically impossible that the difference between them can be very pronounced; and yet here is a full crop and there an absolute blank. The most striking illustration of the erratic character of the crops of this season has been left to the last. Peaches and Nectarines here are on all our walls a full crop, while Apricots, Plums, Pears, to the right or left, or base or top of the air are practically fruitless. A good deal has been said about the Peaches flowering later than Apricots, Plums, or Pears, but really that was not so, excepting in regard to the Apricots—the Plums and Pears blooming after the March frosts and almost simultaneously with the Peaches and Nectarines. Even during the spell of 20° or 30° of frost towards the end of March the blossoms of the Peach were so advanced as to pink the surface of the walls with their expanded buds, and yet they appeared to set a full crop that needed vigorous thinning, and the Plums and Pears perished in budhood. Nor are these contrasts in results by any means, as a rule, confined to different species or varieties. It so happens this year that the Peach and Nectarine crops are generally good and regular. But how often one sees one tree fruitful and another barren, growing side by side, without any apparent reason for the difference. Such reasons—cultural or selective—are often obvious enough, but these are not those referred to here and now, but those more subtle and hidden causes of success or failure in the matter of climate that have hitherto eluded our grasp. Cannot anything be done by our scientists to make them more manifest or place them more under the control of practical men? A great service would be rendered to horticulture, and much mere waste of labour, land, capital, and skill be arrested. *D. T. Fish.*

CONTINENTAL ONIONS.

There is now to be seen at the Chiswick Gardens an excellent trial of varieties of this popular esculent, and they are just at their best. There are three varieties of Continental origin that are particularly worthy of notice, because their presence in the trial shows that our Continental neighbours are to all appearance as fully alive to the importance of improvements in Onions as we are ourselves. One of these is the White Globe of Messrs. Vilmorin & Co., of Paris. This is a somewhat unfortunate name, because there already exists a White Globe of the English seed lists, and much danger of confusion arises when the same name is repeated. Messrs. Vilmorin & Co.'s White Globe appears as if selected from the Silverskin type; it has the silver skin, but differs from that and the Tripoli Onions in having smaller roots and a lesser bulk of them; it is of a true globular shape, differing in this respect from the English White Globe, which has a more spherical outline, as also in the silvery hue of the skin, instead of the pale straw colour of the English type. It is, to all appearance, an Onion that comes rapidly to maturity, and therefore is of great value as an early variety, wonderfully solid in the flesh, and therefore of good weight, but decidedly pungent in flavour, and not mild, as in the case of the Tripoli Onions. It is a variety well deserving the attention of gardeners, because so early; whether it will prove a good keeper or not remains to be seen, but that is a matter of no great moment.

The next is the Trebons Onion, a globular variety with a brownish-yellow skin that comes to a larger size very early in the season. This is no doubt the very best of the early Onions, coming into use before the Spanish; and, being of an agreeable flavour, is very useful for culinary purposes. One wonders that this truly superb variety has not been seized upon and grown for market purposes, but the French seed crop has failed of late years, and it is very difficult to obtain it. It makes a rare variety for sending into the market now and up to the time that the bulk of the Spanish Onions are ready, and it is also a very fine variety for exhibition purposes, for if under ordinary conditions it can reach the great size it has already attained to at Chiswick what is likely to happen under the special cultural attention bestowed on Onions in some parts of the country?

The third and last is the Zittau Yellow Giant —a Spanish type, flat, large, handsome, and of a deep brownish-yellow skin. It has all the appearance of being, and is said to be, a good keeper. It is worth a trial against all the selected forms of the White Spanish known to us under a variety of names —Nuneham Park, Rousham Park, Banbury Improved, and a host of high-sounding synonyms. The Giant Zittau we take to be a selection from the large yellow straw-coloured of the Continent, and it is well worth looking after. We know that English seedsmen are apt, in not a few instances, to look with an unkindly eye on Onions of foreign production, but we think that in these three types, from Messrs. Vilmorin & Co., they get something worthy of English gardens, and therefore well deserving attention. Like the seeker after truth, the English gardener should seize upon whatever is of good report wherever found, abroad or at home, apart from insular prejudice or pride of race.

USEFUL PLANTS IN PARAGUAY.

From a report on the commerce and finance of Paraguay, the following notes on the vegetable products of the country are gathered. Tobacco, it seems, is one of the principal articles of export, and it is said to be cultivated by nearly the whole population of Paraguay. The approximate quantity of production is calculated at 5,500,000 kilog. per year, and it yearly tends to make progress. Although the Argentine Republic, and, on a smaller scale, Uruguay and Chili, are the chief markets for Paraguayan Tobacco, yet as these countries have themselves for some years past taken to cultivate this article, it is to be presumed that the said countries, on improving and increasing the cultivation of Tobacco so as to produce enough for the consumption of their own inhabitants, will find it to be in their interest to protect their own industries by Custom-house measures against the entry of foreign Tobacco. It is consequently very important for Paraguay to find a European market for its Tobacco produce; but the quality will have to be considerably ameliorated before the Republic can hope to succeed in this. Smoking is universal, and is indulged in alike by men, women, and children; the women make up the cigars, and it may be said that since the war, which all but annihilated every man in the country, the women are employed in nearly all agricultural pursuits.

Tobacco can be cultivated anywhere in the country, but the places best known for the excellent quality grown are Villa Rica, Itacomé, Luque, and the banks of the river Apa. The *peti-hoby* (a blue Tobacco) and the *peti-pará* (yellow) are those which are cultivated with the greatest care. The former, coming from Villa Rica, is used for home consumption, and the latter (*peti-pará*) for export purposes. The Tobacco seed used in Paraguay was originally introduced from Havannah, with the exception of the *peti-hoby*, the original of which is unknown. The *peti-pará*, which contains 6 per cent. of nicotine, is highly esteemed and generally smoked by the natives. At Luque a species of Havannah Tobacco is grown, which in its quality resembles the Brazilian Bahia Tobacco. It is stated that the whole ground at present under Tobacco cultivation in Paraguay does not exceed in the aggregate a square league of land.

Next in importance to Tobacco, if not of greater value, is the cultivation of Verba, or Paraguay Tea (Ilex paraguayensis). The Yerba fields hitherto worked are those situated in the northern and southern districts of Paraguay. The northern fields are State property, and are leased to the cultivators by the Government, the lessees paying a licence tax of trifling amount.

The southern fields were granted by Government to lessees for a term of ten years, from January 1, 1880, on condition that the Government should receive the sum of 12 dol. (£2 8*s.*) for every 25,000 English pounds) produced by them. Yerba-maté is at the present time exclusively consumed in the Republics of the River Plate, Uruguay, and Chili. There seems a strong reason to suppose that at some future time Yerba will become an article of export to Europe.

From a translation of a paper on the subject published in the *Revue Scientifique de Paris* by M. Louis Conti, some interesting facts may be gathered, amongst which may be mentioned the fact that the quantity annually exported from Brazil may be reckoned at 30,000,000 kilos, or 300,000 metrical quintals, and that from Paraguay about one-sixth that amount, or about 5,000,000 kilos, or 50,000 metrical quintals. In one province alone of Brazil, viz., Paraná, 15,000,000 kilos are exported annually; added to this the quantity required for home consumption must be taken into account, and thus the total consumption of Yerba-maté in each year may be put down at 500,000 metrical quintals, or 50,000,000 kilos.

"The virtues of Yerba-maté as a mild stimulant are well known, and it possesses nutritious qualities in no mean degree. It may be said that in certain parts of South America it constitutes nearly the whole sustenance of field labourers when engaged in the outdoor pursuits. It has been noticed that in towns certain persons take little else in the way of food, and especially women, who are in the habit of taking from ten to twelve cups per day. All authors who have treated on Yerba-maté, from the early publications of the Jesuits to the

more modern works of Bonpland, Mantigazza, Parodi, Barbier, and others, are unanimous in stating that the nutriment afforded by Yerba-maté suffices to sustain the system during a prolonged interval of labour. The consumption has increased fivefold within the last forty years."

A comparison is drawn between the cost of Coffee cultivation and preparation and those of Yerba; while with the former the processes of pulping, roasting, &c., have to be gone through, with the latter the processes are simple and rapid, and can be completed in from twenty-four to thirty-six hours. "A slight scorching of the leaves caused by rapidly passing through a fire, lit with aromatic wood, the sprouts on which they grow, completes the first operation. The next consists in suspending small branches of these sprouts at the height of 2 metres from the ground beneath the roof of a shed open to the air on all sides in such a way that these branches form as it were a ceiling. In this position they are exposed during fifteen or twenty hours to the action of a fire kindled beneath them with sweet-scented wood, which burns briskly without yielding any smoke; afterwards the scorched sprouts are coarsely ground, and this forms the last operation which Yerba-maté undergoes in the forests before being transported thence to the towns and villages. It is then finally prepared for transport to its place of sale. So trifling indeed are the operations to which the Ilex leaf is submitted in the forests themselves, that in a couple of days a few men accustomed to the task can dry between 3000 and 4000 kilos of Yerba."

On the subject of durable and ornamental woods, the botanical origin of which we know so little about, it is said that the country is indescribably rich in such woods, suitable either for building or industrial purposes, but for the want of an easy accommodation they cannot as yet be sent to European markets. The requirement seems to be the providing of small but powerful cargo vessels of very light draught, and capable of carrying when loaded about 400 tons. Quebracuo wood is referred to as being a very hard wood, weighing 38 kilos per cubic foot, which is sent in large quantities to France. It is useful for tanning and colouring purposes as well as for railway sleepers. This appears to be the Red Quebracho (Loxopterygium Lorentzii.)

All fruit trees of temperate countries, such as the Pear, Apple, Fig, &c., besides those of hot climates, such as Orange, Banana, &c., are cultivated at Paraguay. Oranges are so plentiful that they merely have a nominal value. The price of 5000 Oranges delivered alongside the vessels in the river Paraguay is 5 dols. 75 c. (£1 3*s.* 1½*d.*) during a period of abundance. The price increases only when the fruit is getting scarce. In the Custom-house Returns for 1881 Oranges figure in numbers in the export list at 47,917,700, and in value at 47,917 dols. 70 c. (£9583 10*s.* 10*d.*) These Oranges have an excellent flavour, and are shipped in enormous numbers to the Argentine markets, chiefly Buenos Ayres.

There are three varieties of Sugar-cane cultivated, two of a white and another of a darker colour, the latter of which grows to about the same size as the large white variety, but resists the cold better. Sugar-cane grows admirably throughout the country and everywhere, without its being necessary to irrigate the plantations, which last from eight to nine years. This industry, however, is in a very primitive state, and remains stagnant at the present moment from want of capital and enterprise. The consumption of *cania*, the rum made from the native cane, is enormous throughout the whole country. Once planted the cane may be said to yield juice during ten or eleven consecutive years. In spite of the excellent quality of the Sugar-cane, and the favourable nature of the land for growing it, Paraguay consumes annually on an average from 15,000 to 20,000 arrobas (from 375,000—500,000 lb.) of foreign sugar, and with the heavy import duties at present existing in the Argentine Republic and in Monte Video it is difficult to see how Paraguay will be able to profit by exporting this valuable article, more especially as sugar-producing and cane-planting have been taken up during these last few years on a large scale in the Argentine province of Tucuman. The total produce of the sugar-growing Argentine provinces is calculated for the year 1882 at 1,500,000 arrobas (37,500,000 lb.). The two sugar mills which at present exist in the country are generally idle, owing to want of capital and to a deficient supply of the prime material, viz., Sugar-cane; so scarce is the latter that plantations will have to be formed for the purpose of producing cane for these two mills, which are on a scale sufficient to supply the whole of Paraguay with sugar.

The Coffee of the country is of an excellent quality, although its flavour is somewhat bitter. At present it is grown on a very limited scale, owing to the scarcity of capital, and to the length of time which is requisite before the cultivator is able to reap any benefit. It is calculated that on the average a period of five years or so must elapse before Coffee plantations are ripe for their first harvest. Indigo is of a regular quality, and the extraction of the dye is easily effected. M. Balansa, a French naturalist, settled in Paraguay, has begun planting Indigo with considerable success, some samples of which were to be sent to Europe for examination.

"There is an endless supply of fibre-producing plants equalling the Indian jute, and the only thing required to make its preparation for the European market a most important article of export, is machinery to separate the fibre from its vegetable envelope, in the plant called Caraguata (Eryngium) [? a Bromeliad]. A certain Palm-leaf produces a filament rather superior to the preceding, but perhaps the very best of anything yet known is the fibre obtained from the Pino guazii." This is described as Urtica utilis. For a long time past, it is stated, the natives have been in the habit of taking a string of remarkable fineness and strength from the two indigenous plants—the Caraguata and the Elvira. This thread is used for making cordage, and samples sent to England have been valued at £24 per ton. Up to the present it has not been worked on a large scale, from the impossibility of obtaining machinery to properly extract the fibre. A cordage maker at Buenos Ayres has, however, it seems, succeeded in producing the necessary machinery, and intends putting it up in the Argentine colony of Formosa, a province of the Gran Chaco. Should this machine succeed, a valuable article of export would be produced, of which Paraguay could furnish several thousands of tons yearly.

A bark called Curuguay is described as being very abundant in the country. It contains a large proportion of tannin, and is very valuable for tanning purposes. There are, however, no tanneries in Paraguay.

Besides the articles already referred to, the report says that "there exist, unknown to the world in general, a variety of drugs, medicinal plants, gums, &c., which have yet to be explored."

VIRGINIA WATER.

Although few of the undermentioned plants to be found near Virginia Water are to be considered as remarkably rare, yet many of them are worth the trouble of cultivating from their decorative value, and others, if plentiful, are local in their distribution, or confined to a particular part of the country. Those under notice, although not all in the immediate vicinity of the lake, are found within a radius of a mile on either side of it, and the occurrence of several species of some genera within the prescribed area, testifies to the comparative richness of the flora over that generally met with in any one place. Anagallis tenella, found on the margins of wet ditches, is a floral gem in miniature for the bog garden, the value of which can hardly be over-estimated. Where growing in the shade the flowers are larger, but loose in colour. A. arvensis crops up occasionally in open and drier places. Lysimachia vulgaris, L. nemorum, and L. nummularia, are popular garden plants, especially the latter, and affect damp, often shaded places, near the water. Œnanthe crocata, Œ. fistulosa, Acorus calamus, Sparganium simplex, S. ramosum, Iris pseudacorus, Mentha hirsuta, and M. arvensis, occupy the margin of the lake, with their feet often in the water, while the white and yellow Water Lilies, together with Polygonum amphibium, adorn the surface of the water some distance away, the latter reminding one of an army of soldiers dressed in red, and dwarfed only by distance. Littorella lacustris carpets the shallow gravelly margin, and seems to luxuriate most where the water does not wholly submerge it. Carex remota is the most prevalent sedge, both in numbers and frequency of occurrence; while C. paniculata, C. distans, and C. flava are also to be found.

Euphorbia amygdaloides, abundant here in shady places, is a local plant, and, like most of its congeners, hardly attractive except in a young state, when the growing bracts assume a bright greenish-yellow tinge. A variegated form in cultivation is a plant of some decorative value. Circæa lutetiana is noticeable from the graceful profusion of its small white flowers, and is remarkable in the order to which it belongs by the suppression of parts by which the floral whorls become bimerous. Ulex nanus is a distinct looking Furze of smaller dimensions in all its parts than U. europæus, and is mostly confined to the southern part of the island. Growing upon this, as well as on Galium saxatile, Calluna vulgaris, and Holcus mollis, the curious interlacing thready stems of Cuscuta epithymum flourishes luxuriantly, although it must be with baneful effect upon its host. Gnaphalium luteoalbum, considered only truly indigenous in the Channel Islands, occurs in isolated tufts in dry grassy places; while G. sylvaticum, G. uliginosum, and the closely allied Filago minima, scattered about, bring up a close array of representatives of this group of Composites. Scutellaria galericulata and S. minor grow in great profusion in different situations and under different circumstances. In some places the two species mingle freely, and forms occur which seem intermediates, which, however, if cultivated under the same conditions, might prove to be only a state of S. galericulata. The curious little Thistle, Carlina vulgaris, is frequent in sandy open places, the dead stems and flower-heads of which persist for a year at least in that skeleton-like condition. Melampyrum pratense affects somewhat shady and bushy places, while Daucus carota prefers dry and open banks. Betonica officinalis and Malva moschata are, or ought to be, cultivated in every garden, and are the best of the respective genera to which they belong as far as British representatives are concerned. *Y.*

OTELEY PARK, ELLESMERE.

This beautiful mansion, the seat of S. K. Mainwaring, Esq., is situated 1 mile rom the town of Ellesmere, and 16 miles from Shrewsbury, on the Cambrian line, and is approached by two ways—one a footpath, the other by the main road to Wolhampton, both along the banks of the lake, which is about 160 acres in extent. On entering the park gates, off the main road, I came into a magnificent undulated park of large dimensions and richly timbered with fine Oaks and Beeches, and in which are numbers of stately red deer. The distance from the entrance to the mansion, which is a noble structure, built of polished grey stone, is about half a mile. On the north-west front there is a handsomely designed flower-garden on a large scale, and all the beds of which are edged with massive copings of the same material with which the house is built, as are also the different flights of steps from each of the terraces, which are four in number, descending to the edge of the lake, and presenting a very noble appearance. From these may be seen the beautiful church on the opposite side of the lake, and the Welsh mountains, some 12 or 14 miles distant. Most of these paths are from 8 to 10 feet wide, and are ornamentally paved with blue and white stones about the size of a cricket-ball—there must have been several hundreds of tons used for this purpose. The forming and finishing of these terraces must have cost thousands of pounds. On one of the highest elevations I noticed a magnificent Araucaria imbricata growing freely, forming a very large tree, also Sequoia gigantea, Cryptomeria japonica, and other Coniferæ, all of which seemed to be quite at home.

The conservatory is approached by a flight of seven massive stone steps, through a rosery, which is laid out in ornamental stone as the other portions of the garden, and surrounded by large vases, Irish Yews, and banks of Rhododendrons. Then on the same flat, outside the rosery, are dwarf-trained fruit trees, of Pears, Apples, principally cordons, forming a border to some of the glasshouses. Here is the conservatory, a very handsome design of the "ridge and furrow" pattern, the paths of which are of ornamental iron grating. The beds are kerbed with stone, and in them are fine plants of Dicksonia antarctica, Cibotium princeps, Lapageria alba and rosea, Lasiandra macrantha, Trachelospermums, Passifloras, Tacsonias, and numerous other plants in fine condition. On the left of the conservatory are three large fruit houses, principally consisting of Peaches and Nectarines, bearing fair crops, and at the end of the range is a winding staircase leading to the observatory, which is of considerable height, and affording a commanding view of the surrounding country for many miles. On

the right of the conservatory are two other fruit houses. Here are some beautiful trees of Early Beatrice and Dr. Hogg Peaches, Louise and Victoria Nectarines, all in fine condition. Retracing our steps through the conservatory some fine span-roofed houses come under inspection. The first was filled with specimen Pelargoniums and Mignonette; the second with specimen Azaleas, and the third with small growing Ferns, Odontoglossum Alexandræ, and Pescatoreas, Masdevallias, &c., all of which are in nice condition. Yet another contains Eucharis amazonica, Calanthes, Aërides crassifolia, and Saccolabiums; and a similar one is also devoted to Cucumbers and Melons. A high domed house or vestibule contains a grand plant of Camellia reticulata worked on a tall stem, and covering the entire roof. Next comes a lean-to early vinery, containing a nice crop, followed by a Tomato-house, with the plants grown in large pots, and carrying good crops of ripe fruit. In this house there were also some fine pyramidal Fuchsias.

In a span-roofed Orchid-house I noticed beautiful plants of Lælia Perrini, L. anceps, L. crispa, L. purpurata, Cattleyas (in variety), Dendrobium Paxtoni, Sobralia macrantha, Chysis bractescens, and numerous other useful Orchids. The Carnation-house, a span-roofed structure, contained a quantity of large plants of such varieties as La Belle, Miss Jolliffe, and others. I particularly noticed a fine seedling in the way of Miss Jolliffe, but much larger, which must prove a great acquisition amongst these very lovely and fashionable flowers. Next came a range of heated pits, containing a quantity of hybrid Rhododendrons, small Carnations and Cyclamens, followed by a long range of cold pits filled with quantities of bedding plants for carpet work, which is done here on a very large scale.

The fine open vegetable garden is about 2 acres in extent, and walled in, on the walls being thriving young trees, principally Apricots, Nectarines, and Peaches. The establishment also includes a nursery ground, where large quantities of seedling Oak and other forest trees are grown, and near here are two large lean-to houses containing Fuchsias, Valottas, Amaryllis, standard Heliotropes, Kalosanthes, and other plants in quantities. A pretty Swiss cottage comes next in view, and further on over a rustic bridge is a green walk or avenue of Lombardy Poplars about 100 yards long, and on each side of which is a wide border of herbaceous plants, which are very interesting. From here another portion of the pleasure ground is approached, which is planted with fine specimen shrubs, Hemlock Spruce, Cedrus Deodara, Araucarias, &c.; and along a winding path by the water's edge I noticed large specimens of green Hollies and other fine trees, under which were growing quantities of wild flowers, presenting a very pretty sight. This extensive and well-kept garden is under the supervision of Mr. Bland, the successful raiser of new Fuchsias, a few of which I may mention:—Champion of the World, Bland's striped Duchess of Edinburgh, Grande Duchesse Marie, Matchless, and many others. Mr. and Mrs. Mainwaring take a lively interest in the garden, the beauties of which I cannot attempt to describe fully. *S. J., Ascot.*

THE VEGETATION OF CEPHALONIA.

Dr. Th. Heldreich has lately published a catalogue of the plants of Cephalonia (*Flore de l'Isle de Cephalonie ou Catalogue des Plantes qui croissent naturellement ou sont cultivées le plus fréquemment dans cette Isle*), preceded by a short sketch of the general features of the flora, from which we extract the following particulars. Cephalonia is the largest of the Ionian Islands ("40 miles long, and varying from 10 to 20 miles in breadth" — *Thomson's Gazetteer*), and hitherto no complete list of the plants has been published. The prominent Conifer of the islands, Abies cephalonica, was introduced into this country in 1824, according to Heldreich, by General C. J. Napier, then Governor of the islands.

Like the vegetation of islands generally, that of Cephalonia consists of fewer species in relation to area than that of the mainland opposite. The littoral zone wants all the Frankeniaceæ, and also the following plants, so characteristic of the same region in Attica:—Brassica Tournefortii, Erucaria aleppica, Medicago marina, Alhagi græcorum, Centaurea spinosa, Verbascum pinnatifidum, Statice sinuata, Atriplex Halimus, Galilea mucronata, &c. On the other hand, Cephalonia possesses a few plants in this region that do not occur in Attica, such as Ambrosia maritima, Salsola Sodor, and Statice cancellata. There is still greater difference in the plants of the plain, which is of small extent in Cephalonia and poor in species; and the same holds good for the hill region, where the dominating plants are Anthyllis Hermanniæ, Poterium spinosum, and Thymus capitatus. Several plants very common in the same region in Attica are either altogether wanting, like Genista anthoclada and Satureia Thymbra, or are very rare, like Thymelæa hirsuta, and T. Tartonraira. Globularia alyssum is also wanting, and Dr. Heldreich never saw Pinus Halepensis.

The principal elements in the low woods or thickets are Pistacia terebinthus, P. lentiscus, Arbutus Unedo, Phillyrea media, and Quercus calliprinos. The fourth zone, or zone of Pines, at an altitude of 4000—5000 feet, is covered with woods of Abies cephalonica. In this region are found fifty-four species of sub-alpine, chiefly herbaceous, plants. Deducting cultivated plants and cellular cryptogams, which are very imperfectly known, Dr. Heldreich enumerates 766 flowering plants and Ferns. Of these 766 species ten species or varieties have not hitherto been found elsewhere, and may therefore be regarded as endemic. They are:—Malcolmia flexuosa β cephalonica, Saponaria ænesia, Silene cephallenia, Ononis antiquorum β lanata, Astragalus aristatus β cephalonicus, Scabiosa Dallaportæ, Centaurea subciliaris, Verbascum sp., Ajuga orientalis β ænesia, and Abies cephalonica. Comparing the flora of Cephalonica with that of Zante, we find the latter has 604 species of flowering plants and Ferns, of which 178 are not found in Cephalonia.

Of the 766 species found in Cephalonia 350 have not been found in Zante, where the whole of the plants of the Pine region are wanting. The orders Portulaceæ, Halorageæ, Monotropeæ, Amaranthaceæ, Laurineæ, Plataneæ, Callitrichineæ, and Gnetaceæ, represented in Cephalonia, are not known to exist in Zante, where, on the other hand, the Nymphæaceæ, Globularieæ, and Equisetaceæ are represented, while they are apparently wanting in Cephalonia. The total number of vascular plants indigenous in Attica is 1445. The number of species of the predominating natural orders in the three floras are:—

	Attica.	Cephalonia.	Zante.
Leguminosæ	170	77	74
Compositæ	147	97	76
Gramineæ	120	60	56
Cruciferæ	77	32	17
Caryophylleæ	72	34	15
Umbelliferæ	69	43	27
Labiatæ	64	39	31
Liliaceæ	57	21	23
Boragineæ	46	18	14
Scrophularineæ	37	18	14
Ranunculaceæ	34	15	15

The Herbaceous Border.

Chrysanthemum atratum.—Puzzling plants are the Ox-eye Daisies. The native form presents great differences, when it stands out from a crack of a limestone rock, flowering on stalks not more than 4 inches high in a neat mass, and when it grows in a garden, rising with large flowers to a height of 4 feet; but the best garden form of the genus is one that came to me by the name of C. atratum. It begins to flower early in July, and bears flowers 4½ inches across, while the plant, even in my strong wet soil, is not more than 2 feet high. At Kew they call it C. maximum, though the plant which I see in the herbaceous garden there, and on the rockery, as C. maximum, seems a distinct plant, at least from a gardening point of view, and has smaller flowers on stalks 4 feet high. I have generally called it C. lacustre, and it flowers a month later here than the other. Another I have is named C. montanum, resembling the native form, but rather dwarfer, and with larger flowers, but hard to distinguish from it. I am glad to hear that botanists are now disposed to include all these in one species, different as they are in merit for garden decoration. There are two other smaller Daisies, C. speciosum and C. arcticum, possessing no great merit for the garden. *C. Wolley Dod, Edge Hall.*

Stenactis speciosa.—The above, which belongs to the natural order Compositæ, is one of those choice things rarely seen anywhere except in the most *recherché* collections of hardy herbaceous plants—a fact which is probably due to its merits and extreme beauty not being so well known as they deserve to be. Its flowers, which consist of a disc of beautiful yellow florets, surrounded by a circular row of pale lavender coloured petals, some three-quarters of an inch long, are exceedingly pretty, and very useful for cutting to mix with other flowers for decorative purposes. The plant is of dwarf habit, with flower-stems from 12 to 15 inches high, and is of easy culture, flowering, as it does, very freely in almost any kind of soil; if the latter, however, is very poor, it would be advisable to add thereto a little leaf-mould and well decomposed stable manure. Propagation is effected by division early in the spring. In a well drained soil with a sunny position it appears to be quite at home, and keeps in flower for a long time. *J. Horsefield, Heytesbury.*

Coreopsis præcox.—Six months ago a question was raised in the *Gardeners' Chronicle*, about the existence of this plant anywhere but in catalogues. I bought two plants from a nurseryman, in whose catalogue I found it. These have had the precocity to flower as early as the beginning of August, and are undistinguishable from an inferior form of that third-class plant, Helenium autumnale. I need not add that I suspect their authenticity. *C. Wolley Dod, Edge Hall, August 8.*

Lychnis vespertina plena, frequently called L. diurna alba plena, and L. dioica alba plena; but the name here adopted is the correct one. A most valuable plant it is for the supply of white flowers, very vigorous and floriferous, forming quite a freely branching bush of flowers, very double, and about 1½ inch across. Commencing to flower now it will continue to do so until the end of September, or even later if the weather is favourable. It is a recognised difficult plant to increase, particularly if handled in the wrong way; if the young shoots are taken instead of the old ones—a plan usually adopted—there is not such a large amount of difficulty in striking it; true it is rather slow, but of course patience and love will overlook that. *T.*

Lychnis flos-cuculi plena.—This also is a pretty plant, but not so useful as the preceding; the flower-stems are dwarfer, very freely branched, covered with double pink flowers. There is also a double white-flowered variety which is more miffy, but a desirable companion for the pink-flowered form. *T.*

Campanula rapunculus.—This plant, though a reputed native, is now very seldom seen, having been superseded in the kitchen garden (of which it is the original Rampion) by better roots, and in the flower garden by better flowers, of similar kind. It is one of those plants which one grows and drops after two or three years' acquaintance, being an acquaintance more easily dropped in a garden than its relation, C. rapunculoides, which I find nurserymen often send under the name of rapunculus. I met with the plant two years ago in an old kitchen garden in Surrey, and got some roots. It would be difficult to mistake it for rapunculoides, as it has its flowers upright, and all round the spikes, while the other has the spike one-sided, and the flowers drooping. The radical leaves of rapunculus are very obtuse, whilst those of rapunculoides are acute and more serrated. *C. Wolley Dod, Edge Hall, Malpas, August 11.*

Campanula turbinata.—With regard to the discussion about the distinctions between this Campanula and C. carpatica, I would wish to mention a fact which may be of some interest in the matter, and possibly may throw some light thereon. Seedlings raised from Mr. Froebel's Campanula turbinata pelviformis are undistinguishable from C. carpatica, producing blooms of the same shape and shade of colour on similar branched stems. This would lead one to infer that C. turbinata pelviformis may be a sport from C. carpatica, and not from C. turbinata, which name it bears. Mr. Brockbank mentions (p. 167) that he has amongst seedlings from C. carpatica some resembling C. turbinata pelviformis, which would seem to strengthen this idea of its parentage. C. turbinata pelviformis from Mr.

Froebel's garden is not at all the same shade of colour as C. carpatica, being of a light mauve tint. *John T. Poë, Riverston.*

Varieties of Campanula rotundifolia.—Referring to my note on these, Mr. Brockbank begs a very important question, and I entirely dissent from his views. He says that the bunch of seedlings of C. rotundifolia I sent him show that the Campanula is easily influenced, probably by bee-borne pollen, &c. My experience with respect to this species is, that the seedlings reproduce in a remarkable way the varietal forms of their parent. In one instance the seedlings of the semi-double form, known as "Soldanellæflora," half of them produced flowers with linear petals, showing probably that there is a strong affinity of structure between these and the semi-double form. The varieties I sent to Mr. Brockbank were nearly all of them collected growing wild. I am saving seed of two very interesting forms, and will publish the result of their growth. One is from the Little Orme Head, of dwarf stature and abnormally large flowers; the other is from the summit of the Glydr, and grows only 2 inches high, with flowers no larger than those of C. pumila, and never more than one on a stalk. *C. Wolley Dod, Edge Hall, Malpas, August* 11.

Reports of Societies.

Royal Horticultural: *August* 14.

Floral Committee.—Present: G. F. Wilson, Esq., in the chair; Messrs. J. McIntosh, J. Laing, F. R. Kinghorn, W. Bealby, H. Bennett, J. Wills, J. Douglas, G. Duffield, W. Ballantine, J. Dunning, H. Turner, J. Hudson, H. Cannell, J. Cutbush, and Shirley Hibberd. This was a small and unimportant gathering, calling but for a few remarks. A few Dahlias of high-class quality came from Mr. Turner, and a capital stand of new Gladioli from Messrs. Kelway & Son, both of which are commented upon in another column. Messrs. Hurst & Son, 152, Houndsditch, showed cut blooms of a very fine new Sweet Pea (see p. 211); and Messrs. James Carter & Co. sent samples of a number of their showy varieties of seedling single and double Petunias, and a flowering plant of Hæmanthus carneus; Messrs. Kelway & Son also showed fine stands of single and double Pyrethrums, and from Chiswick came groups of Achimenes, Tydæas, and tuberous Begonias. Messrs. F. T. Smith & Co., West Dulwich, sent a group of Balsams, not in their usual style as regards cultivation, but with the same high quality of flowers as of old. Mr. Humphreys, The Gardens, Nash Court, Faversham, showed some cut blooms of a grand variety of Lapageria rosea named splendens. From Mr. T. S. Ware came two boxes of pretty single Dahlias, a nice pan of Primula obconica, a mass of the white Francoa ramosa; shoots of the crimson fruited Podophyllum Emodi, figured at p. 241, vol. xviii.; and Lilium Wallacei, a species of the Thunbergii type, growing to the height of about 2 feet, and bearing pure orange flowers with brown spots. A very good large-flowered double white Begonia named virginalis came from Mr. W. Bealby, Roehampton Park, as also in Pelargonium Jean d'Arc, a very fine double, pale lilac-tinted, white Ivy-leaved variety. From Mr. Cannell came some capital stands of Dahlias and other flowers.

The awards made were:—

First-class Certificates.

To Messrs. Kelway & Son, for Gladiolus Her Majesty.

To Messrs. Kelway & Son, for Gladiolus Duke of Teck.

To Mr. T. S. Ware, for Lilium Wallacei.

To Mr. W. Bealby, for Begonia virginalis.

To Mr. W. Bealby, for Pelargonium peltatum Jean d'Arc.

To Messrs. Hurst & Son, for Sweet Pea Carmine Rose.

To Messrs. Vilmorin-Andrieux & Co., for Gladiolus Grand Rouge.

To Messrs. Vilmorin-Andrieux & Co., for Gladiolus André Leroy.

Cultural Commendations.

To Mr. Humphreys, for Lapageria rosea superba.

To Mr. J. Hudson, for Gloxinia Lilian.

Fruit Committee.—Present: H. Webb, Esq., in the chair; Messrs. G. Goldsmith, S. Lyon, J. Burnett, J. Willard, A. W. Sutton, L. A. Killick, F. Rutland, W. Denning, J. E. Lane, R. D. Blackmore, J. Smith, and J. Woodbridge. Mr. James Bolton, gr., Combe Bank, Sevenoaks, exhibited some bearing branches of his Prolific Gooseberry—a medium-sized, smooth, green variety, not in good condition as regards flavour, being past its best, but evidently an enormous cropper. From Mr. A. Faulkner, Inkpen, Berks, came examples of a new Raspberry, named Lord Beaconsfield, a free bearing variety of good size and excellent quality. Seedling Melons came from Mr. J. Hardiman, Lynne Hall, Disley; Mr. A. Taylor, Apperly Bridge, Leeds; Mr. Burnett, Mr. Jackson, Putney Heath; and Mr. Rutland, of Goodwood, who had a fruit of the Egyptian variety of Melon mentioned in our columns last week, which weighed 21 lb., and was exceedingly good in quality towards the centre. From Mr. L. A. Killick and Messrs. H. Lane & Son came a number of early Apples, including a variety named Mr. Gladstone, of medium size, somewhat angular towards the eye, deep crimson on the lower half, green towards the apex, and of a rich vinous flavour—undoubtedly the best flavoured early Apple yet sent out. Messrs. J. Cheal & Sons, Crawley, showed a new variety called Early Lowfield, of the type of Early Joanetting.

The following were the awards made:—

First-class Certificates.

To Messrs. H. Lane & Son and Mr. Killick for Apple Mr. Gladstone.

To Mr. Rutland, for Egyptian Melon.

To Mr. Faulkner, for Raspberry Lord Beaconsfield.

Atherstone Horticultural: *Aug.* 6.—The fourth annual show of this Society took place on the above date in the grounds of Merevale Park, the residence of the Lady-President, Mrs. Dugdale. No more desirable spot could possibly be selected, as the park is close to the town, while it is magnificently wooded, splendid specimens of Oak in particular being prominent, and the view of the counties of Warwick and Leicestershire from the higher grounds being very fine. It was a very good exhibition for a country district, but the fruits and vegetables eclipsed in quality the plants and cut flowers. The leading feature was the class for a group of plants arranged for effect, crescent-shaped, and to cover a space not exceeding 20 feet by 12 feet. This brought a fine competition and a very close one, the 1st prize, together with the Silver Knightian Medal of the Royal Horticultural Society being awarded to Mr. W. Brown, Merevale Gardens; 2d, E. Allday, Esq.; 3d, Mr. Hopkins, gr. to G. J. Sale, Esq.; two equal 4th prizes being also awarded. These groups contained in each case quantities of well grown plants, generally of a decorative character, but far too much crowded, the individuality of the plants being lost in the density of the whole; and there did seem to be too great a desire to secure a uniform level of surface, which is much to be regretted. But this class was a fine feature in the exhibition, and perhaps the best decorative taste was shown in the foreground of the 2d prize group, but it was weak at the back. Messrs. E. Allday, Hanson Sale, G. J. Sale, H. Townsend, and Mrs. Corbett were the principal exhibitors of plants, but it was difficult to gather up any reliable details, because it is the practice of the Society not to append the names of any of the exhibitors, even to prize collections, though the trade firms were at liberty to put what cards they liked on their exhibits. It is difficult to find a reason for this practice, and it is probably the result of some local feeling.

In the fruit classes there were some good Grapes, the leading exhibitors being Sir A. B. Dixie, Sir G. Chetwynd, H. Sale, and Mrs. Corbett. All hardy fruits were numerous and very good. The vegetable classes brought an amazing display, gardeners and cottagers alike showing in fine form. There must be a rare soil for vegetables about Atherstone. There were plenty of cut flowers, including bouquets of garden and also of wild flowers, and baskets of the same. In all these classes there was very close competition, and not a few extra prizes were awarded. A fine collection of Ferns, shown by the gardener to C. N. Newdegate, Esq., M.P., Arbury Hall, Nuneaton, was Highly Commended, not being staged for competition; and a First-class Certificate of Merit was awarded to Messrs. Biddles & Co., Loughborough, for cut specimens of Biddles' New White Rocket Candytuft, shown in fine condition.

Scottish Horticultural Association.—The monthly meeting of this Association was held in the rooms of the Society, 5, St. Andrew Square, Edinburgh, on Tuesday, the 7th inst. Mr. A. Mackenzie, one of the Vice-Presidents, occupied the chair. Several new members, proposed at the last monthly meeting, were duly elected. Mr. M. Temple, Falkirk, read an exhaustive paper on the causes of Vines failing, describing at considerable length the cause of unfruitfulness, and the several diseases of the Vine—red-spider, mildew, shanking, &c.; pointing out at the same time some of the more efficient remedies for these, and giving numerous practical examples and instances that had come under his own observation. Mr. McLure, Trinity Grove; Mr. Addison, Kirkliston; Mr. Alex. Shearer; Mr. A. Mackenzie (the Chairman), continued the subject, and a very interesting discussion was the result.

Mr. Charles Downie read a paper prepared by Mr. John Downie on Carnations, Picotees, and Pinks. Mr. Grieve, Pilrig Nursery, and the Chairman, continued the discussion.

The Chairman in calling attention to the numerous interesting exhibits which were laid on the table made some pertinent remarks upon the finger-and-toe disease, examples of which Mr. McLure had sent attacking Brussels Sprouts, stating that he had found the best remedy in either deep trenching or burning the soil. Mr. Chapman, Easter Duddingston Lodge, exhibited a dark crimson climbing Rose from Japan, which was very floriferous; Blitum capitatum (the Strawberry Blite), Cimicifuga spicata, Phygelius capensis, &c. Mr. D. McIvor, Phantassie Gardens, Prestonkirk, sent some seedling Carnations; Mr. Wm. Clark, gr. to Jas. Black, Esq., Auchentoshen, Duntocher, sent a seedling Eupatorium. Messrs. Jas. Dickson & Sons, Inverleith Nurseries, eighteen named varieties of Pentstemons; Mr. John Downie, Corstorphine, branches of well flowered Desfontainea spinosa from the garden of Mr. Mackray, Wemyss Bay; Mr. W. T. Bashford, Argyle House, Portobello, Gladiolus flammula; Messrs. D. Mackay & Co., Cameron Bank, a seedling double white Sweet William. A hearty vote of thanks was accorded to the Chairman for presiding at the meeting, and the proceedings were brought to a close with the usual donations for the poorer brethren of the craft.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
For the Week ending Wednesday, August 15, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Aug.	In.	In.	°	°	°	°	°	°	°		In.
9	29.47	—0.28	68.0	53.7	14.3	58.2	— 3.9	46.6	66	W.	0.00
10	29.47	—0.29	67.5	50.1	17.4	57.2	— 4.9	45.7	65	W.; W.NW.	0.00
11	29.79	+0.03	69.0	51.3	17.7	58.7	— 3.5	49.0	69	W.	0.00
12	29.98	+0.22	70.9	48.5	22.4	58.7	— 3.5	47.9	67	W.; W.S.W.	0.00
13	29.74	—0.02	82.2	55.5	26.7	69.0	+ 6.8	48.2	49	S.S.W.	0.00
14	29.58	—0.19	75.2	59.0	16.2	65.0	+ 3.0	54.3	69	S.S.W.; W.S.W.	0.03
15	29.56	—0.21	67.0	55.5	11.5	59.5	— 2.2	50.8	73	W.; W.SW.	0.03
Mean	29.65	—0.11	71.4	53.4	18.0	60.9	— 1.2	48.4	65	W.	0.06

Aug. 9.—Fine and bright at times; very windy day. Fine night, cloudless, windy.
— 10.—Alternately bright and cloudy throughout the day. Very windy night.
— 11.—Fine and bright at times. Fine night; moon bright, lunar halo.
— 12.—Fine, bright, warm day; windy. Fine night, mostly overcast.
— 13.—Very fine, bright, hot day and night.
— 14.—Fine day and night; very rough wind. Lunar halo rain at 11 P.M.
— 15.—Fine day generally; slight showers at times. Fine night, alternately clear and cloudy.

London: *Atmospheric Pressure.*—During the week ending August 11 the reading of the barometer at the level of the sea decreased from 30.19 inches at the beginning of the week to 29.88 inches by 10 P.M. on the 6th, increased to 30.05 inches by 10 P.M. on the 7th, decreased to 29.63 inches by 10 P.M. on the 8th, increased to 29.66 inches by 9 A.M. on the 9th, decreased to 29.65 inches by 3 P.M., and increased to 29.66 inches by 10 P.M. on the same day, decreased to 29.61 inches by 3 P.M. on the 10th, and was 30.08 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.86 inches, being 0.02 inch higher than last week, and 0.07 inch lower than the average of the week.

Temperature.—The highest temperature in the shade in the week was 71°.5, on the 7th; on the 8th the highest was 61°. The mean of the seven high day temperatures was 67°.9.

The lowest temperature in the shade in the week was 50°.1, on the 10th; on the 6th the lowest temperature was 59°.5. The mean of the seven low night temperatures was 53°.6.

The greatest range of temperature was 18°.3, on the 7th; the smallest was 10°, on the 8th. The mean of the seven daily ranges was 14°.3.

The mean temperatures were—on the 5th, 61°.4; on the 6th, 62°.6; on the 7th, 60°.9; on the 8th, 55°.9; on the 9th, 58°.2; on the 10th, 57°.2; and on the 11th, 58°.7; and these were all below (excepting the 6th, which was 0°.5 above) by 0°.7, 1°.1, 6°.1, 3°.9, 4°.9, and 3°.5 respectively.

The mean temperature was 59°.3, being 0°.8 lower than last week, and 2°.8 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 130°.5, on the 9th. The mean of the seven readings was 107°.8.

The lowest reading of a thermometer placed on grass, and fully exposed to the sky, was 43°, on the 19th. The mean of the seven readings was 47°.7.

Rain.—Rain fell on three days, to the amount of 0.28 inch.

England: *Temperature.*—During the week ending August 11 the highest temperatures were 74°.6, at Nottingham, 74° at Cambridge, and 73° at Leeds and Sunderland; the highest at Bolton was 63°.7, at Liverpool 65°.7, and at Sheffield 68°. The general mean was 70°.2.

The lowest temperatures in the week were 42°.6 at Wolverhampton, 43°.4 at Nottingham, and 44°.7 at Bolton; the lowest temperature at Plymouth was 52°.4, at Preston 52°, and at Brighton 51°. The general mean was 48°.4.

The greatest ranges of temperature in the week were 31°.2 at Nottingham, 27°.9 at Wolverhampton, and 27° at Cambridge and Hull; the least ranges were 15° at Liverpool, 17° at Preston, and 17°.4 at Bristol. The general mean was 21°.8.

The mean of the seven high day temperatures was highest at Sunderland, 69°.8, at Brighton 69°.5, and at Cambridge 68°.9; and was lowest at Bolton, 60°.6, at Liverpool 61°.9, and at Bristol and Wolverhampton 63°.7. The general mean was 65°.6.

The mean of the seven low night temperatures was highest at Plymouth, 55°.4, at Brighton 54°.9, and at Truro 53°.9; and was lowest at Hull, 48°.1, at Wolverhampton 48°.7, and at Bolton 49°. The general mean was 51°.7.

The mean daily range of temperature was greatest at Liverpool, 19°.7, at Sunderland 19°.1, and at Nottingham 17°.9; and was least at Plymouth, 10°.4, at Bristol 10°.6, and at Preston 10°.9. The general mean was 13°.9.

The mean temperature was highest at Brighton, 60°.4, at Blackheath 59°.3, and at Plymouth 58°.8; and was lowest at Bolton, 53°, at Wolverhampton 54°.4, and at Hull 55°.1. The general mean was 56°.9.

Rain.—The largest falls were 2.37 inches at Bolton, 1.56 inch at Liverpool, and 1.39 inch at Preston; the smallest falls were 0.27 inch at Plymouth, 0.28 inch at Blackheath, and 0.40 inch at Truro. The general mean fall was 0.82 inch. Rain fell on seven days at Preston.

Scotland: *Temperature.*—During the week ending August 11 the highest temperature was 68°, at Perth; at Glasgow and Greenock the highest temperature was 65°. The general mean was 66°.3.

The lowest temperature in the week was 44°.5, at Greenock; at Glasgow and Paisley the lowest temperature was 49°. The general mean was 47°.

The mean temperature was highest at Leith, 56°.9; and lowest at Greenock, 55°.4. The general mean was 56°.2.

Rain. — The largest fall was 2.06 inches, at Greenock, and the smallest fall was 0.20 inch at Leith. The general mean fall was 0.98 inch.

JAMES GLAISHER, F.R.S.

Variorum.

Algerian Forests.—The forests comprised in the colonised parts of Algeria include at the present time some 14,000,000 of trees—viz., 6,019,011 large forest trees and 8,373,565 Mulberries, resinous, and ornamental trees. According to the official returns there are 278,325 hectares covered with the Cork Oak, 605,622 with evergreen Oak, 42,742 with Cedar; while the remainder of the forest area is occupied by the tree known as Oak-zeen, Aleppo Pine, Thuia, wild Olive, Eucalyptus, Pistachio, Locust Bean, Broom, &c. The majority of the cork trees are in the province of Constantine, fringing the coast line of La Calle and Bougie. Here also grows the Oak-zeen, peculiar to Algeria, which resembles the White Oak, but has a leaf like a Chestnut. Some of these trees, and especially in the forest of Skira, on the Tunis frontier, grow to a colossal size, and are excellent for shipbuilding purposes. The Chestnut flourishes in the forest of Edough, near Bona, while the plains in the neighbourhood of the coast contain Elm and Ash, and the river valleys Willow, Elder, and Poplar. The lower chains of the Atlas range are covered with evergreen Oak, mingled with Broom and Sweet Acorn Oaks. On the ranges above are the Thuia, Aleppo Pine, and Maple, though these latter are limited in their localities, such as the Aurès Hills and the environs of Bathna, where the summits of the mountains are thickly planted with Cedar. Towards the coast of the province of Algiers are the forests of Sahel and Mazafran, near Koléah, the latter possessing huge Ash trees interlaced with the wild Vine; but the true forest country does not commence until we reach the Atlas Mountains, where are the forests of Ak-fordoun with very large Oak-zeens, the forest of Beni-Menasser, consisting principally of wild Olive, the forest of Ourensenis, of Thuia and Aleppo Pine, and the venerable forest of Teniet-el-Haad, where the Cedars are from 15 feet to 18 feet in circumference, and from 45 feet to 100 feet in height. The province of Oran is erroneously said to be bare of trees, but though they are rather scanty in the coast section, the plateaux of the mountains are heavily timbered, especially beyond Mascara, as far as Sebdou. The forest of Duya in this neighbourhood is at least 40,000 acres in extent, principally of evergreen Oak, Thuia, and Aleppo Pine. *The Times.*

Prolific Potatos.—Mr. T. H. Hill, gr. to A. W. Ruggles Brise, Esq., of Durwards Hall, Witham, Essex, lifted a root of the Mr. Bresee Potato, grown with Native Guano, containing thirty-seven Potatos. The six largest weighed 2 lb. 1 oz., 1 lb. 2 oz., 13 oz., 12¼ oz., 9 oz., 8 oz. The whole root weighed 13 lb. 3 oz. This prolific crop has been sent by the grower to be exhibited at the Native Guano Company's stand at the Fisheries Exhibition.

Answers to Correspondents.

Bouvardias: *H. B.* The stems of the Bouvardias are suffering from a cankerous disease that is peculiar to them. Change the site for growing them, or remove the soil, and make the conditions for their growth as favourable as you can, by seeing that the drainage is efficient. And if you could get fresh plants or cuttings for a new start it would doubtless assist you very much.

Carnations and Picotees: *W. M., Wakefield.* Rose flake Carnation Electric Light. Bright pleasing colour, well defined; apparently good-sized and well-formed petals, but so nearly collapsed on arrival that a positive opinion cannot be expressed. Seedling No. 2 collapsed completely. John Hines, stated on the collar to have been "premier," was in better condition; but flowers intended for transmission by post should be sent fresh as cut from the plant, and have wrapped around the stem some damp cotton-wool, or damped moss; further, they should be so placed in the box that they should not be subject to displacement, or severe vibration. — *Thomas Anstiss, Brill.* The seedling red-edged Picotee is far behind the best now in cultivation; it is worth growing only as a border variety. Carnation P.P.B. is Sarah Payne. *Picotees:* No. 3, Lt. red; 4, 5, and 6, Hy. purple; 7, Lt. rose, sent for identification, I cannot recognise. They are not any of the leading flowers now easily accessible. *E. S. Dodwell.*

Fungus: *J. A. Ampthill.* The name of the fungus is Peziza phlebophora. There are more than 3000 species of British fungi other than those mentioned by you.

Grapes: *O. N.* We cannot say what may have caused your Grapes to shank. Anything that causes a weakness of important parts, such as a want of water at the roots, or too much, or watering just as the Grapes are changing colour; from a badly drained border, or from too much growth having been cut away just when the fruits require the fullest assistance from root and leaf. The knowledge you afford us is too meagre for us to venture an opinion.

Mulberry Tree: *X. B.* You must restrict growth at the root by lifting the tree and replanting it as soon as the foliage begins to turn yellow in the autumn. The tree has had too much root-space to run in.

Names of Plants: *C. W. D.* Your plant is Sisyrinchium californicum. We understand there have been alterations at Kew, and this plant accidentally came up by the side of the label of Libertia formosa; hence the discrepancy. It has since been rectified.—Prof. Reichenbach has received from an unknown English correspondent Odontoglossum tripudians, Rchb. f., and Masdevallia coriarea, Lindl. — *F. Dee* must send better specimens. — *E. E. S.* Vicia Bithynica. —*N. L.* 1, Cystopteris fragilis Dickieana; 2, Polypodium vulgare cambricum; 3, Polystichum aculeatum lobatum; 4, Lastrea Filix-mas cristata; 5, Asplenium marinum; 6, A. Adiantum-nigrum; 7, Platyloma rotundifolium; 8, Phlebodium sporadocarpum.—*Bell & Son.* Probably Tropæolum speciosum, but we cannot be certain without seeing the leaves. — *R. M. Jerrold.* Sedum reflexum.—*George Webb.* 1, Platycodon grandiflorum; 2, Galeopsis versicolor.—*W. S. C. P.* 1, Kniphofia sarmentosa? (too poor to name); 2, Campanula garganica; 3, C. rotundifolia alba; 4, C. garganica, hairy var.; 5 and 6, Veronica longifolia. — *P. H. G.* Ficus barbata; Oncidium flexuosum, a slight var.; and Oplismenus imbecillis variegatus (O. setarius, var.). — *C. M. O.* A garden Rose, which we cannot name.—*J. J. Walton.* Veratrum nigrum.—*J. R. Haig.* Acropera Loddigesii; and the large flower is Lycaste tetragona. — *H. Darlington.* Sclerochloa distans. — *W. F. B.* Send more complete material.—*B. H.* Polygonum sachalinensis, and Spiræa sorbifolia. — *H. J. Neale.* Impatiens Roylei, as near as we can tell from such a scrap.—*E. H. M. S.* Probably Salix repens, the female variety.—*S. Y.* 1, Corydalis lutea; 2, Astrantia major.

Pansy: *Gardener.* We cannot name your Pansy, nor can we tell you where you can get a scarlet variety of the same size and habit of growth. We should rejoice to be able to do so. — *G. H.* A very pretty seedling, but we should hardly say it is distinct from some already out.

Peach Trees: *J. T. Ritchie.* The trees, if fan trained, should not be less than 20 feet apart in the house. The upper part of the roof may be occupied with "riders"—that is, tall-stemmed trees which can be removed piecemeal, or at once, as the dwarf fan-trained trees grow upwards. These may be planted in the centre of the house, and halfway betwixt the trees intended as the permanent ones. You could plant your fan-trees at half the distance given above, and remove each alternate plant when they encroach on each other. You would then obtain a few fruits sooner, but the border would be more impoverished by its having so many trees to support.

Plumbago: *X. B.* The plant is probably too much shaded, and does not ripen its wood. Either that or some other local cause, not known to us, will account for its not flowering.

Spiders in a Vinery: *Gardener.* You will not do much good by fumigating. Get a long-haired broom, and clear them out by means of that. No careful gardener ever allows them to become a nuisance.

Strawberries: *G. T. Smith.* Under the circumstances you name the British Queen Strawberries had better remain. The luxuriant growth that is the probable cause of their unfruitfulness will disappear, in consequence of the exhaustion of the plant food within their reach. Give no manure, and await results.

Trenching: *B. Y.* The ground in your case should be "bastard trenched"—that is, dug two spits deep; but in doing it keep the top spit at the top, and at the same time break up the hard chalky subsoil with a pick or crowbar. If the soil is not in good heart a dressing of farmyard manure, burnt refuse, or peat that has been stacked in layers with manure, would greatly benefit the trees.

Vinery: *X. B.* We cannot advise you without knowing more of the present condition of the house, the Vines, and the border. Replanting an old vinery requires to be done with some judgment, as it is not a cheap operation. Is there no local professional gardener near who would examine the house and advise you on the spot?

CATALOGUES RECEIVED.

Thomas Kennedy & Co., Dumfries—Dutch Flower Roots.

William Inglis, Kelso, N.B.—Dutch Bulbous Roots.

Dickson & Robinson, 12, Old Millgate, Manchester—Hyacinths and other Bulbous Roots.

Alex. Dickson & Sons, Belfast—Dutch and French Flowering Bulbs.

Vilmorin-Andrieux & Co., 4, Quai de la Mégisserie, Paris—Vegetable and Flower Seeds, Bulbs, and Strawberries.

Communications Received.—Cornubia.—T. S.—F. Tufnail.—P. C.—H. J. B.—J. V. & Sons.—F. S. & Co.—P. H. G.—W. L.—T. H. H.—J. H.—J. C. & Co.—T. C.—B. and M.—A. O.—C. W. D.—G. H.—W. Masson.—R. McM.—C. A. Schroeder.—Haage and Schmidt.—Inquirer.—W. M. C.—W. H. K.—G. N.—W. P.—R. Plan.—J. O'B. (with enclosure).—P. H. S.—S. F. & Co., a double form of Papaver somniferum, of which there is a great variety.

DIED—At Bromyard Road, Worcester, on the 9th inst., aged nineteen years, John Robert, second son of Mr. J. R. Petch.

Markets.

COVENT GARDEN, August 16.

We have now reached the end of the soft fruit season, the present being the heaviest ever experienced in this market; Black Currants and Raspberries being more than a double crop; and prices, although low, have been remunerative. Trade has been steady, at higher rates. Large quantities of Grapes are reaching us from the Channel Islands, with the usual decline in value. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	1 6- 3 0	Lemons, per case	15 0-20 0
Cherries, ½-sieve	7 0-13 0	Melons, each	1 0- 3 0
Currants, Black, ½-sieve	3 0- 3 9	Peaches, per doz.	2 0- 6 0
— Red, ½-sieve	3 0- 4 0	Pine-apples, Eng., lb.	2 0- 4 0
Figs, per dozen	2 0- ..	— St. Mich., each	3 6-10 0
Grapes, per lb.	1 0- 2 0	Plums, ½-sieve	5 0-10 0
Gooseberries, ½-siv.	2 6- 3 3	Strawberries, per lb.	0 3- 0 9

Vegetables—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	2 0- 3 0	Lettuces, Cabbage, per dozen	1 0- ..
Beans, French, lb.	0 4- ..	— Cos, per dozen	1 6- ..
— Scarlet, per lb.	0 4- ..	Mint, green, bunch	0 6- ..
Beet, per doz.	1 0- ..	Mushrooms, p. baskt.	1 0- 2 0
Cabbages, per doz.	1 0- 2 0	Onions, per bunch	0 6- ..
Carrots, new, p. bun.	0 4- 0 6	— Spring, per bun.	0 6- ..
Cauliflowers, English, dozen	2 0- 3 0	Parsley, per bunch	0 4- ..
Celery, per bundle	1 6- ..	Peas, English, quart	1 0- ..
Cucumbers, each	0 4- 0 8	Radishes, per doz.	1 6- ..
Endive, French, per dozen	2 0- ..	Small salading, pun.	0 4- ..
Garlic, per lb.	1 0- ..	Spinach, per bushel	2 6- ..
Herbs, per bunch	0 2- 0 4	Sweet Potatos, lb.	0 6- ..
Horse Radish, bund.	3 0- 4 0	Tomatos, per lb.	0 6- 0 9
		Turnips, new, bun.	0 4- ..
		Vegt. Marrows, each	0 2- ..

Potatos.—Jersey Potatos much diseased, and trade bad; Kent Kidneys, £5 to £6 per ton.

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	12 0–24 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 0
Asters, per doz. ..	4 0– 8 0	Fuchsias, per dozen	4 0– 9 0
Begonias, per doz. ..	6 0–12 0	Hydrangea, per. doz.	9 0–24 0
Bouvardia, doz. ..	12 0–18 0	Lilium longiflorum, per dozen.. ..	18 0–42 0
Caladiums, per doz.	6 0–24 0	Liliums, various, doz.	12 0–30 0
Calceolarias, dozen...	4 0– 9 0	Lobelias, per dozen	3 0– 6 0
Cockscombs, doz. ..	4 0– 9 0	Marguerite Daisy, per dozen	12 0–24 0
Coleus. doz.	3 0– 6 0	Mignonnette, doz. ..	4 0– 6 0
Dracæna term. doz.	30 0–60 0	Myrtles, per doz. ..	6 0–12 0
—viridis, per doz ..	12 0–24 0	Palms in variety, each	2 6–21 0
Erica, various, doz.	12 0–36 0	Pelargoniums, scarlet, per dozen ..	2 0– 6 0
Euonymus, various, per dozen	9 0–18 0	— decorative, doz.	6 0–12 0
Evergreens, in var., per dozen	6 0–24 0		

Cut Flowers.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Mignonette, 12 bun.	2 0– 6 0
Asters, 12 bunches..	4 0– 6 0	Marigolds, 12 bun...	2 0– 4 0
— French, per bun.	1 0– 3 0	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 0
Bouvardias, per bun.	1 0– 1 6	Pansies, 12 bunches	0 9– 1 6
Carnations, 12 blms.	1 0– 3 0	Pelargoniums, 12 spr.	0 6– 1 0
— 12 bunches ..	3 0– 6 0	— zonal, 12 sprays	0 3– 0 6
Cornflower, 12 bun..	1 6– 4 0	Picotees, 12 bun. ..	2 0– 6 0
Dahlias, 12 bun. ..	3 0– 6 0	Primula, double, bun.	1 0– 1 6
Delphinium, p. bun.	0 6– 1 0	Pyrethrum, 12 bun..	3 0– 6 0
Eucharis, per doz. ..	3 0– 6 0	Roses (indoor), doz.	2 0– 6 0
Eschscholtzia, 12 bn.	2 0– 4 0	— (outdoor), 12 bun.	3 0– 6 0
Gardenias, 12 blms..	3 0– 6 0	— coloured, doz. ..	3 0– 8 0
Gladioli, 12 spikes..	1 6– 4 0	Stephanotis, 12 spr.	2 6– 4 0
Heliotropes, 12 sp. ..	0 6– 1 0	Stocks, 12 bunches..	3 0– 6 0
Lapageria, white, 12 blooms	3 0– 6 0	Sweet Peas, 12 bun.	2 0– 4 0
— red, 12 blooms..	1 0– 3 0	Sweet Sultan, 12 bun.	4 0– 6 0
Liliums, 12 bun. ..	12 0–18 0	Tropæolum, 12 bun.	1 0– 2 0
Lavender, 12 bun. ..	6 0– 9 0	White Jasmine, bun.	0 6– 1 0
Marguerites, 12 bun.	6 0– 9 0		

SEEDS.

London: *August* 15.—No fresh feature of either interest or importance characterised to-day's market with regard to farm seeds. Some type samples of new French red Clover seed have been shown, but no values are, of course, yet fixed. A moderate business is passing in English Italian Rye-grass. Trifolium continues exceedingly cheap. The trade for bird seeds is poor. There is no change in prices of Mustard and Rape seed. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday there was no pressure to sell at any tangible decline, and whilst the extreme rates obtained last week on the best transactions were not obtainable, still on rates current a fortnight back prices of foreign Wheat showed in many cases 1*s.* advance, as also did the fine qualities of English, secondary sorts remaining without improvement. Flour on the spot was fairly firm at Friday's advance. Grinding Barley continued to be well supported at about 3*d.* per quarter above the rates of Wednesday se'nnight. Beans and Peas remained at steady value in all positions. With scanty supply rates for Maize were firm at the rise quoted on Friday last—round, 28*s.* to 29*s.*, and flat, 27*s.* to 27*s.* 6*d.* Oats upheld their value.—The Wheat trade on Wednesday was very quiet, but without any loss of steadiness in prices. Barley kept firm in value. Beans and Peas met very little inquiry. Maize on the spot was steady. For Oats firm rates were required. Flour was very steady in value, though a slow sale.—Average prices of corn for the week ending August 11:—Wheat, 43*s.* 6*d.*; Barley, 27*s.* 9*d.*; Oats, 23*s.* 11*d.* For the corresponding period last year:—Wheat, 50*s.* 6*d.*; Barley, 26*s.* 7*d.*; Oats, 22*s.* 11*d.*

CATTLE.

At Copenhagen Fields on Monday choice cattle cleared off steadily, but hardly up to previous extreme rates, whilst second qualities ruled lower. Of sheep a large portion consisted of heavy weight and sold very slowly, but prime small brought firm prices, and met a fairly quick sale. Swedish calves sold more readily and dearer, ranging up to 6*s.* 4*d.*, or within 2*d.* per stone of prime English. Quotations:—Beasts, Danish, 4*s.* 6*d.* to 5*s.* 4*d.*; Swedish, 4*s.* 8*d.* to 4*s.* 10*d.*; Canadians, 5*s.* 4*d.*; British, 4*s.* 6*d.* to 5*s.* 4*d.*, and 5*s.* 6*d.* to 6*s.* 2*d.*; calves, 5*s.* 4*d.* to 6*s.* 6*d.*; sheep, 5*s.* 6*d.* to 6*s.*, and 6*s.* 4*d.* to 7*s.* — Thursday's trade ruled quiet. Both beasts and sheep were dull of sale, and drooping in value. Lambs were in fair demand, but calves and pigs were inactive.

POTATOS

The markets have been well supplied during the week, and a fair trade was transacted. Quotations:—English kidneys, 80*s.* to 100*s.* per ton; English rounds, 70*s.* to 90*s.* per ton; English Roses, 60*s.* to 70*s.* per ton.

COALS.

The following are the prices current at market during the week:—East Wylam, 16*s.*; Percy West Hartley, 15*s.* 9*d.*; Walls End—Hetton, 19*s.*; Hetton Lyons, 16*s.*; Lambton, 18*s.* 6*d.*; Wear, 16*s.*; Tees, 19*s.* 3*d.*; Salvin's Hetton, 17*s.*

Government Stock.—Consols closed on Monday at 100 to 100⅛ for delivery, and 100¼ to 100⅜ for the account. Tuesday's figures were as on the preceding day for delivery, and 100⅛ to 100¼ for the account. The closing quotations on Wednesday were 99⅞ to 100 for delivery, and as on the previous day for the account. Thursday's final prices were 99⅞ to 100 for delivery, and 100⅛ to 100¼ for the account.

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,, ,, 3	1 5 0		

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,, 3	1 1 0		

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For destroying ALL INSECTS and PARASITES that infest Trees and Plants, whether at the Roots or on the Foliage. Kills all Vegetable Grubs, Turnip Fly, &c. Cures Mildew and Blight Cleans Grapes from Mealy Bug, &c., and makes a good Winter Dressing. Of all Seedsmen and Chemists, 1*s.* 6*d.*, 2*s.* 6*d.*, 4*s.* 6*d.* a bottle. Per gallon 12*s.* 6*d.*, or less in larger quantities. Maker, E. GRIFFITHS HUGHES, Manchester. Wholesale from all the London Seed Merchants and Wholesale Druggists. New York: Rölker & Sons.

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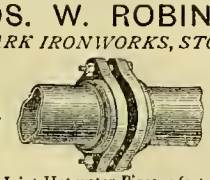

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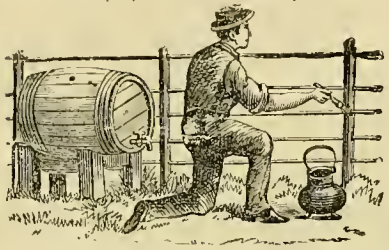

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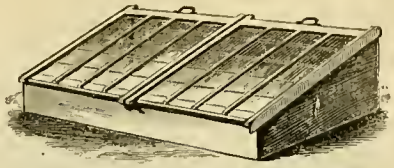

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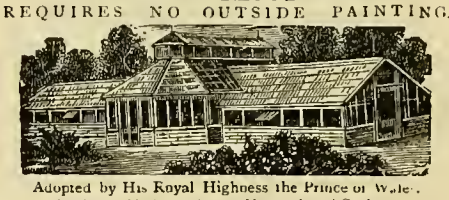

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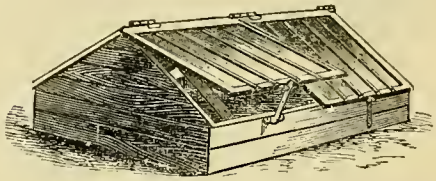

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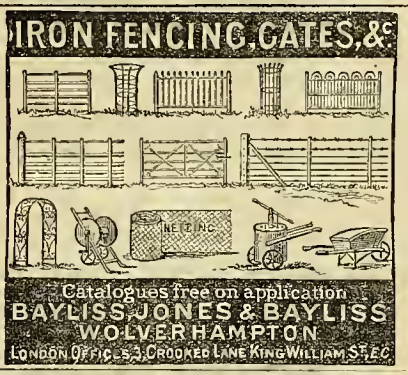

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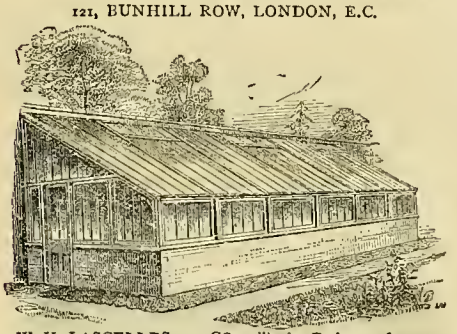

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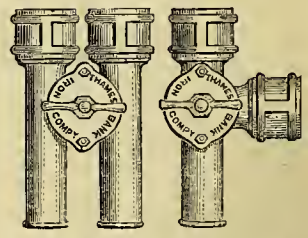

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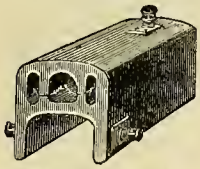

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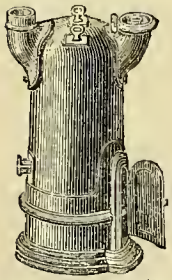

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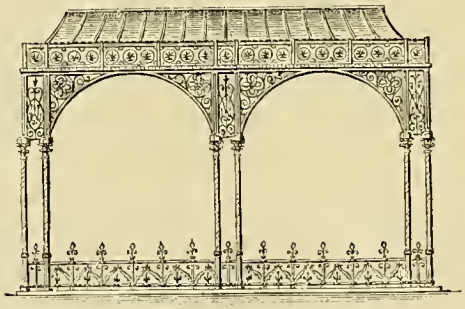

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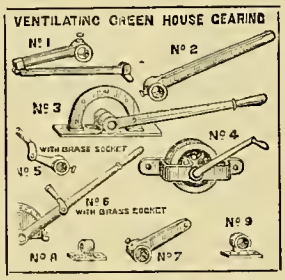

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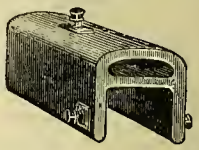

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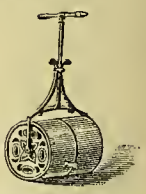

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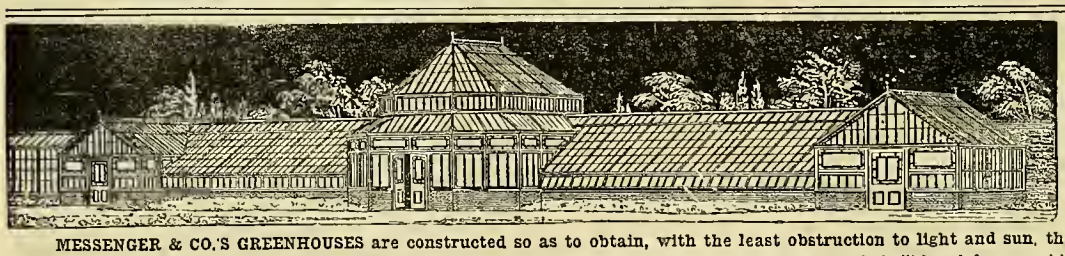

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OF EVERY DESCRIPTION

ERECTED and HEATED.

MESSENGER & CO.'S GREENHOUSES are constructed so as to obtain, with the least obstruction to light and sun, the greatest Strength and Rigidity.

The best Materials and Workmanship, at prices which, owing to their facilities, defy competition.

Three Medals awarded to Messenger & Co. by the Royal Horticultural Society, 1882. Plans and Estimates free on application.

Illustrated Catalogues free. Richly Illustrated Catalogue, containing over 60 Plates of Winter Gardens, Conservatories, Vineries, Plant Houses, Forcing Houses, &c., recently erected by M. & Co., for 24 stamps.

MESSENGER & COMPANY, LOUGHBOROUGH.

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POSTAL ORDERS.

To Advertisers, Subscribers, and Others.

It is very important in Remitting by Postal Order that it should be filled in payable at

DRURY LANE, to W. RICHARDS,

as, unless the Number of a Postal Order is known, and it has been made payable at a particular office, and to a particular person, it is impossible to prevent any person into whose hands it may fall from negotiating it.

N.B.—The best and safest means of remitting is by POST-OFFICE ORDER.

ROYAL HORTICULTURAL SOCIETY. South Kensington, S.W.
NOTICE!—COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M., on TUESDAY NEXT, August 28. Admission 1s., which includes entrance to the Great International Fisheries Exhibition.

CRYSTAL PALACE. GREAT ANNUAL FRUIT and DAHLIA SHOW, FRIDAY and SATURDAY, August 31 and September 1. Schedules on application to
W. G. HEAD, Garden Superintendent.

THE INTERNATIONAL POTATO EXHIBITION will be held at the CRYSTAL PALACE, Sydenham, S.E., on SEPTEMBER 13 and 14, when PRIZES amounting to ONE HUNDRED and FORTY POUNDS will be offered. For Schedules apply to
P. J. McKINLAY, Headley Lodge, Penge, S.E.

PARCELS POST.—CARTERS' SEEDS.

PARCELS POST.—CARTERS' SEEDS, Carriage free.

PARCELS POST.—CARTERS' SPECIAL ORDER ROOMS and Parcels Post-office now open.

PARCELS POST.—CARTERS' SPECIAL VANS and TRUCKS will deliver parcels hourly during the day to the Post-office.

EARLY FORCING BULBS.

JAMES CARTER AND CO. have RECEIVED THEIR FIRST CONSIGNMENTS of the above in splendid condition. See Advertisement on page 197.

CARTERS, The QUEEN'S SEEDSMEN, and by Royal Command to H.R.H. the Prince of Wales. 237 and 238, High Holborn, London, W.C.

PARCELS POST.

WEBBS' GARDEN SEEDS and

WEBBS' BULBS

DELIVERED FREE TO EVERY

TOWN and VILLAGE in the

KINGDOM.

WEBBS' GARDEN SEEDS and

WEBBS' BULBS

DIRECT FROM THE GROWERS,

BY PARCELS POST.

WEBB AND SONS, The Queen's Seedsmen,

WORDSLEY, STOURBRIDGE.

East Lothian Intermediate Stocks.
THOMAS METHVEN AND SONS beg to offer their choice strain of the above, in four colours, viz., Scarlet, Purple, White, and Crimson, at 1s., 2s. 6d., and 5s. each colour. Price to the Trade on application.
15, Princes Street, Edinburgh.

SPECIAL INVITATION.—Our Nurseries being now at their best, are open to all who may be interested in the cultivation of Fruit Trees and Roses.
The journey from London is an easy one, by the Great Eastern Railway to the Harlow or Sawbridgeworth Station.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Roses on Own Roots.
REINE MARIE HENRIETTE, NIPHETOS, ISABELLA SPRUNT, RÊVE D'OR, &c. Strong plants, 12 to 15 inches high, 7s. per dozen, or 4 for 2s. 6d., carriage paid.
MAIRIS AND CO., Weston-in-Gordano, Bristol.

EIGHTY THOUSAND CLEMATIS, in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants.
Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Double White Sweet Scented
NARCISSUS BULBS for SALE, £1 per 1000. Apply to
T. MILLS, Market Gardener, Chiswick, Middlesex.

CHOICE FLOWERS for WINTER.—TREE CARNATIONS, Gloire de Nancy, La Belle, and other fine kinds, strong plants, 40s. per 100. BOUVARDIAS, fine plants, with 15 to 30 shoots, best market sorts, including Alfred Neuner, 40s. per 100.
W. JACKSON, Blakedown, near Kidderminster.

FOR SALE, Two Specimen CROTONS, undulatus and variegatus. Too large for house grown in. J. BECK, Old Road, Lee

NEW TRADE LIST Free on application.—20,000 Maidenhair and other useful FERNS; 15,000 PALMS in great variety. Terms cash with order.
E. DENSON AND CO., Florists, &c., 18, 19, and 20, Foxberry Road, Brockley, S.E.

STRAWBERRIES.—We are now prepared to supply strong healthy Plants, from ground and in pots, of all the most approved kinds. A select descriptive LIST post-free on application.
THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

MUSHROOM SPAWN for SALE, 4s. per bushel, delivered free 10 miles. The trade supplied.
G. MITCHINSON, Burroughs, Hendon.

MESSRS. SQUELCH AND BARNHAM, FRUIT and FLOWER SALESMEN, Covent Garden Market, W.C., are open to RECEIVE CONSIGNMENTS of choice FRUIT and FLOWERS. Baskets and Labels supplied.
Terms and references on application.

WANTED, CUTTINGS of Vesuvius, Silver-leaved, Pink, White, Tricolor, and Bronze GERANIUMS. State lowest price per 100 to
The MANAGER, The Nurseries, New Beckenham, Kent.

WANTED, PINES, PEACHES, NECTARINES, MELONS, TOMATOS, &c. Also choice CUT FLOWERS.
WISE AND RIDES, Fruit & Flower Salesmen, Covent Garden

INLAND PARCELS POST.

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PARCELS POST.

SEED ORDERS EXECUTED

SAME DAY as received by

SUTTON AND SONS, READING.

BEAUTIFUL NEW EUCHARIS. EUCHARIS SANDERI.
Invaluable for Cut Flowers and General Decoration.
5s. each; taken by the dozen, 3s. 6d. each; by the 100, 2s. 6d. each.
Mr. WILLIAM BULL, Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

Herbaceous and Alpine Plants.
PAUL AND SON, The "Old" Nurseries, Cheshunt.
Priced Descriptive LIST on application.

SEEDLING FOREST TREES, &c.—Nurserymen visiting the North are respectfully invited to call and inspect stock of above at the Montfieth Nurseries, near Dundee. W. P. LAIRD AND SINCLAIR.

R. H. VERTEGANS' Descriptive Pocket CATALOGUE of Alpines and Hardy Perennials, Post-free on application.
Chad Valley Nurseries, Edgbaston, Birmingham.

Hyacinths, Tulips, Narcissus, Lilies, &c.
BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland.
Wholesale CATALOGUE now ready, and will be sent post-free on application.

KELWAY AND SON, Langport, Somerset, offer GLADIOLI SPIKES, DAHLIAS, single and double; PYRETHRUMS, single and double; PHLOXES and TEA ROSES; CALCEOLARIA and CINERARIA SEED.
CATALOGUES gratis and post-free.

Tea Roses—Tea Roses.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this year a splendid stock of Tea and other Roses in pots. Prices and full particulars on application to
The MANAGER, The Vineyard, Garston, Liverpool.

ORCHIDS.—We invite intending Purchasers to pay us a visit and inspect our Houses.
The NEW PLANT AND BULB COMPANY, Colchester.
Send for our NEW LIST, No. 63.

CREEPERS for WALLS, TRELLISES, &c., in great variety. See Descriptive LIST. Most of these plants being in pots, may be moved now.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

WHITE CLOVES for FORCING.—10,000 of the Hybrid White Clove (Mrs. Sinkins), large, bushy stuff, 1-yr. old, transplanted, 6s., 9s., and 12s. per dozen. The Trade supplied. Cash or suitable Exchange.
W. WEALE, Taplow, Bucks.

To the Trade.
FOREST TREE SEEDLINGS.—Native 1-yr. Larch and Scotch Seedlings and extra fine 1-yr THORN QUICK. Samples and price on application to
PETER BLAKE, Nurseryman, Summerhill, Co. Meath Ireland.

Lily of the Valley.
ELSTER AND KOLLMANN, Lübeck, near Hamburg, offer the above, 3-yr. old, extra strong Crowns, at 34s. per 1000. Three months terms, or terms for cash price, on application.

To Florists and Others.
J. N. BRADLEY, Sunnyside Nurseries, Chingford, has for disposal a quantity of well-grown and hardened FRONDS of MAIDENHAIR FERNS.
Inspection invited.

SPIRÆA PALMATA, for Forcing.—The finest crowns grown are offered to the Trade at 10s., 15s., 20s., and 25s. per 100.
CHARLES NOBLE, Bagshot.

PRIMULAS, CINERARIAS, and CALCEOLARIAS.—Bull's choice strain of the above, in good transplanted Seedlings, at 8s. per 100, 70s. per 1000, package and carriage free for cash with orders. Good strong Maréchal Niel and other Tea ROSES, in 48-pots, at 60s. per 100.
T. FLETCHER AND SON, Florists, &c., Chesterfield.

TEA ROSES IN POTS.—Several thousands to offer, clean, healthy, and full of buds, including a fine lot of Maréchal Niel and Niphetos—the latter in several sizes. Prices on application.
F. STREET, Heatherside Nurseries, Golden Farmer, Farnborough Station.

SALES BY AUCTION.

Dutch Flower Roots, every Monday, Wednesday and SATURDAY.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely, large consignments of first-class DOUBLE and SINGLE HYACINTHS, in all colours; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, early ROMAN HYACINTHS, and other BULBS, just received from well known farms in Holland, in lots to suit the Trade and Private Buyers.

On view morning of Sale, and Catalogues had.

Thursday Next.

CATTLEYA IMPERIALIS, Roezl.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, August 30, at half-past 12 o'Clock precisely, by order of Mr. F. Sander, an extra grand importation of this really superb form of GIGAS, together with other valuable importations; also a quantity of ORCHIDS in flower.

On view morning of Sale, and Catalogues had.

Monday, Thursday, and Saturday Next.

DUTCH BULBS.—SPECIAL TRADE SALES.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY, THURSDAY, and SATURDAY NEXT, at half-past 11 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other ROOTS from Holland, of the best quality, and lotted specially to suit the Trade and other large buyers.

On view mornings of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Southgate, N.—By Order of the Trustees.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Nursery, Chase Side Cottage, opposite the "Crown Inn," Old Southgate, N., about twenty minutes' walk from Palmer's Green Station, on WEDNESDAY, August 29, at 1 o'Clock, without reserve, the erections of 11 GREENHOUSES, containing about 10,000 feet of Glass and Woodwork, 2800 feet of 4-inch Hot-water Piping, 3 BOILERS, BRICKWORK, and effects.

May be viewed the day prior to the Sale. Catalogues had at the "Crown Inn," and of the Auctioneers, 67 and 68, Cheapside, E.C., and 8, New Broad Street, E.C.

Friday Next.

CATTLEYA AUREA.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, at half-past 12 o'Clock precisely, a very grand importation of CATTLEYA AUREA, just come home with Collector, in superb order. The plants have sound dormant eyes. At the same time will be sold several other Importations of value.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Upper Holloway, N.—Clearance Sale.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. C. Boff (who is disposing of his ground for building purposes) to SELL by AUCTION, on the Premises, The Nursery, Magdala Road, Salisbury Road, Upper Holloway, N., close to the "Archway Tavern," on WEDNESDAY, September 5, at 12 o'Clock punctually, without reserve, the whole of the GREENHOUSE PLANTS, including about 10,000 Geraniums, 1000 Maidenhair Ferns, and large quantities of Decorative and Foliage Plants; 15 newly erected GREENHOUSES, containing about 15,000 superficial feet, about 3000 feet of nearly new 3 and 4-inch Hot-water PIPING, BOILERS, and BRICKWORK; three 13-light PITS, several other PITS, UTENSILS in trade, including 2 tons of SILVER SAND; also HORSE, MARKET VAN, two-horse VAN, CARTS, and numerous other items.

May be viewed the day prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, London, E.C.

N.B.—The valuable FREEHOLD ESTATE, now ripe for Building purposes, will shortly be offered at the Mart, London, due notice of which will be given.

Lee, S.E.—Great Annual Sale.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. B. Maller, to SELL by AUCTION, on the Premises, the Burnt Ash Nursery, Lee, S.E., on TUESDAY, September 18, an unusually fine lot of WINTER BLOOMING HEATHS, and other stock, as in previous years.

Further particulars will appear next week.

Tottenham.

GREAT ANNUAL TRADE SALE; to commence punctually at 11 o'Clock, there being upwards of 1100 lots.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Brunswick Nursery, Tottenham (close to White Hart Lane Station), on THURSDAY, September 20, at 11 o'Clock precisely, by order of Mr. John Maller, without reserve, 20,000 winter blooming HEATHS, beautifully grown, and abundantly set with flower-buds, including Erica, hyemalis, gracilis, caffra, Wilmorea, and other best kinds; 5000 remarkably well berried SOLANUM CAPSICASTRUM, unsurpassed in the Trade; 1000 ACACIAS, 1000 handsome PALMS, 1000 well furnished ADIANTUMS, 500 FICUS ELASTICA, 3000 TREE CARNATIONS, best varieties; 5000 BOUVARDIAS, 1000 CYCLAMEN, 1000 EUPHORBIA JACQUINIFLORA, 1000 AZALEAS, large plants of AZALEAS and CAMELLIAS, for cutting from, 4000 GENISTAS, 500 MYRTLES, 200 EPIPHYLLUMS, 500 GREVILLEA ROBUSTA, 1000 Double White PRIMULAS, including Gilbert's splendid new varieties; several thousands of small ERICAS, GENISTAS, &c., for growing on, and large quantities of DRACÆNAS, CROTONS, FERNS, BEGONIAS, GARDENIAS, AMPELOPSIS VEITCHII, CLEMATIS, &c., suitable for the Trade, and other extensive buyers.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B. The whole stock is in first-rate condition, the Ericas being especially well set for flowers.

Lælia elegans—Preliminary Notice.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY, September 21, a wonderful lot of LÆLIA ELEGANS, in masses of unprecedented size and condition.

Further particulars will duly appear.

Eaton Nurseries, near Norwich.—Preliminary Notice.

UNRESERVED SALE.

By order of Messrs. Ewing & Co., who are giving up their Nurseries.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, as above, on WEDNESDAY and THURSDAY, September 26 and 27, about 10,000 ROSES in pots, consisting principally of the choicest Teas and Noisettes; 5000 Variegated and Green-Leaved IVIES, embracing all the best varieties; 5000 very fine CLEMATIS; 6000 choice young EVERGREENS and FLOWERING SHRUBS, in pots; and other Stock.

The Stock may now be viewed. Catalogues had on the Premises and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, London, E.C.

Lea Bridge Nurseries, Leyton.—Great Annual Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, as above, in SEPTEMBER, by order of Mr. John Fraser, several thousands of ERICAS, and other WINTER BLOOMING PLANTS, as in former years.

Further particulars will appear next week.

Ealing, W.—Preliminary Notice.

GREAT UNRESERVED CLEARANCE SALE.

Important to Noblemen, Gentlemen, Nurserymen, and Others largely engaged in Planting.

MESSRS PROTHEROE AND MORRIS have received instructions from Messrs. Chas. Lee & Son, to SELL by AUCTION, on the Premises, The Ealing Nursery, Ealing, W., on TUESDAY, October 16, and following days, 12 Acres of beautifully-grown NURSERY STOCK, in young and thriving condition, thousands of FRUIT TREES, &c.

The Auctioneers beg to call attention to this highly important and unreserved Sale. Catalogues will be published in due course, and will be forwarded on application.

Very valuable Freehold Estate, called "SUMMERHOW,"

And extensive VINERIES, ROSE HOUSES, GARDENIA and CAMELLIA HOUSES, GREEN STORE and CUCUMBER HOUSES, near Kendal, for Sale.

TO BE SOLD BY AUCTION,

BY

Mr. F. J. THORNBER,

At the Commercial Hotel, in Kendal, on WEDNESDAY, September 5, at 6 o'Clock in the evening,

THE VALUABLE FREEHOLD RESIDENTIAL ESTATE called "SUMMERHOW," consisting of a capital Dwelling-house, with Coach-house, Stables, Harness-room, Cottages, extensive Vineries, Conservatories, Gardens, Orchard and Outbuildings, and of several Closes of rich Arable, Meadow, Pasture, and Wood Land, containing altogether 15a. 2r. 24p., or thereabouts, situate on the east side of the highway leading from Kendal to Shap, in the township of Skelsmergh, in the parish of Kendal, in the county of Westmorland, and now in the occupation of Charles Wilson, Esq., the owner thereof.

The Estate is delightfully situated, within 1 mile from Kendal Station, on the London and North-Western Railway, and abuts on the river Mint, in which there is good trout fishing. The rivers Kent and Sprint are also within a very short distance.

The Residence is prettily placed on rising ground with a south and west aspect and commands extensive views of the Lake Hills and the surrounding country. It is very substantially built, and the rooms are airy and lofty. It is approached by a winding carriage drive, from which beautiful views are obtained.

The House contains vestibule, spacious entrance hall (heated); dining-room 19 feet 10 inches by 18 feet; drawing-room, 27 feet by 18 feet; breakfast-room, kitchen, scullery, two larders, pantries, five lodging-rooms, nursery, lavatory, bath-room, washhouse, and all usual conveniences.

The Outbuildings comprise a three-stalled stable, harness-room, coach-house, barn, poultry-house, and piggeries, &c.

In a convenient position are TWO DWELLING HOUSES, occupied by Coachman and Gardener.

The Drawing-room windows overlook tastefully laid out flower beds and tennis lawn, and there is a well stocked Orchard adjoining.

The Glass-houses, which have been erected by the Owner, at great expense, comprise three extensive Vineries, Rose Houses, Gardenia and Camellia Houses, and Green Store and Cucumber Houses. They cover an area of about 2470 superficial square yards, are fitted up and heated in the most perfect style. The Vineries are stocked with high-class Vines, all in full fruitage.

The whole property is comprised within a ring fence, and is in a very healthy locality. Lake Windermere is within a distance of 8 miles.

Printed particulars, with plans, cards to view, and further information may be obtained from the Auctioneer, Kendal; or at the Offices of the undersigned,

ARNOLD AND GREENWOOD, Solicitors, Kendal.

Exchange Chambers, August 14, 1883.

To Nurserymen, Seedsmen, &c.

TO BE DISPOSED OF, with immediate possession, an old-established and well stocked NURSERY, situate in the West of England, doing a lucrative Seed and Nursery Trade. About 10 acres in extent. Large and commodious Dwelling House, Stabling, Greenhouses, Pits, &c. In occupation of proprietor, who is retiring from business. Rent moderate. Lease granted.

Apply to Messrs. HURST AND SON, 152, Houndsditch, E.

Abergavenny, Mon.

TO be LET or SOLD, the Old-Established SEED and NURSERY BUSINESS, well known as "The Brecon Road Nursery." Excellent situation, and commanding good trade.

Full particulars of HENRY HAILSTONE, Abergavenny.

Lunesdale, North Lancashire.

TO LET, Furnished, or Partially, a Complete, Small, Old-fashioned HOMESTEAD, good Garden, small Greenhouses—all in good condition. Near church, station, post; good society, good fishing. Country beautiful. Address, C. R., Melling, Carnforth.

Broadwater, Sussex.

TO BE LET, on Lease, Valuable Premises, comprising a number of GREENHOUSES, VINERIES, Cool CONSERVATORIES, &c.; 4 acres of good GARDEN GROUND, walled in, together with spacious DWELLING-HOUSE. Land in good cultivation and well cropped, houses filled with a splendid stock of plants, and suitable for a Nursery or country Gentleman.

Apply, H. NYE, 35, Duke Street, Brighton.

TO BE LET, a Small MARKET and JOBBING NURSERY, about 1 acre. Three long Span roof Houses, well heated, and about fifty Pit Lights—all well stocked. Can be taken at a valuation.

R. J. 52, Canning Road, Highbury Vale, London, N.

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

LILIES OF THE VALLEY.

Direct from the Grower in Germany.

Particulars from Sole Agent,

CHARLES FROHLICH, 14, South Street, Finsbury, E.C.

LANE'S PRINCE ALBERT APPLE.—Come and see this prince of Apples, now in full bearing on large and small Trees, and numerous other varieties.

H. LANE AND SON, Nurseries, Great Berkhamstead.

Wholesale Bulb Catalogue.

WATKINS AND SIMPSON, WHOLESALE SEEDSMEN and BULB MERCHANTS, Exeter Street, Strand, W.C. Their Wholesale BULB CATALOGUE is now ready and may be had on application. Contains prices of Lily of the Valley crowns or clumps, American and African Tuberoses, Double and Single Snowdrops, Winter Aconites, Spiræa, many sorts of Narciss, Tulips, Lilies, Gladioli, and all the leading varieties of Dutch, English, French and Japanese Bulbs.

Special quotations for large quantities.

Palms.

ARECA LUTESCENS.—This year's Seedlings, 20s. per 100.

CEROXYLON NIVEUM.—2-yr. strong plants, £10 to £15 per 100.

CATALOGUES of PALMS on application.

SEEMANN AND GOEPEL, Wandsbek, Hamburgh, Germany.

Dutch and Other Bulbs.

JOHN DOWNIE (late DOWNIE & LAIRD),

144, PRINCES STREET, EDINBURGH,

begs to inform his Friends that he has received his First Consignment of Bulbs, which are in fine condition, and will be offered at moderate prices. CATALOGUES forwarded on application.

CHADBURY EARLY CABBAGE SEED.—This seed has been grown by careful selection for sixteen years, and planting the stems where the produce would not be likely to be affected by Bees. It is liked by the Evesham gardeners, who are good judges of what pays them best, and is recommended to Farmers as a safe crop to plant—selling the Cabbages if they can grow them early enough and good enough—feeding them off by sheep if they cannot. Price 7s. per pound in small quantities; 5s. 6d. per pound for 20 lb. and upwards For Cash only. Apply to

Mr. RANDELL, Chadbury, near Evesham.

DUTCH BULBS.

DIRECT FROM THE GROWERS.

ANT. ROOZEN AND SON, NURSERYMEN, Overveen, near Haarlem, Holland.

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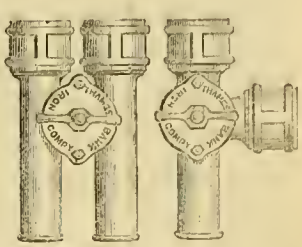

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DOUBLE ROMAN and PAPER WHITE NARCISSUS.

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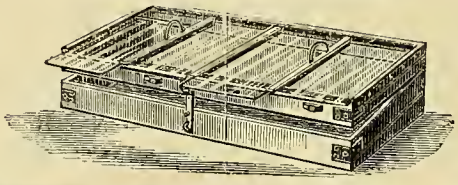

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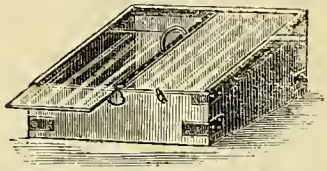

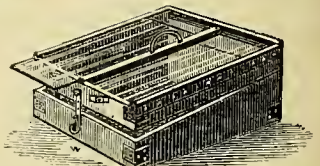

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42s., 31s. 6d., 21s., and 10s. 6d. each.

ROMAN HYACINTHS for FORCING.

Single White .. .. per dozen, 3s. 6d.; per 100, 25s.
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Double Roman .. per dozen, 2s. 6d.; per 100, 17s. 6d.
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For full Particulars of

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Characterised by T.R.H., The Prince and Princess of Wales, as the largest in size and the best in flavour: an enormous cropper, and splendid glossy colour. Will be ready to send out the first week in September, on turf, to insure a full crop next season. 25s per 100; ordinary Runners half price.
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B. MALLER begs to make his Annual Trade Offer of his very extensive and extra well-grown stock of:—
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TO THE TRADE.—We beg to offer strong plants from stores fit for immediate potting, of the following FERNS, price 12s. per 100, carriage and package free for cash with order:—Pteris serrulata, Pteris hastata, Gymnogramma elegantissima, Nephrodium molle, Phlebodium aureum, Adiantum venustum.
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MESSRS. GREGORY & EVANS

beg to inform their Customers and the Trade generally, that they have the largest stock of ERICA HYEMALIS, in fine condition, ever offered to the Trade. Other varieties in proportion.

Inspection Invited.

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IN A FEW MONTHS, by Forcing: Plants in Pots, **16s. per 100.**

Only the best varieties are offered.

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Nurserymen and Seed Merchants,
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FORCING BULBS

PLANT AT ONCE
TO ENSURE FLOWERS AT CHRISTMAS.

Carters' Early White Roman Hyacinths,
The Best in the Market.

12 Fine Bulbs	post-free	3s. 0d.
24 Fine Bulbs	post-free	6s. 0d.
50 Fine Bulbs	post-free	11s. 0d.
100 Fine Bulbs	post-free	21s. 0d.

Carters' Early Blue Roman Hyacinths.

12 Fine Bulbs	post-free	1s. 6d.
24 Fine Bulbs	post-free	3s. 0d.
50 Fine Bulbs	post-free	5s. 6d.
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Carters' Early Rose Parisian Hyacinths.

12 Fine Bulbs	post-free	2s. 0d.
24 Fine Bulbs	post-free	4s. 0d.
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Carters' Early Paper White Narcissus.

12 Fine Bulbs	post-free	2s 0d.
24 Fine Bulbs	post-free	4s. 0d.
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100 Fine Bulbs	post-free	12s. 6d.

Carters' Early Double Roman Narcissus.

12 Fine Bulbs	post-free	2s. 6d.
24 Fine Bulbs	post-free	5s. 0d.
50 Fine Bulbs	post-free	8s. 6d.
100 Fine Bulbs	post-free	15s. 0d.

Carters' Extra Large Snowdrops.

100 Fine Bulbs	post-free	3s. 6d.
50 Fine Bulbs	post-free	2s. 0d.

NOTE.—These Prices are not binding after the publication of our Catalogue of Bulbs.

The Queen's Seedsmen, and by Royal Command to H.R.H. the Prince of Wales,
237 and 238, HIGH HOLBORN,
LONDON, W.C.

ROSE—"HER MAJESTY."

£50 Reward.

HAVING RECEIVED INFORMATION that leads me to suppose some dishonest person has OBTAINED a PORTION of my SEEDLING ROSE, named "HER MAJESTY," and is PROPAGATING IT for HIS OWN BENEFIT, I HEREBY GIVE NOTICE that I am the Sole Proprietor of the Property of the said Rose, having raised it from a seed, at Stapleford, Wilts, in the year 1878, and that I first exhibited it at the Royal Horticultural Society's Meeting, March 28, 1882, and was awarded a First-class Certificate, and have subsequently exhibited it on various occasions, notably at the National Rose Society's Meeting, July 3, 1883, when it was awarded the Gold Medal, for the best Seedling Rose. I have never given or sold any portion of it, or authorised any person to treat with it in any way (it can be positively identified and sworn to). Any person or persons having any portion of it will be in the receipt of Stolen Property, will be treated as such, and prosecuted accordingly. And I hereby give further Notice that any person or persons who will give such information as will lead to a Conviction of any one having any portion of the said Rose, "Her Majesty," in their possession shall receive the above Reward.

H. BENNETT,
SHEPPERTON, MIDDLESEX.

August 21, 1883.

THE

Gardeners' Chronicle.

SATURDAY, AUGUST 25, 1883.

MILTON'S HOUSE AT HORTON.

HORTON is a pretty Thames-side village below Windsor and Datchet. Most persons have read in the *Merry Wives of Windsor* of the muddy ditch at Datchet Mead, which Falstaff was thrown into, "glowing hot, like a horse-shoe, hissing hot." From that spot, through Horton to Wraysbury, ditches and rivulets, pollard Willows, and Water Lilies blossoming by thousands in the early summer, are constant; and sticklebacks sport in the runnels and show their gleaming sides as you pass along. There are more of these pretty little sportive fish in Horton probably than in any other parish in the kingdom, and readers of Isaac Walton's immortal book will remember this immediate neighbourhood as one of his favourite haunts for the sake of the fishing in the Thames and Coln, "rivers wide," which Milton mentions in descriptive verses, one of them running close to his domain.

In the abundance, and sometimes the superabundance, of water, Horton, in seasons of flood, resembles Venice for a time, its gondola being a parochial punt, by means of which the village is approached from the outer world across the flood between this place and Datchet, and over the other flood from here to Wraysbury. The porous soil, however, of this part of the Thames Valley causes the neighbourhood to be healthy, as the inhabitants of Horton stoutly maintain. It seems to suit them. As we read in Shakespeare, "there are land snakes and water snakes," just as there are two sorts of rats, of which the water rat is by far the most reputable. The tablet in the church at Horton in memory of the Rev. John Brown, fifty-five years rector of the parish, is evidence of its healthfulness, and in further proof, instead of being unpopular and cheerless, it is as prosperous as it is pretty.

The lapse of more than 200 years must generally alter the aspect of the country considerably, but it seems probable that the landscape of Horton has changed very slightly. Milton's own descriptions enable us to compare notes. He came here to his father's country house a distinguished student of the University of Cambridge, and he wrote "The Sonnet of the Nightingale" here, and further noticed the same songster in "Comus" and the "Allegro," which were also written at Horton. It seems probable that thick hedgerows and abounding coverts, Whitethorns and low bushes, attracted the nightingale to this locality then as now.

The other shorter pieces which were written here, "Lycidas," the "Penseroso," and the "Arcades," contain passages which the peculiar scenery of Horton seems to have inspired. It is, and probably was, rich in the ornament of that majestic tree, the English Elm. We may be sure that meadowland prevailed as it does now, and that a certain amount of corn was grown on the rich gravelly land furthest from the river. Hence the poet's youthful muse:—

"Sometimes walking, not unseen,
By hedge-row Elms and hillocks green,

While the ploughman, near at hand,
Whistles o'er the furrowed land,
And the milkmaid singeth blithe,
And the mower whets his scythe,
And every shepherd tells his tale,
Under the Hawthorn in the dale."

This is the poet's use of the everyday materials of common life at Horton, and the five years spent here in that best of schools, Nature's, seem to have inspired the description which falls from the lips of Comus :—

"I know each lane, and every alley green,
Dingle, or bushy dell of this wild wood,
And every bosky bourne from side to side,
My daily walks and ancient neighbourhood."

The domain of Berkin Manor, where Mr. Tyrrell has the happiness of owning the spot where the Miltons resided, consists of 40 or 50 acres of meadow and garden fenced with Elms and water. A bye-road and path to Colnbrook passes along one side of the domain, and a heavy growth of shrubs and trees within the boundary overhangs a rather sleepy rivulet, and prevents much inspection of the grounds within from the pathway. The village of Colnbrook—called sometimes a town—with cosy old roofs shining pleasantly among the trees, lies a few fields to the north, and in this direction the home of Milton was, or rather now is, bounded by two rows of great Elms with a broad strip of turf between them, forming a retired walk for saunter and meditation. A third side of the square estate is also fenced by the same prevailing timber ; the fourth, or southern side, is well hedged from the high road. The entrance-gate is here, and from the lodge there is a nice little drive of about a minute or a little more to the front door. And among the many trees which have been profusely planted in the grounds—Cedars of Lebanon, Horse Chestnuts, and others—there is a very fine Plane, which may have stood fourscore years, and has not lost a day in growing both tall and spreading. Sufficient space has been left around the south and west windows of the house for a nice flower garden, and which is by far the best-kept part of the over-planted, over-crowded little manor.

The house is a cheerful-looking residence of red and white brick, bigger than almost any rectory or country doctor's residence, just about sufficient for a local lawyer who has prospered. It has no distant prospect, and could only command, across the ditch or rivulet, if the fence were cut through, a plain, short view of a village paddock and its pond, with some neighbouring Willows, pollarded, and some fruit trees. Beautiful as a flat surface may be rendered by planting it, distant prospects, generally speaking, are precluded. From many parts of Horton, however, you may see through the glades, or from some open spot, the Egham Hills and Cooper's Hill, from 2 to 5 miles distant, and the "Copper Horse"—a local name which quite ignores the royal rider at the head of the Long Walk, and Windsor Castle, 4 miles nearly as the crow flies ; but none of the houses have long views, and the domestic scenery of Berkin manor house could only be improved by co-operation with neighbours who might perhaps re-arrange their Damson trees, and open up that very fine Lombardy Poplar behind and the tall Elm at the meeting of the roads beyond if some commensurate advantage were offered them in return.

Milton described the Horton of to-day and its view of Windsor Castle in the lines :—

"Meadows trim with Daisies pied,
Shallow brooks and rivers wide,
Towers and battlements it sees
Bosom'd high in tufted trees."

The houses are more numerous than they were, and they, too, are bosomed among trees ; so is the church, which is banked behind by noble Elms standing in the grounds of Horton Manor. The spacious graveyard is flanked by trees on either side, standing not too near, and trees stand thick in the grounds of the rectory across the road. Two great Yews and two close-clipped Thorn trees in the churchyard grew there probably before the time of Milton. The high brick wall around is of bricks six times as large as common bricks, and laid, according to tradition, when men worked at a penny a day. The building is of flint, with a square tower heightened by bricks. The mother of Milton was buried in the chancel in 1637. Many of the graves are planted with flowers, and the number of handsome monuments of granite and marble bespeak a wealthy neighbourhood. *H. E.*

New Garden Plants.

VANILLA PFAVIANA, *n. sp.**

This was recently rediscovered by one of Mr. Pfau's collectors. Strolling under an immense Oak he found a single flower, of which I have before me a painted sketch. The collector took his telescope, studied branch for branch, but he could find no vestige of pseudobulbs, and home he went in bad spirits. And yet all goes on in a natural way in Nature. The plant had no pseudobulbs, as it was a climber—a Vanilla, and who knows whether the ardent collector did not see hundreds of twigs with their shining leaves! I decidedly could not do much with a single flower if it were not so very characteristic, and if I had not immediately recognised in it one of those hundreds of undescribed species I have by me. It was found in Mexico long since. It has a slender zigzag stem, with oblong, suddenly acuminate broad leaves (6 by 4 inches).

The terminal inflorescence has lanceolate acuminate bracts, surpassing or equalling the ovaries. Whether there are axillary inflorescences also is unknown ; whether those also have leaf-like bracts is another question. The flower is comparable to that of Schomburgkia tibicinis in general appearance, though the cuneate oblong acute sepals and petals are not undulate, but twisted and green. The threefold white lip has two oblong erect lateral laciniæ and a well projected emarginate anterior one, with crenate outer margins. There are no rows of lamellæ on it, but one long thick cushion extending from the place before the anterior sinus towards the base, and then running out in two lines, each terminating in an upright angle, having there a small keel between them. The column adheres to the base of the lip, and has an acuminate cuculla to the androclinium, as well as an apiculate anther. *H. G. Rchb. f.*

MASDEVALLIA CALURA, *n. sp.*†

This has appeared with Masdevallia Reichenbachiana in Mr. F. Sander's establishment at St. Albans. It has, however, nothing to do with that species, but it is very near Masdevallia marginata, excepting in colour. There are, however, very strong characters in the inner surface of the outer perigone, and in the shape of the petals and lip. The outer perigone has a nearly obliterate chin, the cupula is well developed, the single triangle is very short, the lateral triangles are much larger—all of a fine bluish-purple, nearly of the tint of Masdevallia cucullata. The tails surpass the length of the floral body. The inner surface is covered with obtuse warts. The petals and lip are brownish-purple and quite distinct in shape ; the petals very broad and plump, with a very short stalk and irregular blunt angles and a marginal obscure keel inside. The base of the lip is very broad, nearly rhomboid, the anterior part narrower and abruptly acute. This is quite distinct from what occurs in M. marginella. Column white with numerous purple freckles on the anterior base. The leaves are very thick and very distinctly stalked. The plant is rather nice, though not grand. *H. G. Rchb. f.*

DUVALIA ANGUSTILOBA, *N. E. Br.*

This is one of the most distinct species in the genus, being readily recognised by its small star-like flowers, with very narrow, longitudinally folded corolla lobes, and white corona. It is the most floriferous member of the genus yet known, the cymes developing in succession from five to twenty or more flowers, and under proper treatment nearly every young stem will produce one or two cymes. Perfectly glabrous in all parts, densely cæspitose ; stems subglobose or oblong, ½—1 inch long, ½—¾ inch thick, dull green, obtusely 4 or rarely 5-angled, angles tuberculate-dentate, with a minute denticle on each side of the base of the subulate rudimentary leaf. Cymes arising from about the middle of the younger stems, the stout cymes develope gradually, and produce from five to twenty or more flowers ; pedicels 1—1¼ inch long, rather slender and tapering from base to apex. Calyx lobes narrow lanceolate-subulate, 1¾ line long, reflexed when the flower is expanded. Buds conical acute, rather deeply 5-grooved, truncate at the base. Corolla ¾—1 inch in diameter, the lobes are narrow lanceolate acuminate, longitudinally folded back into thin vertical, horizontally spreading plates, with an impressed line down the centre of the fold, and of a dark chocolate-brown colour ; the pentagonal annulus is unusually small, being very little elevated above the level of the lobes, and very narrow. The corona is nearly pure white when the flower first opens, becoming dirty white after a few days ; the outer corona is reduced to a mere margin, the inner corona resembles a miniature crown. Odour none. The flowers remain open from six to sixteen days. A native of the Karoo, South Africa ; where it was discovered by Mr. Dikins, and was introduced by Sir Henry Barkly in 1875. *N. E. Brown.*

DORONICUM PLANTAGINEUM, VAR. EXCELSUM, N. E. BR.

This is the plant alluded to in the present volume of the *Gardeners' Chronicle* as having been exhibited by Messrs. Rodger McClelland & Co., of Newry, under the name of Doronicum hybridum. It was sent to me some time back by Mr. C. W. Dod, and I failed to make anything of it ; subsequently Mr. Dod sent me more ample material, a careful examination and comparison of which showed, that of the recognised species it could only be referred to D. plantagineum, of which it can only be regarded as a large variety, that flowers during a much longer season.

Concerning the origin of this interesting plant, Mr. Dod gives me the following account :—"It was sold to me by Mr. Smith, of Worcester, three years ago, as Doronicum Clusii ; Mr. Smith told me they had it from Mr. Harpur-Crewe, and Mr. Harpur-Crewe told me that it came up as a chance seedling in his garden." Of course, to D. Clusii it has no resemblance, as that is a dwarf alpine species, with a distinct pappus to the ray achenes.

This new variety is a very fine and striking plant, and is remarkable among the Doronicums for its habit of flowering from March until October. Mr. Dod informs me that it is "a remarkably fast grower, and increases wonderfully ; small tubers grow on the roots, which soon produce plants, and if separated increase it rapidly ; but if left alone the roots grow together into such a mass that the plant dies in three years. I have noticed, that in this rich, wet soil D. Pardalianches has the same habit. I have compared the plant with D. plantagineum growing in the same soil. D. plantagineum grows 3 feet high ; but the new variety 5 feet or more ; the leaves are similar but larger, and the flower-heads one-third larger in diameter, being sometimes over 4 inches across ; it seems to be a robust and improved development of D. plantagineum, the flower is darker in colour, and the rays broader and more thickly set."

The following is a brief description of D. plantagineum var. excelsum :—Radical leaves on long petioles, rather roughly hairy, the blade 4—8 inches long, 2½—4½ inches broad, broadly ovate, acute, the base wedge-shaped, rarely subcordate, the margin with large rather irregular teeth, a minute tooth

* *Vanilla Pfaviana*, n. sp.—Caule flexuoso ; foliis magnis oblongis acuminatis ; inflorescentia (semper ?) terminali grandiflora ; bracteis decrescentibus oblongo-lanceolatis acutis ; sepalis cuneato-oblongis acutis tortis ; tepalis paulis per minoribus tortis ; labello columnæ basi adnato cuneato dilatato trifido ; laciniis lateralibus erectis ; lacinia antica producta emarginata, disco a regione ante apicilari pulvinata incrassato basi in dentes duos excurrente, carinula interjecta ; androclinii margine acuto ; anthera apiculata. Mexico. *H. G. Rchb. f.*

† *Masdevallia calura*, n. sp.—Aff. Masdevallæ marginellæ cupula bene evoluta ; mento subnullo, perigonio externo intus verrucoso, triangulo impari brevissimo, triangulis paribus melius evolutis, setis triangula bene excedentibus ; tepalis ab ungue irregulariter hexagonis, latis, carina una lateralis intus ; labello a basi latissima rhombea obtusangula ligulato acuto obscurissime bicarinato ; columnæ androclinio supra antheram bidentato. *H. G. Rchb. f.*

generally alternating with the large ones; stem leaves amplexicaul, broadly cordate-ovate, acute, coarsely toothed; stem stout, sparsely hispid, furrowed, 4—5 feet high, simple, or with one or two branches, branches one-headed, heads as in the type, but larger, 3—4 inches in diameter; ray achenes glabrous, without pappus. It flowers from March to October. *N. E. Brown, Herbarium, Kew.*

THE AQUATIC PLANTS OF SWITZERLAND.

In Switzerland we have a comparatively small number of aquatic plants. Although there was a period, subsequent to the glacial epoch, and following the retreat of the ice and the melting of the snow that covered the country, when Switzerland abounded in morasses, it would be difficult at the present time to find a single plant deserving that appellation above an elevation of 50 to over 100 yards. The bogs and humid plains of the lower Valais, and the borders of the lakes of Neuchâtel and Einsiedeln, are nothing in comparison to the marshes that one meets with in the plains of Germany, to which all the plants that covered our country during the Celtic period seem to have withdrawn.

We have, however, among the few remains of that interesting flora, a certain number of species remarkable for their beauty and their graceful habit. At Geneva we have a special basin for the reception and cultivation of these plants, and visitors never cease admiring them. I think a similar provision should be made in every garden where alpine plants are cultivated, for nothing is prettier than a pond or sheet of water skirting the rockery, imitating the Alps, and representing a part of their flora.

Among plants that are truly aquatic we possess some elegant species of easy culture. The three Water Lilies are all interesting plants for cultivation. Nymphæa alba and Nuphar lutea are both common, being found in nearly all our rivulets and pools. Nuphar pumila is very rare, or rather local, as it is confined to a small lake (the Hütten-See, in German Switzerland), where, however, it is abundant. This Water-Lily is a distinct and well-defined species, and not a variety of N. lutea, as cited in some English catalogues. The Lilies are of the easiest cultivation; the roots are merely thrown into the water, though their big fleshy roots need a good depth of mud at the bottom.

Trapa natans no longer exists in Switzerland, except in the small lakes of the Canton Tessin; yet in prehistoric times it was one of the commonest plants in our country, furnishing the "Water Chestnut," upon which our Celtic ancestors largely subsisted. It is not so easy of cultivation as the Lilies, for it is an annual that must be sown in spring, and should not be disturbed, as it is very liable to perish if transplanted. It is more interesting than ornamental, still it agreeably adorns the surface of water. A very shady situation does not suit it, nor can it bear full exposure to the sun.

Vallisneria spiralis is met with in the lakes of Tessin, and is also recorded by some authors as growing in the "Katzen-See," canton of Zurich. This elegant plant, whose interesting mode of fertilisation is familiar to everybody, is easily grown, and is specially suitable for small indoor aquariums.

Hottonia palustris is certainly one of the most graceful of aquatics, and one of our most charming plants, though somewhat rare in Switzerland. It deserves cultivation for its light and bright foliage, and its clear lilac flowers, borne in whorls, tier above tier, like those of Primula japonica. The long duration of its flowers also recommends it.

Sagittaria sagittæfolia has become exceedingly rare in Switzerland since the lowering of the waters of the lake of Neuchâtel. Formerly it was abundant at Yverdon, but it has now quite disappeared. I have, however, made a successful sowing in the Botanic Garden, and I hope to replant it in a submerged spot at Yverdon.

We have a certain number of species of Potamogeton, of which the best for cultivation is certainly P. natans, its broad handsome leaves being quite ornamental.

Calla palustris, formerly met with in several localities, is now restricted to the lake of Sempach. It is successfully grown in open air aquaria, in shallow basins, and on the margins of brooks. This is a very ornamental plant, and its flower [inflorescence], though smaller than that of C. æthiopica (Richardia æthiopica), is very beautiful and showy.

Alisma Plantago is found very frequently in all our wet places, along ditches, &c.; A. ranunculoides, on the other hand, is very rare, and it does not flourish so well under cultivation. Both are ornamental plants, and the former is remarkable for the size it attains under cultivation when manured.

Acorus calamus is likewise rare with us, but it is worthy of the attention of cultivators on account of its habit and its agreeable verdure, as well as for the pleasant odour that proceeds from its leaves and roots.

Rumex Hydrolopathum is one of our most extraordinary pond-plants, and it is rare and choice. Sometimes its leaves grow so large that one might take them for those of Musa Ensete. At the present time we have a tuft of it in the garden bearing leaves of which the blade alone is more than 40 inches long.

Butomus umbellatus does not occur in Switzerland, except in the neighbourhood of Basle. It is one of the most beautiful aquatic plants we have, and is easily cultivated.

Iris Pseud-acorus is a common but very pretty and effective plant. Scirpus lacustris, generally spread here, is one of the most ornamental of plants for ponds and other pieces of water. In deep water and rich soil it attains enormous dimensions.

Hydrocharis morsus-ranæ is now rarely found wild in Switzerland, where formerly it abounded. It is a charming little plant, whose leaves are like those of a Nuphar in miniature, and whose white flowers float on the surface of the water. It is not so easily cultivated as some others, and seems to me to prefer still to running water, as do also the Nuphars.

Utricularia vulgaris and U. minor are very pretty plants, attracting the attention of all travellers. Their flowers, of a beautiful yellow, and graceful and elegant in form, embellish our still waters. The roots prefer a boggy soil.

Typha latifolia, T. angustifolia, T. Shuttleworthi, and T. minima, are also suitable for decorating pieces of water. The last species is much rarer here than the two first, and it is the most interesting. Its dwarf stature and slender flower-shafts render it one of the most striking plants. These plants love a spongy or sandy soil, and grow better on the borders and low banks than in the water itself.

Sparganium simplex and S. ramosum are two charming plants, whose yellowish-white flowers are crowded in spheroidal heads. They flourish in deep running water.

Menyanthes trifoliata passes for the most beautiful of our aquatic plants, on account of the light and elegant ornamentation of its corolla. It is indeed one of the prettiest plants one can place in a basin, and it flourishes everywhere in slightly moving shallow water. In rich soil in a shallow basin, in the Geneva Botanic Garden, this plant spreads considerably and flowers freely; whereas in a deeper basin it grows and spreads very slowly.

Polygonum amphibium is an aquatic plant little known under cultivation, yet it deserves more attention. The bright rosy spicate flowers are very beautiful. It is cultivated on the margins of pieces of water, as with us it grows in still shallow water. There are, again, some species of Carex and Cyperus which might be cultivated, though in my eyes they are less pleasing.

It is well to cultivate aquatic plants if we wish to enjoy and preserve them; for in Switzerland, as elsewhere, they are receding before civilisation, which drains the marshes. Aquatic plants are interesting and ornamental, and they ought to be more generally cultivated, all the more because they are so easily grown and need so little care. *H. Correvon, Geneva.* [Most of these plants are British, and all are readily cultivated here. Ed.]

Urtica flabellata. — The next day early we were ready to start, when an incident occurred which gave us a momentary shock. At the height at which our encampment was pitched (nearly 3300 mètres) grows a wild Nettle (Urtica flabellata), whose elegantly curled leaves are very dangerous. The animal that rolls upon it may meet with his death in consequence. One of our mules was found writhing under the pain caused by the stings of this plant. I believed at first that the mule was mine, but really it belonged to the *caucheros* (caoutchouc gatherers). We hoped they would soon cure their beast; so, having appointed to meet them in a few days on the borders of the Toachi, we gained the heights of Corazon. *Ed. André*, "*Le Tour du Monde*," *p.* 394.

NOTES ON IRISES.

1. On a New Iris (Evansia) from the Himalayas.—Some time ago Mr. Frank Miles received seeds of an Iris, gathered by his cousin from plants growing in the Kulu Valley of the Himalayas at about the height, I believe, of 14,000 feet, and also seed from apparently the same plant growing in the Parbutta Valley. The seeds and seedling plants Mr. Miles has very liberally distributed, and a root which he kindly gave to me has just bloomed. I am not sure whether it was from the Kulu or Parbutta source; but this does not matter, since the plants from both sources seem to be identical. I believe Mr. Max Leichtlin has already bloomed it (as he does everything which comes into his hands), but I understand that it has not yet been described or named. Sir Joseph Hooker proposes to figure it in the *Bot. Mag.*, and Mr. Baker will give the formal description of it under the name of Iris (Evansia) Milesii; but perhaps a few words may not be unacceptable here.

The plant belongs to the crested or Evansia division of Irises, and comes perhaps nearest to Iris tectorum (tomiolopha). The foliage resembles that of I. tectorum, but is far ampler; the leaves, indeed, are some 2 to 3 feet or even more in length, and from 2 to 3 inches in breadth, but are less stout than those of tectorum. So magnificent is the foliage that one expected a very handsome flower indeed; but unhappily this is not the case. The scape, rising some 3 or more feet in height, is much more branched than that of tectorum, the main axis and laterals ending in small green spathe-valves containing each several flowers opening in succession. Each flower, which is very short-lived, opening at dawn and fading at sunset, is formed after the fashion of I. tectorum, but is smaller, and of a different colour. The fall is only some 2¼ inches long, and the flowers, instead of the splendid blueish-purple of I. tectorum, have a more reddish-purple hue, or are even plum-coloured. The blade of the fall is marked, like tectorum, with striking blotches. I do not wish to go into details now, but I may point out that the crest of the falls is of interest, being much more cut up than is that of I. tectorum or of I. fimbriata, so much so that it almost becomes a beard. In its small fugacious flowers, several enclosed in the spathe-valves, in the character of the spathe-valves, in the more branched scape, in the manner in which the scape starts from the top of a large tuft of distichous leaves, and in the conspicuous ring-like scars left on the rhizome by the leaves, I. Milesii resembles I. fimbriata rather than I. tectorum, but it differs from the former in the characters of the foliage and in not being stoloniferous. In a certain way it is intermediate between the two, and is interesting as being a westward extension of this form of Iris, for I am inclined to think that I. decora of the Himalayas is in many ways distinct from the above, though classed with them as an Evansia.

I wish I could have praised Mr. F. Miles' Iris as a valuable addition to our garden Irises, but I must confess that, as far as beauty goes, it is far inferior to both I. tectorum and I. fimbriata. And, moreover, it seems difficult to grow. Two years ago I had a splendid plant in a cold frame, and just as I was expecting it to flower it died right away without any obvious reason. Mr. Miles tells me that in the open it sometimes goes through the hardest winter and lives, and sometimes dies outright. The plant which has just bloomed with me was grown in a pot, kept somewhat dry in the winter in a cool greenhouse (but not dried right off), and exposed to the open during the summer, but never allowed to be stinted in water. If the end of July or beginning of August should prove to be its natural time of flowering in this country, it will be useful as a means of extending the Iris season.

2. Iris tectorum.—I have compared the above I. Milesii with I. tectorum, which is to my mind one of the handsomest of Irises, and of which, since it does not seem very largely grown, I may, perhaps, say a word or two. As an outdoor plant I do not find it very happy, but as a pot plant it is very useful, and the plan I adopt with it is as follows:—I grow the plants on in pots rapidly in summer, exposing them freely in the open, but never letting them lack water. In autumn, when growth has slackened, I gradually dry them off, at first in the open, subsequently under glass, eventually drying them quite up, almost as if they were bulbous plants. They are kept dry on the

greenhouse shelf until the time when, in midwinter or later, they begin to push. I then clean them, top-dress them without changing the pots, soak them, and let them grow, giving water very cautiously at first, but more freely afterwards; and they seem to me to flower all the better for being somewhat pot-bound.

Planted in the open they do not, I imagine, get an adequate ripening of the rhizome in autumn; hence in spring they give plenty of young growth, but comparatively few flowers. Moreover, they start into growth somewhat early in spring and are apt to be injured by east winds and spring frosts. This year, for instance, a whole bed of most luxuriant growth was cut down to the ground by that terrible east wind at Easter. When it is remembered that, as the name implies, this Iris grows in China, on the roofs of houses, it will be seen that some form of "drying off" is likely to prove the proper means of culture.

Now that I am speaking of Iris tectorum, I may say that for some three or for years past I have been trying very hard to hybridise it. Though I have so far failed, I have obtained some results which are not without interest. Last year I had I. tectorum and I. fimbriata in bloom at the same time. I crossed repeatedly in both directions but did not get a single pod to swell. This result has increased the suspicion which I have had for some time, that the two species, in spite of certain striking resemblances, are by no means closely allied to each other; that in fact the likenesses are superficial and the differences deep. I have crossed I. tectorum with several beardless forms (sibirica, longipetala, &c.) but never got a pod to swell; on the other hand flowers crossed with bearded Irises (several belonging to the pumila group, germanica, and iberica) have given me thoroughly well swollen pods, but with imperfect seeds, such as I have never yet been able to germinate. Still I do not despair of eventually getting a cross with some form either of the Pogoniris or Onocyclus group, though I do not think I ever shall with any of the Apogons. Is it possible that the conditions provided by the possession of a thick fleshy rhizome are of more importance in determining the relations of pollen to ovule than the form of the flower?

I have found by experiment that I. tectorum, in spite of the careful and elaborate structure of the flower, with all its arrangements for insect visits, fertilises itself very readily, and seeds most freely. On the other hand I. fimbriata with me refuses to fertilise itself, and indeed I have as yet failed to get seed from fimbriata even when I crossed one flower with another. Lastly, I have raised a great many seedlings of tectorum, but have as yet seen no variation save perhaps in the size of the flower or intensity of colour.

3. Iris ochroleuca and Monnieri.—The handsome white and yellow I. ochroleuca is a very old inhabitant of our gardens, but until very recently its origin was unknown. Boissier, however, in his *Flora Orientalis*, gives it as growing at Smyrna and elsewhere. Some three years ago Percy Zohrab, Esq., of the British Consulate, Smyrna, kindly sent me some roots of an Iris which he found growing wild in the marshy land near Ephesus, and which he said had white flowers. These roots have flowered this year with me, and prove to be the typical I. ochroleuca, but with flowers so large as to compare very well with the large form of ochroleuca known as I. gigantea.

I am surprised that I. Monnieri is not grown more than it appears to be. To my mind its large full golden-yellow flowers, freely produced, are most handsome, and the plant is very useful, flowering so late as it does, lasting even beyond I. Kæmpferi. To those who delight in massive floral decorations I would venture to recommend a sheaf of its golden flowers and dark green sword-like leaves placed in some large quaint vase.

The name was given to it because it was found growing in the garden of a certain M. Le Monnier (so at least Redouté says), and its native country was long unknown. It appears, however, to be a native of Crete, having been found there by Sieber, and, according to Boissier, of Rhodes. My stock came from a plant kindly given me years ago by Sir Joseph Hooker from the Kew collection, and it certainly is the true plant, answering exactly both to the description and figure given by Redouté. The name Monnieri is often given I believe to a plant with lemon-coloured flowers. What this latter is I cannot say, as I have never possessed or flowered it; but the true Monnieri is of a full rich golden-yellow, and differs from I. aurea from the Himalayas, not so much in colour as in the fact that in I. aurea the margins of the blades of the falls are plaited or crumpled, whereas in I. Monnieri they are even.

It is usually supposed that ochroleuca and Monnieri need to be grown in a swamp; nevertheless on my dry chalk hill they find themselves quite at home, and flower freely as soon as they get established. Like all members of the spuria group, they are sturdy, accommodating plants, and will learn to live and thrive under the most diverse conditions. I say "members of the spuria group" for the relations of the two to the many forms of Iris which may be spoken of under the general name of I. spuria (including Güldenstädtii, &c.) are very close. And I have recently had a very curious additional proof of this. Four years ago I sowed some seed of ochroleuca, which, as far as I knew, was not the result of any cross-fertilisation. I lost a good many of the seedlings in changing my residence, but saved some eight or nine. These flowered last year, and to my great surprise there was not a typical ochroleuca among them. They were all such plants as might best be described by saying that they were tall, large-flowered, pale blue, or slaty-coloured forms of spuria.

At the same time I also sowed some seed of Iris Monnieri, which, as far as I could tell, was not hybridised, though I imagine I had put some strange pollen on some of the flowers. From this seed I have a very large number of seedlings, some of which flowered last year, and still more this year. Of those which have flowered one is a typical Monnieri, just like the parent, but the majority—one or two dozen—are almost as typical ochroleuca. I say "almost" for the following reason. Besides colour and perhaps size, the chief difference between Monnieri and ochroleuca is that in the latter the claw of the fall is proportionately longer, and the crests of the stigma narrower and more pointed than in the former, in which the crests of the stigma are especially short and blunt. Now, in these respects many of my seedlings were intermediate between the two. Some dozen other of the same batch of seedlings were very remarkable. They had not the large, dark green, thoroughly verdant spathe valves of Monnieri or ochroleuca, but the smaller, narrower spathe valves of spuria, with the tips and edges more or less scarious; and the flowers were smaller, more like spuria, and of a very curious colour—a light lilac, mixed with yellow, or yellowish-brown—*i.e.*, with *teints degradés*, such as are sometimes jokingly spoken of as "high art" colours. Their peculiar appearance suggested that they were hybrids between Monnieri and fetidissima (plants of the latter were growing not far off the parents); on the other hand they may have been mere sports. I have since crossed, or attempted to cross, Monnieri, both with fetidissima and with spuria and ochroleuca, and if all goes well, shall in a year or two have, perhaps, something more to say. At present I am very much inclined to think that both ochroleuca and Monnieri are mere varieties, perhaps even sports of I. spuria.

I may add that my curious coloured seedlings, though to my eyes mean and even ugly, have appeared particularly charming to some of my visitors, who, I suppose, have a more correct artistic appreciation than I have. *M. Foster.*

(*To be continued.*)

DIOTIS CANDIDISSIMA.

We have sent you some branches of this pretty white seaside plant, which is highly effective both in the border and for bedding out. It grows very bushy, and the branches are densely covered with small white leaves. By continual cutting the plant can be kept quite dwarf, but the stalks, which have a tendency to run, may also be brought in any desired position. It belongs to the Compositæ, produces trusses of yellow flowers the second year, which appear without rays, being closely surrounded by the white involucre. Either in August or in the spring the seeds may be sown in light soil, and the tender little plants have soon to be transplanted in a somewhat sandy light soil, to be again transplanted in May in the open ground. The plant is perennial, but it is preferable to grow it from seed every year, the old plants losing their graceful appearance by getting bare in the centre. *Dammann & Co., Portici, near Naples.* [A charming plant, with fragrant leaves. Ed.]

HEDGES USEFUL AND ORNAMENTAL.

When we consider that few improvements enrich the general appearance of a country, or add more to the value of its lands than well-managed hedges, we cannot but feel surprised at the neglected state in which many of these are still to be found. The almost numberless acres of good land encumbered with useless hedges is really astonishing, and would hardly be credited unless by those who have had some experience in the demolishing and uprooting of the same. It is not at all uncommon to see farm hedges as much as 6 feet in width that are useless as fences, and serve no other purpose than a harbour for game and all kinds of vermin. Why this state of matters should exist is to be wondered at, and no definite reason can perhaps be given, unless that the expenses connected with uprooting the hedges and planting, where necessary, others in their stead is considered in advance of the benefits derived. Probably the little trouble incurred, unless in the case of an enterprising farmer, has much to do with this neglect, but any trouble would certainly, in most cases at least, be more than compensated for by the extra ground reclaimed, not to speak of the improvements attained. The different railway companies are certainly to be commended for the efficient manner in which the hedges along their various lines are managed, these not only receiving an annual trimming, but as regularly a thorough cleaning of the adjacent ground, which is highly beneficial to the welfare of the plants. Hedges may be divided into two kinds, useful and ornamental, or in other words those used as fences for preventing the inroads of cattle, &c., and those for ornamental purposes, such as garden and nursery divisions or other positions where strength is not materially required. Hedges of the former kind are usually made of the Hawthorn or quick, and those of the latter of Privet, Laurustinus, Box, Holly, Yew, Laurel, or, in fact, almost any shrub of which sufficient quantity can be obtained, and for which a fancy is contracted.

Preparation of the Ground.—In the formation of all hedges thorough preparation of the ground intended to receive the young plants should be the first and most important point. It should not only be deeply trenched, but if possible left exposed to the beneficial effects of a winter's frost. Where it is required to form hedges on poor soils, such as those with a gravelly or sandy subsoil, stiff clay or bog earth, a little extra trouble and expense will require to be expended. The latter soils should not only be deeply trenched and well broken up, but receive a liberal admixture of thoroughly decomposed manure some time previous to planting the hedge. The soil along the intended line of fence should be raised a little above the general level of the surrounding ground, which can easily be accomplished when trenching, any inequalities of the ground being also then attended to.

Planting.—As to the time of planting quicks, a good deal must depend on the nature of the ground, as well as state of the weather. Winter or early spring planting should in all cases where practicable be adopted, as the Hawthorn is one of the first plants to appear in leaf, and by taking Nature as our guide in this matter we cannot far err. Opinions vary much as to whether a single or double line of quicks should be planted, but in this a great deal must depend on the position of the fence, and use for which it is required. For general farm or plantation fences we certainly prefer a double line of quicks, as the hedge is not only stronger, but there is also a better chance of getting up a good supply of young wood from the bottom. The best plants for the above are those that have been at least twice transplanted, preference being given to strong, bushy quicks, rather than to those of larger though weaker growth. In planting a double row the line should be stretched along the ridge, and a notch or trench taken out close to it, and of sufficient depth to contain the roots of the plants. These are then placed perpendicularly in the notch at 8 inches apart, and with their roots diverging from the line, care being taken not to bury the plants deeper than they were previously in the nursery. The line is then run along at 6 inches from the row already put in, and on the opposite side to that on which the roots are spread, a notch taken out, and the planting proceeded with as before, at the same time placing the plants in one row exactly opposite the spaces

in the other, and the roots diverging from the line. Another and quicker method, where but a single row is required, consists in running the line along the prepared surface, and making a slight mark with the spade as a guide to the planter, who, with a boy to hold the quicks, proceeds in the following manner :—Beginning at one end, the planter takes out a spadeful of soil close to the mark, and throws it aside ; in the hole thus made a plant is held by the boy, the planter at the same time taking out another spadeful, which he turns over as a covering for the plant, and so proceeds until the fence is completed, each spadeful of soil turned up by the planter leaving a bed for the following quick. Cutting down newly planted hedges, although in some cases highly beneficial, is a dangerous practice, especially where rabbits are numerous. When it is found necessary to cut down newly planted hedges, which will only occur where weak or straggling plants have been used, wire netting should first be run along both sides of the fence, and pegged firmly down.

The thorough cleaning of all hedges, more particularly newly planted ones, is a matter that cannot be too seriously impressed on those having the management of such work, as an accumulation of grass and weeds is sure to injure the fence, the result being failure instead of success. Except an annual cleaning, and, perhaps, slight switching of the sides, fences of this kind will require but little attention for the first three or four years. No pruning of the upward growths should take place until the fence has attained the required height, after which the whole hedge may be trimmed into proper shape. For most fences the wedge shape is that usually adopted, and for several reasons it is perhaps preferable to any other. Few plants can be advantageously mixed with the Hawthorn in the formation of these hedges where strength and resisting powers are chiefly required ; of these Beech and Holly are, perhaps, the best, Privet being also used along with the quick, in the proportion of two of the latter to one of the former.

Ornamental Hedges.—For shelter and ornamental appearance no hedge can surpass and few equal a well-kept Yew. The poisonous qualities of this plant, however, preclude its use in the formation of farm fences, for which the strength and shelter it afford would otherwise be suitable. As a lawn or nursery fence it is unrivalled, and though of slow growth soon becomes so dense as to be almost impenetrable even to birds. Unlike most other hedge plants the Yew does not impoverish the ground in its immediate vicinity, for on lifting a plant the root will be found composed of a mass of fibres and these, considering the size of the plant, are confined to but little space. An equally pretty but less useful hedge plant will be found in our common Box, which is, however, more adapted for low fences, such as the edging for walks or nursery drives, than where great height and shelter are required. The Laurustinus, though forming a beautiful hedge, is so apt to get cut down during severe frost that, except in well sheltered positions, its general use cannot be recommended. For rapid growth, and as a screen fence, we find nothing to equal the oval-leaved Privet. It cannot, however, be recommended as a fence for cattle or sheep, but from the close compact habit, light fresh green colour, and adaptation to the pruning hook, it will be found invaluable in most other cases. The common Laurel is sometimes used as a hedge plant, but although of strong growth, it generally presents a naked and untidy appearance. We have seen the American Arbor-vitæ used as a hedge plant with admirable effect in well sheltered situations. In the home nursery, where shrubs are grown extensively for estate purposes, the following plants, as well as those already mentioned, are of frequent use in the formation of hedges—more perhaps for variety than either use or beauty :—Aucuba, Hollies of different kinds, Portugal Laurel, shrubby Spiræas, Lilac, Weigela, Gorse or Furze, and we have also seen a useful as well as highly ornamental fence of Lawson's Cypress (Cupressus Lawsoniana). *A. D. Webster, Penrhyn Castle, North Wales.*

Linaria saxatilis is a neat and pretty rock plant, similar in general appearance to L. alpina, though slightly more erect in growth than that species. The blossoms are very pleasing, being bright orange-yellow. Plants of it are now flowering in the nurseries of Messrs. Backhouse, York. A somewhat dry sunny position is best adapted for its culture.

ONCIDIUM CANDIDUM.

This interesting and pretty Oncidium, the Palumbina candida of Reichenbach, f., has recently flowered at Kew, and as specimens were required for the herbarium, I was led to examine the pollinia, which has been differently described by different authors. Lindley, in his *Folia Orchidacea*, Oncidium, No. 53, thus describes the pollinia—"Pollinia quatuor, geminata caudiculis 2 cuneatis glandulæ circulari adnata !" And then adds—"If the sketch before me is accurate, this cannot be an Oncidium . . . but until the plant shall have been re-examined, it is safest to leave it where it stands." There is no specimen in Lindley's Herbarium, but the sketch he alludes to as above represents the pollen as he describes. Assuming this structure to be correct, Professor Reichenbach founded upon it the genus Palumbina in *Walper's Annales*, vi., p. 699, thus describing the pollinia :—"Pollinia depresso pyriformia postice fissa, caudicula secundaria utrinque in fissuram ingrediente, caudiculæ lineari accreta. Glandula rotunda." But in the *Gardeners' Chronicle* for 1865, p. 793, Professor Reichenbach gives a different description, viz., "Caudicula pollinis utriusque caudiculæ tertiæ communi inserta."

In the plant which I have had the opportunity of examining not one of the numerous flowers showed any trace of such structure, nor do I understand what

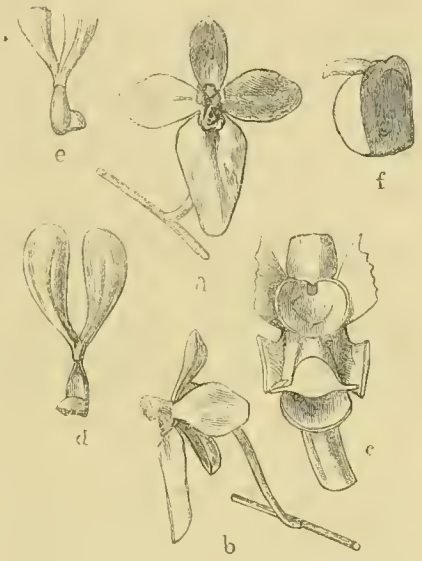

Fig. 35.—Oncidium candidum : floral details.

is meant by secondary caudicles, or a third common caudicle, certainly nothing of the kind is represented in Lindley's drawing, and it would, therefore, appear that Professor Reichenbach may have had only flowers with monstrous pollinia ; or does the plant, or rather do different individuals of the same plant (for in this case there can be no question as to specific identity !) vary in the structure of their pollinia? All the flowers I examined had the pollinia as I have represented in my drawing (fig. 35), in which A and B represent the flower front and side view, natural size ; C, the column, with the sepals, petals, and lip cut away, magnified 4 diameters ; D, the pollen masses attached to a single caudicle with its gland, seen from beneath, magnified 12 diameters ; E, the caudicle, gland, and lower part of the pollen masses seen from above magnified 12 diameters ; and F represents a side view of the gland and part of the caudicle, magnified 40 diameters.

It will be seen from this that there are but two pollen masses united at their bases, and attached to a single gland ; they are fissured on the under side, and faintly keeled on the upper side (I have made the keel rather too conspicuous, as seen at E) ; the very thick gland is not round, as described, but nearly rectangular in front view ; behind it is hemispherically convex : the front viscid portion, shaded dark in my drawing, is amber-brown, the hind part being white. The structure I have represented is very nearly as shown in the *Botanical Magazine*, t. 5546, where this plant is well figured as Palumbina candida, and is that of a true Oncidium, therefore the generic name, Palumbina, as has already been declared in Bentham and Hooker's *Genera Plantarum*, iii., p. 563, should be expunged from our lists. *N. E. Brown, Herbarium, Kew.*

THE SPECIES OF TULIPA.—IX.

(*Continued from p.* 169.)

Sub-genus Tulipa proper.—Stigmas sessile.

Section 5. *Sylvestres.*—Filaments with a tuft of hairs at the base. Flowers always yellow or yellowish-white.

The species of this section have been comparatively little cultivated, and are of much less interest from a horticultural point of view than those of any of the foregoing. They may be divided into three groups by the colour of the flower.

Group I.—Flowers bright yellow, flushed with green on the outside.

46. *T. sylvestris*, Linn. ; *Bot. Mag.*, t. 1202.—This is a native of Britain, and is widely spread on the Continent, and so familiar that I need not describe it. Forms with two-flowered peduncles are not uncommon in cultivation.

47. *T. fragrans*, Munby.—A native of Algeria, which differs mainly from the last by its fragrant flowers. It has not been figured.

48. *T. Biebersteiniana*, Schult fil.—A species spread from Asia Minor and the south-east of European Russia through Siberia, as far east as Turkestan. It is like sylvestris, but the habit is less robust, and the flower smaller and more funnel-shaped. Here belong T. Thirkeana of Karl Koch, and probably also, as suggested by Boissier, my T. microgyna. It has not been figured.

Group II.—Flowers bright yellow, flushed with red on the outside.

49. *T. australis*, Link.—Distinguished from sylvestris by its more slender habit, narrower leaves, and more funnel-shaped perianth, 1—1¼ inch long, flushed with red on the outside. A native of Savoy, France, Spain, Portugal, and Algeria. Here belong T. Celsiana, DC. ; T. transtagana, Brotero ; T. maculata, Roth ; T. Breyniana, *Bot. Mag.*, tab. 717 ; and T. alpestris, of Jordan.

50. *T. gallica*, Lois.—A doubtful species, intermediate between sylvestris and australis. A native of Provence.

51. *T. humilis*, Herbert.—A dwarf species from the mountains of Persia, closely allied to T. australis. T. Buhseana, of Boissier, is the same, and T. crispatula, of Boissier and Buhse, a variety with the leaves crisped at the edge.

52. *T. Orphanidea*, Boiss. ; *Bot. Mag.*, t. 6310 ; T. Minervæ, and atheniensis, Orphanides.—Stature of T. sylvestris, with three linear channelled leaves, a long one-headed peduncle, and a bright yellow perianth, two or three inches long, with acute segments, tinged with red on the outside. Anthers oblong, ¼ inch long, not more than half as long as the filaments. A native of the mountains of Greece. It has no distinct scent, and flowers in England early in May. There is also a figure in the *Gartenflora*, tab. 373.

Group III.—Flowers pale yellow or whitish inside, tinged green or reddish outside.

53. *T. primulina*, Baker.—A near ally of T. australis, of which it may be only a pale-flowered variety. Fully described *Gard. Chron.*, n. s., vol. xviii., p. 8. A native of the mountains of Algeria, near Batna, at an elevation of 6000 feet about sea-level. It has been drawn for the *Botanical Magazine* from specimens furnished by Mr. Elwes.

54. *T. patens*, Agardh ; T. tricolor, Ledeb., *Bot. Mag.*, t. 3887.—Bulb-tunics obscurely pilose inside upwards. Stems 3—9 inches long, usually one, rarely two-flowered. Leaves two or three, ¼—½ inch broad. Perianth oblong-funnel-shaped, ¾—1 inch long, whitish, with a yellow eye inside, tinged green outside. Stamens half as long as the perianth, anthers very small, oblong ; filaments pilose at the base. Ovary ampullæform ; stigmas small. A native of the mountains of Central Siberia at an elevation above sea-level of from 1000 to 5000 feet.

55. *T. biflora*, Linn. ; *Bot. Reg.*, tab. 535 ; *Bot. Mag.*, tab. 6518.—Bulb ovoid, the outer tunics woolly inside. Stems ¼—½ foot long, with often two or three, rarely four or five flowers. Leaves two or three, not above ¼—½ inch broad. Perianth oblong-funnel-

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shaped, ½—¾ inch long, white inside with a yellow eye tinged green outside, all the segments oblong and acute. Anthers minute, oblong, shorter than the flattened filament, which has a tuft of hairs at the base. Ovary ampullæform, with small stigmas. A native of the Caucasus and mountains of Central Siberia. A connecting link between the sub-genus Orithyra and the true Tulips.

56. *T. turkestanica*, Regel, *Fl. Turkest.*, p. 134, tab. 21, figs. 1—4; *Gartenflora*, tab. 1050, fig. 2.—A near ally of the last, from which it mainly differs by the long cusps of the valves of its capsule. It has a small ovoid bulb, the outer tunics of which are densely hairy inside, two falcate lanceolate leaves, and from one to six flowers. We have received good dried specimens at Kew, collected near Chiva by MM. Korolkow and Krause.

57. *T. cretica*, Boiss. and Held.—A very dwarf species, from the high mountains of Crete, figured in Raulin's work on that island (tab. 18). Stems one-headed, not more than 2 or 3 inches long. Leaves two or three, lanceolate, crowded near the base of the stem. Perianth funnel-shaped, ¾—1 inch long, whitish inside, tinged red outside, the segments oblanceolate-oblong, acute, the inner broader than the outer. Anthers oblong, very small; filaments three or four times as long as the anthers, densely bearded at the base. Ovary ampullæform, with very small stigmas. First collected by Sieber. Not yet introduced alive.

58. *T. Lowneí*, Baker.—A dwarf species from the mountains of Palestine, discovered by Mr. Lowne near the snow on the summit of Mount Hermon, where it has also been gathered by Boissier and Lortet, and by Mr. Hayne on the Lebanon range. Stems not more than 2 or 3 inches long, one or two-headed. Leaves two, lanceolate, falcate. Perianth funnel-shaped, ¾—1¼ inch long, deeply tinted with red outside. Anthers oblong, very small. Ovary ampullæform, with very small stigmas. Not known in England alive.

This ends the enumeration of the true Tulips. *J. G. Baker.*

(To be continued.)

NOTES OF A JOURNEY THROUGH THE PROVINCES OF KUEICHOW AND YÜNNAN.

A very interesting account of a journey through the provinces of Kueichow and Yünnan has been issued from the Foreign Office, from which the following extracts are made:—

"Beyond the range of hills opposite 'Ch'ungk'ing, one of the highest peaks of which is crowned by Blakiston's 'Pinnacle Pagoda,' we enter a valley which, at this season of the year, presents a surprising sight. The Poppy is in flower, and one white field follows another, relieved here and there by fields of purple. With the exception of the plots reserved for the paddy, at present submerged, and a few patches of Wheat, Barley, and Rape, the whole of this valley and the hill-sides, where cultivation is possible, are covered with the Poppy. I am near the mark when I say that at least one-half of this valley, which extends for miles, is given up to the drug.

"Lao-ch'ang appears, at first sight, to be a place of little importance, but it is the centre of this Poppy valley, and the Lao-ch'ang opium has a reputation not inferior to that of Yünnan. The latter, say the Chinese, is more satisfying than the product of Ssŭ-ch'uan. As the skipper of the junk in which I travelled from Tchang to Ch'ungh'ing put it—and he was an inveterate opium-smoker—'One may smoke several pipes of Ssŭ-ch'uan opium, but they will not give the satisfaction of one pipe from Yünnan.' The Chinese attribute the superiority of the Lao-ch'ang opium to the soil of the valley, which is of a red sandy colour.

"Scattered among the fields is the Wood-oil tree, in full bloom. The fruit is ripe in the months of August and September, and the oil prepared from it is exported in large quantities to the various ports, where it is used in the manufacture of paint, varnish, waterproofs, paper, umbrellas, &c. It is also used as lamp oil."

This oil is apparently produced by Aleurites cordata. Porter Smith says two forms are met with in Hupeh—one the cold drawn, which is pale and thin, and is the kind used for lamps as well as for varnishing furniture and the better class of umbrellas; the other is thick and of a dark colour, and is obtained by heat and pressure: it is used for making putty and in caulking and painting ships and boats.

The best wood oil, it seems, comes to Hankow from Shin-chan-Fu in Hunan. This oil is used in medicine, in insanity, and in cases of metallic poisoning. It is emetic, acro-narcotic, and drastic, and is applied to ulcers, burns, bruises, &c. In consequence of its use in shipyards its exportation was prohibited from Hunan and Hupeh during the Taiping rebellion.

"Coffins were being carried in pieces towards Ch'ungk'ing, and cotton from Ch'ungk'ing into the interior. It required three men to carry one coffin, and two men to carry a bale of cotton. The latter, said the carriers, weighed from 160 to 170 catties, or over 200 lb.

"Paper in large quantities was being carried to Ch'ungk'ing, for the most part of an inferior quality, manufactured from paddy straw and Bamboo, previously reduced to the necessary consistency by being steeped in lime. I have not had the opportunity of witnessing the manufacture of foreign paper, but the Chinese method is exceedingly simple. When the straw and Bamboo have been steeped a sufficiently long time in lime, and the latter completely squeezed out, the fibre is placed in a stone trough full of water. The whole is then stirred up, and a frame passed through it. On the frame gathers a film, which ultimately becomes a sheet of paper. This refers to the coarser Chinese paper.

"Leaving the principal street of Kai-shih in a southerly direction, we passed through several large fields of Poppy, and the time being early morning, men, women, and boys were busy collecting the juice that had exuded from the capsules during the night. The juice that exudes when the incision is made is of a creamy colour; in the morning it is a dirty brown, and later on it becomes black. The incision is made with the points of brass blades fixed in a wooden handle, and the juice is gathered with a curved knife. The grower sells the juice at about 110 cash an ounce, or somewhat over 10 cents; and a plot of ground from 16 to 20 yards long and 3 yards broad will yield about 20 ounces of the raw drug, which, however, dries down to half its original weight before it is fit for consumption. I noticed that the capsules were covered with a whitish dew, no doubt the result of the eternal mists of the province, the admixture of which with the juice is inevitable, and must necessarily detract from the strength and value of the drug.

Beyond Yen-t'an the Poppy is less cultivated; but the hills around possess very little soil, and the dwarf Oak, Fir, Wood-oil tree, and patches of Wheat have to struggle for existence. The bottoms of the valleys are mostly paddy ground. Coffins in the rude and in pieces meet us many times a day on the backs of perspiring coolies armed with iron-shod Bamboos to help them on their way, for a piece of a Chinese coffin is no despicable weight.

"Beyond Lung-kang our road winds south along a magnificent valley, the hills on either side well wooded and little cultivated. The light green of occasional patches of Wheat and of the shrub Oak blends with the dark green of the Cypress, the Fir, and the Palm, while the bloom of the Wood-oil tree here and there peeps out from the darker foliage. Stately Firs and the Cypress line our path, and the wild Rose and the Honeysuckle creep along the banks. The scent of the Firs in the early morning and the sough of the breeze among their branches tempted us to tarry.

"We met to-day a few carriers, with what at a distance appeared to be long white candles in large round bundles, but I found on inspection and inquiry that they were the pith of a plant grown in the province of Kueichow. This pith is used principally in the manufacture of paper, wrongly called rice-paper, and of artificial flowers. The price of 100 catties (133⅓ lb.) of the pith laid down in Ch'ungk'ing is between 40 and 50 taels from £10 to £13."

Probably the pith of Fatsia papyrifera.

"For the last day or two I have noticed a wild Strawberry, small compared with the home berry, and declared inedible, growing in abundance along the sides of the highway. I asked one of my followers to eat one, as a sort of experiment, and he had actually raised it to his mouth, when I reflected I could not spare his invaluable existence—he was my cook!

"The Wood-oil tree abounds, and here and there Banyan and Pumelo trees afford welcome shade.

"Keeping the road which leads to Sung-k'an, we descended amid large quantities of the Wood-oil tree in full bloom.

"From Sung-k'an to Ttsin-chan we pass through a series of wearisome valleys, containing the ordinary crops just mentioned, the Poppy especially being prominent. I noticed, however, that the capsule of this Poppy, and more particularly that with the purple flower, is more elongated, and has not the rounded, strong-looking appearance of the capsule of the Poppy at Ssu-ch'uan.

"Crossing the valley which we ascended yesterday we continued our progress through the Poppy. For some distance the crop was as good as the T'ung-tzŭ Valley, but as we ascended and the valley contracted the Poppy was stunted and inferior. Ultimately this valley becomes a mere pass, and the hills on either side not unfrequently attaining a height of 1500 feet above it. The pass itself, according to my aneroid, was more than 3000 feet above the level of the sea. A good view is obtained from the top of the pass, the hills on either side have been washed into fantastic shapes, and in many cases bare rocks form their summits. As they descend to the pass their sides are thickly covered with trees and brushwood, while farther down the scanty soil was here and there being planted with Beans.

"The road between Tsun-i and Hou-pa-ch'ang is fairly level, and the Poppy is everywhere to be seen. On either side of the latter place the valley is one mass of Poppy, red, purple, and white. I notice, however, that the capsules to each plant are fewer than in Ssu-ch'uan.

"From Hsi-fêng, up a narrow Poppy valley, which gradually widens out, our road is bordered by the wild Rose, Bramble, and other shrubs, while the low hills are covered with grass, Ferns, and shrub Oak. Many a dark root, often charred, shows that they were once covered with forests of sturdy Oak. We meet numbers of carriers hurrying with loads of the la-ch'ung-tzŭ, or white wax insect chrysalids, on their way from An-shun Fu to the province of Hunan, where it appears the white wax tree grows. The chrysalids were arranged in long bamboo baskets, and the carriers did not feel inclined to show them to me. When I forcibly detained one carrier to have a look at his load he urged as an excuse that, owing to the hot weather, there was a fear that the insects might emerge from the chrysalids before their arrival at their destination.

"And now a curious sight meets us. The patches of Poppy, which increase in number as we near Ch'ing-chên Hsien, and which grow under its very walls, have hardly a capsule remaining, and I began to think that the local authority, in a fit of virtuous indignation, had ordered the wholesale decapitation of the stems. But I wronged him. The phenomenon was thus explained to me: A ruthless storm of hail burst over the district on the night of May 2, some of the hailstones, according to my informant, weighing as much as 7 and 8 oz. The city itself, no mean part of which is under cultivation, has also suffered severely; roofs of houses have fallen in, and tiles lie scattered about on the streets.

"The area over which the storm burst is estimated at 20 li in length and 20 li in breadth, and I myself traced it west 6 miles. Fortunately along this road there is little house property to destroy; it is limited to a few wretched huts miles distant; but the crops on the land under cultivation, which is not one-fourth of the whole, have been completely destroyed. They consist of the Poppy, Rape, Beans, Wheat, and Barley, and the poor peasants, who till a few patches only, must suffer severely until the autumn. They were doubtless depending on these crops until the paddy harvest. The bark and leaves have been hacked off the trees and shrubs along the high road as if with a blunt axe.

"As we entered the gate I noticed quantities of pith being carried out; and I learn that, although Kuei-'hua Hsien is the chief producing district, the whole of the Prefecture of An-shun produces to a greater or less extent. From Yang-sung we march westwards through a well-cultivated valley. The light green paddy shoots, the yellow Wheat and Barley, the dark green Poppy-heads, with occasional white flowers, blend well in the morning light. The wild Rose abounds along the road-side, while the Bamboo, the Apricot, and other trees, are seen on every side. The red soil lends a peculiar character to the scene.

"I entered into conversation with the Bamboo hat carriers, and found that each pony carries a lot of 360 hats; that a hat in An-shun Fu costs about 1 mace of silver; and on arrival at Yünnan Fu about 3 mace. They tell me that in ten journeys between An-shun Fu and Yünnan Fu, carrying goods either way, each pony realises its own value. It takes about a year to complete the ten journeys.

"For some days I have been at a loss to account for the peculiar growth of certain trees, the branches of which are very short, but to-day I noticed the branches being lopped off and tramped into the paddy-land as manure, so that the short branches represent a year's growth.

"Surmounting a few low, bare hills, we descended on Shih-pan-'ho, where we had to borrow a room, and send a youngster in the house some distance to borrow a table. The way in which these people live is astounding. The rooms chockful of smoke—for chimneys have not yet reached these parts—the dog, the pig, and the fowl, fraternising with the inmates, who are themselves as dirty as any of the animals, lead one to wish for a return to clean and comfortable quarters. Again, one goes to sleep with an unesasy feeling, if one is lucky enough to find quarters in a loft, for underneath the opium-smoker, with his lamp burning only an inch or two from his straw mattrass, gives himself up to the enjoyment of the moment. A movement of the pipe or a jerk of the arm has often caused conflagration.

"There can be no doubt that opium-smoking, among

the lower orders at least, induces a neglect of personal cleanliness. Of two followers deputed to accompany me on my journey one is an opium-smoker, and the other is fond of his cups, both in moderation. While the former has to pay from 100 to 200 cash an ounce for his opium—which, let us say, by moderate smoking will last him five days—the latter can have four cups of wine a day for 20 cash, or 100 cash for a five days' supply. Even if he consumed this quantity, he has still an immense advantage over his companion in an economical point of view. Moreover, immediately on arrival at our halting place for the night, the former is down with his opium-pipe, while the latter is always about and ready to perform any little service that may be required. The former will go for days with unshaved head, while the latter is always neat and clean. I am not advocating moderate drinking as against moderate opium-smoking, but merely recording an instance occurring under my personal observation.

"At Ch'ing-shin-kou we came upon a factory—if a small house of one small room may be so designated—for the extraction of oil from the Poppy seed. The seed is first crushed by a large stone roller running in a circular stone bed, and is then made into round cakes, covered with straw, and inserted in a press, at the top of which wedge after wedge is hammered in until the oil has all exuded. Fifty catties of Poppy seed produce 18 catties of oil, of which 10 catties and the refuse seed—used as manure—go to the owner of the seed, while the crusher retains 8 catties of oil for his labour.

"I was witness to a curious superstition to-day. We were caught in a drizzle soon after leaving Lai-f'on-p'o, and as the shower-clouds, with a rainbow, approached us, my followers covered their mouths with their hats, fearful of the poisonous vapours, which, they said, are given forth by rainbows. I was fool enough to laugh at their superstition, and, as luck would have it, a few hundred yards beyond I was seized with a sudden fit of vomiting, which lasted some minutes. The laugh was turned the other way."

HYACINTH DISEASE.

Yellow sickness has been known as a disease to which Hyacinths are subject for the last ten years, but little has been discovered about it. In the autumn of 1881, through Mr. Krelage's kindness, I was first enabled to study the disease in several stages of development.

On cutting (in autumn) a slightly diseased bulb quite across yellow dots are seen on the cut surface. These dots are arranged in rows, and traverse the scales in all directions, often penetrating into the sheath (the shortened stem).

By microscopical examination of the section of such a scale it is seen that the yellow places lie in the vascular bundles and woody tissues; in the latter the cells are filled with a thick yellowish mucus; sometimes they are partly dissolved in it, in which case the rest of the spirals lie free in this slime. Moreover, it will be seen that in places the whole of the woody tissue has disappeared, and its place is taken by the mucus.

Among the remains of the wasted tissues in the mucus are found a multitude of bacteria, which agree in size and form with Bacterium Termo; they might well be described, according to their peculiar manner of life, as Bacterium Hyacinthi. As long as they are imbedded in the mucus they are apparently motionless, but on being diluted with salt solution (0.75 per cent. Na Cl) they stir about actively, and I have often seen them in the act of division.

On studying Hyacinths at the time of flowering, also in spring, the disease is seen in another form. In numerous specimens the leaves appear yellow. The bacteria are also found massed together in the yellow slime and imbedded in the woody tissues. In the lowest part of the leaf they proceed out of the cells into the intercellular space of the parenchyma, consume this, and arrive at last outside by the bursting of the epidermis.

As in such plants it is principally the bulb and its outer scales (the base of last year's leaves) that are diseased, it is probable that they were impregnated in the previous year, and now the propagation of the disease is easily effected by those bacteria that have reached the outside world.

Amongst these fully diseased specimens some may be found (more numerous) in which only the points of the leaves are attacked, while the bulbs still appear completely sound. The mucus is then found in the intercellular spaces of the parenchyma of the leaf, but always in trifling quantities only. The points attacked shrivel up, and it is easily seen how the bacteria spread from the rows of dead cells in the shrivelled places and allow themselves to be pushed downwards. This makes it clear that this disease is caused by bacteria, and that it is propagated by the wind, or other agents, when the bacteria have come to the surface through the cracks in the epidermis. Further communications on this subject I reserve for the present.

The Black Canker.—Numerous cultivated tubers and bulbs become attacked by black canker—Hyacinths, Scillas, Narcissi, Anemones, for instance.

Disease is manifested by premature withering of the leaves, and often by failure of the flowers. In the subterranean parts of the attacked plants is found a richly developed mycelium, which in the summer begins to form small black, often blending, sclerotia, but the true nature of the latter is not yet accurately determined. Their relationship with Peziza has been recognised by Frank,* although they bear no fruits.

Now it is still an open question whether the diseases of these different species are produced from the same fungus, or whether each species has its own peculiar parasite or so-called "Black Canker." The decision of these questions is important from its bearing on cultivation; for instance, whether Hyacinths can be planted with impunity in a bed in a garden from which Anemones have been removed attacked with "Black Canker."

In the summer of 1882 I received from H. Krelage a number of so diseased Hyacinth bulbs. They were thickly covered with the sclerotia of this fungus. These bulbs were immediately planted in pots, and kept very moist. In February, 1883, in each of these pots a clear brown Peziza had grown from the sclerotia, and which was frequently still attached to it. Sometimes I saw two or three proceed from one sclerotium, and I had already received similar Pezizas from Haarlem on Scilla.

In size and form the cups, asci, spores and paraphyses agree with those figured by Rehm † under the name of Peziza ciboriodes, Fr., as a parasite on different species of Clover. Also the formation of the *keimschlauche*, as well as that of the sporidia, proceeds in a similar manner. Morphologically, also, they may not be distinguishable.

Whether this is so from a biological point of view I will seek to determine by experiment. I hope later on to be able to give information on the spread of the diseases, and the causes that regulate the infection. *Herr Wakker on the Diseases of Hyacinths, from "Botanische Centralblatt,"* 1883, *p.* 315.

PAPAVER UMBROSUM FLORE-PLENO.

Permit us to add a few words to the note on Papaver umbrosum at p. 148. In our grounds, both close to the sea and at a distance off, this magnificent Poppy, though properly speaking a mountainous plant, succeeds extremely well, and is largely cultivated. We sow the seeds pretty thickly, like Godetia and Silene, without covering it with soil. The bed must be kept slightly but constantly moist, and every grain will grow quickly and surely. In October, when the Portulaccas are over, and have been cleared off, we use the land for the winter culture of the Poppy, transplanting the small plants of hardly half an inch in height at a distance of about 1½ foot apart. Care must, however, be taken to plant them with a ball, which is best attained by lifting a number together. In March they commence flowering, and last through several months.

Of this Papaver umbrosum we have raised a double variety of great beauty, which we shall offer seeds of this year. Its flowers are taller, and doubled in a different manner from those of the other Papavers, the stamens being changed into small tongue-shaped petals, each of which carries the corresponding black blotch. The culture is the same. We also cultivate a variety with a whitish blotch. Papaver umbrosum and its forms produce highly developed and surely germinating seeds with us. *Dammann & Co., Portici, near Naples.*

* Frank, *Krankheiten der Pflanzen*, p. 543.

† *Entwicklungsgeschichte eines die Kleearten Zerstörenden Pilzes.* Gottingen, 1877.

THE SOUTHERN ALPS OF NEW ZEALAND.

The botany of a British colony cannot fail to be of interest to the readers of the *Gardeners' Chronicle*, and I, therefore, send an account of a recent trip undertaken by me for the purpose of collecting living plants required to supplement the extensive collection of native plants grown here. As European readers are but little acquainted with the topography of New Zealand, it may be as well to give a few particulars. This, the south island of New Zealand, extends from north-east to south-west, about 500 miles from Cook's Straits on the north, to Bluff Point, or South-west Cape, on the south. Throughout the whole length of the island, but generally to the west of the centre, runs a great mountain chain, called by Captain Cook the Southern Alps, and varying in width from 30 to 60 miles, and reaching the height o 12,360 feet in the Peak of Mount Cook in the southern part of the province of Canterbury. Heights of 8000—10,0000 feet are common near Mount Cook, and in other parts of the island there are peaks not much inferior. On the upper slopes repose immense fields of snow, and gigantic glaciers far surpassing anything known in the European Alps, are quite numerous, the largest of them—the Great Tasman Glacier near Mount Cook—being 18 miles long and 1¾ mile wide. I believe that until lately this was believed to be the largest glacier in the world; but recent discoveries in Thibet have brought to light some larger ones. However, the ice-fields of New Zealand are large enough to indicate the presence of intense cold, and as this cold region of New Zealand is very extensive, English horticulturists will readily understand that it must contain many hardy plants suited for cultivation in England. In this province the great alpine chain lies much to the west of the island's centre, leaving on the west the narrow strip of forest-covered country forming the county of Westland, and on the east large masses of downs and the extensive plains known as the plains of Canterbury, which annually grow some 6,000,000 of bushels of wheat for British consumption.

In the northern parts of the province there are several depressions in the range, over which run passes from the east to the west coast, and through one of these, known as Arthur's Pass, at the head of the river Waimakariri, a good coach road has been formed. This road will be found marked on any good map of the colony. Having frequently botanised along the Arthur's Pass route I propose to present your readers with a botanical section across the island, trusting that the information given may be of some service to those of your readers who may be cultivating New Zealand plants or to those who may be desirous to do so.

Leaving the city of Christchurch in the early morning we proceed to the railway station on the outskirts of the town, and obtain a ticket for Springfield, the terminus of the railway system in the westerly direction, and 44 miles from the city. The whole of this distance is across the Canterbury plains, apparently a dead level, but really having a gradual but constant rise towards the west. It would be difficult to find in any temperate country a more dreary or uninteresting scene than these plains presented a few years ago. Excepting near the coast the plains showed nothing but a vast expanse of level grassy ground covered almost everywhere with a wiry brown tufted grass, called the Tussack (Poa cæspitosa, Forst.), and an occasional group of that peculiar endogenous tree, Cordyline australis, End. (C. Forsteri, F. Muell.), known here as the Cabbage tree. A few small species of Raoulia, Cotula, &c., formed with the grasses the principal part of the vegetation of this part of the province excepting where the numerous rivers, running in wide shingly beds, brought down a few subalpine shrubs to enliven the scene. Since the settlement of the province, however, the scene has rapidly changed. Instead of the barren looking Tussacks we have wide fields of waving grain, beautifully green enclosures of English grasses with numerous homes of enterprising settlers surrounded by fine plantations of English, American, and Australian forest trees, and here and there the spire of a church shows where townships are springing up.

Leaving the train at Springfield we proceed along a good road up the valley of the Kowai River. On our left are the Malvern Hills which are rapidly becoming celebrated for their extensive coal seams, which are now being vigorously worked. The coal is,

however, a brown coal, of only moderate quality. In front of us is a portion of the main range, which here divides into two but unites again a little further south. Along the road here we found the first sub-alpine vegetation in the shape of a very beautiful Gentian, G. saxosa var. corymbosa, which is very plentiful among the Tussacks; the pretty white trailer Pimelea prostrata, the pretty little annual Eyebright, Euphrasia antarctica; and a small species of Coprosma with large white berries. To our right towered the mountain known as Mount Torlesse (6434 feet altitude), with its numerous peaks offering a rich collecting ground to the botanist. On account of the dryness of the climate on the eastern face of the Canterbury Alps there is comparatively little forest on this side, and what there is consists almost entirely of Fagus Cliffortioides. The Rimu, Dacrydium cupressinum, Podocarpus ferruginea, and a few of the commoner trees of the colony, such as Panax arboreum and Pittosporum tenuifolium, together with the numerous species of Coprosma, which almost everywhere in this colony form the major portion of the underwood.

After crossing the river Kowai four times we came to the foot of Porter's Pass, which, situated in a depression between Ben More (5500 feet) on the south, and Mount Torlesse on the north, constitutes the first climb on the road from Christchurch to Hokitika. The road winds gradually round the side of a projecting spur and ascends considerably over 1000 feet, or about 2 miles. Being a mail-coach road it is kept in splendid condition, but its steepness is such that horses can only proceed at a snail's pace. On reaching the top (3060 feet) we were able to do a little collecting, for here grow abundance of some of our best alpines: prominent among them are several species of the beautiful genus Celmisia, the species of which are an important feature of the botany of these great mountains. One of the most desirable is the "Blunt-leaved Spaniard," C. Lyalli, forming elegant tufts of narrow green leaves with numerous fine pure white flowers, 1—2 inches across. C. spectabilis, with broader darker leaves and smaller flowers, is equally common.

To the right, Mount Torlesse rises 3500 feet above the pass, and is almost covered with alpine vegetation. The soil is a peculiar one, consisting principally of rock *débris* gradually being reduced to dust by the action of the melted snow. In this, which is at all times quite moist, most of the plants seem to grow well, but, on a large extent of the mountain, a thin layer of fibrous peat has been formed by the decay of successive generations of plants. It is on these peaty spots that the finest specimens are found. Ascending the mountain, we first notice a curious looking umbelliferous plant which is very abundant here especially in stony places, and which looks just like a tuft of soldiers' bayonets with the points uppermost. This is the "Wild Spaniard" of the shepherds, Aciphylla Lyalli, its sharp pointed leaves are capable of inflicting a nasty wound, and not unfrequently receive the blessings of the unwary. Often it covers large tracks of country, and forms a formidable impediment to the horseman. A prickly shrub not uncommon about here is the "Wild Irishman," so called on account of its troublesome spines (Discaria toumatou). In the wild state this shrub generally presents a dried-up appearance, but in cultivation it not unfrequently becomes a handsome shrub, producing its pretty white flowers in profusion. In the damper places a nice little Ranunculus, R. Monroi, is not uncommon; it is about 6 inches high, and has fleshy ovate leaves covered with soft brown hairs, and small bright golden-yellow flowers. Amongst shingle grew another peculiar Buttercup, R. Haastii, with most curious fleshy glabrous multifid leaves, coming from a thick root-stock buried deep in the shingle. A fine biennial Gentian of very stout habit, with white flowers, G. pleurogynoides, is plentiful, and might do well in England. *J. B. Armstrong, Botanic Gardens, Christchurch, New Zealand.*

(*To be continued.*)

Vegetation of the Andes. — The assertion that lichens grow at greater elevations than other plants, followed in descending order by mosses and grasses, and that no phanerogam attains so great an elevation as that we had reached (4500 mètres), is incorrect. I gathered at an altitude of nearly 680 mètres a grass, a leguminous plant, which seemed to me allied to Astragalus, and the famous Sida Pichinchensis of Bonpland, opening its pretty lilac corollas near the snow. *Ed. André*, "*Le Tour du Monde*," *p.* 409-10.

ORNITHOGALUM ARABICUM.

The very characteristic figure published in your number for May 26 will certainly again draw the attention of many of your readers to this valuable bulb. To the general recommendation we wish to add that not only Spain and the Levant seem to be its native country, but that it grows wild also in several parts of Italy. It will be found in Sicily, Sardinia, and Corsica, and even in the small islands of Pantellaria and Ustica. It is included among the few Liliaceæ contained in the *Flora Vesuviana*. We have seen it on the lava near Pompeii, and it is also found on the old walls of Cumæ, in the Gulf of Bajae. It is further common in the vicinity of Palermo and Messina, but only in rather inaccessible spots now, as this lovely flower has almost been extirpated by being taken to the gardens. In Naples the market gardeners cultivate this bulb in pots, and offer it under several names; for instance, Giglia di S. Restituta, it being particularly dedicated, as is also the Pancratium maritimum, to the above mentioned saint. It will also be found near Lisboa, in the Canary Islands, and in Algiers and Egypt. The range of this species is therefore very extended.

The bulb itself resembles that of a white-skinned Roman Hyacinth; it produces bright green leaves as early as October, and flowers in February, or later, according to the mode of cultivation. It is very sensitive to cold, and the slightest rime kills leaves and flowers. Not too moist a soil will answer best for its culture, and we succeed very well in cultivating it in our dry and ashy grounds. For pot culture we would suggest a light and somewhat loamy soil. The bulbs must be planted in August; they vegetate until May, and require to be absolutely undisturbed for several months. We take them out and replant them every year. *Dammann & Co., Portici, near Naples.*

The Rosery.

After the Fight.—I do not think that it is possible to conceive a greater contrast than that which exists in the Rose-loving world, in the short space of one month—between, let me say, June 25 and July 25. At the former time all is bustle and preparation; every exhibitor, even the coolest, is in a feverish state of excitement. Will his Roses be in? and will they be in good form? How will it show this year? Will his Roses be up to the mark? Who will win the Challenge Cup? What sort of a show will there be at the National? These and a number of questions of a similar character are on everybody's (that is, every Rose-body's) lips. To get a Rose grower at such a time to attend to anything else would be as hopeless as to get a probable owner of the winner of the Derby to attend to business the day before the blue ribbon of the turf is to be run for. But how changed on the latter date! Each man has then fought, and won, or lost, as the case may be; his trees are put on one side; his Roses are not neglected, but the fattest buds of a Marie Baumann or an A. K. Williams are regarded with comparative indifference; he is ready to talk about the moors—about his holiday trip—about the state of trade—about anything in fact; he has his say about the past, makes excuses for his failures—the weather, as usual, because it can't reply, bearing the chief brunt of his displeasure. If successfull—well, it is because he has grown on the seedling Briers, on own roots, on Manettis, according as he favours each; or, as some have had the gallantry to say, because their wives were in very deed helpmates to them, and frequently put a little *soupçon* of self-gratulations that they managed so well. Those who have failed, like a gardener of my good father's, who was no great hand at his work, and who, when he came out, as he frequently did, not with flying colours, but with arms reversed, would always say, "Dear ——, next sayson we'll beat them all to fits." Those who have won look forward to maintain their position, and hope to do even better next year, and a quiet calm has settled down on the Rose world in general.

At the end of August, then, we may, with some probability of getting a hearing, look back on the past season and answer some of the questions which agitated the rosarians' minds awhile ago. Previous to the commencement of the Rose season there were very different opinions expressed, one writer going so far in one direction as to say that he did not see where a good Rose was to come from this year, and giving the most deplorable account of the state of Roses in his district; on the other hand many (myself amongst them) stated our belief that it would be, unless something unforeseen occurred, the best Rose season we had had for many years. We all know how difficult it is to get an impartial judgment in such matters: some rosarians gave their opinion, in a contemporary, of the National Rose Society's Exhibition at South Kensington, and those opinions were as wide as the poles asunder. One writer asserted that it was the best exhibition the Society had ever had since that held at St. James' Hall in 1877—another that it was the worst that it had ever held, and another that it was far superior to it. I have no doubt that some of these opinions are regulated much (unconsciously to themselves) by the success or non-success of the writers as exhibitors, while others are influenced by some of those causes which afflict our common humanity. I am not an exhibitor, and therefore I am free from one element of partiality, and on looking back at the results of the season I without any hesitation assert, as my decided opinion, that, while the very unsettled weather of July sadly interfered with the Roses and with Rose-shows, 1883 was, in an exhibition point of view, the best Rose season that we have had for many years—recalling, as one of our largest growers and most successful exhibitors has said, the best Rose seasons of the past.

Extensive as was the show at South Kensington in 1882, the number of exhibits was considerably exceeded by that of 1883. Previous to the exhibition it was considered a disadvantage to have so large a tent —which is commonly called "the wolf," from its enormous capacity of absorbing plants and flowers—but as the event proved it was not large enough [as arranged for the Rose show] to contain all the boxes of Roses sent, and they overflowed into the long tent, a considerable portion of which was occupied by them. The number of exhibitors had largely increased, and it was noteworthy that there were no stands of what one would say as used to be the case formerly:—"I wonder what this man must have thought exhibition Roses were." The same has held good at the various shows that I have attended throughout the country, and they are not a few. There has been a gradual increase in the standard of excellence, and while, perhaps, there have been seasons when some grand stands of bloom have been exhibited, there has never been one where a general excellence of quality has been so conspicuous. Exhibitors go about to more shows, and they have seen that what would have satisfied them a few years ago will not do so now. This has also been considerably helped by the wise practice which most of our provincial Rose societies have adopted of offering prizes for all comers, and of sufficient value to tempt our large growers to compete. Roses of the first quality are then seen, and an exhibitor has to make up his mind that he must endeavour to equal them.

In the above remarks I have had especial reference to the hybrid perpetuals, and whatever difference of opinion there may be about their excellence, there can, I think, be no second opinion about that most lovely section of Roses, the Teas; nothing has been more remarkable than the advance made in their culture during the past few years. This I attribute in great measure to two causes—the introduction (for however sparsely they may have been used before, it must be called so) of the seedling Brier as a stock. Formerly the Manetti was used, and as a consequence the more delicate young varieties were unable to contend with the vigour of the foster-parent and succumbed; but this stock (or the Brier cutting) suits them so well that all kinds flourish on it. Another cause has been partly indeed connected with this—that it has been found that they are (many of them at least) as hardy as the hybrid perpetuals; that after a severe winter those grown as dwarfs have not suffered a bit more than such kinds as Horace Vernet, Xavier Olibo, Marie Baumann, E. Y. Teas, &c.; and so many amateurs, who before never dreamt of growing them, have gone in largely for their culture, and so well have they succeeded that they have quite equalled the stands shown by the growers for sale. If any one will recall the amateur stands of three or four years ago, and compare them with those shown this year, he will be forced to the conclusion that, both in number and quality, the advance has been remarkable. There were many stands shown this year, which were not even placed,

that a few years ago would have been considered good for a first place; and here let me say that it is most fervently to be hoped that nothing will be done to alter their character. I think I see signs of the introduction of a race which is more full and less elegant than the type of beauty to which we have been accustomed. I do not believe that any advantage will be gained by getting high coloured or heavy formed flowers; we do not want anything better in form than Anna Ollivier, Rubens, or Souvenir d'Elise; and while we can get the requisite shades of colour, of white, flesh colour, and yellow, that prevail in these and in Comtesse de Nadaillac, Madame Lambard, and others, we may be perfectly satisfied. [For the present. Ed.]

In these observations I have hitherto regarded the Rose season as it affected exhibitors, but there is a large number of growers who, like myself, never exhibit a Rose; and what has been the season for us, nay, what is it, for it is not yet over? I have no hesitation in saying that it has been one of the most enjoyable ones that we have had for many years. The weather has been for us simply perfect, the alternating of dull and sunshiny days, the occasional showers of rain, have kept the foliage fresh and developed the production of buds; mildew has not been so prevalent, and a continuous bloom has gladdened us. I am writing now at the end of August, and I can any day go into my small rosery and gather as fine Roses as I have done in the true Rose season, while Teas are in great profusion, especially on those plants which I cut back hard in the spring. I have just been to one of the finest provincial autumn shows in the kingdom—Taunton—and the stands of Roses exhibited by Messrs. Keynes & Co., of Salisbury, were the very finest I have ever seen at an autumn show; the flowers were not only in character, which is a very unusual thing, but were large and of good colour.

New Roses have not been abundant, but I hope to refer to them at another time; indeed, the excellence to which the flower has attained seems to leave little room for further improvement. *Wild Rose.*

Climbing Roses.—Any one has only to grow or see these to be charmed with their beauty, as they have a grace and freedom about them unapproached by the others, especially when planted in the right places, where they can find support for their branches and look natural, as they do up thin spare trees like old gnarled Oaks, or on open fences or iron guards, which they furnish and adorn the whole summer through. For running up trees there are few, if any, better than the old Aimée Vibert, as it not only travels very fast, but is one of the most floriferous of all Roses, sending out, as it does, huge clusters of lovely pink and white blooms that last a long time in perfection. In sheltered and favoured spots the Banksians, both yellow and white, do well, and often flower much more freely than they do on walls, where in most cases they get more pruning than is good for them, and consequently lose the young shoots or wood on which the blossoms come, as they always do in great quantity when the plants are left pretty much to themselves. Another Rose that is grand for the same kind of work is Gloire de Dijon, which is so hardy and so robust in habit that it will flourish almost anywhere, and hold its own under the most adverse circumstances, as it is patient when subjected to the knife, and restriction to bring it to the form of a bush or standard, but takes the first opportunity to start away with a big strong shoot, and strike up to lead a new and exalted life among its more lowly compeers. The Maréchal Niel, if he were but hardy enough for climbing trees, would be simply magnificent, with its large yellow blooms hanging down so gracefully; and being so deliciously scented, the air would be filled with sweet odour. Solfatere does well outdoors, but requires a warm position, as does also Climbing Devoniensis, which is a veritable rambler, sending out, when planted in soil that suits it, shoots much stouter and thicker than one's thumb, that run out 10 to 15 or more feet in length. To get these Roses established quickly it is necessary to have strong plants and to enrich the ground liberally and plant them a fair distance from the bole of the tree, as there they are more away from the roots, and get the benefit of any rain that may fall. *J. S.*

Fig. 36.—Equisetum giganteum.

GIGANTIC EQUISETUM.

Our illustration (fig. 36) is copied from a woodcut published in M. André's narrative of his travels in Equatorial America, now in course of issue in the *Tour du Monde*. M. André tells us how near San Florencio, not far from the base of the volcano of Corazon, he came upon marshy ground where the water surged up at every step. Here the track was through a forest of weird trees, recalling the huge Calamites and Lepidodendrons to whose decay we owe our coal-fields. The trees—for such they must be called—were Horse-tails (Equisetum giganteum), the big brothers of the common Horse-tails of our woods and fields, but here assuming a height of more than 16 feet. A traveller traversing such a forest might well imagine himself relegated for the time to the carboniferous epoch.

Foreign Correspondence.

Zermatt.—It is curious to see over what a restricted area the Vine is king. Between Boulogne and Paris no territory acknowledges its sovereignty. It is an affair of soil and of climate, the sandy dunes near the coast acknowledge as their king the creeping sand grass, Elymus arenarius, while Pasmma arenaria and Euphorbia Paralias act as courtiers. But King Elymus will be dispossessed, and another will reign in his stead—that other will be the Pinaster, always providing that a succession of hard winters do not, as they threatened to do a year or two ago, make short work of even so hardy a tree as the Maritime Pine. Beyond these Pine-barrens one enters upon the fat pastures of the Somme, and here it is difficult — at least, from the railway carriage window — to say what is king; certainly it is no sand grass—equally certain it is neither Pine nor Vine. I incline to think peat is king here — not that peat which, duly admixed with silver-sand, is the gardener's treasure, but that sour, half soapy looking stuff which the peasants dredge up from the bottoms of the ditches, shape into brick-like masses, and pile up in stacks to dry for the winter's consumption of fuel. If that is not king, or if a live king be preferred to one that is dead, then I should say the Poplar is king—the Canada Poplar, which forms high trees, often heavily weighted with Mistleto, and which often form the *dot* for Mdlle. Marie when she takes to herself a husband. When Marie was born a few Poplars were planted, each has increased in value, say, only a franc a year, but this represents a goodly sum by the time Mdlle. Marie is prepared for her *noces*.

When we get beyond the peat and the Poplars of the Somme, and enter upon the drier calcareous dis-

trict between Amiens and Paris, no signs of royalty show themselves. If one confined one's observation solely to the railway banks one would say Robinia pseudacacia was king, for it is grown in such situations throughout France from west to east, and from north to very far south. Since Cobbett's time this so-called Acacia has not been much prized for timber in England, although it grows rapidly, and no tree forms heartwood more quickly, but in France they seem to have found out that its creeping roots are good things to keep up sloping railway banks. Such at least is, as I suppose, the reason why from the Pas de Calais to the department of the Doubs, from Picardy to Provence, one finds the Robinia a constant companion of the railroad track. It is noteworthy, too, how many varieties in foliage and habit one may see, and, in particular, the yellow-leaved varieties flash in the sun like burnished gold.

Beyond Paris, on the road here, there is still no king of plants to be seen. The fields are hedgeless and fenceless, and of as many colours as there are crops—and the crops are manifold. The French farmer hereabouts obviously does not put all his eggs into one basket. The forest of Fontainebleau is a mixed one, and oh! so tempting for a stroll; but the Geneva express allows of no strolling. If, by the way, the forest of Fontainebleau were in Swiss territory, one might have a pleasant ramble between the time of arrival and the time of departure of the train at any given station; but the French railway authorities are, to some extent at least, imbued with the notion that the traveller's great desire is to "push on." But this is a digression. It is not till Fontainebleau is passed that the Vine appears. First you see him trained and throttled upon trellises and white-washed walls, duly provided with a shelving coping overhead. Evidently he cannot run alone yet, and the Chasselas of Thomery has to all intents and purposes to be coddled.

Whether the Phylloxera has got hold of him here I know not, but if so, the cost of those little blobs of sugared water, which are so grateful to a hot and parched palate, will go up. A little further east, as the train advances towards that dreary plain of central France, the Vine may be seen gradually asserting itself, first in lines between the Currant bushes or the French Beans, and not allowed to exceed them in height; then so advancing in dignity as to be thought worthy of a patch all to itself, but still in the midst of Cabbages and other herbage of low degree. By-and-bye these patches become bigger, the Currant bushes, the Beans, and the Cabbages disappear, the Vine has ousted them, and, as we go on, first the southern sunny slopes and then both slopes and plains are given up to Vines and nothing but Vines. The Vine is king, and there is none to question his supremacy. How he is grown and what he looks like here at headquarters has often been told in these columns.

No one who has seen an English vinery or an English Hop garden need feel in the least degree anxious to see the Vine at home—on the score of the picturesque, that is—for he is much better worth seeing in the vinery at Chiswick than in any vineyard in France, or in Italy either, for that matter, notwithstanding the artists. It is easy, however, to over-estimate the dominions of His Majesty. This particular line of route traverses Burgundy, and the traveller from Dijon to beyond Macon sees little else but Vines, and might imagine the whole country given up to them. But it is in reality only certain favoured districts wherein the Vine is really king. On the sunny slopes of the Côte d'Or he holds high court, and Macon, Nuits, Pomard, Chambertin, Vougeot testify, as of old, to the superlative excellence of the produce.

But let the traveller reach Dijon by another line of railway, as I did on the return journey, and he will scarcely see more Vines than he would do in the environs of Paris; so that the dominions of King Vine are, after all, rather restricted. It is probable that that wretched pest, the Vine-louse—that intolerable scourge according to the Vine grower's estimate—that beneficent reformer according to the teatotallers—has, or will still further curtail, the dominions of King Vine, as it certainly has done to a large extent in other departments of France.

From what I learnt in the neighbourhood of Dijon, the Phylloxera was not spreading in that immediate neighbourhood, partly because the climate was deemed unpropitious to its multiplication, partly because it is kept in check by the free use of bisulphide of carbon and other insecticides—a process which, properly carried out, is found to be efficacious, but which very materially enhances the cost of production.

Whether or no the practice now so largely adopted in the South—that of grafting the Vines upon American stocks, which are not destroyed by the Phylloxera—is adopted to any extent in the Burgundy district, I had no opportunity of ascertaining. How necessary some measures of precaution or cure may be, received a forcible illustration from a fact related to me by M. Weber, the intelligent Curator of the Dijon Botanic Garden. That gentleman, careful of the interests of the cultivators in whose midst he lives, and anxious to prove to them that a botanic garden might be practically useful, had collected together no fewer than 1000 varieties of Vines for comparison and study.

These were all grown together in a bed at the foot of a long wall extending along one whole side of the garden. Of these not one now remains—the Vine louse has been strictly impartial, he has not allowed natural selection to have the least play, no one variety was more resisting than another, at least in the long run. It is no case of survival of the fittest, for all are gone. Not one is fitted to survive in the opinion of the Phylloxera, who doubtless would consider his own persistence a matter of much more importance than that of the Vine. How selfish we all are! It would be interesting to know the details of this wholesale slaughter, and to ascertain for certain whether this destruction may not have been brought about by other causes in combination with the Vine louse. The sad havoc which the frosts of recent winters have made in the case of Walnuts and other trees and shrubs, makes one think that the dread Phylloxera has sometimes more laid to his share than is really fair.

Leaving Macon, the Vine once more loses its kingly sway—Maize even contends with it for pride of place; and it is not till the shores of the Lakes of Neuchâtel and of the eastern end of the Lake of Geneva are reached that he again makes a show. Few people, however, are at all aware of the extent to which the Vine is cultivated in Switzerland, or of the excellence of its produce. I have indeed found fellow-travellers little sensible to the claims of "Yvorne," "Glacier," or "Villeneuve," even though the latter was grown by the side of Chillon itself, but who nevertheless found the sparkling wine of Cortaillod and of Neuchâtel very refreshing when "a little low;" indeed, in so far, I share their opinion myself, and wonder why it is not more drunk in England. The culture of the Vine in this part of Switzerland, and the process of wine making, was treated of, with illustrations, in these columns some few years ago, so that nothing further need now be said on that score.

Proceeding on our journey up the Rhone valley, we find the Vine again gradually losing the attributes of sovereignty. Maize is grown almost or quite as largely, and other crops as well. Still, the wines of the Valais are by no means bad, and, to our thinking, much preferable to the wretched concoctions of Italy.

Branching off from the main valley of the Rhone is the lovely Visperthal, leading to Zermatt. The ascent from the mouth of the valley to its end, which is blocked by the mighty Matterhorn, is very considerable. You pass from a "hot temperate" region, almost tropical in fierceness of sun, to a subalpine region of pasture and forest, and above that to the loftiest alpine district in Europe, where cultivation is out of the question. As a matter of course, the vegetation changes in character at almost every mile on the road, and upon this circumstance I may perhaps write more at length on another occasion. In the meantime, to finish what I have to say about the Vine, its gradually waning supremacy is made manifest in the lower end of the Visp valley by the fact that it is here grown on the sunny side of sloping ridges, raised in lines expressly for its benefit. The Maize cannot be, or is not, grown so high, but ceases soon after leaving the Rhone valley. Roughly, it seemed to me that in this particular valley of Visp Vine culture and the natural growth of Prunus Mahaleb were about coterminous. In the upper, colder part of the Visperthal not a bush was to be seen, but in the lower hot part the Mahaleb Cherry is most abundant, and is thickly covered with small black fruit. Never previously had I seen the fruit of this bush. Of course I must needs taste, but I do not recommend any one else to do so unless endowed with the insatiable curiosity of *A Rambler.*

Orchid Notes and Gleanings.

Work in the Houses.—No Orchids are more useful to the gardener than those that flower during the autumn and winter months, and as most of this class will now be far advanced in growth, some idea may be formed of the amount of bloom that will be realised. The best of these are the Phalænopsis, and any plants that are forward in the development of their leaves should not after this date have their spikes removed from them. These early spikes will come in useful and make the season of these flowers of longer duration. Plants late in starting must be encouraged to grow, and any spikes formed should be removed, as the plants will be sure to throw out other spikes later in the season. Attend closely to keeping the foliage on this genus clean and free from dirt and insects at the present time. At this season, when these plants are in full growth, some of the older leaves will often perish; these should not be removed till they begin to get into a shrivelled state, as when they are severed too early it may lead to decay, which may attack the collar of the plant before it could be arrested. The autumn-flowering Lælias are another useful class of plants. The earliest to flower is L. Perrini, and this should now be kept well up to the light, to ripen up its growths and give colour to the flowers. This species will be succeeded by L. anceps and its beautiful variety Dawsoni, while almost simultaneously with the two named above will be the flowering season of L. autumnalis, L. a. rubens, and L. albida. The latter species and L. Perrini do best on bare blocks, and should always be grown in plenty of light. The other species are best grown in baskets or shallow pans, and hung up to the roof of the intermediate house. Where the growths of any of these have advanced to the stage of showing their flower-spikes, a somewhat less generous treatment should be adopted, as a too free use of the water-pot may start them into renewed growths. One or two of the Cymbidiums come in useful during the dull days, especially C. Mastersi and C. giganteum. These will soon be showing their flower-spikes, and the plants may be liberally treated through the flowering stage, as there is no danger of exciting these into fresh growths at this season. The old Cypripedium insigne and C. insigne Maulei will yield their supplies during winter, and though not so showy as some others of the genus they are very valuable, and the flowers remain long in good condition either cut or on the plants. Where these have nearly completed their growths it will be an assistance to them in setting a good crop of flowers to remove them for six weeks or so to a vinery or other airy structure, where they can be gradually inured to more light. Another useful species for winter flowering is C. Hookeræ, but this requires the heat of the East Indian-house at all seasons. One or two kinds of Cypripediums flower for such a long time from the same spikes that it is necessary to remove them before all the flowers are expanded to prevent the plants from being exhausted. Of this class may be mentioned C. Pearcei and C. Sedeni. The Calanthe vestita and C. Veitchii will be showing their spikes, and must still be encouraged with plenty of heat and moisture. A reduction of temperature, or dryness at the root, will lead to a much quicker loss of the foliage than when the plants are kept under growing conditions during the autumn, and till the spikes are well advanced towards flowering. Plants of Dendrobium chrysanthum now going out of flower should be placed in some warm, airy position to ripen up the growths, and cause a gradual loss of the foliage, when the plants may be kept dry and at rest for two or three months. The present fine weather is highly favourable for all the warm section of Orchids, as it allows of a liberal night ventilation of the plants, which should be taken advantage of to the fullest extent, as nothing will render the plants fitter to pass safely through the winter months. *J. Roberts, Gunnersbury.*

Thunia pulchra, Rchb. f. — To Lieut.-Col. Berkeley the Kew herbarium is indebted for a nice inflorescence of this charming plant, which is much in the way of T. alba, but is quite distinct in having a much shorter and broader spur to the lip, the keels upon which are not toothed as in T. alba; the flowers also are a trifle smaller than in that species, pure white, with the tip of the lip brownish-ochreous. It

is somewhat puzzling to know in what light Thunia should be viewed—whether it should be retained as a distinct genus, as is insisted upon by my friend Professor Reichenbach, or merged into Phaius, as proposed by Mr. Bentham. The genus Thunia was founded by Professor Reichenbach in the *Botanische Zeitung*, 1852, p. 764, upon Phaius albus, as it was then called, and the pollen masses are stated to be four in number; but in the figure of this plant given in the *Botanical Magazine*, t. 3991, and which is quoted by Professor Reichenbach, eight pollen masses are represented, and in the flowers I have examined I find eight pollen masses, but in the flowers of Thunia pulchra I only find four pollen masses. And in enumerating other differences between Phaius and Thunia in the *Gardeners' Chronicle*, 1881, vol. xvi., p. 166, Professor Reichenbach again says that Thunia has four pollen masses and Phaius eight. Certainly in T. pulchra I find four only, and in T. alba eight distinctly. And then the question is, do the pollen masses of T. alba vary in number? This is no doubt the case, as it would be absurd to suppose that our Orchid King is incapable of distinguishing between four and eight. But, on the other hand, if the pollen masses vary in number in this way, there is nothing but habit to distinguish Thunia from Phaius, and habit alone is scarcely sufficient to warrant the separation of otherwise closely allied plants, or we should have to break up such well known and easily recognised genera as Oxalis, Pelargonium, Euphorbia, Senecio, &c., into numerous smaller ones, as indeed was done formerly, though now recognised as forming very natural genera, having great diversity of habit. *N. E. Brown.*

The Herbaceous Border.

Grindelia grandiflora.—In my notes on p. 206 this plant is mentioned as a perennial. I find by reference to authorities that it was introduced from Texas in 1851, and figured and described in the *Botanical Magazine*, No. 4628. It is said there to be biennial, and perhaps on this account had slipped out of cultivation, for it is introduced again by Mr. W. Thompson, of Ipswich, in his catalogue of 1882. From him I obtained seed, which produced plants which flowered so abundantly in autumn, 1882, that I thought the plant must be annual; but during winter it broke freely round the base, and is now flowering very abundantly again. Whether it will again break from the base I cannot yet say. It is a showy plant, and has the buds covered with a resinous substance, scented like the buds of the Balm of Gilead Fir. As for its hardiness, not a plant was injured in the severe weather last March, when every plant of Grindelia hirsuta was killed in my garden. *C. Wolley Dod, Edge Hall, Malpas, Aug.* 18.

Pelargonium Endlicherianum (p. 212).—"T." writes doubtfully of the hardiness of this plant, and so may be glad to know that it has lived here without any protection for certainly more than a dozen years. It flowers freely, and occasionally produces a few seeds, but is easily increased by cuttings. It is a pretty plant, but would be prettier if it had not the habit of losing its leaves before flowering. Botanically it is interesting, as being almost the only hardy Pelargonium, and almost the only one that is not found in Africa. *H. N. Ellacombe, Bitton Vicarage.*

Sedum populifolium.—This is the best Sedum now in flower on my rockeries, surpassing both S. Ewersii and S. pulchellum, which, I think, come next in merit. It flowers in very large compact racemes or umbels of small starry white flowers, turning to pink; a large mass of it is very effective. Sedum spurium is nearly over, but is exceedingly good where two or three square yards can be assigned to it, within which it can crowd its flowers as closely as they can grow. It is troublesome from the rapidity with which it spreads, and requires constant weeding. There are three distinct colours—rose, which is best and commonest; dark crimson, and dull white. Sedum Sieboldii will not be in flower till the end of the month, but good plants of it, if uninjured by slugs, which are very fond of it, is perhaps best of all. I have been surprised to see some gardeners encourage a variety of this with a pale, unhealthy-looking patch in the middle of each leaf—a deformity which I cannot admire. *C. Wolley Dod, Edge Hall, Malpas, August* 18.

The Flower Garden.

The heavy storms of wind and rain which we have had this summer, and especially during the last few weeks, have tended to mar to a great extent an effective display in the flower garden. While some subjects have made too much growth, others have refused to flower freely, and even the coloured foliaged section are exceptionally dull and colourless; should fine weather, however, now prevail there is yet time to have a bright and effective autumn display.

In order to prevent quick or coarse growing plants from becoming ragged and unsightly constant attention must be paid to pinching, pegging, and tying, and the strictest care should be exercised to preserve cleanliness and neatness at this season, otherwise that which should prove interesting and pleasing becomes simply distasteful and a source of annoyance. There is no department of the garden, especially at this season, where untidiness or neglect is so quickly manifest, nor where it is so objectionable.

When pruning or trimming the plants carefully save for propagation every cutting required; by adopting this practice, and by commencing to propagate sufficiently early in the season, a sufficient stock for the ensuing year may readily be obtained without having recourse to that wholesale mutilation of the beds which becomes imperative when the propagation is deferred too long. The plants also, when struck early in the season, become well rooted and keep through the winter so much better than when propagated late in the autumn. There are a few kinds, however, such as Calceolarias and Violas, to which these remarks do not apply; they are more satisfactory when propagated about the end of September by placing them in a cold frame, in which they should remain undisturbed till the following spring.

Biennials and Perennials.—This is an excellent time to make a sowing of the best and most showy plants in these sections for next spring and summer decoration. Some of the hardier kinds may, when large enough, be transplanted this autumn into the open borders, but the tender sorts should receive the protection of a cold frame through the winter, and be transplanted in spring. Even some of the choice annuals, if sown now, and subjected to similar treatment according to their nature in respect to hardiness, will in the spring and early summer months prove most useful for the herbaceous border. This is a favourable time to propagate, either by cuttings or seeds, those charming herbaceous subjects which, as a rule, do not succeed so well unless so treated annually. Amongst these may be mentioned Pentstemons, Myosotis, Carnations, and many similar plants.

Shrubbery.—Great attention should now be devoted to this part of the garden, not only in judiciously pruning off all irregular and superflous shoots, but also in carefully securing young trees and shrubs from breakage by wind and storms by efficient staking and tying. All evergreen screens or hedges should now be clipped, and trimness and cleanliness should be strictly maintained by frequent weeding, hoeing, forking, and sweeping, not only in and around the more prominent and detached clumps, but also in the more distant secluded nooks and glades which in too many instances do not receive even that small amount of attention required to make them the most delightful and charming spots in the garden. *T. S. C.*

Grapes and Vineries.

Late Hamburghs that are colouring must not be kept at a lower temperature than 65° at night, with a rise of 10° by day, giving air on the front and back ventilators as it is required. When the border is dry water with clear tepid water, doing it in the early part of the day, and use a little fire-heat and extra air to dry up the surface moisture. Early Muscat-houses, from which all the fruit has been cut, if the wood is well ripened, will not now require any more fire-heat, but must have plenty of air night and day, and when the border is dry plenty of clear water at the roots. Muscats that are ripe must be kept as advised in my last Calendar. The latest Muscats will now be changing colour, and when the border is dry water with clear tepid water at a temperature of 85°, and let the evaporating-pans go dry. Keep the night temperature at 70°, with a rise of 10° by day, and leave a little air on the back ventilators all night. Keep a little fire-heat in the pipes to keep the air circulating and warm.

All late varieties of Grapes will now be changing colour, and must be kept at a night temperature of from 65° to 70°, with a rise of 10° by day. If the border is thoroughly watered when the fruit commences to colour it will usually be sufficient until they are ripe, but sometimes, where borders are extra well drained, they will require more water. Let the laterals run wild within reasonable limits. Any young Vines or newly planted vineries where the growth is extra strong must have plenty of fire-heat and air until the wood is well ripened, when it can be reduced gradually and the front and back ventilators be left open night and day. Give them plenty of clear water at the roots. Pot Vines for early fruiting next year will now take liberal supplies of tepid manure-water at the roots, and plenty of heat and air to induce the wood to ripen early, and stand them so that the foliage will get all the light possible. Pull out all lateral growths, so that the sun can penetrate freely among them. Pot-Vines for later work or for planting out next year must have all the room possible, be kept near the glass, and have plenty of water at the roots. *Joshua Atkins.*

The Hardy Fruit Garden.

When the Apricot crop is gathered, an occasional syringing of the foliage and waterings at the roots should be applied. The young growths made now cannot ripen, therefore they should be kept closely stopped, so that all the energies of the tree may be utilised in perfecting the wood it is intended to retain. Water should also be given to both foliage and roots of Peaches and Nectarines as soon as the crop has been gathered; also to late Peaches, as they will swell for some considerable time yet, and the ravages of red-spider will thus be prevented. Water should be withheld from the foliage of trees bearing ripe fruit. Keep the shoots all nailed or tied in. If the nails have not been removed, but allowed to come in contact with the fruit, they will be found to have disfigured them, so that they will neither be fit to send to table or for sale. The wiring of Peach walls obviates this, and is a system far preferable, for many reasons, to nailing.

Pears, such as Jargonelle, Doyenné d'Eté, and Williams' Bon Chrétien, are now fit to gather, and should be taken a few at a time and often of those that separate readily from the tree. It may be found necessary to net up these early varieties from the tom-tits, which are very destructive to them at times. Early kinds of Apples, such as Early Julien, Irish Peach, Keswick Codlin, and others are ready, and should be gathered before they ripen. All young growths on Apples, Pears, and Plums should be kept closely stopped. If red-spider or aphis attack any of the trees, a constant application of the syringe should be made. Lose no time now that the crop of Raspberries has been gathered to cut away the old fruiting canes, that the young ones may have the full benefit of the sun and air. The ripening of the wood of fruit trees is a great point to be studied just now. Sun and air freely admitted between the wood and foliage are the two most essential elements in effecting this, and the art of the gardener is here called in to train the branches and shoots, and so arrange them that free access of these elements be given. Young plantations of Strawberries must be kept well supplied with water until they have made a good start. A border should be selected for planting out a large batch of runners for the early supply next year of good runners to be layered for forcing, and for making new plantations, as, to obtain the best results, it is necessary to get them layered before this work can be conveniently done on the permanent beds. *D. C. Powell, Powderham Castle, Devon.*

Spinach Monstrueuse de Vatry. — As a good sort to sow in autumn for winter and spring use, in addition to those usually grown, the variety called Monstrueuse de Vatry is well deserving of attention. The plant is hardy, a quick grower, forming very large thick succulent leaves, a great advantage in plants that make some of their growth in the cool season. Some cooks object to it as being coarse, but as Spinach is usually pressed through a sieve before being served, the objection does not count for much.

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Aug. 27	Sales of Dutch Bulbs, at Stevens' and Protheroe & Morris' Rooms.
Tuesday,	Aug. 28	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.
Wednesday,	Aug. 29	Sale of Greenhouses, at Southgate, by Protheroe & Morris Sale of Dutch Bulbs, at Stevens' Rooms.
Thursday,	Aug. 30	Sale of Imported Orchids, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
Friday,	Aug. 31	Great National Dahlia Show, at the Crystal Palace (two days). Flower Show at Sandy, Beds. Sale of Imported Orchids, at Protheroe & Morris' Rooms.
Saturday,	Sept. 1	Sales of Dutch Bulbs, at Stevens' and Protheroe & Morris' Rooms.

AMONG the stock objects of interest in Continental towns duly catalogued in guide books as worthy the attention of visitors, Botanic Gardens commonly find a place. From a tolerably large experience, however, we should (with two or three notable exceptions) earnestly recommend the British tourist to shun them. Their condition is for the most part simply deplorable and highly discreditable to the respective universities and municipalities. We are not singling any one in particular for comment, nor are we disposed to blame the managers, for we do not know sufficient of the circumstances of each case, and we know very well that bricks cannot be made without straw. Still the fact remains, and comment on facts as they appear is quite justifiable even if we are not in a position to weigh the attendant circumstances. The primary purpose of botanic gardens proper is of course to afford means for botanical study and investigation. We ought, therefore, not to expect the smaller university gardens to do more than furnish sufficient specimens for the use of the botanical pupils of the medical and science classes, and afford subjects of investigation for the Professor and working botanists in any department. For this purpose a sufficiency of plants, well selected for the purpose and accurately named, is all that is required. The contents of the garden and their arrangement and culture will, therefore, depend very greatly on the proclivities of the Director and the subjects he chooses for study. In so far these gardens hardly differ from private establishments, in which the proprietor is free to do as much or as little as he pleases, according to his own fancy, and in proportion to his means.

But many, perhaps most of these establishments, are of a more public character; they are supported by public funds, and they are open to the public as recreation grounds as well as for the purposes of study. This is obviously the case with gardens supported by the municipalities, and more or less under their control. The condition of these, however, is, as a rule, no better than that of more public establishments. We are aware that some botanists—and among them no less distinguished a one than M. Alphonse de Candolle — think very lightly of botanic gardens as a means of study in comparison with well equipped and well organised herbaria. The comparison is not a fair one; there are many points in which a herbarium cannot compete with a garden, nor a garden with a herbarium—each has its own special advantages which the other cannot share. Because a herbarium happens to be copious and well arranged it does not follow that the garden should be neglected. There are many points in which a garden can and ought to furnish material in a condition which no herbarium or museum could do. For teaching purposes it is clear that large quantities of well selected examples are required, such as are furnished at Edinburgh and elsewhere. This is obvious. Not less important, though in practice it seems to be thought so, is the supply of materials for investigation and research. Even systematic botanists would be benefited by having brought under their eye well cultivated specimens in various stages of development of certain "critical" species; and the descriptive botanist, who confined himself simply to herbarium specimens when he had living ones within reach, would simply be neglecting his duty and throwing away his opportunities. Without as careful a comparative study of as many species as possible in every stage of growth, it is clear that a student's researches would not only be incomplete, but in so far absolutely faulty and imperfect. His views as to the limitations of species, their affinities, relationship, power, extent, and quality of variation, must necessarily be very imperfect if he do not avail himself of living plants. Botanic gardens should, so far as circumstances allow, provide the means to supply these deficiencies. Then there are whole departments of botany for the study of which no museum, no herbarium can possibly suffice; we allude to microscopic researches into internal structure, mode of growth, and physiological function. These are departments which the tendency of modern science is to develope, and a wide sphere of usefulness lies open to botanic gardeners and the directors of such establishments in supplying these requirements.

So far we have had in view the requirements of science alone. But in the case of a public garden—of a botanic garden to which the public has access, and for which it pays directly or indirectly — the scope becomes widened. Decorative gardening here asserts its claim. The garden should be a centre from whence correct horticultural taste may be diffused. The visitor should, so far as his means will allow, see the best of everything grown in the best way and arranged in the most attractive manner. We are not counselling the employment of ribbon borders, carpet beds, and similar abominations, though as these find favour with a large section of the public they might be provided in moderation. But a botanic garden of the kind we advocate should furnish an opportunity for the public to see better and more varied things—should allow people an opportunity of seeing what they cannot do now—what a wealth of available material there is, and enable them to judge of the suitability of particular things for special situations and special purposes. The general public is getting tired of the endless monotony of the bedding-out system—its taste is in course of improvement, and botanic gardens should largely supply the remedy. Moreover, if bedding-out is to be practised—and we are far from wishing to see it entirely abolished—there are always the town squares or the neighbouring parks where this style of gardening can be appropriately carried out to any extent that may be thought desirable, though even here we are strongly of opinion that a very large proportion of the outlay might be much more profitably spent in other directions.

Again, a public botanic garden of the kind we are alluding to should naturally adapt itself to the particular requirements of the neighbourhood in which it is placed; thus, in the garden at Dijon, in the centre of the Burgundy Vine district, it was a very happy thought to get together all the varieties of Vine suitable to the soil and climate, to show their capabilities, and illustrate their differences. At Dijon we were told recently no fewer than 1000 different, or supposed different, sorts of Vines, were once collected together, and kept under name, till the fell Vine-louse destroyed the whole. This circumstance leads us to speak of another use for such gardens. Where better could those preliminary trials of remedies, of methods of combating or of evading the disease be instituted?

Another point in which botanic gardens might prove most serviceable would be in ensuring correct nomenclature, and in eliminating erroneous names and useless synonyms. The most rigid care should be taken in ensuring correct labelling, so as to make the garden the authority to which neighbouring gardeners should look for the correct names of their plants. If these requirements were duly fulfilled, the botanic gardens, instead of being deemed useless, as they now are by some, would vindicate themselves in public estimation, and they would cease to be the dreary forsaken wastes they too often are. It is not that botanic gardens are useless, it is that their resources are not developed, and it is for our Continental friends—for it is of Continental gardens we are now more particularly speaking—to see to it, that the establishments under their charge should be made to fulfil the general requirements of students and professors and the special demands of the locality, serve as trial grounds and experimental gardens for the promotion of taste, the development in right grooves of horticulture, and the promotion of the agricultural and industrial resources of the country. These are worthy objects, and a properly managed botanic garden should afford ample means for promoting them.

—— Tropæolum polyphyllum. — This very distinct and showy plant is a native of Chili, inhabiting the Cordilleras at elevations of 6000—9000 feet. It grows gregariously, and in some localities it occurs in great profusion, forming a very conspicuous object. The root is tuberous, and the stems are naturally trailing in habit, varying in length, according to soil and situation, from a few inches to 7 or 8 feet—that is, in a wild state. The crowded leaves are of a glaucous green, and the flowers of a rich yellow, the upper petals streaked with red. Introduced by Knight of Chelsea, more than forty years ago, it seems to have never become common in gardens, though it has come more into favour within the last ten years. The plant does not seem to be at all particular as to soil or situation, but the rockwork is undoubtedly the most fitting position for it. We have seen it growing in the greatest luxuriance in an ordinary herbaceous border, but it is not seen to such great advantage as on a rockery. The specimen from which our illustration (fig. 37) was prepared came from Messrs. Paul & Son's new nursery at Broxbourne.

—— The Grand National Dahlia Show.— Many of our readers will no doubt be glad to have a reminder that the grand annual exhibition of the Dahlia—queen of autumn flowers—at the Crystal Palace is near at hand. The show, in fact, opens on the last day of the present month (August 31), so that arrangements to visit it require to be made promptly. So far as we have seen Dahlias are blooming both early and well this year, and therefore we may anticipate that the show of 1883 will be a good one, as it ought to be, seeing that over £100 are offered in prizes. We note that the schedule makes provision for the exhibition of the different groups of varieties—show flowers, fancies, pompons, and singles; so that it should bring into one focus a complete illustration of the types which have been evolved from the wild Mexican weed since the florists have taken it in hand. As an autumn decorative flower the Dahlia is one which none of us can afford to dispense with, whatever type we may each prefer. We, therefore, trust that the growers will muster in force and make this second annual gathering even more worthy of its object than the first, ensuring such a display as may serve to bring the flower again into prominence, the more so in that every possible taste may now be fully satisfied. We understand that the committee have made arrangements by which town and country friends and admirers of the Dahlia may meet and interchange their experiences over a modest luncheon. May they each carry away pleasant recollections of the *réunion*.

—— Gardeners' Royal Benevolent Institution.—Those of our readers who were present at the late annual festival of this Institution, will not have forgotten the remark made by Mr. Bruce Findlay, that gardeners were nothing if not practical, and when he emphasised the observation by undertaking to raise the sum of £200 in aid of the Pension Augmentation Fund, by getting some of his friends to open their gardens at a small charge, it was a moral certainty Mr. Findlay would keep his word, for he above all things is a practical man. Well, the first of the series of *fêtes* which Mr. Findlay undertook to

FIG. 37.—TROPÆOLUM POLYPHYLLUM : FLOWERS YELLOW.

initiate came off on Saturday last with most gratifying results. The scene of the day's operations was Lord Delamere's fine garden at Vale Royal, near Northwich, Cheshire, and though, we understand from a private source, his Lordship's gardener, Mr. Milne, the chief organiser of the affair, could only give a week's notice through the local papers of the intending *fête*, over £80 was taken. We are informed also that Lord and Lady Delamere manifested great interest in the event, and did much to bring about the desired result. It is certain that in this way the sum required for permanent investment before the pensions can be augmented could be easily raised if gardeners in charge of good establishments would but move in the right direction. The little effort required to organise a series of successful local *fêtes* of this character would be abundantly recompensed by the knowledge that nothing but good would result from the labour involved. Perhaps Mr. Milne will tell us what arrangements he made, in the hope that others may take the hint.

—— Gloxinias.—Some time since, commenting upon a box of cut Gloxinia blooms exhibited at a metropolitan suburban show, we pointed out what a charming cut flower class small bunches of these flowers set up in Fern fronds would make. At that same show this year that idea was so far adopted that a class for twelve kinds in bunches was instituted, and there were eight boxes of blooms staged, forming one of the most charming of cut flower classes. The gardener who exhibited for naught the preceding year on this occasion put up his blooms in bunches of three, each bunch being neatly dressed with Maidenhair Fern, and then set into fresh green moss; and as the blooms were all of the erect section and first-class, they were fully worthy the honour they obtained. Remembering this event with pleasure, we were therefore not a little surprised to find an esteemed horticultural authority decrying in the pages of a contemporary the exhibition of blooms of Gloxinias as cut flowers, chiefly on the ground that in so doing the habit of the plants was not seen. Surely such an objection could not have been seriously meant. The same objection would apply with ten times the force to Dahlias, Roses, Carnations, Pansies, and scores of other things, the which we may take it for granted our critic has judged hundreds of times in the past, and has never thought in the case of these flowers such a suggestion was reasonable. He admits that Gloxinias in the form of plants are difficult to carry to any considerable distance without injuring the flowers, but then in the cut state a box of these can be taken any distance without injury. Good habit is always allied to good flowers in any good strain of Gloxinias, and good strains are now plentiful. In spite of what has been said disparagingly, we heartily advise exhibition committees to make a class for cut Gloxinias at all summer shows next year.

—— Flora of Brecon.—In our notice of the second edition of Watson's *Topographical Botany* we stated, on the authority of the editors' preface, that only two of the counties or vice-counties remain totally unreported upon. That is true so far as *Topographical Botany* is concerned, but the Rev. W. W. Newbould, one of the editors, has kindly called our attention to two lists of plants found in Breconshire and published in the reports of the Botanical Record Club for 1874 and 1882. So the only totally unknown county flora is that of Wigton.

—— The Amenities of the Seed Trade.—A few days since we attended a provincial flower show of some consequence, and among the prizes offered in the schedule was one for six dishes of vegetables, the prizes being offered by one of the large advertising seed firms. Something like fifteen or sixteen collections were staged, and just previous to the clearing of the tents for the judges, a representative of the firm offering the prizes laid among the collections cards stating that the articles exhibited were grown from seeds supplied by the donors of the prizes, though this was not made a condition of the competition. The representative of another large firm then appeared on the scene, and objected in the most earnest manner to these cards being exhibited, asserting that many of the exhibitors were customers of his firm. The secretary and managing committee were appealed to, and decided to remove the objectionable cards, which was at once effected. The offending firm could plead with much show of probability that their object, as well as that of other firms, in offering prizes of this character was to make trade, and that it was a common practice to make all the use possible of flower shows in this direction. We know that this is so, and we know also that in order to compass this end some audacious means are employed similar to that alluded to. The seed firms specially interested in this matter must fight it out among themselves, but what should be the duty of managers of flower shows? Clearly this, to discourage by all means in their power the making of their show an advertising medium. This can be done by objecting to the unnecessary and indiscriminate display of trade placards. A short time since we were at a country show where a seedsman offered prizes for a speciality in seeds he distributed. The exhibit occupied a space of 1 yard square or thereabouts in a tent, but he deluged the whole of this and the other tents with trade circulars. This practice has been allowed to go on unchecked, and it is grossly abused. On the score of morality also these practices should be checked, for we have seen prize vegetables claimed by one firm as having been grown from their seeds, when it has been known, *sub rosa*, that the seeds came from a rival house. The show managers are masters of the position; let them state distinctly the practice must cease, and enforce their determination by all legitimate means. It is only by doing this that any satisfactory abatement of the evil can be brought about.

—— The Foreign Crops of Garden Seeds.—The most recent accounts of the prospects of the German seed crops (and considerable quantities of seeds of German growth are annually imported into this country) show that Cauliflower is of excellent quality, the seeds fine and large, and the yield good. Cabbage seeds promise to be a thin crop, owing to the plants having suffered from frost at a critical time in March last, but the seeds which have developed promise to be good in quality. A very small supply of Carrot seed is expected, owing to the influence of bad weather in spring. Spinach promises well, and the yield will be plentiful. Peas are a good crop and sample, but suffered through rains falling just when ready for harvesting. Dwarf Kidney and Runner Beans may still yield a fair crop should the weather prove fine and drying. They are late, and wet, cold weather would be decidedly injurious. English Broad and Longpod Beans promise a poor crop. Radish is very late, and the yield will be a moderate one. Onion and Leek promise well, notwithstanding some damage from storms, but the yields will not be very large. The Queen and Nocera, being both early varieties, were damaged by frost early in the season. Celery and Parsley are both good up to the present time, but so much depends on the character of the weather during the remainder of August and September that what now promises well may be disappointing ere the season closes. Fine ripening weather suitable for the proper ingathering of the harvest would prove a national blessing at home and abroad.

—— A New Pea.—Messrs. Hurst & Son have sent us some pods of a new Pea which they are about to send out, and which appears to us to well deserve that honour. The pods are straight, and of bulky proportions, containing eight to eleven Peas, which fill out while quite young, a characteristic not common to all large-podded varieties. The inside of the pod is of that rich silky green colour peculiar to the Ne Plus Ultra type, to which it evidently belongs. The Messrs. Hurst state that it is of a vigorous habit of growth, growing about 5 feet high, and very prolific. It comes nearest in appearance to one of Mr. Laxton's seedlings named Gladiator, which the Messrs. Veitch have in their trial grounds at Langley, but that, if we remember rightly, is not so tall a grower.

—— Lavatera arborea variegata.—It will be remembered that this fine plant was awarded a First-class Certificate of Merit as a decorative agent by the Floral Committee of the Royal Horticultural Society a year or so ago. We saw it a few days since growing at the Portland Road nurseries of Messrs. Sutton & Sons, at Reading. The plants had been raised from seed early in the year, showing that it comes true to character in this way; and having been planted out in a warm sunny border they had grown into a great size, and were highly attractive. If it will stand unharmed through our English winter, and maintain its striking variegation through that season of the year, it will prove doubly attractive. At any rate, it will make an excellent conservatory plant for the winter if grown in pots.

—— Eucalyptus in Malaga. — The British Consul at Malaga says the cultivation of the Eucalyptus has of late attracted considerable attention in that province, which has been deprived of all but fruit trees in order to supply the constant demand for charcoal, caused by the extensive use of this fuel for cooking purposes. Large numbers of Eucalyptus in a healthy and flourishing state may now be seen along the line of railway from Malaga to Bobadilla and in other places, and they are reported to have been effective to some extent in destroying fevers in the low districts, which were formerly uninhabitable. These trees are also successfully used to form avenues and afford protection from the sun on the roads near the city.

—— Galtonia (Hyacinthus) candicans from Seed.—It is well known that this plant seeds with remarkable freedom; but, unlike H. orientalis, flowering plants are obtained from seed in two, and sometimes one year. We recently saw in Messrs. Sutton & Sons' nursery at Reading, a large breadth of this plant flowering the second year from seed, the plants of amazing strength, and having already thrown up one fine spike of flowers, which is now maturing its seed-pods, it is already throwing up a second spike in the case of a large majority of plants, and this promises to be as fine as the first spike. The seedlings were planted in the open ground as soon as large enough, and, as already stated, many flowered the first year; the bulbs were lifted in autumn, planted out again in spring, and now the plants are as strong and vigorous as any one can desire to see them. The light sandy soil of the Portland Road Nurseries at Reading evidently suits this plant well, and enables it to reach so fine a stage of development in so comparatively short a time. It is probable that a soil suited for American plants would suit this Hyacinth well.

—— Benham Beauty Melon.—This is a new scarlet-fleshed variety raised by Mr. Howe, Benham Park Gardens, between William I., scarlet, and Hero of Lockinge, white flesh. It has the pale golden skin of the last-named, but is flatter in shape, with slight furrows, as in the case of the Cantaloupe; the flesh pale scarlet, the rind thin, the aroma perfect, the flesh juicy, melting, and exquisitely flavoured. It appears to be a fine and valuable addition to the scarlet-fleshed class, and was awarded a First-class Certificate of Merit at the recent show of the Reading Horticultural Society.

—— Agricultual Returns.—From a summary of the agricultural returns of Great Britain for the present year, issued on the 17th inst. by the Agricultural Department of the Privy Council, we learn that the acreage under the five main crops are:—Wheat, 2,613,147; Barley, 2,291,984; Oats, 2,975,377; Potatos, 543,455; and Hops, 68,027. As compared with the returns for 1882 there is a decrease to the extent of 390,813 acres in the case of Wheat; but an enlarged acreage in the case of each of the other four crops; thus of Barley the increase amounts to 36,715 acres; Oats, 141,512 acres; Potatos, 2391 acres; and Hops 2408 acres. The live stock returns show a considerable increase all round.

—— Royal Botanic Society: the Results of Hero Worship.—Mr. Hyde Clarke writes to the *Athenæum*:—"My friend the late Mr. Philip Barnes, when he founded the Royal Botanic Society in the Regent's Park, being a strong Linnæan and F.L.S., was seized with the idea of holding our anniversary meeting on the birthday of Linnæus. This is all very well for Linnæus, but as he chose to be born in the end of August and we are limited to a fornight from it, I have for a great number out of forty-four years gone to the Inner Circle mostly to make up a bare quorum in the middle of the day. As the eminent members of the Council are not in town, they are unaware of the hole-and-corner gathering. To this celebration and the want of supervision by the Fellows, I attribute the stationary condition of the Society. The income stated to-day is a little behind last year, and about the same as for the two previous years. Only £200 was paid off the debenture debt, and a small addition to the Winter Garden is being made by an assessment on such Fellows as chose to contribute. I have several times brought before the

other dozen Fellows attendant the desirability of amending the charter, so as to have the meeting at a reasonable day and hour. This used to be resisted by the Council on the ground of the cost of an additional charter, possibly amounting to £400. Now that applications can be made to the Privy Council at an expense of under £100, it appears very desirable to restore vitality to a society which might be made more useful." *Aug.* 11.

—— Mr. Lye's Fuchsias.—A few days since an eminent nurseryman made the remark that the Fuchsias raised by Mr. J. Lye, of Market Lavington, included "some thoroughly good things." But they find their way very slowly into cultivation. This is in all probability because the method of distribution is one not calculated to bring them prominently before the public. In all his attempts to improve the Fuchsia Mr. Lye has aimed at two main requisites—a free branching bushy habit, and rare floriferousness. The fact that he now, almost without exception, cultivates his own seedlings for exhibition purposes is perhaps the best testimony that can be offered to their value. We have this season grown the following varieties raised by Mr. Lye:—Dark sorts: Elegance, one of the finest formed varieties in cultivation, a good grower and very free; The Hon. Mr. Hay, a good exhibition variety, and excellent grower and very free; Thomas King, very fine habit and wonderfully free; and Lye's Rival, a variety that flowers in large clusters, so free is it, clothing the plants with finely formed flowers. Light varieties: Mr. Bright, an excellent grower and very free, grown for exhibition; Mrs. J. Lye, fine habit and highly effective; Mrs. King, a very free and pleasing variety; Lye's Favourite, one of the best light Fuchsias ever raised, massive well formed flowers, excellent habit and very free; Harriet Lye, a charming variety for all purposes; and Clyffe Hall Beauty, a large flowered variety, of conspicuous merit, very free and effective. For ordinary decorative purposes all the foregoing are specially worthy attention. Mr. Lye has this week favoured us with flowers of his seedling Fuchsias of this year's growth, one or two of which appear to us to be of high decorative value. Of four red-sepalled varieties our fancy rather leans to one with a dark purple plum-coloured corolla, composed of broad, well rounded petals. The sepals and tube are of a good solid sealing-wax colour, and the contour of the whole flower very pleasing. Another pretty one has lighter coloured tube and sepals, and a pretty bluish-purple corolla. Of three white-sepalled forms, we prefer one with a bright cerise corolla, in which the tube and sepals are of the purest white. The others, though pretty, as indeed all Fuchsias are, seem to be hardly so distinct as those specially alluded to.

—— Gold Fish.—An addition to these pretty denizens of our ornamental waters has been made by Lord Arthur Russell, who imported from Wiesbaden to Woburn Abbey specimens of the "Orfe." It appears from *Nature* that this is a golden coloured variety of a fish (Leuciscus idus) allied to the chub, and cultivated for centuries in Bavaria. The fish have now become established at Woburn, where they are preferred to the ordinary gold fish on account of their larger size, livelier habit, and more rapid reproduction.

—— Rose Pudding.—Shall we say, in deference to those who would be hurt by such a title, *Confiture des Roses?* At any rate, here is a recipe which we copy from the *Revue Horticole*:—Take 225 grammes of Rose petals, 125 grammes of biscuit-flour, 25 of sweet Almonds, 12 yelks of eggs, beaten up with 250 grammes of powdered sugar (a gramme is equal to 15 grains). Stir the ingredients for a quarter of an hour, adding three-eighths of a litre of cream (a litre is rather more than 1½ pint), a teaspoonful of [powdered?] cinnamon, and a pinch of salt. The whites of a dozen eggs whipped is then poured over the whole, which is placed in moulds or dishes previously greased and flowered. The pudding is to be boiled in a water-bath—*bain marie*—for an hour and a half.

—— Exposition d'Horticulture de la Société Royale Linneenne de Bruxelles.—At the exhibition of this Society at Brussels on Sunday last, which took place in the new market, the Gold Medal offered by the King for the most remarkable group of plants was awarded to M. Demesmaecker, and the Prix d'Honneur to M. Van der Meulen. M. Peeters showed a fine collection of Bromeliads, including Massangea tigrina. Messrs. Cannell, of Swanley, received a large Silver-gilt Medal for their superb collection of cut flowers of Dahlias and zonal Pelargoniums, and His Majesty, who was present on the occasion, expressed admiration for the manner in which this fine collection had travelled so far in so fresh and life-like a condition. There was nothing in the show in the cut flower way equal to this collection, and Mr. Cannell may be congratulated on his success in this special florist business, to which he is so devoted.

—— Venetian Furniture.—The following note from a recently issued report from Venice indicates a prevailing taste in this country:—"A new feature of Venetian industry, which appears to be encouraged by the English on a large scale, is the imitation of antique furniture in ebony and ivory, for which materials Pear-wood and bone are substituted. Carved chairs, book-cases copied from the antique, figures of negroes, and others used as lamp-stands, hanging baskets, supported by a ribband of wood, and holding flowers, &c., are also made in the Venetian workshops with much artistic feeling, and of excellent execution."

—— Plants of Bulgaria.—We have recently seen an enumeration of Bulgarian plants by Dr. J. Pancic, with an introduction in Russ, which we have not read. The author adds descriptions of a considerable number of proposed new species.

—— The "Compendium of the Italian Flora" proceeds at no very rapid rate. It has now reached its thirty-first number, and ninety out of the 130 plates are completed. It may be well to remind those not familiar with the work that it consists of a concise and comparative descriptive list of all the plants of the Italian peninsula, illustrated by careful analytical drawings of all the genera.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending August 20, issued by the Meteorological Office, London:—The weather has been generally fine at all the eastern and southern stations, but less settled in the western and north-western, where, during the earlier part of the period, showers and cloudy skies were experienced. Temperature has been slightly above the mean in "England, N.E.," and equal to it in "Scotland, E.," and "England, S.," but below it in all other districts, the deficit being 1° or 2°. The maxima were measured in most places at the end of the period, and varied from 68° in "Ireland, S.," to 78° in east and central England, and 81° in "England, S." The minima, which were recorded on different days in various parts of the kingdom, were as low as 39° in the "Midland Counties" and "England, S.," and between 41° and 46° elsewhere. Rainfall has been less than the mean in all districts. Bright sunshine has been rather less prevalent in Ireland than during last week, but more so in most other parts of the country. The percentages of possible duration varied from 24 or 25 in Ireland to 31 in "Scotland, W.," and 49 in "England, E." Depressions observed.—During the greater part of this period the barometer over our islands and Scandinavia was influenced by depressions travelling in an east-north-easterly direction, while in France pressure was comparatively high and steady. On the 19th, however, the high pressure area extended over our islands; but on the 20th, when a disturbance passed outside our extreme western coasts, it again receded somewhat. The winds were generally between S. and W., or N.W., and during the earlier days of the period blew freshly or strongly, occasionally reaching the force of a moderate or fresh gale at some of our western and northern stations. On the 20th, also, a moderate to fresh gale was experienced in Ireland and the west of Scotland.

—— Gardening Appointments.—Mr. Wm. Rushton, Foreman at Drumpellier, as Gardener to Lady Maxwell, Calderwell Castle, Lanarkshire, N.B.—Mr. A. Ocock, for the last three and a half years General Foreman at Preston Hall, Aylesford, Kent, as Gardener to Major Roberts, Holborn Court, Snodland.—Mr. Irving, for over twenty years Gardener to the Duke of Hamilton, at Easton Park, as Gardener to E. Riggeo, Esq., Sefton Park, Bucks.

FRUIT NOTES.

The Apples Sabarot and Etienne Pioux.—From amongst the local sorts of French Apples we have selected two which in many particulars have become eminent, and which deserve to receive our attention, and as they are kinds that do as well with us as they do there, should be taken in hand by our own nurserymen. We call their attention to these kinds so that they may make experiments, with the view of recommending their extended propagation, and the more so that it is not at all requisite to graft or bud them on a stock, but simply to increase by division of the suckers or brood that arise from root and stem, as is done with the Paradise or Splitt Apple. We take the description of these two sorts from the pages of the *Revue Horticole*, 1883, 217. The sorts are peculiar to the Isle Re, where they are grown in great numbers. The islet lies on the west coast of France, opposite the old Huguenot fortress, La Rochelle, and are there known as Pomme Sabarot and Pomme Etienne Pioux. Left uncultivated they reach a height of stem of about 6 feet, making magnificent heads, which bear most abundantly every year. They are not worked at all, as has been mentioned, but are simply torn up by the peasants, and, regardless of their having roots or not, are stuck into holes in the earth, made by an iron dibble, such as is used in planting young Vines. Probably it will be possible to use these kinds as stocks for other Apples, or for pot culture, for which purpose they seem to possess the necessary qualifications. The variety Sabarot makes vigorous growth, the leaves generally being large, longish oval, light green on the upper side, and whitish-green below, and coarsely toothed. The blossoms are large, flesh coloured; fruit medium, about 2¼ inches in diameter, and 2 inches high; the stalk thin, in a deep hollow, above which it seldom reaches; the eye open, and surrounded with a slightly folded hollow. The rind bright, light yellow, more or less spotted with red, and sometimes washed with rose on the sunny side. The flesh is white, firm, sugary, slightly acid, and pleasantly refreshing. It ripens from November—April. It has been cultivated in the parish of Des Portes, at the extremity of the island, from very early times. The Apple Etienne Pioux is also of vigorous growth, has many branchlets, and forms a roundish broad head; the leaves are large, dark green on the upper side, white and woolly on the under, longish oval and coarsely toothed. Fruit tolerably large, conical, over 3 inches high and broad. Stalk short, thin, in a small deep hollow. Eye open, in a very much folded basin. Rind smooth, thin, dark red over the great part of the surface, here and there striped with brown. Flesh white, somewhat yellowish, rosy under the rind, short and tender together; juice abundant, sugary, very slightly acid, with a pleasant musky aroma. Ripe from November—April. This sort is much grown in the parish Sainte Marie, about 7 French miles distant from Des Portes, and is distinguished by its beauty and fertility. *Garten Zeitung.*

Frogmore Prolific Apple.—I notice in Fruit Notes lists of prolific Apples which ought to be planted in quantity. In every list are included those three old favourite sorts—Lord Suffield, Stirling Castle, and Ecklinville Seedling; but in the gardens here not one of these can be compared with Frogmore Prolific either in size, fertility, or keeping qualities. So highly do I think of it, and so profitable have I found it for Covent Garden, that last March I grafted six dozen seedlings with it. Ecklinville Seedling, I must however say, to be perfectly fair, will keep longer. Be the season good or bad, Frogmore Prolific has always been loaded with very large and solid Apples. It can be used as early as Lord Suffield, and will keep to Christmas, which his lordship will not do; again, it is nearly double the size of Stirling Castle. Betty Geeson and Emperor Alexander I have also proved to be very prolific and profitable sorts to grow. Beauty of Hants, although not quite so good in quality as Blenheim Orange, is more prolific, and the trees come into bearing sooner. The two Apples are kindred in many respects. An Apple that kept sound with me this year without shrivelling till the end of April was Jonathan. It is not a free-bearing sort, but is a good late dessert fruit. Can any of your readers give hints how to cultivate successfully Cornish Gilliflower and Esopus Spitzenberg? The former I think, as it fruits on the tips of the shoots, should not be touched with the knife. While on the subject I must not omit to

mention as valuable and prolific Apples Jacques Lebel and Dredge's Fame: the former ought to be planted however small the collection. *W. Carmichael, Newton, Bury St. Edmunds.*

Reine Claude Violette Plum.—This delicious little Plum is well worth growing for early use on east or west aspects. In the South it ripens in August on walls—later on bushes or in pots in an orchard-house. It is equally good for dessert compots or preserving. For dessert use the fruit should hang till it is slightly shrivelled, after which it should be gathered quickly, as it then easily detaches itself. When gathered for preserving uses the fruits are better plucked before shrivelling begins. It is a very abundant bearer, the fruits usually hanging in clusters. The colour is dark blue, with a mealy-like bloom on it. The tree is hardy, and a moderately strong grower in good Plum soils. *M.*

Orchard Fruit Prospects.—I am beginning to get rather dispirited as to how the orchard fruit crops will finish, they are swelling off so badly. Pears are but about half or two-thirds their usual size, and are late in maturing into the bargain at that—Doyenné d'Eté and Green Chisel only just ready to get, and August 20 here [Notts], and some that I gathered off an early bush in the garden have ripened woollily, and have little flavour in them. Jargonelles and Bon Chrétiens are only half their ordinary bulk. Apples are the same. Keswick Codlins are small, and though some have been gathered they are not up to their average size or quality; the same may be said of the Russian Apple or Duchess of Oldenburg—I am gathering these to-day (August 20.) Possibly the present fine sunny days may bring a change; it is to be hoped so, as a change is much to be desired. We have any amount of Apples, but I would prefer to have fewer, and of fuller size, than such an abundance of small and imperfect fruits as at present cover the trees. *N.*

Reine Claude de Bavay Plum.—This is a dessert Plum of great excellence, ripening in the southern parts of the kingdom late in August and September when grown on west or east walls, and somewhat later on bushes. When thoroughly ripe the fruits are violet and yellow if they have been well exposed to the sun, and only yellow if not. It is luscious and rich, and only slightly less sweet than Jefferson when in its best condition; but being rather earlier than that kind on the same aspects, it will often be at his best when the Jefferson, ripening a week or ten days later, will be deficient in quality owing to want of sun and warmth. The fruits are rather larger than a well grown ordinary Green Gage; it is a vigorous grower in suitable soils, setting freely, but seldom bearing two abundant crops in succession. *M.*

ASCENT OF THE VOLCANO OF CORAZON.

In proportion as we ascended the *lomas* or slopes garnished with short grass, I noted the presence of plants which I had never before observed, or which presented themselves to me with an abundance and an arrangement new to me. The Dandelion of the Andes (Achyrophorus) is only met with here in its white flowered variety, and the golden variety is no longer to be found. The Acænas (Acæna sericea, and A. lappacea) are covered with bristly red heads. Carpets of the little white Myosotis creeping over the high Cordilleras clothe them with their verdure, and are dotted with myriads of little white flowers. Berberis multiflora, Baccharis genistelloides, and Gaudichaudiana twine their short twisted branches along the soil, as the furious wind of these heights prevents them from growing erect. A charming Composite, with white flowers, Vernonia disticha, the "Romerillo" (Hypericum laricifolium), Chætogastra sulfurea, a Melastomad with sulphur-yellow flowers marked with brown; an Acipurea, with azure perianths; the tiny corolla of the "Vergonzoza" (Gentiana sedifolia), the violet flowers of another Gentian (G. cerastoides), the astonishing Psittacanthus terrestris, the only known terrestrial Loranth; the Feretia pungens, with charming blue heads of flowers, like those of a Stokesia—all these arranged in groups and spread out in the most charming disorder, while the bitter wind made us bow our heads on the necks of our mules. At the coldest pass of the Paramo the last trees which resist the depression of the temperature and the violent winds are those strange Polylepis, with green flowers, whose bark is cut into thongs that I saw for the first time. *Ed. André, "Le Tour du Monde," pp.* 394-96.

LIST OF GARDEN ORCHIDS.

Epidendrum.—*Continued from p.* 204.

116. E. (Aulizeum) Kermesinum, Lindl., *Fol. Orch.*, n. 94; *Walp. Ann.*, vi., p. 349; *Ill. Hort.*, xxviii., p. 96.—Venezuela. Introduced by Linden in 1842. Near E. erubescens; sepals and petals red, tipped with yellow; lip white, spotted with crimson.

117. E. (Euepidendrum—Subumbellatæ) lacertinum, Lindl., *Bot. Reg.* 1841, Misc., p. 53; *Gard. Chron.* 1841, p. 503; *Journ. Hort. Soc. Lond.*, ii., p. 309, with a fig., copied in *Fl. des Serres*, t. 376; *Fol. Orch.*, n. 252; *Walp. Ann.*, vi., p. 403. *E. indusiatum*, Klotzsch; Otto and Dietr., *Allg. Gart. Zeit.* 1854, p. 177.—Guatemala. Cultivated by Loddiges. Flowers bright green, except the yellow column, and a little purple stain on the lip. The latter is described as resembling the hind part of a lizard projecting from the centre of the flower.

118. E. (Euepidendrum—Amphiglottideæ) lacerum, Lindl., *Bot. Reg.* 1838, Misc., p. 17; *Fol. Orch.*, n. 232; *Walp. Ann.*, vi., p. 395.—Cuba. Introduced by Captain Sutton; cultivated by Sir C. Lemon at Carclew. A slender species, with narrow grassy leaves, and small pale, rosy flowers.

E. lactiflorum = falcatum.

E. læve = paniculatum.

119. E. (Aulizeum) lambda, Rchb. f., *Bonplandia*, 1854, p. 281; *Walp. Ann.*, vi., p. 358; *Ill. Hort.*, xxviii., p. 96.—New Grenada. Introduced by Linden in 1849. Closely allied to E. fragrans.

E. lamellatum = stenopetalum.

120. E. (Aulizeum — Holochila) lancifolium, Pavon; Lindl., *Gen. and Sp. Orch.*, p. 98; *Fol. Orch.*, n. 129; *Walp. Ann.*, vi., p. 359; *Bot. Reg.* 1842, t. 50; *Gard. Chron.* 1842, p. 639.—Mexico and Guatemala. Like E. cochleatum, but sepals and petals shorter, and lip quite spoon-shaped, without any tendency to lobing at the edge. Flowers pale green; lip marked with deep crimson radiating streaks.

E. Lansbergii = polyanthum.

121. E. (Euepidendrum — Subumbellatæ) latilabre, Lindl., *Bot. Reg.* 1841, Misc., p. 77; *Gard. Chron.* 1842, p. 24; *Fol. Orch.*, n. 249; *Walp. Ann.*, vi., p. 403.—West Indies to Peru and Brazil. Cultivated by Loddiges. Like E. umbellatum, but having a lip four times broader than long.

E. leiobulbum = varicosum.

122. E. (Aulizeum) leopardinum, Rchb. f., *Linnæa*, xli., p. 112; *Ill. Hort.*, xxviii., p. 96.—Ecuador? Introduced by Linden.

123. E. (Euepidendrum—Subumbellatæ) leucochilum, Klotzsch; Otto and Dietr., *Allg. Gartz.* 1843, p. 145; Link, Klotzsch and Otto, *Ic. Pl. Rar. Hort. Berol.*, p. 113, t. 46; Lindl., *Fol. Orch.*, n. 158; Lindl. and Paxt., *Fl. Gard.*, iii., p. 146, fig. 303; *Walp. Ann.*, vi., p. 369; *Gard. Chron.*, n. s., iii., p. 780. *E. flavidum*, Lindl., *Orch. Linden*, n. 48.—New Grenada. A robust species, having medium size flowers, with narrow green sepals and petals, and a pure white labellum and column.

124. E. lilacinum, Linden, *Ill. Hort.*, xxviii., p. 96.—New Grenada. Introduced by Mr. J. Linden. I have found no description of this.

125. E. (Encyclium—Sarcochila) limbatum, Lindl., *Bot. Reg.* 1843, Misc., p. 69; *Fol. Orch.*, n. 17; *Walp. Ann.*, vi., p. 325.—Guatemala. Introduced by Skinner and cultivated by Loddiges. Similar to E. glaucum, but larger, and its flowers have roundish sepals and petals, like E. squalidum.

E. Lindenianum = auritum.

126. E. Lindeni, Lindl., *Bot. Reg.* 1845, Misc., p. 48; *Fol. Orch.*, 227; *Walp. Ann.*, vi., p. 393.—Venezuela. Cultivated by Messrs. Loddiges. Near E. Schomburgkii. Hort. Kew.

E. linearifolium = aciculare.

E. lineatum = campylostalix.

E. lineatum = fragrans.

127. E. (Barkeria) Lindleyana, Rchb. f., *Walp. Ann.*, vi., p. 375. *Barkeria Lindleyana*, Batem., *Bot. Reg.* 1842, Misc., p. 2; *Orch. Mex. and Guat.*, t. 28; *Paxt. Mag. Bot.*, xiii., p. 193, with a coloured plate; *Bot. Mag.*, t. 6098; *Gard. Chron.*, n. s., ii., p. 419.—Costa Rica. Discovered by Skinner, who sent it to Mr. Bateman. A beautiful species, varying in the colour of the flowers. Bateman's figure represents a variety with rich rosy-purple flowers, whilst that in the *Botanical Magazine* is mauve.

128. E. (Encyclium—Hymenochila) Linkeanum, Klotsch; Otto and Dietr., *Allg. Gart. Zeit.* 1838, p. 298; Lindl., *Fol. Orch.*, n. 39; *Walp. Ann.*, vi., p. 332. *E. Pastoris*, Lindl. and Otto, *Ic. Pl. Rar. Hort. Berol.*, t. 12, non Llav. et Lex. *E. tripterum*, Lindl., *Hook. Journ. Bot.*, iii., p. 83; *Fol. Orch.*, n. 58.—Mexico. Introduced by Deppe, and cultivated in the Berlin Botanic Garden. Flowers small, dull yellow, streaked with purple; lip nearly white.

E. lividum = tessellatum.

(*To be continued.*)

HOME CORRESPONDENCE.

Successful Flower Shows.—Your remarks under this heading last week as to the advisability of adding other attractions to flower shows besides the productions of horticulture in order to make them financially successful, are confirmed in a remarkable manner by the history of the society with which I have the pleasure of being connected. It may be of some use to struggling provincial societies to be told how the Shropshire Horticultural Society has attained an almost unprecedented success, and may prompt them to try the same method. The first and most indispensable condition is that those who manage a society should be willing to recognise the fact that everybody is not endowed with the same degree of passionate admiration of flowers as themselves, and that horticultural produce pure and simple requires for its full appreciation a culture far beyond what the masses possess. It is very difficult to bring one's mind fully to realise this fact, hence the reluctance felt to resort to any other means of attraction, but once swallow this bitter draught and the cure is effected. Prior to 1876 exhibitions of flowers had died a natural death in Shrewsbury—had reached utter bankruptcy in fact—and everybody shrunk from attempting to revive them on the old lines. It was determined, however, to try what additional attractions would do; a working committee was formed, permission from the corporation was obtained to use the beautiful Quarry Grounds, prizes to the extent of £153 were offered, the band of the Coldstream Guards was engaged at a cost of £102, besides a local band at a cost of £25, athletic sports were organised, and £40 was determined to be spent on a display of fireworks. What was the result? We cleared over and above our expenses £469! Finding we had struck the right key we have played on it ever since, and the following table will briefly give the result, exclusive of subscriptions and sale of tickets:—

	First day.	Second day.	Total.
	£ s. d.	£ s. d.	£ s. d.
1876	82 4 6	189 5 2	271 9 8
1877	92 1 10	381 3 8	473 5 6
1878	104 7 3	528 6 1	632 13 4
1879	65 8 2	398 8 10	463 17 0
1880	124 4 9	653 12 8	774 17 5
1881	....	....	....
1882	134 7 0	824 15 0	659 2 0
1883	156 1 0	1055 7 6	1211 8 6

I much doubt whether any horticultural society in the country can show better results than these. Besides over £312 offered in prizes at the show last week, £250 was spent in music, the bands of the Horse Guards Blue and the Grenadier Guards being engaged, £243 spent in sports and fireworks, £40 in balloon ascents, and £66 in advertising. As already shown above we took £1211 in cash, we sold tickets to the amount of £400, and our subscription list amounts to £390. So that after paying all our expenses we hope to realise a very handsome profit. Besides presenting the Corporation of Shrewsbury with a handsome bandstand, two sets of very elegant iron gates for the Quarry Grounds, large donations to public institutions of the town, we have an invested capital of £1000 against a rainy day. This Society was intended to supersede an annual pageant called Shrewsbury Show, of the Lady Godiva type, which had sunk down into a drunken and disreputable affair; this object led the committee to try the bold experiment of introducing amusements for the multitude, and now the Shropshire Horticultural *Fête* is one of the great attractions of the midland district, over 30,000 people having attended it on Thursday last. That horticulture has not been swamped will be shown on another page by your report. No doubt we are singularly fortunate in having 20 acres of the most beautiful grounds at no cost to the Society, possessing an avenue of Limes unsurpassed in Britain. This ground is shaped somewhat like a lady's fan, the entrance being at the handle, and a central avenue dividing the ground into equal halves, one side being devoted to flower shows and music, the other to popular entertainments, the two branches being kept as distinct as possible. *William Phillips, F.L.S., Hon. Treasurer of the Shropshire Horticultural Society, Aug.* 20. [Floreat Salopia! Ed.

Bouquets of Wild Flowers.—I am so delighted to read your remarks at p. 208, on wild flowers, and fully agreeing with all you say respecting the ugly "bunches" of wild flowers which it has often been my lot to see "huddled up together" at country shows. Permit me to add a few words as to the lovely effect produced by stands of wild blossoms, Grapes, and different Ferns, or leaves well and lightly arranged in a room. I do not think it is

wise, or fair, to exhibit the simple "wildings of Nature," as one of our poets terms them, by the side of their cultivated and more brilliant relatives; but in a room, or on a dinner-table, provided you are so utterly rustic as to dine by daylight, wild flowers can hold their own. Try the effect of a stand filled with "Meadow Sweet" and "Ragged Robin," interspersed with quaking grass; or arrange a few white glass vases with the pale blue Harebell, now in bloom, and wreathe the stems of the glasses with small-leaved, trailing, dark-veined Ivy sprays. In moorland districts you have the various sorts of Heath to select from; and a little later on we shall get autumnal and winter berries for decoration. Dwellers in the country may, if they like to use their eyes, and have a little taste in respect to arrangement, find sufficient materials in the hedge-rows to fill their flower-stands with beauty during every month in the year nearly. *Helen E. Watney.*

Collections of Wild Flowers at Exhibitions.—After reading your article on this subject in your last issue, in every word of which I fully concur, I would apologise for having misapprehended the purport of your former article. Most heartily would I join you in condemning the hideous "floral devices" alluded to, as well as the tasteless bouquets sometimes to be seen, Well considered conditions and judicious judging would cure these evils in a short time. As naming plants composing bouquets of cultivated flowers is never made a condition of merit, so I think it should not be when wild flowers are used. Most certainly rarity of species should be excluded from conditions. The development of taste in combining form and colour is surely a sufficient object at which to aim, and this can be done with our commonest wild flowers. Since writing to you, the exhibition of the society with which I am connected has taken place, and the groups of wild flowers sent in were highly satisfactory, and were a source of great attraction. I am hoping our committee will extend their prizes next year to include "table decorations," so affording another opportunity for the display of taste among competitors. *W. P.*

Melons.—The big Melon shown by Mr. Rutland at the last meeting of the Royal Horticultural Society sets one thinking if it were not practicable to grow such kinds here without the paraphernalia of pits, linings, hot water, and the rest. Many will object to such enormous Melons altogether, but to those I would say, grow more on a plant, and you will then have them as small as you like, the flavour remaining the same. The varieties of Melons grown in England at present have several shortcomings, to wit, their tenderness in constitution, thinness of rind and consequent liability to crack, a habit of falling a prey to red-spider, and to going off at the collar, to say nothing of other maladies that are known to all gardeners, and need not be mentioned here. Our Melons are, after all the boasting of their raisers, only sugar and water, plus an evanescent aroma, which is so fleeting that they must be eaten up as soon as they are cut open, or they will become so flat and flavourless as to be uneatable with any relish. The Melons grown on the Continent are eaten by everybody, rich and poor, and are very cheap, as those who have travelled through middle and southern Europe can testify. They may be seen pitched in the open market by the waggonload, and fruits weighing five pounds or more are sold for twopence, and even less, in the height of the season. I will admit there is a shorter period of Melon eating than with us, but they come in at the hottest season, and would not be enjoyed at any other, as people there eat what is proper to the season, not that which it is the fashion to eat, in and out of season as here, till every kind of vegetable almost has lost its enjoyableness. The kinds grown are usually varieties of the Persian, Astrakan, or Cabul sorts, and I do not imagine there is any great effort made by the trade to keep stocks select; nor, indeed, would it be possible to do so when the fruits are grown by the acre, and by people who do not believe in any nicety being required in such matters. Each grower selects his own from fruits that please his fancy, or he gets a quart or so from his neighbour. The seedsmen in, we will say, French or Hungarian towns will sell what is about an ounce of seeds of any sort he keeps for about 5*d.*, English; this may be of one kind, or a *mélange* of twenty. The extra warmth of Continental summers compared with ours allows of the field or open air culture of Melons of the varieties above-named, but only on the lower levels. The dwellers in the alpine regions, and on the highlands of Bavaria, cannot succeed with even those; but at any rate they can easily satisfy their palates with the fruits at places in the warmer plains and valleys. The Melon seeds are sown usually where they are to stand, on little hillocks of earth, underneath which there may be a small portion of manure, but oftener there is none. Sometimes they are sown under the partial shade of Maize, in which case the Melon plants benefit by the manure given to that crop; but I think if the farmer thought the Melon robbed his Maize he would not grow the two in such close proximity. Evidently he does not think so, but believes the Melon to be merely a surface rooter, and a plant that derives no small portion of its nutriment from the air, for which its large absorbent foliage eminently fit it. No "stopping" or "cutting" is ever done, unless it be in the case of earlier crops in private gardens, when these are grown under dung-bed frames of exceedingly primitive construction, the plants being allowed to grow unrestrained, merely the ground being kept clean by the hoe. It is seldom that any recourse is had to watering, unless the plants are growing on dung-beds, or they are required of an extra size. Thus far as regards the outlines of Melon-growing there. Now it may be possible that by growing the same kinds of Melons as are grown in the open there we might get fruits here in much greater quantities in August and September, and so make them cheaper for our consumers, and provide them with a more wholesome article than those which are imported from Spain and northern Africa, and which necessarily are cut long before they are ripe. These kinds would not ripen their fruits without the aid of glass, but we should merely require the lights, not the sides; these could be taken away at any time during June or the beginning of July, and the former could be supported on stakes, pots, or what not. The plants should then be allowed to run beyond the bounds of the frames, and should be quite unrestricted in growing. If any stopping of shoots was done, it would be followed by a pernicious mass of side growths that would only make confusion where none was before; setting might be requisite, but if the plants had been treated as half-hardy plants are before planting-out, the bees would have easy access to the frames before the sides were taken away, and they would have successfully performed the operation. Owing to the excessive evaporation of moisture from the foliage under this treatment, coupled with their inability to benefit from night dews, the plants would require daily syringings on bright days towards the evening, and occasional waterings to compensate for the want of rain. The culture would be as simple as that of early Marrows, and could be made to pay in the southern parts of England. I may mention that I made experiments with our best English kinds in the open, in Hungary, as field crops, but they failed miserably, the thin rind splitting at all stages of the growth after rain; but under lights and no sides I was successful, as I could gauge the water supply entirely. Under this half exposed treatment no red-spider need be feared, and thrips, scalding, and rotting off at the collar are quite unknown. It need not be said that the flavour is particularly good, but the Melons of the varieties named in this communication are most enjoyable when eaten with red wine and grated loaf sugar, the pulp being scraped out with a spoon into a plate, and then the sugar strewed over it first, and then just enough wine poured over to saturate it. They are often eaten with a mild variety of red pepper. *M.*

Big Potatos.—The monster Potato is now superseding the big Gooseberry, as a phenomenon of public interest. We have already read notices of newly lifted whoppers, and no doubt abundant material for other notices is being found, each one out-Heroding Herod in the dimensions of its Potato wonders until a point is reached beyond which human credibility can no farther go. If any person endowed with the gifts of patience and research should at some time favour the horticultural world with a history of monster Potatos I trust there will also be appended in each case some information as to the uses to which these giants were put. Amongst humanity we find a giant or monster being of either sex to be a most cumbrous, useless person, utterly unfit for ordinary purposes or occupations, and only fit for notoriety and public exhibition. Big Potatos seem to me to play exactly the same part in their more restricted sphere of existence, with the exception that perchance whilst the human monster is finally decently buried, as is the lot of most human beings, the giant Potato goes to the pigs, and unless well boiled and rendered palatable is perchance rejected by those omnivorous creatures as worthless. When we reflect upon this common destiny of all Potato whoppers I ask what earthly good can result from bringing them into the world? To me big Potatos are great nuisances, they are neither fit for cooking, for seed, or for sale, and as I do not keep pigs I cannot utilise them even thus profitably; and I take it that my own estimate of them is that of thousands of others who grow Potatos for ordinary purposes and not for the production of useless ungainly monsters. No doubt there are authorities, for instance, who, because they live remote from London, and, therefore, must know better than London people do, will say, "Oh, monster, hard, flavourless Potatos are just what the Cockneys like," and when such rubbish is indited there are found no lack of fools to believe it. A neighbouring market grower said but a few days since, "I have a splendid crop of Dawes' Matchless Kidney, but the shopkeepers up the road complain of them that they run too big; they prefer medium even size to a big sample." One such fact as that tells with a hundred times more force than do the absurd statements of ignorant writers. I venture to assert that it is not only in the London market, but generally in all other of our home markets, an even table size in the tubers will always command a readier sale and a better price than will a big sample even of the same sort. I was much struck with an observation which fell from my market grower friend when I lifted for his inspection a root of one of our new kidneys. The sample was to his mind perfect, and he counted out ten really capital ware tubers from the root. Then close by was lifted a root of a new American kind, from which came four overgrown tubers. "Ah," he said, "I would sooner have a bushel of the first than three of the others; indeed, I do not know that I would have them at any price, as they would never sell." So that it becomes evident it is not bulk alone that pays, but it must be a saleable bulk; and half a crop so called is often far more profitable if the tubers be of medium size, even, and of good flavour, than when twice the bulk, big, coarse, and indifferent. It is very hard work to contend in judging and in other ways against the strong passion for bigness in tubers that rules. One well meaning friend who offers prizes specially to encourage the production of big tubers, apologises for what seems to be an anachronism, on the ground that we want kinds to fill the bushels; that may be so in the vulgar sense, but Potatos have other uses than to fill bushels; their chief and indeed only useful purpose is to form food, and whilst tubers of medium size, and of any fairly good kind, make the best of Potato food, big coarse tubers present it in the very worst form. It is an undoubted fact that is as true of other roots as of Potatos, that just as they increase in size, so does the proportion of flesh-forming principles they contain relatively diminish, and the proportion of water increases, so that a big bushel-filling tuber of fourteen or sixteen ounces, relatively, is far less suitable for human food and sustenance than is one of from six to eight ounces. The very best average size for table tubers, having some regard to crop also, is found in those that average six ounces; and any variety that under fair cultivation gives one third more tubers of such weight than does a kind which gives a lesser number of bigger tubers, is really the most useful and profitable one. There really seems to be little difference of opinion after all as to what sized tubers are best for the table, but a diverse rule prevails on the show table, where if big tubers are fairly handsome also, they carry all before them. Look at the bulk, say the advocates of size; but is bigness a recommendation in their eyes in all other cases, and if not, why are they not consistent? Well, if they believe in bulk, I believe in quality, and am quite prepared to look at that feature also. Big Potatos are no more to be preferred to lesser ones than is a Belle Angevine Pear to a Marie Louise. *A. D., Bedfont.*

Ruta patavina.—I heartily thank Herr Max Leichtlin for his kind note upon the above in last weeks *Gardeners' Chronicle*, and upon his evidence shall take even greater interest in the plant. I am sure now my treatment has been wrong, and shall gladly follow the lines laid down in his remarks. *T.*

The Zittauer Onion.—I am glad to see this sort favourably noticed in your report on the Chiswick trials of Onions at p. 215, as I am sure it is in every way worthy of the attention alike of private growers and market cultivators. It is a quick grower, an excellent keeper, and mild in flavour. A crop moderately thinned will, on good ground, grow bulbs up to 12 inches in diameter on an average, and with still more liberal treatment of course of a much larger size than that. I grew it largely in Austria for home consumption, and there it is one of the acknowledged market kinds, although not as yet the one most generally grown, it being too new for that, especially as the growers there are quite as conservative as our own. *M.*

Lapageria rosea.—Having received several letters respecting the Lapageria flowers which I exhibited at the last meeting of the Floral Committee, some of the writers asking for a bloom, others wishing to know if it is the variety superba, allow me to say that I contend it is not, but that in my opinion, and in the opinion of all who see the two growing together here, it is a better variety, being much larger and more free in flowering. I may state that both sorts are growing here in the conservatory under exactly similar conditions. Both were planted on the same day four years ago, and both have made wonderful growth. The variety named splendens has at the present time over 500 blooms fully expanded, and being mixed with the lovely variety alba, which is doing equally well, the effect is very pleasing. I send some blooms of each variety for your opinion. *Geo. Humphrey, The Gardens, Nash Court, Faversham.* [The blooms received, and those shown at South Kensington, were as much superior to the variety known as superba as that is to the original type of rosea. Ed.]

Florists' Flowers.

The Carnation and Picotee.—The exhibition of these flowers, which was held in the Town Hall, Manchester, on August 14, practically brought the season to a close. I did not attend the Manchester Exhibition, but Mr. Ben Simonite writes me to say that the flowers were in capital condition—clean and bright. The competition for the prizes has not been so keen at any of the previous exhibitions of the Society, which is fitly called "National." It is very pleasing to record the fact that several new exhibitors entered the lists as competitors, and were successful in carrying off some of the more important prizes. Mr. Simonite was successful in obtaining the principal prizes both for Carnations and Picotees, his best blooms being seedlings raised by himself. Richard Gorton, Esq., of Eccles, was again successful in carrying off the highest honours in the amateurs' class for the growers of a limited number of pairs of Carnations and Picotees. The contest for "premium" Carnation culminated in the contest between a bloom of Master Fred (Hewitt), C.B., from Mr. Slack, of Chesterfield, and John D. Hextal, C.B. (Simonite), in the stand of its raiser, the award going by a majority of votes to Master Fred. The premium Picotee was Zerlina (Lord), sent by Mr. Witham—a good heavy purple-edge when at its best, although it is now beaten by Mrs. Chancellor (Turner).

The question may be asked by some, "What have we gained by the three important exhibitions held under the auspices of the National Carnation and Picotee Society?" We have gained much useful information of a kind that will add to our knowledge of the culture of the plant, of the method of exhibiting it, and also that new varieties sent out within the last few years are gradually displacing those raised in years previous to that. As an instance we take Admiral Curzon, S.B., first on the list in all the catalogues, and first in position at all the exhibitions for thirty years at least. Of this fine old variety Mr. Turner remarked to me that it would now have to fall into the background and give place to newer and better sorts. Mr. Dodwell's new varieties, such as Fred, Robert Lord, Arthur Medhurst, George, &c., will take their place with most growers, as they are much more vigorous; still I have faith in our old favourite, and believe that a well grown bloom of "Curzon" may yet win premium, even if Fred and Robert Lord are there.

In the pink and purple bizarres Sarah Payne has held the highest place for as long a time as "Curzon" has in its class; the form of the flower is certainly not first-rate, but it is of a pleasing colour, and a great favourite. Our friend, Mr. Dodwell, has made quite a revolution in this class; Mrs. Barlow, a large full flower of beautiful form; Thomas Moore, quite distinct from any other Carnation, and richer in colour; Miss Henderson, and Mrs. Gorton, both distinct and good flowers, will hand down the raiser's name to posterity. This year Mr. Dodwell has exhibited another flower, quite distinct in its exquisite form and rich colours, named Mrs. Anstiss, which I have no doubt will speedily elbow its way to the front. There are very numerous really good flowers in the purple flake class. James Douglas, so far, is certainly the best of them; but this season Mr. Dodwell has introduced one which has been named Squire Whitbourn. It flowered at Great Gearies with me, and Mr. Simonite was so taken with it when I showed him a flower that he said it was one of the best Carnations Mr. Dodwell had raised. Both this and Mrs. Anstiss received First-class Certificates at Slough. We have quite a novelty of colour in Dorothy, rose flake. It is the same colour as Mrs. Burnaby Atkins, but a fuller and better marked flower. It is pale soft rose, and for its novelty and good form received a First-class Certificate. Samuel Barlow, crimson bizarre, may find a place in a class that contains many fine varieties; it was not shown at its best at Slough, but nevertheless it was good enough to obtain a First-class award.

The raisers all try to obtain good flowers in the classes for flakes and bizarres, but if by any chance good fancy or self-coloured flowers appear among the others there are many people who admire them, and the dealers have no difficulty in selling them. At one time all the run flowers were discarded. The white, rose, scarlet, purple, crimson and maroon selfs, have always found admirers, and always will do so; but in a large collection many of the flakes and bizarres will come with self flowers, and will reproduce themselves the following season. Run flowers very frequently revert again to the perfect flower from which they sported. It may be as well to state that what is termed a run flower by the growers, is a bizarre without any white in it; and as the purity of the white is the point that decides the merit of a well formed flower, it is worthless for exhibition without it.

In Picotees there are not many flowers introduced to public notice this year that call for special remark. In heavy red-edges Princess of Wales, John Smith, Brunette, and Mrs. Dodwell, have most good qualities and fewest faults. J. B. Bryant is a large and handsome flower in this class, and would be the best of them, but the white is often impure. In light red-edges, Mrs. Gorton is the best we have as yet, and is a seedling raised by Mr. Ben Simonite, who also raised and sent out Violet M. Douglas. Thomas William is also a fine flower in this class. Mr. Thomas Bower, of Bradford, has raised two varieties in this class that still hold a good place, viz., Mrs. Bower and Clara; the first named was very fine with us this year.

In heavy purple flakes Muriel and Mrs. Chancellor are as yet the best in the class. One or two new ones were exhibited this year, but they were not pure enough in the white. Baroness B. Coutts in light purple is the latest good addition, but I find it has the same fault as Mary (from which it may probably be a seedling), the reverse of the petals being highly coloured.

The heavy rose-edges have received an excellent addition this year in Mrs. Webb (Turner); it is a large, handsome flower, a trifle rough in the outline. This, with Constance Heron, are good additions to a very weak section of a beautiful class. Of the paler edged type, Esther Minnie, sent out last year, will take the lead when well known. Mrs. Payne, the most beautiful Picotee yet raised, has a medium edge. Of the fine wire-edged type Mrs. Allcroft is the most typical form; the white is very pure, and the edge is as fine as if a fine wire encircled it.

When one gets amongst the yellow Picotees it is not difficult to see that there is quite twenty-five years of careful hybridising before we can attain unto the perfect form and correct markings of the white ground varieties, and one cannot cease to lament the loss of many fine varieties raised twenty-five or thirty years ago, and now lost to cultivation. Mr. Ben Simonite has told me that he has seen flowers of a clear bright yellow colour with a fine wire-edge of scarlet. Where are they? Echo answers, Where? If we had such flowers now and could cross them with the beautiful varieties raised by Mr. Turner it would materially simplify our labours in the effort to reach the standard of Mrs. Gorton, Mrs. Chancellor, or Mrs. Payne. These yellow varieties are not very prolific pollen bearers, and seeds cannot be obtained by measure; indeed, it is not difficult to count the produce of a hundred choice flowers that have been carefully marked for hybridisation. It seems, too, that these yellow varieties of the Prince of Orange type are not quite so hardy as one would wish, and they come in rather later than the other sections, which is rather a disadvantage if they are wanted for exhibition. *J. Douglas, Great Gearies, Ilford.*

Opuntia tunicata.—I have called this corner of the globe "Nature in arms." Judge for yourself. In remounting the slopes of the left bank of the Chota in a burning sand, mixed with all kinds of volcanic *débris*, between the high bare summits where the rock is striped with red ferruginous veins, my mule, ordinarily so quiet, made suddenly a bound aside, which nearly threw me off; she reared and galloped away, groaning with pain. When she was at last mastered I got down, examined her, and saw that her legs were stuck over with green balls with long white needles, which penetrated the flesh. This frightful plant was Opuntia tunicata, a Cactus with a cylindrical stem, bristling with large transparent spines, which were hollow, and terminated by a dart, bent like a fish-hook, which breaks off in the wound and cannot be taken out. It was more than a week before my poor steed was freed from the hundreds of little wounds caused by this abominable vegetable porcupine. *Ed. André, "Le Tour du Monde," p.* 370.

Reports of Societies.

Weston-super-Mare Horticultural: *August* 14.—The annual exhibition of this Society was quite up to the usual average, although some of the large fine-foliage plants that add so much to the general effect were absent. On the other hand several of the groups of flowering plants were unusually fine, large, profusely flowered, and as fresh as those generally brought out in the earliest part of the exhibition season. Roses were in great force, and rarely seen in such fine condition in August. The strange season we have had, with dripping weather, seems to have suited the late bloom. It is somewhat early yet for Gladioli and Dahlias, but some of those staged were in fine condition. Fruit, especially hardy sorts, was both plentiful and very fine—Apples, in particular the early culinary kinds, being a contrast to the produce of the last two or three seasons both in size and general condition, notwithstanding that this most useful of fruits does not appear to be so generally even in the crop as in parts of the country less celebrated for Apples than this and the adjacent counties.

In the principal open class for twelve plants in or out of flower, Mr. Cypher, of Cheltenham, came out in his best form, staging a fine group that was easily 1st, amongst them being Ixora amabilis, I. Williamsii, and Dipladenia amabilis, large and profusely bloomed, with Erica Marnockiana, E. Austiniana, Allamanda Hendersoni, and A. nobilis, little inferior. Mr. Mould, Pewsey was a good 2d, putting up a very creditable lot of nicely grown plants, the most noteworthy of which were a finely-flowered Bougainvillea glabra unusually well coloured; Erica Irbyana, E. Lindleyana, and the bright red E. cerinthoides coronata; 3d, Mr. Hughes, gr. to H. Pethick, Esq., Weston-super-Mare. With six stove and greenhouse plants in flower Mr. Cypher was also 1st, showing a beautifully flowered half-dozen, in which Erica æmula was literally a mass of bloom; 2d, Mr. Mould. With six fine-foliaged plants Mr. Cypher again scored 1st honours, Mr. Mould being 2d. Six Ferns.—1st, Mr. Mould, with a nice group, in which was a good specimen of Asplenium nidus-avis, and Gleichenia rupestris; 2d, Mr. S. Brown, Weston-super-Mare, having along with others an unusually fine example of the climbing Fern, Lygodium scandens. Adiantums, as usual at Weston, were forthcoming in fresh healthy condition, Mr. Hughes taking the lead with a good six; 2d, Mr. Lane, gr. to F. Taylor, Esq., Weston-super-Mare. In the new or rare plant class Mr. Cypher was 1st with Dendrobium Dearei. Zonal Pelargoniums were nicely shown, Mr. Brown taking 1st honours for six, as also for six Fuchsias, tall pyramids from 7 to 8 feet in height. With tuberous Begonias, Mr. Hughes came in 1st with a nicely bloomed group, including double as well as single varieties. In the amateurs' division Mr. Pain, gr. to W. Ash, Esq., took the lead with six stove and greenhouse plants in bloom; 2d, Mr. J. Matthews, gr. to T. T. Knyfton, Esq. For six fine-foliage plants, also, the 1st honours went to Mr. Pain, whose group contained a large healthy example of Cycas revoluta, showing flower; Mr. Lane was 2d

Cut Flowers.—Roses, as already mentioned, were plentiful and in unusually good condition for the time of year. In the open class for twenty-four varieties, three blooms of each, Messrs. Paul, The Old Nurseries, Cheshunt, scored a clear win; many of their flowers would have been creditable in the height of the season: amongst the best were Duc de Rohan, Emilie Hausberg, Mons. E. Y. Teas, La France, Devienne Lamy, Mrs. Jowett, and Jules Finger; Messrs. Keynes & Co., Salisbury, were a very good 2d; and Mr. Cooling, Bath, 3d, also showing a good stand. For twelve Teas, Messrs. Paul were also 1st, with charming flowers, the most noteworthy of which were Rêve d'Or, Anna Olivier, and Madame Lambard; 2d, Messrs. Keynes. With twenty-four Dahlias, Messrs. Keynes took the lead; Mr. A. Hill being 2d. Single Dahlias, twelve varieties, three blooms of each, with foliage and buds.—1st, Mr. A. A. Walters; 2d, Mr. J. Matthews. In the class for twenty-four Gladiolus Mr. Dobree, Wellington, took the lead with a beautiful lot of spikes; 2d, Mr. S. Brown, Weston-super-Mare. Cut flowers, in stands of twenty-four varieties, shown in bunches, made a nice display: 1st, Mr. Howe, gr. to L. Fry, Esq., having red and white Lapagerias, Ixoras, Stephanotis, Encharis, &c.; 2d, Mr. O'Brien, gr. to Mrs. King. Hand bouquet.—1st, Mr. Cypher; 2d, Mr. S. Brown. Button-hole bouquets.—1st, Mr. Cypher; 2d, Mr. Mattock.

Fruit.—With eight dishes Mr. Austen, gr. to Sir Greville Smyth, Ashton Court, was well ahead with a good collection, consisting of Black Hamburgh and Muscat of Alexandria Grapes, Early Grosse Mignonne Peaches, Elruge Nectarines, Negro Largo Figs, a Smooth Cayenne Pine, Ashton Seedling Melon, and Cherries. Mr. Iggulden, gr. to the Earl of Cork, was 2d, his collection containing nice Black Hamburghs and Muscat of Alexandria Grapes, Bellegarde Peaches, and a Melon. 3d, Mr. Crossman, Cossington. There were a number of exhibitors in the class for three bunches of Black Hamburgh Grapes, Mr. Austen coming in 1st with nicely finished examples; 2d, Mr. Iggulden; 3d, Mr. Carpenter, gr. to J. G. Livingstone, Esq., Westbury. Three bunches of white Grapes.—With these, likewise, Mr. Austen took the lead, showing Muscats; 2d, Mr. Shelton, gr. to W. K. Wait, Esq., Clifton; 3d, Mr. Pain. Three bunches Black Grapes, not Hamburghs.—1st, Mr. Daffurn, gr. to Mrs. Walker, with nice bunches of Madresfield Court; 2d, Mr. Trotman,

gr. to H. A. Willis, Esq., Bristol. Single Pine.—1st, Mr. Austen, with Smooth Cayenne. There were several exhibitors of Peaches, showing fine highly coloured fruit, Mr. Daffurn taking the lead with a beautiful dish of Grosse Mignonne; Mr. Trotman 2d. Nectarines were equally well represented, Mr. Austen being 1st with excellent examples of Pine-apple; 2d, Mr. Daffurn, with Elruge. For a dish of Apricots the 1st prize went to Mr. Iggulden, who had nice Moor Park; 2d, Mr. Fear. Mr. Austen took another 1st for a good dish of Negro Largo Figs. Dessert Apples from trees grown under glass are usually shown here in pretty condition. Mr. Davey took the lead with Bath Seedling, a handsome early sort, said to be of good flavour; 2d, Mr. A. T. Hall. Mr. Davey was likewise 1st with culinary Apples, showing very fine Lord Suffield. Pears.—1st, Mr. A. T. Hall. Plums.—1st, Mr. W. T. Crossman. Cherries.—1st, Mr. Iggulden. Collection of vegetables, eight distinct kinds.—1st, Mr. Austen; 2d, Mr. Tilly, gr. to Col. Cotgrave; 3d, Mr. Fletcher, gr. to W. E. C. Law, Esq.

Taunton Deane Horticultural: *August* 16.—This Society's exhibition was as usual held in the Vivary Park. It is well within the mark to say, that on this occasion the finest display of flowering and fine-foliaged plants was brought together which the Society has ever had, and, in all probability, the best that has been forthcoming at any place within the kingdom during the year. In the principal open class for twelve plants in bloom, for which the handsome prizes of £20, £12 10s., and £7 10s. were offered, there were four competitors, amongst them some of the most noted growers of the day, who had evidently reserved their strength for an extraordinary effort, the result of which was that such a lot of plants were brought together as not often seen in recent years. On this occasion Mr. Cypher, of Cheltenham, came out in great force, taking the 1st prize with a profusely flowered dozen, the pick of which were Ixora Pilgrimii, I. Williamsii, I. amabilis, Dipladenia amabilis, Erica æmula, E. Marnockiana, and E. Austiniana, profusely flowered, with others little inferior. Mr. J. Cole, gr. to J. H. Lawless, Esq., Exeter, was a close 2d, with a dozen only a little inferior to the winner's, but not quite so even in quality, his best specimens being Erica Marnockiana, one of the finest examples of successful Heath culture ever staged, being nearly 5 feet through and covered with bloom of the highest quality; with it was Dipladenia Brearleyana, D. amabilis, Allamanda nobilis, A. Hendersoni, and Eucharis amazonica, all in beautiful condition. Mr. Lock, gr. to B. W. Cleave, Esq., was a good 3d, showing in a well managed group Ixora Prince of Orange, Bougainvillea glabra, Allamanda nobilis, and Erica obbata purpurea, finely bloomed. With six stove and greenhouse plants in flower, Mr. Lucas, gr. to J. Marshall, Esq., came in 1st, with a fine half-dozen, the best of which were Ixora Prince of Orange, and Dipladenia amabilis; 2d, Mr. J. F. Mould; 3d, Mr. Cypher, in whose half-dozen was a fine specimen of Hæmanthus magnifica, bearing twelve very large heads of bloom. In the class for twelve stove and greenhouse plants (amateurs) Mr. Lucas was the only exhibitor, taking the 1st prize with a nice collection in which was a finely flowered plant of Erica Kingscotiana, Anthurium Andreanum, a grand variety bearing seven flowers, the largest spathes of which were 8½ inches long by 6 inches broad, and a remarkable specimen of Attacia cristata, with several of its singular heads of flowers, borne on stalks nearly a yard in height.

Fine-foliage Plants, &c.—In the class for eight, the competition was so close that Mr. Cole and Mr. Cypher were placed equal 1st; Mr. Cole had an immense specimen of Nepenthes Rafflesiana, bearing a fine lot of its large highly-marked pitchers, with grand plants of Kentia Belmoreana, Encephalartos villosus ampliatus, Livistonia altissima, and Croton undulatus. Mr. Cypher's best were Croton Williamsii, in the form of a large bush, and the yellow and crimson colouring unusually bright; C. Johannis, Alocasia intermedia, 5½ feet through; with several large Palms. Six fine-foliage plants.—1st, Mr. Lock; 2d, Mr. Thomas, gr. to W. G. Marshall, Esq. With four Mr. Cypher took the lead, staging nice examples of Odontoglossum Uro-Skinneri, Saccolabium Blumei majus, Cattleya superba, and Cypripedium barbatum. Exotic Ferns were grandly shown by Mr. Lock, who was first with eight, a good lot, in which were immense plants of Cibotium princeps, with Davallia polyantha and D. Mooreana, each 9 feet through; Nephrolepis davalloides furcans, and others little inferior; Mr. Cole, who was a good 2d, had, amongst others, large healthy plants of Gleichenia Mendelii, G. speluncæ, and microlepis hirta cristata. Six Ferns.—1st, Mr. Lock; 2d, Mr. F. Woodland. Lycopodiums, as usual here, were unusually fine, Mr. Lock taking the 1st prize, Mr. Cole the 2d, both staging large, extremely well-grown plants. Hardy Ferns were well done, Mr. Lock taking 1st honours with eight, and Mr. Huxtable the 2d with smaller examples. Fuchsias were extremely good, the specimens being large and full of flower; with six Mr. H. Godding was 1st, and Mr. Healy, gr. to F. Woodland, Esq., a close 2d. Eight zonal Pelargoniums.—1st, Mr. Godding, with a nicely managed set; Mr. Wills, gr. to Mr. Jacobs, Esq., 2d. Eight variegated varieties.—1st, Mr. Godding; 2d, Mr. Seafield, gr. to W. Daffurn, Esq. Eight nosegay varieties.—1st, Mr. Wills; 2d, Mr. Godding. Achimenes were in beautiful order, large, and profusely flowered, with a nice assortment of colour. Mr. Lucas came in 1st with four, and Mr. Kimmune, gr. to H. Baldock, Esq., 2d. Four Lilies.—1st, Mr. Huxtable. Six Begonias.—1st, Mr. Boobier; 2d, Mr. Healy.

Cut Flowers.—Roses were in fine condition for the advanced season. Messrs. Keynes, of Salisbury, took the lead with forty-eight (singles), with a stand containing beautiful flowers of Star of Waltham, Madame Victor Verdier, Xavier Olibo, Ferdinand de Lesseps, Charles Lefebvre, Wilson Saunders, Marie Rady, Countess of Oxford, Marie Baumann, and Souvenir de Spa; 2d, J. Mattock, Esq. Twenty-four (trebles).—Messrs. Keynes, 1st—here also staging a fine lot of blooms; 2d, Messrs. Cooling & Son. In the amateurs' class of twenty-four Mr. S. P. Budd was 1st, and Mr. Smith 2d. Dahlias were well represented, Messrs. Keynes taking the 1st prize with twenty-four, amongst which were grand flowers of King of Denmark, Imperial, Mr. J. C. Reed, C. J. Wyatt, and J. W. Lord; 2d, Mr. J. Nation. Messrs. Keynes were also 1st for twelve Dahlias, and Mr. Nation 2d. Twelve fancy Dahlias.—Here again Messrs. Keynes took the lead; Mr. Nation being 2d. Twelve single Dahlias.—1st, Messrs. Cooling; 2d, Mr. Nation. Gladiolus were in magnificent form, Messrs. Kelway taking 1st with twenty-four spikes, amongst which were some splendid seedlings, the following of which were awarded First-class Certificates:—Pelarge, a fine spike, with immense individual flowers, crimson-scarlet with violet feather; Princess Charlotte, a grand white ground flower, base of petals crimson, forms a fine spike; Silenus, a large broad petalled flower, deep pink in colour, feathered with crimson. Amongst others in this stand exceptionally fine were Lady Berdere, The Rev. H. D'Ombrain, Hercules, Ascpes, and Telephone; 2d, Mr. Dobree, who also had very good spikes.

Fruit.—There was a large display of fruit, most of which was in nice condition. With ten dishes Mr. Austen, gr. to Sir Greville Smyth, Ashton Court, Bristol, was 1st, with a good collection, the best of which were Muscat of Alexandria and Black Hamburgh Grapes, a Smooth Cayenne Pine, Violette Hâtive Peaches, Pine-apple Nectarines, and Negro Largo Figs. Mr. Brook, gr. to A. Vaughan-Lee, Esq., was 2d, and Mr. Lock 3d. Eight dishes.—1st, Mr. Iggulden, gr. to the Earl of Cork; Mr. J. Brutton 2d, Mr. Crossman 3d. Four dishes.—1st, Mr. Brutton; 2d, Mr. Seafield; 3d, Mr. Iggulden. Two Pines.—1st, Mr. Brook, with handsome fruit; 2d, Mr. Austen. Three bunches of Black Hamburghs.—1st, Mr. Austen, with bunches in good condition; 2d, Mr. Lock. Three bunches of Muscats.—Here again Mr. Austen took the lead, with handsome bunches; 2d, Mr. Shelton, gr. to W. R. Wait, Esq. Three bunches of white Grapes, not Muscats.—1st, Mr. Frost; 2d, Mr. Brutton. Three bunches of black Grapes, not Hamburghs.—1st, Mr. Brutton, with Black Alicante in fine form; 2d, Mr. Frost. Six Peaches.—1st, Mr. Seafield, with a good dish of Grosse Mignonne. Six Nectarines.—1st, Mr. J. Paine.

Messrs. R. Veitch & Son, Exeter, exhibited in one of the tents a grotto composed of Saxony rock, a material different from such as we are acquainted with in this country, inasmuch as it is much harder and more enduring. It is a beautiful material, showing to perfection the various vegetable forms of which it is composed. It was very well put together, and nicely set off with plants. The same firm also contributed, not for competition, several boxes of flowers, consisting of Dahlias, Carnations, &c.

Shropshire Horticultural: *Aug.* 15 *and* 16.—The annual summer show of this flourishing Society took place, as usual, in the beautiful Quarry Grounds, Shrewsbury, on the above days, and was much the best that has been held here. The improvement in general cultivation that is invariably brought about in a locality where such societies as this are established is not apparent at once, but takes time to show itself fully. Those who have had an opportunity of seeing the various productions brought together here a few years back, and comparing them with those of the recent show, could not fail to notice the marked advance in each department which the local exhibitors have made, in plants, fruits, and flowers alike, in quality quite as much as quantity, although on the present occasion there were some 1700 entries, almost 400 in excess of any previous year. It not unfrequently happens that influential societies lose sight of the good they can do by encouraging cottage gardening, but such is by no means the case with the Shropshire Society, which yearly offers a large number of prizes for cottagers' productions, the result of which is, that a large tent is filled by the cottagers, whose vegetables, window plants, hardy fruits and flowers, collectively, exemplify more than ordinary care in their cultivation. Another feature was the exhibits of wild flowers, berries, Ferns, and grasses, arranged for effect, and which prove what can be done by the use of simple materials tastefully put together.

The prosperous condition of the Society financially enables them to continue their donations for the improvement of the show-grounds or other worthy objects; this year they have given another set of entrance gates for the grounds, in addition to a liberal contribution for the purchase of buildings for a free library, &c. The throng of visitors was greater than ever, £1055 being taken at the gates, in addition to which £400 worth of tickets were sold two days before the show. On the second day close upon 30,000 passed through the turnstile.

Stove and Greenhouse Plants were well shown. Mr. Cypher, of Cheltenham, took the lead in the open class for twenty, not less than ten to be in flower, showing a fine group, in which was the bright salmon-coloured Ixora Pilgrimi, Erica Marnockiana, E. tricolor impressa, Allamanda Hendersoni, Phœnocoma prolifera, and the fiery red Rhododendron Duchess of Edinburgh in beautiful condition. These charming greenhouse Rhododendrons, of which this is one of the best, are alike suitable for exhibition as they are for ordinary decoration. Amongst the fine-foliage plants which went to make up the collection was a grand specimen of Croton angustifolius, still one of the best when brought out in such condition as the plant in question. Mr. Roberts, gr. to W. E. Cliffe Glover, Esq., Highfield Hall, Leek (a new exhibitor), was 2d, staging a meritorious lot of plants, conspicuous amonst which were Ixora amboynensis, I. Williamsii, I. amabilis, Dipladenia amabilis, D. splendens; Gleichenia longipinnata, G. rupestris, and Cycas revoluta, in a flowering state. Mr. Tudgey, Waltham Cross, was 3d with a bright fresh lot of plants, the best of which were Franciscea calycina, Erica Austiniana, and E. insignis. For nine stove and greenhouse plants, five in bloom, Mr. Farrant, gr. to Mrs. Juson, Monklands, was 1st, with a nice collection containing the bright red Dipladenia hybrida, and Allamanda grandiflora; Messrs. Pritchard & Sons, nurserymen, Frankwell, were 2d; and Mr. Thurtle, gr. to Mrs. R. L. Burton, Longer, 3d. Six stove and greenhouse plants (amateurs).—In this class Mr. H. Owen, The Cedars, was 1st, and Mr. Walford, gr. to Mrs. Wace, College Hill, 2d. Cape Heaths were shown in nice condition, and with six Mr. Cypher and Mr. Tudgey were respectively 1st and 2d.

Ferns and Palms.—Of these there was a large display, shown in good condition. In the class for nine Mr. Cypher took the lead, having with others good plants of Gleichenia flabellata, Alsophila elegantissima, and Asplenium nidus-avis; Mr. Thurtle was 2d. For six Ferns, Mr. Farrant was 1st, and Messrs. Pritchard & Sons 2d. Four Ferns (amateurs).—1st, Mr. R. Cooper, Bridgnorth; 2d, Mr. J. Browne. With Palms, Mr. Cypher again took 1st honours, with a handsome lot, composed of medium growing kinds, amongst which were Verschaffeltia splendida, Kentia Canterburyana, and Areca lutescens; Mr. Tudgey, who was 2d, also staged a pretty lot of plants.

Zonal Pelargoniums, both double and single, are here shown in such condition as we rarely elsewhere see them, being alike remarkable for their profusion of flower and ample foliage, with an absence of the barbarously formal training alike destructive of everything in the habit of the plants as it is to their appearance. Six double varieties.—With these Messrs. Oldroyd & Son were 1st and 2d, and Messrs. Pritchard & Sons 3d. With six single varieties Messrs. Oldroyd & Son swept the board, taking all three prizes with good plants, noteworthy for the quality as for the profusion of their flowers. The most taking varieties were Laura Strachan, salmon; Constance, pink; Jessie Moir, crimson; Queen Ellen, and Lady Sheffield. Three double Pelargoniums.—These also were well shown, Mr. H. Owen being 1st, and Mr. Jones, gr. to Mrs. L. Burd, 2d. Three single Pelargoniums.—1st, Mr. G. J. Fox; 2d, Mr. H. Owen. For six Fuchsias equal 1st prizes were awarded to Mr. A. Myers, Sutton Lane Nursery, and Mr. H. Owen; Messrs. Pritchard & Sons 3d. Three Fuchsias were very nicely shown: 1st, Mr. Walford; 2d, Mr. Jones.

Dracænas were shown in nice condition, Messrs. Pritchard & Sons taking the 1st and 2d prizes, and Mr. Roberts the 3d. Caladiums.—With six Messrs. Pritchard & Sons were 1st with well coloured examples, short and stout in the leaf-stalks—a condition often absent in these plants; Mr. Farrant was 2d. Coleus are here required to be grown in pyramid shape, and with six Mr. Watson, Berwick, took the lead, staging a nicely grown, well-coloured group; 2d, Mr. Morris, gr. to Mrs. Shuker. Hardy Ferns were present in nice condition, and the 1st prize went to Mr. J. M. Harding, the 2d going to Mr. G. Burr. For six Begonias J. Watson, Esq. (Mr. Purser, gr.), was 1st, and Mr. A. Myers 2d. Table plants were well represented by nice examples, not too large for the purpose, as often is the case in these competitions. With twelve Messrs. Pritchard & Sons were again to the fore, Mr. Farrant being 2d.

The collections of miscellaneous plants in small pots had a pretty effect. With fifty, not less than thirty to be in flower, Messrs. Pritchard & Sons took the 1st and 2d prizes, showing nice groups, composed of Odontoglossum crispum, Bouvardias, Heaths, Begonias, Dracænas, and similar fine-leaved plants; 3d, Mr. Farrant. For twenty-five ditto, not less than fifteen in bloom (amateurs), Mr. Walford came in 1st, and the Rev. J. H. E. Charter 2d. Of the groups of plants occupying 100 square feet, Messrs. Pritchard & Sons were the only exhibitors, taking all the prizes; that to which the 1st prize was awarded especially was very well done. No flowering plants were used, all the colour requisite being furnished by small Coleus of different colours intermixed with the carpet of Adiantum, which effectually hid the pots of the larger plants standing out in relief, which included such things as Palms, Dracænas, Eulalia japonica variegata, and others of like chararater.

Gloxinias were extremely well done, Mr. Walford taking the 1st, and Mr. H. Owen the 2d and 3d prizes.

Cut Flowers, of which there were about thirty classes, would in themselves have made an attractive exhibition. Roses were nicely shown, Messrs. Perkins & Son, Coventry, being 1st in the class for twenty-four single trusses, with a good stand; Messrs. J. Dickson & Sons, Chester, were 2d. With eighteen single trusses Mr. Goodlif, gr. to E. T. W. Wood, Esq., Henley Hall, was 1st; and Mr. E. W. Pritchard, Dogpole, 2d. For thirty-six Dahlias, Mr. W. Shaw, Blakebrook, Kidderminster, was 1st, and the same gentleman also secured 1st honours with twenty-four—Mr. T. Speak, Bradenheath, Whitchurch, being 2d in this class. With twelve single Dahlias, Messrs. Biddles & Co., Loughborough, took the lead, Mr. C. M. Campbell coming in 2d. For thirty-six Gladiolus, Mr. W. Shaw was 1st, and for eighteen Col. Wingfield took the chief award. Twelve bunches of stove and greenhouse flowers.—These were well shown, Messrs. Jones & Sons, Coton Hill Nurseries, and Messrs. Pritchard & Sons, being 1st and 2d in the order named. The competition in bouquets was extremely close, several of the most successful exhibitors in the kingdom entering the lists. For a bride's bouquet Messrs. Perkins & Sons were 1st, Mr. Cypher 2d, and Messrs. Jones & Sons 3d. With an ordinary band bouquet the same exhibitors took the prizes in the order named. For three buttonhole bouquets

Mr. A. Myers was 1st, Mr. Cypher 2d, and Messrs. Jones and Sons 3d; while for a stand of cut flowers Mr. Cypher was 1st, and Messrs. Jones & Sons 2d and 3d.

Fruit was forthcoming in quantity, and in beautiful condition, Grapes particularly being well shown. In the class for six bunches of black, three varieties, there were five competitors; Mr. Goodacre, gr. to the Earl of Harrington, Elvaston, was well in front, staging spendid bunches of Muscat Hamburgh, Madresfield Court, and Black Hamburgh, all up to the mark—the Madresfield especially were large full bunches, black, and big in berry; Mr. Elphinstone, gr. to E. M. Mundy, Esq., Shipley Hall, Derby, who was 2d, likewise had a good half-dozen bunches, the varieties being the same as in the 1st prize collection; 3d, Mr. Milner, gr. to the Rev. J. D. Corbet, Sundorne Castle. In the class for three bunches of black Grapes, confined to the counties of Salop and Montgomery, Col. Wingfield came in 1st with small bunches but unusually large berries, fully finished in every way; 2d, Mr. Goodlif. For four bunches of white Grapes Mr. Milner was 1st, with Muscat of Alexandria and Buckland Sweetwater, the last-named variety in very fine condition; Mr. Elphinstone was a good 2d; and Mr. Hanagan, gr. to R. C. Naylor, Esq., Hooton Hall, Chester, 3d. In the amateur class for two bunches of black Grapes Mr. Price, gr. to W. W. Humphreys, Esq., was 1st, with small examples of Black Hamburgh, very large in berry and perfect in finish; 2d, the Rev. J. H. E. Charter. Two bunches of white Grapes (amateurs).—1st, Mr. G. Burr, with Buckland Sweetwater, very good; 2d, Mr. E. Lea. Twelve dishes of fruit.—With these Mr. Goodacre was easily 1st, with a good collection containing Muscat of Alexandria and Madresfield Court Grapes, a Queen Pine, Brown Turkey Figs, Stirling Castle Peaches, Violette Hâtive Nectarines, Rivers' Early Favourite Plums, and Morello Cherries, all in excellent condition; 2d, Mr. Hanagan, who also staged a good lot of fruit, the best of which were Golden Champion and Madresfield Court Grapes, a Queen Pine, Grosse Mignonne Peaches, and Pitmaston Orange Nectarines; 3d, Mr. Milner. Collection of fruit, nine dishes (confined to the counties of Salop and Montgomery).—1st, Mr. Purser, gr. to J. Watson, Esq., who with others had Muscat of Alexandria and Black Hamburgh Grapes and Bellegarde Peaches in good condition; 2d, Colonel Wingfield; 3d, Mr. Pearson, gr. to Lord Berwick. Six Peaches.—1st, Mr. Goodacre, with Bellegarde, large and well coloured; 2d, Mr. Elphinstone. Six Nectarines.—1st, Mr. Bennett, gr. to the Hon. C. H. Wynn; 2d, Colonel Winfield. Six Apricots.—1st, Mr. J. B. Jones; 2d, Mr. T. Groves. Twelve white or yellow Plums.—1st, Mr. Elphinstone; 2d, Mr. Pearson. Twelve red or purple Plums.—1st, Mr. Hardie, gr. to W. F. J. Hazeldine, Esq.; 2d, Mr. W. H. Harrison. Green-flesh Melon.—1st, Mr. Milner. Scarlet-flesh Melon.—1st, Mr. F. S. B. Sladen.

Messrs. F. & A. Dickson, the Upton Nurseries, Chester, exhibited, not for competition, an extensive assortment of stove and greenhouse plants, filling a considerable space in one of the tents. They also had a group of shrubs and trees in the grounds. Messrs. James Dickson & Sons, Newton Nursery, Chester, likewise contributed an extensive collection of evergreen and other trees, a group of stove and greenhouse plants, and a collection of Roses. From Mr. House, Peterborough, came a beautiful box of Tea Roses, shown in good sized bunches of each kind; and Mr. J. Watton exhibited a collection of Pears in pots—good sized trees, bearing a nice crop of fruit.

Reading Horticultural: *Aug.* 16.—This Society had everything apparently in its favour so as to ensure a very successful autumn show. A splendid day, a most appropriate central site, a largely expectant public, awaiting the opening of the gates; but the display of plants was one of the weakest seen for years. There was not a single entry in the class for nine stove and greenhouse plants. Mr. Lees, gr. to Mr. Marsland, of The Wilderness, is not showing this year through family causes; and Messrs. Tudgey and Mould, who invariably show at Reading, were exhibiting elsewhere; and from the same cause there was but one collection of six fine-foliage plants, and, as a matter of course, in a spacious tent like that which covers the Abbey ruins, the big things were sadly missed. This is a drawback to which societies are subject; but the loss of the plants was compensated to some extent by the fine displays of fruit and vegetables, the table decorations, and cut flowers.

Plants.—The plants arranged for effect were, as usual, a leading feature; but they fell a little short of their usual excellence. Mr. Lees was missed, and Mr. W. Phippen, whose skill as a floral decorator is well known, had as usual a nicely arranged group, but made up mainly of green-leaved plants. A new exhibitor in this class, Mr. Sumner, gr. to J. H. Millard, Esq., Bath Road, took 1st honours, with a display of taste that augurs well for the future. Mr. Mayne, gr. to Miss Moon, Reading, was 3d.

Mr. Mortimer, gr. to Major Storer, Purley Park, was the only exhibitor of six fine-foliaged plants, staging an even fine lot, including a very fine Croton majesticus, a superb Alocasia metallica, a capital Encephalartos villosus, and others. The best four plants came from J. W. Elliott, gr. to J. Hibbert, Esq., Braywick, and included, as usual, some well grown examples. The best three Palms came from Mr. Gribble, gr. to Miss Cary Malins, Canon Hill, Maidenhead—among them was a very fine Cocos Weddelliana; 2d, Mr. Phippen. Groups of six Ferns were a leading feature, the best coming from Mr. Mortimer. This was a very fine lot, Davallia Mooreana and Adiantum cardiochlæna being especially noticeable. 2d, Mr. Bennett, gr. to M. Lonergan, Esq., who had a very fine example of Adiantum formosum, and the same of Davallia Mooreana. The group of Coleus shown by Mr. E. Jones, nurseryman, Henley-on-Thames, were pretty examples of medium size, well grown and coloured. The class for table decorative plants, as usual, brought an excellent lot, the best six coming from Mr. Ross, gr. to C. Eyre, Esq., Welford Park, Newbury; Mr. Gribble being a close 2d. These were pretty bright coloured groups, the specimens well adapted for the purpose.

Among flowering plants Liliums made a good display, Mr. Bridge, gr. to F. F. Hall, Esq., Erleigh Court, being 1st with a well grown and flowered lot mainly of the L. speciosum type. Fuchsias were poor, too poor for such a show as Reading; perhaps it would have been as well had the judges withheld all the prizes. Some very good zonal Pelargoniums were shown, especially the six plants from Mr. Sumner; these were good varieties, well grown and flowered, and the same exhibitor was 1st with six tuberous rooted Begonias and the same number of variegated Pelargoniums.

Cut Flowers.—The cut flowers included Dahlias, Roses, very good indeed considering the weather; Asters, Gladioli, Zinnias, &c. Messrs. Cheal & Sons, Crawley, Sussex, had the best eighteen Dahlias, staging very good blooms of William Rawlings, J. C. Quennell, Burgundy, Mrs. Stancomb, Ovid, William Dodds, Flag of Truce, Mr. G. Harris, Miss Henshaw, Rev. J. Goodhay, Rev. J. B. M. Camm, Prince Bismarck, James Vick, Prince Arthur, Grand Duke, Mr. J. C. Reed, Willie Eckford, &c.; 2d, Mr. J. Tranter, Upper Assenden, Henley. The same exhibitors were relatively 1st and 2d with twelve fancy Dahlias, Messrs. Cheal staging capital blooms of Miss Lily Large, Mr. N. G. Hill, Mr. Purves, Maid of Athens, Grand Sultan, Jessie McIntosh, Miss Browning, Wizard, Gaiety, &c. The single Dahlias shown in bunches were very attractive indeed, the best twelve varieties came from Mr. Gurden, gr. to Miss Watson Taylor, Headington; Mr. Munday, Basingstoke, being 2d.

The best eighteen Roses came from Mr. Gurden, who had good flowers for the season; Mr. Munday being 2d. Mr. Gurden had the best twelve also, and in the class for six blooms of any one variety Mr. Wells, gr. to R. Ravenhill, Esq., Winkfield, was 1st with Niphetos; Mr. Gurden coming 2d with Catherine Mermet.

Cut specimens of Phloxes, Zinnias, Gladioli, &c., were on the whole good; but Asters fell below the usual average, the season having been so late. Mr. Phippen had the best eighteen bunches of cut flowers, staging a very fine lot indeed; Mr. Bennett being 2d. Mr. Howe, gr. to Sir R. Sutton, Bart., Benham Court, had the best twelve bunches, and an extra prize was awarded to Messrs. Cheal for cut specimens of herbaceous plants.

Table Decorations.—These were, as usual, charming. Miss Phippen had the best three pieces, arranged with her usual excellent taste and judgment; indeed, this young lady appears to be invincible in this department. Mrs. Sands, Severn Lodge, Erliegh, was 2d. And the groups of three vases of wild flowers and foliage were exquisitely done, Miss Phillips, Abbot's Walk, Reading, being 1st; Miss N. Cole, Reading, 2d; and two equal 3d prizes were awarded. Miss Phippen had the best basket of sweet scented flowers—a charming piece of work, and Mr. Phippen the best three buttonholes.

Fruit.—This is always very good at the autumn show at Reading, and it was so on this occasion. The leading class was for eight dishes of fruit, the first prize being a cup given by Messrs. Sutton & Sons. Mr. Howe, Benham Park, was 1st, with excellent Muscat of Alexandria and Black Hamburgh Grapes, Queen Pine, Royal George Peaches, Pine-apple Nectarine, Moor Park Apricots, Melon, and Figs; 2d, Mr. Wells, Winkfield, with Hooper's Black and Muscat of Alexandria Grapes, the former having a distinct appearance, and seeming as if a cross between Alicante and Lady Downes, with the flavour of the latter; Peaches, Apricots, Cherries, Melon, Pears, &c. Mr. Goodman, gr. to C. Hammersley, Esq., Bourne End, had the best six dishes, staging Alicante and Foster's Seedling Grapes, Royal George and Dryden Peaches, Belgian Purple Plums, and Earl of Beaconsfield Melon; 2d, Mr. Mortimer, with Black Hamburgh and Muscat of Alexandria Grapes, Peaches, Nectarines, Pears, and Melon. Mr. Ashby, gr. to W. Fanning, Esq., Whitchurch, a local Grape grower of considerable repute, was well 1st with three bunches of Black Hamburgh Grapes; Mr. Cakebread, gr. to Sir P. Rose, Bart., Amersham, being 2d. In the class for three bunches of any other black Grape Mr. Ashby was 1st, with three superb bunches of Madresfield Court, requiring a little more time to finish them off perfectly; and Mr. Heath, gr. to R. Ovey, Esq., Henley-on-Thames, and Mr. Pound, gr. to G. May, Esq., Caversham, were equal 2d, one with Madresfield Court, the other with three very fine bunches of Alicante. Mr. Howe had the best three bunches of White Muscat Grapes, Mr. Ashby running him very close with excellent bunches. In the class for any other white Grape, Mr. Ashby was 1st, with three excellent bunches of Golden Hamburgh; Mr. Wells being 2d, with Buckland Sweetwater; and Mr. How 3d, with Foster's Seedling, all very good.

Peaches were numerous and fine, Mr. Gribble being 1st with Bellegarde; Mr. June 2d, with Royal George; and Mr. Robinson 3d, with Barrington, fine looking fruit but not sufficiently finished. The best dish of Nectarines was Pitmaston Orange, from Mr. Maher, gr. to A. Waterhouse, Esq.; Mr. Gribble coming next with Elruge—very good indeed in both cases. Mr. Gribble had the best dish of Apricots, staging excellent Moor Park. Melons were plentiful, the best green-flesh was Dr. Hogg, from Mr. Elliott; the best scarlet-flesh, Hero of Bath, from the same exhibitor. Some very good Plums were shown in the class for three dishes. Mr. Bridgeman, gr. to T. Somers Cocks, Esq., Great Marlow, was 1st, with excellent fruit of Kirke's Green Gage and Washington; 2d, Mr. Goodman, with Belle de Louvain, Belle Impératrice, and Belgian Purple; 3d, Mr. Robinson, with Kirke's, Guthrie's Late Gage, and Jefferson.

Apples and Pears were in good form, and numerous also. The best six dishes of dessert Apples came from Mr. Hernon, gr. to F. Skurray, Esq., Reading, who had Quarrenden, Astrachan, Cellini Pippin, Golden Pippin, and Juneating; 2d, Mr. Wells, with W. E. Gladstone, Irish Peach, Juneating, Early Harvest, Golden Pippin, and Ribston Pippin; 3d, Mr. Hunt, gr, to Dr. Wells, Reading. Mr. C. Ross had the best six dishes of kitchen Apples, staging very fine examples of Emperor Alexander, Stirling Castle, Warner's King, Dutch Codlin, Stone's Apple, and Ecklinville Seedling; 2d, Mr. House, with Rymer, Lord Suffield, Beauty of Kent, Blenheim Orange, Dutch Codlin, and one unnamed; Messrs. Hunt and Bennett were awarded equal 3d prizes. Pears made a fair display for the season. A First-class Certificate of Merit was awarded to Mr. Howe for a new scarlet-fleshed Melon named Benham Beauty.

Vegetables.—These were fine throughout. Messrs. Webb & Sons, seedsmen, Stourbridge, offered prizes for the best six dishes of vegetables, and a large competition ensued. Mr. Howe was 1st, and Mr. Ross 2d. The best brace of Carter's Model Cucumber, the prizes offered by Messrs. Carter & Co., brought but a poor competition, Mr. Mortimer being 1st. Potatos were in strong force; and Onions, Tomatos, Cauliflowers, &c., were very good also.

As is usual, the Forbury Gardens were thrown open for promenading. These are now in excellent condition under the care of Mr. Phippen, and some judicious alterations have greatly added to their admirable appearance.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, August 15, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Aug.	In.	In.	°	°	°	°	°	°	°		In.
16	29.89	+0.12	64.0	53.3	10.7	56.6	− 4.8	44.7	65	N.W.	0.00
17	29.88	+0.10	66.7	48.9	17.8	58.3	− 2.9	55.8	86	S.S.W.	0.02
18	30.01	+0.22	74.0	59.5	14.5	64.5	+ 3.5	56.7	75	W.	0.00
19	30.09	+0.29	77.2	54.5	22.7	62.4	+ 1.5	57.2	84	S.E.	0.00
20	29.95	+0.15	80.6	49.0	31.6	63.2	+ 2.4	52.8	69	E.S.E.	0.00
21	30.00	+0.19	84.0	59.9	24.1	63.8	+ 3.1	53.4	70	S. ; W.S.W.	0.00
22	30.01	+0.19	74.0	60.4	13.6	65.6	+ 4.9	59.4	81	S.W. ; N.W.	0.02
Mean	29.98	+0.18	74.4	55.1	19.3	62.1	+ 1.1	54.3	76	variable	0.04

Aug. 16.—Fine and bright at times. Fine night; cloudless.
— 17.—Mostly overcast; fine and bright at intervals. Fine night; slight rain occasionally.
— 18.—Fine and bright day. Fine clear evening; moon bright.
— 19.—Fine bright day; warm. Clear evening; moon bright.
— 20.—Fine bright, hot day, and night cloudless. Lunar halo.
— 21.—Fine bright, hot day, and night cloudless at times.
— 22.—Fine day; dull. Frequent slight showers. Fine night; cloudless.

London: *Atmospheric Pressure.*—During the week ending August 18 the reading of the barometer at the level of the sea increased from 30.08 inches at the beginning of the week to 30.19 inches by 9 A.M. on the 12th, decreased to 29.69 inches by 9 A.M. on the 15th, increased to 30.12 inches by 10 P.M. on the 16th, decreased to 30.02 inches by 3 P.M. on the 17th, and was 30 24 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.99 inches, being 0.13 inch higher than last week, and 0.03 inch above the average of the week.

Temperature. — The highest temperature in the shade in the week was 82°.2, on the 13th; on the 16th the highest was 64°. The mean of the seven high day temperatures was 71°.4.

The lowest temperature in the week was 48°.5, on the 12th; on the 18th the lowest was 59°.5. The mean of the seven low night temperatures was 54°.3.

The greatest range of temperature was 26°.7, on the

13th; the smallest was 10°.7, on the 16th. The mean of the seven daily ranges was 17°.1.

The mean temperatures were—on the 12th, 58°.7; on the 13th, 69°; on the 14th, 65°; on the 15th, 59°.5; on the 16th, 56°.6; on the 17th, 58°.3; and on the 18th, 64°.5; of these the 13th, 14th, and 18th, were were above by 6°.8, 3°, and 3°.5 respectively, and the rest were below by 3°.5, 2°.2, 4°.8, and 2°.9, respectively.

The mean temperature was 61°.7, being 2°.4 higher than last week, and the same as the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 152°.2, on the 13th. The mean of the seven readings was 122°.5.

The lowest reading of a thermometer placed on grass, and fully exposed to the sky, was 42°, on the 12th. The mean of the seven readings was 47°.6.

Rain.—Rain fell on three days, to the amount of 0.08 inch.

England: *Temperature.*—During the week ending August 18 the highest temperatures were 82°.6, at Cambridge, 82°.2 at Blackheath, and 78°.1 at Nottingham; the highest at Plymouth was 67°, at Truro 69°, and at Preston 70°. The general mean was 74°.5.

The lowest temperatures in the week were 42° at Hull, 42°.5 at Wolverhampton, and 42°.8 at Cambridge; the lowest temperature at Liverpool was 52°.5, at Brighton 50°, and at Bradford 49°.1. The general mean was 46°.4.

The greatest ranges of temperature in the week were 39°.8 at Cambridge, 35° at Hull, and 34°.6 at Nottingham; the least ranges were 19° at Plymouth, 20°.3 at Liverpool, and 21°.5 at Brighton. The general mean was 28°.1.

The mean of the seven high day temperatures was highest at Cambridge, 73°.1, at Blackheath 71°.4, and at Hull 71°.3; and was lowest at Preston, 64°.4, at Liverpool 64°.9, and at Plymouth 65°. The general mean was 68°.3.

The mean of the seven low night temperatures was highest at Plymouth, 54°.6, at Brighton 54°.4, and at Truro and Blackheath 54°.3; and was lowest at Hull, 49°.9, at Wolverhampton 50°.1, and at Nottingham 50°.4. The general mean was 52°.6.

The mean daily range of temperature was greatest at Hull, 21°.4, at Sunderland 20°.7, and at Cambridge 20°.6; and was least at Plymouth, 10°.4, at Liverpool 10°.8, and at Preston 12°.2. The general mean was 15°.7.

The mean temperature was greatest at Cambridge, 61°.1, at Brighton 60°, and at Leicester 59°.5; and was lowest at Preston, 56°.6, at Wolverhampton 57°.2, and at Sheffield 57°.7. The general mean was 58°.8.

Rain.—The largest fall was 1.79 inch at Sunderland, 0.92 inch at Preston, and 0.64 inch at Liverpool; the smallest falls were 0.04 inch at Cambridge, 0.08 inch at Blackheath, and 0.14 inch at Sheffield and Hull. The general mean fall was 0.39 inch.

Scotland: *Temperature.*—During the week ending August 18 the highest temperature was 68°.8, at Edinburgh and Leith; at Perth the highest temperature was 65°. The general mean was 66°.9.

The lowest temperature in the week was 43°, at Perth; at Leith the lowest temperature was 47°.7. The general mean was 44°.8.

The mean temperature was highest at Leith, 58°.9; and lowest at Aberdeen, 55°.1. The general mean was 57°.

Rain. — The largest fall was 2.37 inches, at Greenock, and the smallest fall was 0.97 inch at Leith. The general mean fall was 1.53 inch.

JAMES GLAISHER, F.R.S.

Obituary.

We regret to hear of the death, on July 27, of Mr. Robert Tweedie Mackintosh, seed merchant, of George the Fourth Bridge, Edinburgh, aged about sixty-one. Mr. Mackintosh, who had been in business in Edinburgh about thirty years, was a man of extreme geniality of disposition, a quality that endeared him to a wide circle of friends and supporters. He was connected with both the Chamber of Commerce and Merchant Company, and held office as director in the one and assistant in the other. In the Highland and Agricultural Society he took a great interest, and was an almost yearly exhibitor at its shows, where his seed-stands were always a centre of attraction. The same may be said regarding his relationship with the Royal Caledonian Horticultural Society, the Edinburgh Christmas shows, &c.

Enquiries.

He that questioneth much shall learn much.—Bacon.

Cromer: Yellow Tulips.—Can any one suggest what is meant by a so-called yellow Tulip reported to be growing wild, and flowering now in the neighbourhood of Cromer? *Dublin Subscriber.*

Pears. — On what stock is the Seckle Pear grown in America, so that it produces Pears of more than 1 lb. in weight, whilst here it is usually an under-sized fruit? Are the varieties of Crassane Pears really worth growing in this country? If so, can any one say the best position, treatment, soil, and aspect for these kinds? Would Hacon's Incomparable be larger on a wall than grown as an espalier? Would the flavour be more piquant, the skin rougher, and the flesh not so soft and melting, from the second position? Any information on these points will oblige. *W. M.*

Answers to Correspondents.

Books: *N. R.* For carpet-bedding plans get a copy of the *Guide to Hampton Court Gardens*, published by Mr. Graham, the Garden Superintendent there. For the cultivation of Orchids you cannot do better than begin with Mr. B. S. Williams' *Orchid Growers' Manual.*

Carnation: *R. Lawford.* Your crimson-scarlet seedling is a very good border flower, being of good size and colour, and deliciously scented.

Clubbing in Tropæolum: *T. C.* We do not think there is any disease, nor that the appearance is caused by insects, fungi, or root-worms. Many of the original species form tubers, and we suspect your plant is simply reproducing an ancestral condition. Perhaps it may result from a deficient supply of water or too much heat at a particular stage of growth.

Cranberries. — I have no doubt your correspondent, "Guiltcross," can have his wants supplied on application to Messrs. Gordon & Smith, merchants, Aberdeen. *W. W.*

Fasciation: *W. S. T.* This is one of the commonest deformities to which plants are subject. There seems

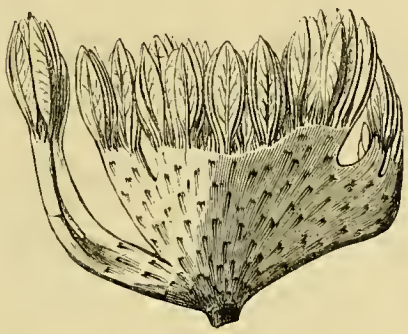

Fig. 38.—Fasciated Lettuce.

to be an over-production of buds, and the growth of the stem is so disproportionately rapid that the buds cannot separate themselves from the stem as they ought to do, but remain in union with it; hence the flattened appearance of the stem. Your specimen of Lettuce is like one of which we gave a figure in a former volume, and now reproduce (fig. 38).

Insects: *L. & S.* Your parcel followed us to the extremity of South Wales. A careful microscopical examination of each Vine leaf failed to detect any insect life, or even to show any trace of their workings or any of their exuviæ. Your description of the insects as invisible to the naked eye, like very minute crystal globes, suggests the possibility of their being newly hatched Acari (red-spider, as the common plant species is termed). Certainly the leaves showed no trace of Phylloxera. *I. O. W.*

Lily Bulb: *T. B.* We believe the bulb to be that of Lilium candidum; it is certainly not that of L. eximium.

Mauve: *A Correspondent* suggests that the idea of the colour was taken from the withered flower of the Mallow. Perhaps so.

Model Garden: *P. R. G.* Use moss obtained from the woods for the grass, and try the common Sedum acre for the edgings. We have had no experience in making such abominations.

Names of Fruits: *J. W., Whitehaven.* "The accompanying Apricot" was a Nectarine in the way of Lord Napier, but being over-ripe when started, reached us in a pulp.—*W. M. C.* 1, Not recognised; 2, Keswick Codlin; 3, Cox's Orange Pippin; 4, Fondante d'Automne; 5, Lord Suffield; 6, Vicar of Winkfield. — Correspondents sending fruits to be named are reminded that we cannot undertake to name more than six at any one time. It would also greatly assist us if correspondents will send only good specimens, securely packed, and carefully numbered.

Names of Plants: *C. & R.* Not recognised; the flower had fallen to pieces.—*J. R. H.* Lilium chalcedonicum.—*C. M. S.* Lysimachia vulgaris.—*Connon & Reid.* All forms of Phalænopsis amabilis, of which there are scarcely two alike.—*S. Y.* Aconitum Napellus, or perhaps A. paniculatum. — *W. H. K.* Your specimens are too scrappy to name; send better ones. No. 2 is Anemone japonica; 5, Veratrum nigrum; 6, Lysimachia ephemerum. — *C. W. Dod.* Campanula bononiensis. — *Enquirer.* 1, Berberis buxifolia; 2, Cornus sanguinea; 3, Lonicera Ledebourii; 4, Syringa vulgaris; 5, Spiræa Douglasii; 6, Cotoneaster frigida. — *T. S.* Not a Salvia, but Stachys coccinea.—*P. C.* 1, Francoa appendiculata; 2, Centaurea montana; 3, Lysimachia punctata.—*Cornubia.* 1, Oxalis corymbosa; 2, Lysimachia vulgaris; 3, a double Pink, which we cannot undertake to name; 4, Campanula trachelium, var.; 5, Sedum spurium; 6, Polemonium cœruleum. — *F. Tufnail.* 1, Pinus Strobus; 2, Abies Pinsapo; 3, Sequoia gigantea; 4, you are right—the plant is C. officinalis, sub-species menthifolia of Hooker's *Students' Flora.* — *G. H.* 1, Epilobium hirsutum; 2, Veratrum nigrum; 3, probably Veronica longifolia: specimen too poor; 4, Populus alba; 5, Cratægus pyracantha; 6, Abies pectinata. Label your specimens so that the numbers can be seen. — *Alpha.* 1, Juniperus chinensis? 2, Oncidium near O. curtum and O. Gardneri, but seems distinct from both in its callus: send it to Prof. Reichenbach; 3, Achillea filipendulina; 4, Leycesteria formosa. — *W. B. S.* Adiantum Pacottii—*W. T.* 1, Cystopteris bulbifera; 2, Blechnum cognatum *alias* B. australe.—*A. B.* 1, 2, 3, garden varieties of Pentstemon; 4, Asclepias sp., in fruit; 5, Sedum spurium.

Painting the Lily: *H. Ward.* The Lilies tinted by Mr. Nesbit were shown at a recent meeting of the Royal Horticultural Society, and they were as described in the paragraph you send us. Except as an interesting physiological experiment we cannot commend the practic.

Pansy: *Gardener.* Certainly not.

Peaches: *M. McW.* Your Peach trees are evidently in a bad state of health—most likely through bad root-action. This causes the spotting, &c., on the fruit. The leaves are also punctured by some insect.

Phylloxera: *H. W. T.* has read his *Gardeners' Chronicle* badly, or he would know that the first description and figure of the insect appeared in it, and that from time to time full information has been given, and abundant warnings given, both publicly and privately, in all cases that have come under notice. We suppose, indeed, that more specimens have passed under our notice than under any other person's in the kingdom. We believe it to be perfectly under control in this country, and our experience for the last twelvemonth has not led us to suppose that the disease is, on the whole, increasing. The methods of dealing with it are, 1, the radical method you have adopted, which is the best for English gardeners; 2, complete and prolonged submersion, which is not always practicable, but which is very efficacious; 3, the use of insecticides, such as bisulphide of carbon, and sulphocarbonate of potash, but these are uncertain and expensive; 4, the grafting of our English Vines on to American stocks, which resist the attack of the louse. This has been practised on a large scale with great success in the South of France, but we are not aware whether it has been tried in this country.

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CATALOGUES RECEIVED.

Dickson, Brown & Tait, Corporation Street, Manchester—Dutch and French Bulbs, &c.

W. Leighton, 89, Union Street, Glasgow — Dutch Flower Roots.

Samuel May, Upperhead Row, Leeds — Flowering Bulbs.

E. P. Dixon, Hull — Select Bulbous Roots, Spring Flowering Plants, &c.

Sutton & Sons, Reading — Dutch and other Bulbs, Flower Seeds, &c.

James Dickson & Sons, 108, Eastgate Street, Chester —Bulbous Flower Roots.

Ireland & Thomson, 20, Waterloo Place, Edinburgh —Dutch Bulb Roots and Spring Flowering Plants.

Robert Veitch & Son, 54, High Street, Exeter—Dutch Bulbs and other Flower Roots.

De Smet Frères, Ghent, Belgium — Stove and Greenhouse Plants.

W. B. Smale, Torquay — Hyacinth and other Flower Roots.

George Bruce, 35, Market Street, Aberdeen — Dutch Flower Roots.

Louis de Smet, Ghent, Belgium—Stove and Greenhouse Plants.

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Edward Webb & Sons, Wordsley, Stourbridge — Bulbs and Seeds.

Communications Received.—J. S. (we will examine and report).—A. R., Windermere (specimen received with thanks: it will be reported on next week).—R. I. L.—H. K.—W. B. —P. McOwan.—G. B. (the matter shall receive attention).—A. Dallière.—Enquirer. — H. L.—B. S. W.—C. E. F.—G. D. V.—W. B. H.—A. O.—W. S.—G. N.—L. T. D.—F. D.—J. M. P.—T. C.—R. G.—R. Thomson, Colombia.—W. W.

Markets.

COVENT GARDEN, August 23.

Business is now dull. There is a large supply of Apples arriving, but meeting with a slow sale. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	1 6- 2 6	Lemons, per case	15 0–20 0
Currants, Black, ½-sieve	3 0- 3 9	Melons, each	1 0- 3 0
— Red, ½-sieve	3 0- 4 0	Peaches, per doz.	2 0- 6 0
Figs, per dozen	2 0- ..	Pine-apples, Eng., lb.	2 0- 4 0
Grapes, per lb.	1 0- 2 0	— St. Mich., each	3 6–10 0
Gooseberries, ½-siv.	2 6- 3 3	Plums, ½-sieve	5 0- 8 0
		Strawberries, per lb.	0 3- 0 9

Vegetables—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	2 0- 3 0	Lettuces, Cabbage, per dozen	1 0- ..
Beans, French, lb.	0 4- ..	— Cos, per dozen	1 6- ..
— Scarlet, per lb.	0 3- ..	Mint, green, bunch	0 6- ..
Beet, per doz.	1 0- ..	Mushrooms, p. baskt.	1 0- 2 0
Cabbages, per doz.	1 0- 2 0	Onions, per bunch	0 6- ..
Carrots, new, p. bun.	0 4- 0 6	— Spring, per bun.	0 6- ..
Cauliflowers, English, dozen	2 0- 3 0	Parsley, per bunch	0 4- ..
Celery, per bundle	1 6- ..	Peas, English, quart	1 c- ..
Cucumbers, each	0 4- 0 8	Radishes, per doz.	1 6- ..
Endive, French, per dozen	2 0- ..	Small salading, pun.	0 4- ..
Garlic, per lb.	1 0- ..	Spinach, per bushel	2 6- ..
Herbs, per bunch	0 2- 0 4	Sweet Potatos, lb.	0 6- ..
Horse Radish, bund.	3 0- 4 0	Tomatos, per lb.	0 6- 0 9
		Turnips, new, bun.	0 4- ..
		Vegt. Marrows, each	0 2- ..

Potatos.—Kent Kidneys, £4 to £5 per ton; do., Regents, £3 10s. to £4 10s. per ton.

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	12 0–24 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6- 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 0
Asters, per doz.	4 0- 8 0	Fuchsias, per dozen	4 0- 9 0
Begonias, per doz.	6 0–12 0	Hydrangea, per. doz.	9 0–24 0
Bouvardia, doz.	12 0–18 0	Lilium longiflorum, per dozen	18 0-42 0
Caladiums, per doz.	6 0–24 0	Liliums, various, doz.	12 0-30 0
Calceolarias, dozen	4 0- 9 0	Marguerite Daisy, per dozen	12 0–24 0
Cockscombs, doz.	3 0- 6 0	Mignonnette, doz.	4 0- 6 0
Coleus, doz.	2 0- 6 0	Myrtles, per doz.	6 0–12 0
Dracæna term. doz.	30 0–60 0	Palms in variety, each	2 6–21 0
—viridis, per doz.	12 0–24 0	Pelargoniums, scarlet, per dozen	2 0- 6 0
Erica, various, doz.	12 0-36 0	— decorative, doz.	6 0–12 0
Euonymus, various, per dozen	9 0–18 0		
Evergreens, in var., per dozen	6 0–24 0		

Cut Flowers.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0- 4 0	Mignonette, 12 bun.	2 0- 6 0
Asters, 12 bunches	2 0- 6 0	Marigolds, 12 bun.	2 0- 4 0
— French, per bun.	1 0- 3 0	Myosotis, or Forget-me-not, p. 12 bun.	2 0- 6 0
Bouvardias, per bun.	1 0- 1 6	Pansies, 12 bunches	0 9- 1 6
Carnations, 12 blms.	1 0- 3 0	Pelargoniums, 12 spr.	0 6- 1 0
— 12 bunches	3 0- 6 0	— zonal, 12 sprays	0 3- 0 6
Cornflower, 12 bun.	1 6- 4 0	Picotees, 12 bun.	2 0- 6 0
Dahlias, 12 bun.	3 0- 6 0	Primula, double, bun.	1 0- 1 6
Delphinium, p. bun.	0 6- 1 0	Pyrethrum, 12 bun.	3 0- 6 0
Eucharis, per doz.	3 0- 6 0	Roses (indoor), doz.	2 0- 6 0
Eschscholtzia, 12 bn.	2 0- 4 0	— (outdoor), 12 bun.	3 0- 6 0
Gardenias, 12 blms.	3 0- 6 0	— coloured, doz.	3 0- 8 0
Gladioli, 12 spikes	1 0- 3 0	Stephanotis, 12 spr.	2 6- 4 0
Heliotropes, 12 sp.	0 6- 1 0	Stocks, 12 bunches	3 0- 6 0
Lapageria, white, 12 blooms	3 0- 6 0	Sweet Peas, 12 bun.	2 0- 4 0
— red, 12 blooms	1 0- 3 0	Sweet Sultan, 12 bun.	4 0- 6 0
Liliums, 12 bun.	12 0–18 0	Tropæolum, 12 bun.	1 0- 2 0
Lavender, 12 bun.	6 0- 9 0	White Jasmine, bun.	0 6- 1 0
Marguerites, 12 bun.	6 0- 9 0		

CORN.

At Mark Lane on Monday the Wheat trade was flat, without pressure of sales, and foreign Wheats remained about the rates of Monday se'nnight, but with a weak tendency. Several samples of new Eng'ish of good quality were on offer: the rates were, for white, 45*s.* to 48*s.*; and for red, 42*s.* to 45*s.*, but in one or two instances 1*s.* over these rates was obtained. Flour was dull of sale, but not lower. Maize upheld Friday's advance of 3*d.* Barley was rather dearer, but slack. Oats were upheld at the previous Monday's value, but sold slowly. Beans were firm, and Peas advanced 6*d.*—Wednesday's corn trade was exceedingly dull, with a tendency to weakness. Flour rates were steady, but the demand was slack. Barley, Beans, Peas, and Maize were not plentiful, and may be quoted firm, though not in any case active. Oats were rather firmly upheld, but common qualities were dull. Average prices of corn for the week ending August 18:—Wheat, 43*s.* 10*d.*; Barley, 28*s.* 9*d.*; Oats, 23*s.* 2*d.* For the corresponding period last year:—Wheat, 50*s.* 5*d.*; Barley, 26*s.* 1*d.*; Oats, 24*s.* 5*d.*

POTATOS.

The Borough and Spitalfields markets reports state that there were fair supplies on offer, but the demand was quiet. Quotations:—Magnum Bonums, 85*s.* to 100*s.*; Myatt's kidneys, 85*s.* to 105*s.*; Regents, 65*s.* to 95*s.*; Shaws, 60*s.* to 70*s.*; Roses, 60*s.* to 70*s.* per ton.

Government Stock.—Consols closed on Monday at 100 to 100⅛ for delivery, and 100¼ to 100 5/16 for the account. Tuesday's prices were as on the preceding day for delivery, and 100⅛ to 100¼ for the account. The final quotations of Wednesday and Thursday were 99⅞ to 100 for delivery, and 100 to 100⅛ for the account.

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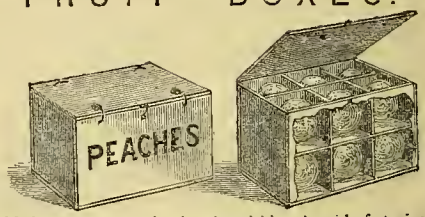

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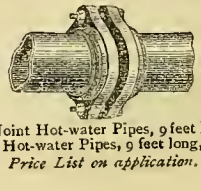

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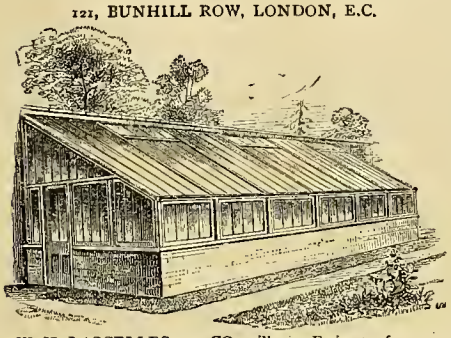

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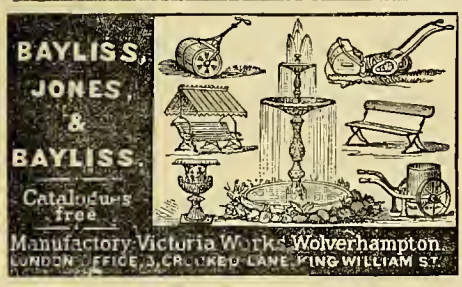

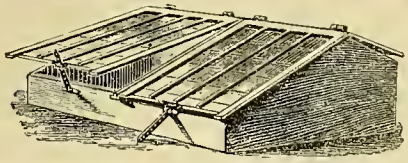

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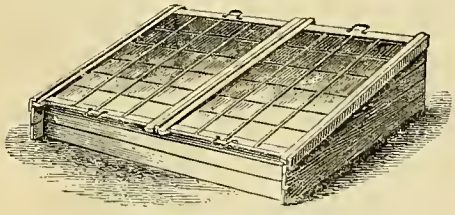

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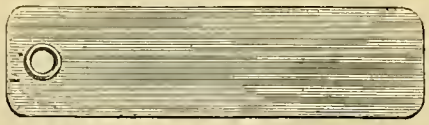

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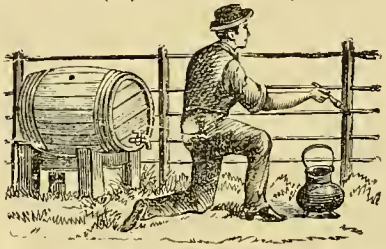

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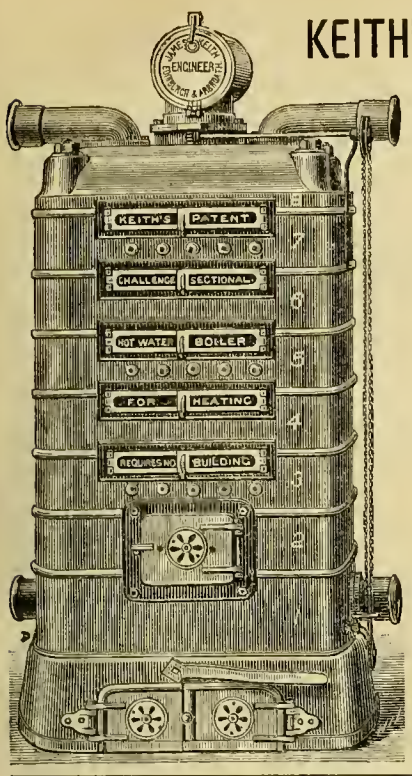

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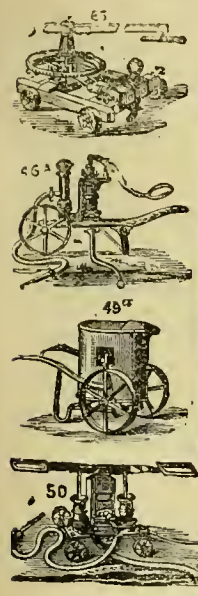

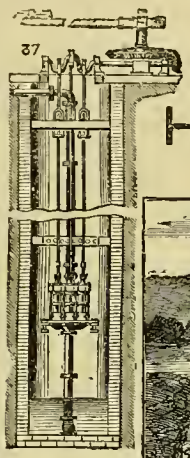

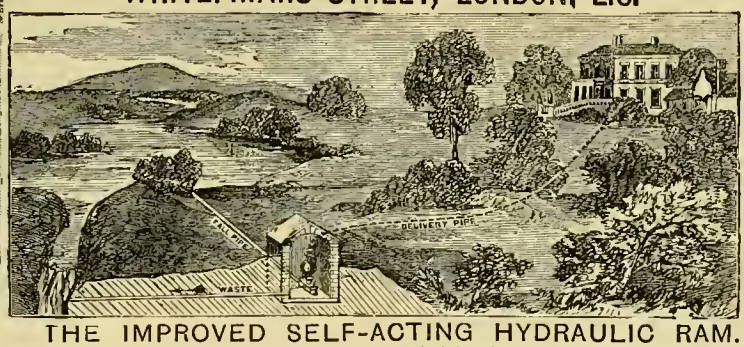

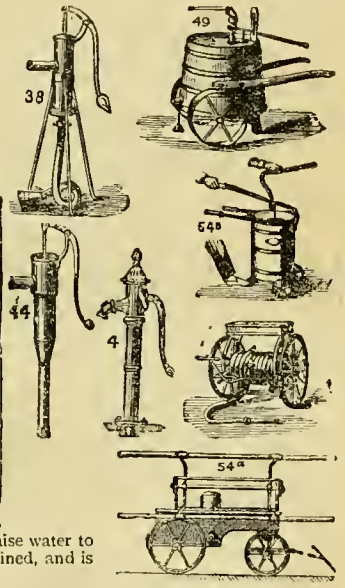

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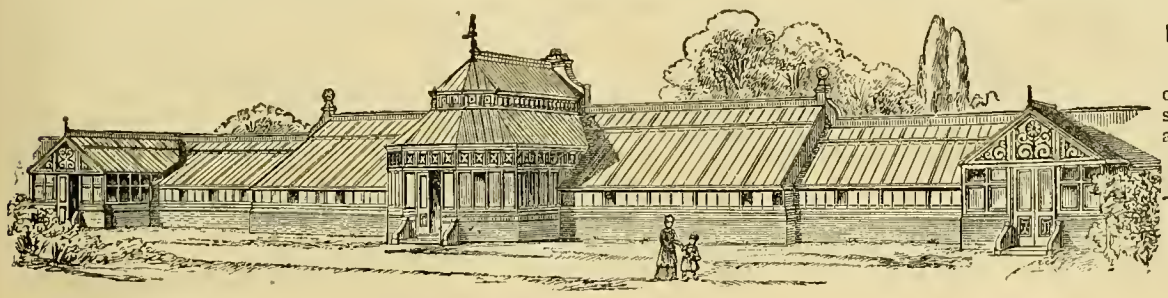

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JOURNEYMAN, in the Houses. — JAMES CYPHER can with confidence recommend a young man as above, who has a thorough knowledge of Plant Growing.— C. M., Queen's Road Nurseries, Cheltenham.

JOURNEYMAN, in a Gentleman's establishment, where he can Improve in the General Work (Inside). —Age 20; three years' character from last situation. Bothy preferred.—W. FREWIN, Dunsdac Green, near Reading.

IMPROVER, where the general routine of gardening may be learnt.—Age 18; twelve months in nursery.—C. H, Mr. Surman, High Street, Witney, Oxon.

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TO GENTLEMEN.—Advertiser, with many years' experience in Market Work, would take sole Management of an extensive first-class Horticultural Business. —A. S., 17, Water Lane, Watford, Herts.

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SHOPMAN, or SECOND in a good house. —Seven years' general experience. First-class references. —DELTA, 14, Selborne Street, Prince's Road, Liverpool.

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TO SEEDSMEN.—A young man desires a situation in the Seed business; four years' experience; good references —A MALVERN, Mr. Clare, Cotswold Seed Warehouse, Cheltenham

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To Nurserymen.

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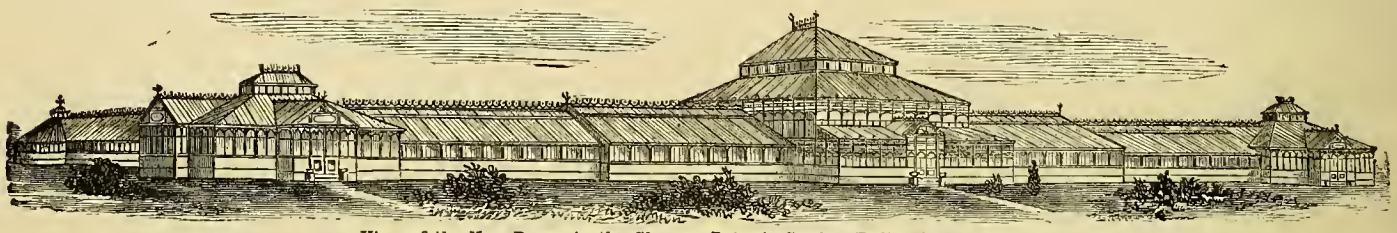

View of the New Range in the Glasgow Botanic Garden (Built of Teak-wood).

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INTERNATIONAL POTATO EXHIBITION, September 13 and 14.

The "GARDENERS' CHRONICLE" for NEXT SATURDAY, September 8, will contain a Portrait of SHIRLEY HIBBERD, Esq., and in the following Number will be Published a Full Report of the Show.

THE INTERNATIONAL POTATO EXHIBITION will be held at the CRYSTAL PALACE, Sydenham, S.E., on SEPTEMBER 13 and 14, when PRIZES amounting to ONE HUNDRED and FORTY POUNDS will be offered. For Schedules apply to
P. J. McKINLAY, Headley Lodge, Penge, S.E.

HEREFORD APPLE and PEAR SHOW will be held on WEDNESDAY and THURSDAY, October 24 and 25. Prizes open to all. For Schedule of Prizes, apply to H. C MOORE, Esq., 26, Broad Street, Hereford.

THAME SHOW, September 19.
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J. WALKER will give THREE PRIZES for 50 Pods, as under:—1st Prize, 20s.; 2d, 10s.; 3d, 5s. All Peas sent by Post will be put in fair competition.
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Priced Descriptive LIST on application.

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F. STREET, Heatherside Nurseries, Golden Farmer, Farnborough Station.

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ELSTER AND KOLLMANN, Lübeck, near Hamburg, offer the above, 3-yr. old, extra strong Crowns, at 34s. per 1000. Three months terms, or terms for cash price, on application.

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Send for our NEW LIST, No. 63.

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THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this year a splendid stock of Tea and other Roses in pots. Prices and full particulars on application to
The MANAGER, The Vineyard, Garston, Liverpool.

KELWAY AND SON, Langport, Somerset, offer GLADIOLI SPIKES, DAHLIAS, single and double; PYRETHRUMS, single and double; PHLOXES and TEA ROSES; CALCEOLARIA and CINERARIA SEED.
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Wholesale CATALOGUE now ready, and will be sent post-free on application.

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EIGHTY THOUSAND CLEMATIS, in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants.
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REINE MARIE HENRIETTE, NIPHETOS, ISABELLA SPRUNT, RÊVE D'OR, &c. Strong plants, 12 to 15 inches high, 7s. per dozen, or 4 for 2s. 6d., carriage paid.
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THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

FOR SALE, a small Collection of ORCHIDS, comprising Aerides, Cattleyas, Dendrobium, Phalænopsis, Sacchobium, and others, all in good condition. Apply to
The GARDENER, Florian, Torquay.

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T. WILKINSON, London Hill, Harrow.

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Roses on Own Roots, and Tea Roses in Pots.
PAUL AND SON, The "Old" Nurseries, Cheshunt, recommend planting these during the present month, and early in September.
Many thousands in 48-pots, and now ready for delivery.
LIST of sorts on own roots on application.
All the Teas in Catalogue can be supplied.
The "Old" Nurseries, Cheshunt.

STRAWBERRIES—Next Summer, by planting now: capital roots, 4s. per 100. In a Few Months, by forcing: plants in pots, 16s. per 100. Only the best varieties are offered. Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

STRAWBERRIES.—We are now prepared to supply strong healthy Plants, from ground and in pots, of all the most approved kinds. A select descriptive LIST post-free on application.
THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

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Dutch Bulbs.—Great Unreserved Sales.
Every MONDAY, THURSDAY, and SATURDAY.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every MONDAY, THURSDAY, and SATURDAY, at half-past 11 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other ROOTS from Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Upper Holloway, N.—Clearance Sale.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. C. Boff (who is disposing of his ground for building purposes) to SELL by AUCTION, on the Premises, The Nursery, Magdala Road, Salisbury Road, Upper Holloway, N., close to the "Archway Tavern," on WEDNESDAY, September 5, at 12 o'Clock punctually, without reserve, the whole of the GREENHOUSE PLANTS, including about 10 000 Geraniums, 1000 Maidenhair Ferns, and large quantities of Decorative and Foliage Plants; 15 newly erected GREENHOUSES, containing about 15,000 superficial feet, about 3000 feet of nearly new 3 and 4-inch Hot-water PIPING, BOILERS, and BRICKWORK; three 13-light PITS, several other PITS, UTENSILS in trade, including 2 tons of SILVER SAND; also HORSE, MARKET VAN, two-horse VAN, CARTS, and numerous other items.

May be viewed the day prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, London, E.C.

N.B.—The valuable FREEHOLD ESTATE, now ripe for Building purposes, will shortly be offered at the Mart, London, due notice of which will be given.

Friday Next.
DENDROBIUM SUAVISSIMUM (true),
CYPRIPEDIUM STONEI.
CATTLEYA SANDERIANA, Rchb. f.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside E.C., on FRIDAY NEXT, at half-past 12 o'Clock precisely, the grandest consignment ever offered of CYPRIPEDIUM STONEI. The masses are in extraordinary health and size, and an importation like the one now offered of this, the finest Cypripedium extant, has never been sold before.

Also a grand lot of the true DENDROBIUM SUAVISSIMUM. Owing to its growing, as a rule, into Chrysotoxum, this Dendrobium could not hitherto be offered true. The present batch comes from a quite new district—from the interior of Burmah—and they were found growing together.

Also a splendid lot of CATTLEYA SANDERIANA, ODONTOGLOSSUM ALEXANDRÆ, MASDEVALLIA HARRYANA, M. MACRURA, and many other ORCHIDS.

On view morning of Sale. Catalogues had at the Rooms, or at the Auctioneers' Offices, 8, New Broad Street, E.C.

Lee, S.E.—Great Annual Trade Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Burnt Ash Nursery, Lee, S.E., on TUESDAY, September 18, at 11 o'Clock, in consequence of the unusually large number of 1100 lots, by order of Mr. B. Maller, without reserve, 20,000 WINTER-BLOOMING HEATHS, beautifully grown and well set with flower-buds, including 10,000 ERICA HYEMALIS, 7000 well-berried SOLANUM CAPSICASTRUM, 2000 ADIANTUMS, 2000 GENISTAS, 6000 BOUVARDIAS, 1000 decorative PALMS, and a variety of OTHER STOCK, full particulars of which will appear next week.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, as above.

Tottenham.
GREAT ANNUAL TRADE SALE; to commence punctually at 11 o'Clock, there being upwards of 1100 lots.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Brunswick Nursery, Tottenham (close to White Hart Lane Station), on THURSDAY, September 20, at 11 o'Clock precisely, by order of Mr. John Maller, without reserve, 20,000 winter blooming HEATHS, beautifully grown, and abundantly set with flower-buds, including Erica, hyemalis, gracilis, caffra, Wilmoreа, and other best kinds; 5000 remarkably well berried SOLANUM CAPSICASTRUM, unsurpassed in the Trade; 1000 ACACIAS, 1000 handsome PALMS, 1000 well furnished ADIANTUMS, 500 FICUS ELASTICA, 3000 TREE CARNATIONS, best varieties; 5000 BOUVARDIAS, 1000 CYCLAMEN, 1000 EUPHORBIA JACQUINIFLORA, 1000 AZALEAS, large plants of AZALEAS and CAMELLIAS, for cutting from, 4000 GENISTAS, 500 MYRTLES, 200 EPIPHYLLUMS, 500 GREVILLEA ROBUSTA, 1000 Double White PRIMULAS, including Gilbert's splendid new varieties; several thousands of small ERICAS, GENISTAS, &c., for growing on, and large quantities of DRACÆNAS, CROTONS, FERNS, BEGONIAS, GARDENIAS, AMPELOPSIS VEITCHII, CLEMATIS, &c., suitable for the Trade, and other extensive buyers.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B. The whole stock is in first-rate condition, the Ericas being especially well set for flowers.

Eaton Nurseries, near Norwich.
GREAT UNRESERVED CLEARANCE SALE of beautifully grown NURSERY STOCK, by order of Messrs. Ewing & Co., who are giving up their Nurseries.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, the Old Established Nurseries at Eaton, near Norwich, on WEDNESDAY and THURSDAY, September 26 and 27, at 12 o'Clock precisely each day, the second portion of the VALUABLE NURSERY STOCK, comprising the plants in pots, consisting of about 10,000 Roses in pots of such sorts as Maréchal Niel, Niphetos, Gloire de Dijon, and other best varieties of Teas and Noisettes; 5000 Clematis in great variety, of the newest and best kinds; 5000 variegated and green-leaved Ivies; Ampelopsis Veitchii, and other hardy Climbers in pots in superb variety; also about 5000 choice young Evergreens and Flowering Shrubs, many of them new and rare; and large quantities of Japanese Evergreens, Aucuba japonica, &c.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, London, E.C.

N.B.—A GREAT SATE of FRUIT and ORNAMENTAL TREES and SHRUBS to be held on NOVEMBER 6 and 9, particulars of which will appear in due course.

Foots' Cray.
By Order of the Executrix.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, The Nursery, Foots' Cray, Kent, on TUESDAY, September 25, the first portion of the Stock-in-Trade, comprising an unusually large variety of FERNS, one of the finest collections in the Trade. Thousands of Standard and Half-standard ROSES, and OTHER STOCK.

Catalogues will shortly be ready, and may be had on the Premises, or of the Auctioneers as above.

N.B. The Old Established NURSERY BUSINESS is to be DISPOSED OF, full Particulars of which can be had of the Auctioneers.

Alteration of Date.
LÆLIA ELEGANS.—PRELIMINARY NOTICE.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY, September 28, and NOT September 21, as previously advertised, a wonderful lot of LÆLIA ELEGANS, in masses of unprecedented size and condition. Further particulars will duly appear.

Lea Bridge Nurseries, Leyton.—Great Annual Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, as above, in SEPTEMBER, by order of Mr. John Fraser, several thousands of ERICAS, and other WINTER BLOOMING PLANTS, as in former years.

Further particulars will appear next week.

Wood Green, N.—Important Trade Sale.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. W. Hurst to SELL by AUCTION, on the Premises, The Lordship Nursery, Lordship Lane, Wood Green, N., in SEPTEMBER, about 15,000 DECORATIVE FOLIAGE PLANTS, principally in 48 and 32-pots; 5000 ADIANTUM CUNEATUM, fine plants, mostly in 48's; 1600 DRACÆNAS, including a splendid lot of the true rubra variety; and other Stock, the whole of which is remarkably well-grown, and an inspection is invited.

Catalogues on the Premises and of the Auctioneers, as above.

Forthcoming Sales.
Every MONDAY, THURSDAY, and SATURDAY, DUTCH BULBS, at

MESSRS. PROTHEROE AND MORRIS' Auction Rooms, 67 and 68, Cheapside, E.C.

OCTOBER 2.—At Young's Nursery, Balham, GENERAL NURSERY STOCK and GREENHOUSE PLANTS.

OCTOBER 3 and 4.—At the Nurseries, Richmond, by order of Messrs. J. & M. Steell, GENERAL NURSERY STOCK.

OCTOBER 3 and 4.—At the Nurseries, Abbey Wood, Kent, by order of Mr. Havelock, GENERAL NURSERY STOCK.

OCTOBER 9 to 11.—At the Oatlands Park Nursery, Weybridge, by order of Mr. H. Chapman, Great Sale of well grown NURSERY STOCK.

OCTOBER 16 to 19.—At the Nurseries, Ealing, by order of Messrs. C. Lee & Son, highly important unreserved Clearance Sale of 12 Acres of beautifully grown NURSERY STOCK, FRUIT TREES, &c.

NOVEMBER 6 to 9.—At the Eaton Nurseries, near Norwich, by order of Messrs. Ewing & Co., who are giving up their Nursery, the Third Portion of the unusually well grown NURSERY STOCK.

The Auctioneers beg to call the attention of Noblemen and Gentlemen largely engaged in planting to the above Sales, and will be glad to enter names on their list for Catalogues to be forwarded. Twelve stamps will ensure a regular supply throughout the season.

67 and 68, Cheapside, and 8, New Broad Street, London, E.C.

Forthcoming Sales by

MESSRS. PROTHEROE AND MORRIS in addition to those advertised in this paper:—

TUESDAY, September 4.—Sale of HOUSEHOLD FURNITURE, at 5, Forest Lane, Stratford.

WEDNESDAY and THURSDAY, September 5 and 6.—Sale of STOCK and UTENSILS in TRADE of BRUSH MANUFACTURER and HOUSEHOLD FURNITURE, at 21, Stone Street, Maidstone.

WEDNESDAY, September 12.—Sale of FREEHOLD PROPERTIES, at New Malden, Snaresbrook, Wanstead, Stratford, and Winchmore Hill, at the Auction Mart, Tokenhouse Yard, E.C.

THURSDAY, September 13.—Sale of FREEHOLD and LEASEHOLD SHOPS and DWELLING-HOUSES, at Leyton and Leytonstone, at the Auction Mart, Tokenhouse Yard, E.C. 19 Lots.

Particulars and Catalogues of these Sales may be had at the Estate Office, 8, New Broad Street, E.C.

Dutch Flower Roots, every Monday, Wednesday and SATURDAY.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely, a large consignment of first-class DOUBLE and SINGLE HYACINTHS, in all colours; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, early ROMAN HYACINTHS, and other BULBS, just received from well known farms in Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale, and Catalogues had.

Tuesday Next.—(Sale No. 6455.)
PERIODICAL SALE of POULTRY and PIGEONS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY NEXT, September 4, at half-past 12 o'Clock precisely, about 300 lots of first-class POULTRY and PIGEONS, from the yards and lofts of well-known breeders and exhibitors.

On view morning of Sale, and Catalogues had.

Orchids from Siam.

MR. J. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, September 6, four cases of ORCHIDS from Siam, containing Dendrobiums, Vandas, Cymbidiums, Aërides, Saccolabiums, and others. A case in a lot.

On view morning of Sale, and Catalogues had.

Thursday Next.
CATTLEYA DOWIANA.
CYPRIPEDIUM LOWI.
CATTLEYA MENDELLI.

MR. J. C. STEVENS has received instructions from Mr. F. Sander, of St. Albans, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, September 6, at half-past 12 o'Clock precisely, splendid importations of the above superb ORCHIDS; also a magnificent lot of ODONTOGLOSSUM ALEXANDRÆ, very finest type; MASDEVALLIA HARRYANA, MACRURA and ELEPHANTICEPS; ODONTOGLOSSUM VEXILLARIUM, large flowering and autumn flowering type; and many other ORCHIDS.

On view morning of Sale, and Catalogues had.

Thursday Next.
EPIDENDRUM HUMBOLDTII.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, September 6, some good Plants of the beautiful EPIDENDRUM HUMBOLDTII, extremely rare in South America, and not in cultivation in this country. It has fine branched spikes of extremely handsome flowers, sepals and petals rose colour, labellum rich purplish-magenta, with white throat, reminding one of Lælia (Cattleya) marginata, *vide* drawing copied from Reichenbach's *Xenia*, vol. 1, plate 52; also a few good plants of the SWAN ORCHID, Cycnoches chlorochilon, &c.

On view morning of Sale, and Catalogues had.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, September 20, at half-past 12 o'Clock precisely, the small but CHOICE COLLECTION of ESTABLISHED CATTLEYAS, &c., formed by Edward Salt, Esq., of Fernihurst, Shipley, near Leeds, who is disposing of all his Orchids which require other than cool treatment. The Cattleyas, many of which have been bought in flower, comprise some almost matchless varieties. They include many specimen plants, have been grown with little or no shade, are in the most perfect condition, and well set with flower-sheaths. Three magnificent specimens of ANTHURIUM ANDREANUM will be included, one of which is believed to be the largest plant in the country if not in Europe, and very floriferous. The sale will include all the Cattleyas of the collection, none being reserved.

On view morning of Sale, and Catalogues had.

Very valuable Freehold Estate, called "SUMMERHOW,"
And extensive VINERIES, ROSE HOUSES, GARDENIA and CAMELLIA HOUSES, GREEN STORE and CUCUMBER HOUSES, near Kendal, for Sale.

TO BE SOLD BY AUCTION,
BY
Mr. F. J. THORNBER,
At the Commercial Hotel, in Kendal, on WEDNESDAY, September 5, at 6 o'Clock in the evening,

THE VALUABLE FREEHOLD RESIDENTIAL ESTATE called "SUMMERHOW, consisting of a capital Dwelling-house, with Coach-house, Stables, Harness-room, Cottages, extensive Vineries, Conservatories, Gardens, Orchard and Outbuildings, and of several Closes of rich Arable, Meadow, Pasture, and Wood Land, containing altogether 15a. 2r. 24p., or thereabouts, situate on the east side of the highway leading from Kendal to Shap, in the township of Skelsmergh, in the parish of Kendal, in the county of Westmorland, and now in the occupation of Charles Wilson, Esq., the owner thereof.

The Estate is delightfully situated, within 1 mile from Kendal Station, on the London and North-Western Railway, and abuts on the river Mint, in which there is good trout fishing. The rivers Kent and Sprint are also within a very short distance.

The Residence is prettily placed on rising ground with a south and west aspect and commands extensive views of the Lake Hills and the surrounding country. It is very substantially built, and the rooms are airy and lofty. It is approached by a winding carriage drive, from which beautiful views are obtained.

The House contains vestibule, spacious entrance hall (heated); dining-room 19 feet 10 inches by 18 feet; drawing-room, 27 feet by 18 feet; breakfast-room, kitchen, scullery, two larders, pantries, five lodging-rooms, nursery, lavatory, bath-room, washhouse, and all usual conveniences.

The Outbuildings comprise a three-stalled stable, harness-room, coach-house, barn, poultry-house, and piggeries, &c.

In a convenient position are TWO DWELLING HOUSES, occupied by Coachman and Gardener.

The Drawing-room windows overlook tastefully laid out flower beds and tennis lawn, and there is a well stocked Orchard adjoining.

The Glass-houses, which have been erected by the Owner, at great expense, comprise three extensive Vineries, Rose Houses, Gardenia and Camellia Houses, and Green Store and Cucumber Houses. They cover an area of about 2470 superficial square yards, are fitted up and heated in the most perfect style. The Vineries are stocked with high-class Vines, all in full fruitage.

The whole property is comprised within a ring fence, and is in a very healthy locality. Lake Windermere is within a distance of 8 miles.

Printed particulars, with plans, cards to view, and further information may be obtained from the Auctioneer, Kendal; or at the Offices of the undersigned.

ARNOLD AND GREENWOOD, Solicitors, Kendal.
Exchange Chambers, August 14, 1883.

Blenheim Palace Gardens, Oxon.
In consequence of re-arrangements about being made in the above Gardens,

MESSRS. J. AND W. SCROGGS will SELL by AUCTION, on TUESDAY, September 18 (the same day as the Woodstock Agricultural Show), at 11 for 12 o'Clock, SELECTED PLANTS. The Catalogue will include drafts from the Stove and Intermediate Houses at Blenheim Gardens, and will comprise several large and well-grown specimens of Clerodendron Balfourianum, Allamanda Henderson, Anthurium crystallinum, Cycas revoluta, Medinilla magnifica, Stephanotis floribunda, Adiantum Farleyense, Croton Johannis, Davallia Mooreana, and Cissus discolor.

The plants will be on view the day previous to sale, by ticket only. Catalogues and orders to view may be had at the Estates Office, Blenheim Palace, of Mr. CLARK, Head Gardener, and of J. AND W. SCROGGS, Auctioneers, Kidlington, Oxon.

N.B. In consequence of the absence of the Family on September 18, notice is hereby given that the Palace and Gardens will be open to the Public for that day only.

Highly Important Sale of Camellias and Orchids.

MESSRS. SMITH AND DEWAR have been instructed by Messrs. Wm. Thomson & Sons, Clovenfords, Galashiels, to SELL, in their Auction Rooms, 79, Great George Street, Edinburgh, on THURSDAY, September 13, a very valuable lot of CAMELLIAS in tubs (nearly all Alba plena) and covered with flower-buds; also some splendid SPECIMEN ORCHIDS, all in perfect health and well worthy of the attention of Orchid Growers.

Plants will be on view on September 12. Catalogues to be had on application.

FOR SALE, a NURSERY, about an Acre, 3 long Greenhouses, 4-roomed Cottage, 18 Lights; 17 years' Lease.

For particulars apply to H. CROOK, 6, Belmont Place, East Greenwich, S.E.

FOR SALE, FLORIST and FRUITERER'S BUSINESS, doing good family and ready-money trade. First-class fitted shop, 9-roomed House, in main thoroughfare. Managed with little expense. Trade £30 per week. Price low, as owner has gone into wholesale business. Lease 20 years. Established 10 years.

W. M. C., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO BE DISPOSED OF, a genuine good going NURSERY and SEED BUSINESS, in Country Market Town in Warwickshire. Nursery 4 Acres, well stocked, fine Shop. Has been over thirty years a seed shop. Incoming about £400; valuation or agreement.

Apply OWEN DAVIES, Esq., Bank, Alcester.

NURSERY for SALE. £500. Eight-roomed House, Stabling, and Sheds. Eight Houses, all well heated and stocked, standing on about an acre of ground. Lease 14 years. Rent £48. Within an easy distance of Covent Garden. Good opportunity for a practical man.

A. X 35, Messrs. Deacon's, Leadenhall Street, London, E.

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

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 8, New Broad Street, E.C.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

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

DUTCH BULBS

DIRECT FROM THE GROWERS.

ANT. ROOZEN AND SON, NURSERYMEN, Overveen, near Haarlem, Holland.

Before ordering Dutch Bulbs, read ANT. ROOZEN & SON'S CATALOGUE for 1883, which their Agents, Messrs. MERTENS AND CO., 5, Billiter Square, London, E.C., will forward Post-free on application.

1883.] **Offer of Seede from** [1884.

A. LIETZE, Rio de Janeiro, Brazil.

Gross Prices in Shillings.

	Ripening.	100 Seeds.	1000 Seeds.
		s.	s.
ACROCOMIA sclerocarpa	Sept.	10	80
ARAUCARIA brasiliensis	May	5	30
ARECA lutescens	Jan.	4	25
,, ,, ... 5 000 Seeds, 100s.	,,		
,, ,, ... 10,000 Seeds, 160s.	,,		
,, madagasc.	June	4	20
,, rubra	Jan.	2	12
,, ,, ... 5,000 Seeds, 50s.	,,		
,, ,, ... 10 000 Seeds, 80s.	,,		
ASTROCARYUM Airi	Nov.	15	120
ATTALEA speciosa	May	30	..
BACTRIS Maraja	Nov.	6	40
CARYOTA sobolifera	irregularly	6	40
,, urens	,,	6	40
COCOS campestris	,,	7	50
,, flexuosa	Sept.	5	30
,, oleracea	Jan.	10	80
,, plumosa	irregularly	5	30
,, ,, ... 5,000 Seeds, 120s.	,,		
,, Procopeana	Nov.	20	..
,, Weddelliana	Dec.	7	50
,, ,, ... 5,000 Seeds, 200s.	,,		
,, ,, ... 10,000 Seeds, 375s.	,,		
COFFEA arabica	May	2	15
,, ,, yellow fruit variety ..	,,	3	25
,, ,, variety Maragogipe ..	,,	5	40
COPERNICIA cerifera	Jan.	10	80
DESMONCUS, sp Rio	May	10	..
DIPLOTHEMIUM caudescens ..	Nov.	15	130
,, maritimum	April	12	100
ELAEIS guineensis	May	12	100
EUTERPE edulis	,,	6	50
GEONOMA gracilis	March	5	30
,, ... 5,000 Seeds, 120s.	,,		
,, Schottiana	June	5	30
GLAZIOVA insignis	Dec.	7	50
,, ,, ... 5,000 Seeds, 200s.	,,		
LIVISTONA sinensis	Aug.	2	10
,, ,, ... 5,000 Seeds, 40s.	,,		
,, ,, ... 10,000 Seeds, 70s.	,,		
MASSANGEA tigrina (Brom.) ..	May	5	30
OREODOXA oleracea	irregularly	2	10
PANDANUS utilis	,,	3	20
,, ,, ... 5,000 Seeds, 80s.	,,		
,, ,, ... 10,000 Seeds, 150s.	,,		
RAVENALA madagasc.	,,	4	30
PHILODENDRON bipinnatif. } ,, speciosum .. .. }	April	3	20
,, ,, ... 5,000 Seeds, 75s.	,,		
,, ,, ... 10,000 Seeds, 120s.	,,		

Less than 100 Seeds each sort are not delivered.

DUTCH FLOWER ROOTS.

B. S. WILLIAMS

Begs to announce that he has received his Annual Importation of the above.

The Quality of the Bulbs is unusually fine this year.

N.B.—Bulbs are forwarded by the Parcels Post Carriage Free.

BULB CATALOGUE has been posted to all Customers. Copy of same will be forwarded on application to any who may not have received one.

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

B. MALLER begs to make his Annual Trade Offer of his very extensive and extra well-grown stock of:—

ERICAS (Hyemalis, and other varieties), EPACRIS, GENISTAS, CYCLAMEN, BOUVARDIAS, ADIANTUM CUNEATUM and other FERNS, GREVILLEAS, VINES in pots, &c. An inspection is invited.

Trade CATALOGUE forwarded on application.

The Annual SALE by AUCTION will be held in SEPTEMBER.

Burnt Ash Lane Nurseries, Lee, S.E.

SINGLE DAHLIAS,

IN FULL FLOWER.

THOMAS S. WARE has much pleasure in announcing that his very extensive collection of SINGLE DAHLIAS, covering many acres, is now beautifully in flower, and will continue to make a grand show for some weeks to come, should the weather prove favourable.

A visit of Inspection is respectfully solicited.

Hale Farm Nurseries, Tottenham, London.

FERNS A SPECIALITY.

EXOTIC and BRITISH FERNS and SELAGINELLAS,

Suitable for STOVE and GREENHOUSE Cultivation, for OUTDOOR FERNERIES, and other purposes, in immense number and variety. Our ILLUSTRATED CATALOGUE (price 6*d.*) contains much useful information as well as "Hints on Fern Culture." SPECIAL LISTS, issued at intervals during the year, giving extremely low quotations, may be had FREE on application.

W. & J. BIRKENHEAD,
FERN NURSERY, SALE, MANCHESTER.

Hooper's—

The Covent Garden Seed Warehouse

Send Four Stamps for New Catalogue of **BULBS,** Richly illustrated in colours, correctly after Nature.

The Fourpence will be returned in the first purchase.

To Florists.—For Forcing this next Winter.

LILACS (Syringa) Charles X., Saugé, and ALBA VIRGINALIS.—Nice round plants cultivated in pots, plants from 1 foot 10 inches to 2 feet 10 inches, with six, ten, and fifteen branches, well set with flowers, price £6, £8 and £10 per 100.

STAPHYLEA COLCHICA.—Plants cultivated in pots, £6 per 100.

PRUNUS SINENSIS FLORE-PLENO. — Cultivated in pots, £6 per 100.

ROSES, Niphetos, Maréchal Niel, and other Teas, for Forcing —Cultivated in pots, £4 per 100.

ROSES, Special Varieties, for Forcing. — Low-budded, fine plants, £20 to £24 per 1000.

SPIRÆA PALMATA.—Good clumps, £10 to £12 per 1000.

DEUTZIA GRACILIS.—Good young plants, six to twelve branches, £10 to £12 per 1000.

Direct Orders to

L. PAILLET, Nurseryman, Chateney (Seine), prés Paris, France.

CHADBURY EARLY CABBAGE SEED. —This seed has been grown by careful selection for sixteen years, and planting the stems where the produce would not be likely to be affected by Bees. It is liked by the Evesham gardeners, who are good judges of what pays them best, and is recommended to Farmers as a safe crop to plant—selling the Cabbages if they can grow them early enough and good enough —feeding them off by sheep if they cannot. Price 7*s.* per pound in small quantities; 5*s.* 6*d.* per pound for 20 lb. and upwards For Cash only. Apply to

Mr. RANDELL, Chadbury, near Evesham.

Dutch and Other Bulbs.

JOHN DOWNIE
(late of the firm of DOWNIE & LAIRD),
144, PRINCES STREET, EDINBURGH,

begs to inform his Friends that he has received his First Consignment of Bulbs, which are in fine condition, and will be offered at moderate prices. CATALOGUES forwarded on application.

Palms.

ARECA LUTESCENS.—This year's Seedlings, 20*s* per 100.

CEROXYLON NIVEUM.—2-yr. strong plants, £10 to £15 per 100.

CATALOGUES of PALMS on application.

SEEMANN AND GOEPEL, Wandsbek, Hamburgh, Germany.

SPECIAL CHEAP OFFER of HARDY PERENNIALS, SUITABLE for PRESENT PLANTING,

CONSISTING of most Useful and Effective Varieties, principally strong plants from Ground, gratis and post-free upon application.

THOS. S. WARF, Hale Farm Nurseries, Tottenham, London.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE.

4*d.* per bushel; 100 for 25*s*; truck (loose, about 2 tons). 40*s*; 4-bushel bags, 4*d.* each.

LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s*; sacks, 4*d.* each.

BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks 22*s.*; sacks, 4*d.* each.

COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* per half ton, 26*s* per ton; in 2 bushel bags, 4*d.* each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1*s.* per bushel.

SPHAGNUM MOSS, 8*s.* 6*d.* per sack.

MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Free Price LIST.—H. G. SMYTH, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

COCOA NUT FIBRE REFUSE, newly made, as supplied to the Royal Horticultural Society and principal Nurserymen in England, in sacks at 1*s.* 3*d.* each, or 15 sacks, 18*s.*; 30 sacks, £1 5*s.*, sacks included. Truck-load, loose, 33*s.*; fifteen bags or more and truck-load free on rail. Post-office order or cheque with all orders will oblige. Established 1872—J. STEVENS AND CO., "Greyhound" Yard, and 132, High Street, Battersea, S.W.

12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6*s.* per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15*s.* per ton per Truck. Sample Bag, 5*s*; 5 Bags, 22*s.* 6*d.*; 10 Bags, 45*s.* Bags included. Fresh SPHAGNUM, 10*s* 6*d.* per Bag. SILVER SAND, Coarse or Fine, 52*s.* per Truck of 4 tons. Red Sandstone ROCKWORK, £5 per Truck of 4 tons. GRAVEL, good colour, 25*s.* per Truck of 6 tons.

WALKER AND CO., Farnborough Station, Hants.

A SPECIALITY.

BEESON'S ROSE, VINE, and PLANT MANURE,

To be had of all Nurserymen, Seedsmen, and Florists.

For all particulars please apply to

W. H. BEESON, Carbrook Bone Mills,
SHEFFIELD.

Amortiser.—Amortiser.—Amortiser.

To HOP and FRUIT GROWERS, FLORISTS, MARKET GARDENERS and OTHERS.

STEVENS AND CO.'S AMORTISER INSTANTLY DESTROYS Hop Flea, Green Fly, Caterpillar, and every kind of Blight. Fruit Growers, Florists, more especially Rose Growers, will find this preparation invaluable, as one application causes INSTANT DESTRUCTION of all INSECT PESTS. For Hothouse, Greenhouse, and other Plants it is equally valuable, and is guaranteed not to injure the most delicate bloom or foliage. We have a Special Preparation of the Amortiser for Watering the Ground which Instantly Destroys Slugs, Wireworms, Caterpillars, Grubs, &c. When ordering state which preparation is required. Sample Cans, 4½ gallons, 3*s.* 6*d.*, tin included. Special Quotations for Large Quantities.

Orders received at 67, High Street, Borough, London, S.E.

WEBBS' EARLY FORCING BULBS

WEBB & SONS deliver all Vegetable Seeds, Flower Seeds, and Bulbs Free by Post and Rail.

ROMAN HYACINTHS.

Early White	3s. per dozen, post-free.
" "	22s. per 100, delivered free.
Finest named	6s. to 12s. per dozen, post-free.

POLYANTHUS NARCISSUS.

Double Roman	3d. each, post-free.
" "	2s. per dozen, post-free.
Paper White	3d. each, post-free.
" "	2s. per dozen, post-free.

EXTRA EARLY SNOWDROPS.

Double (separate) .. .. / Single (separate)	2s. 6d. per 100; 21s. per 1000. Delivered free.
Extra Large Double or Single (separate) ..	3s. 6d. per 100; 30s. per 1000. Delivered free.

NOW READY.

WEBBS' BULB CATALOGUE, *GRATIS and POST-FREE.*

THE QUEEN'S SEEDSMEN,

WORDSLEY, STOURBRIDGE.

ROSES IN POTS,

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

These World-famed ROSES cannot fail to give the greateet satiefaction.

DESCRIPTIVE LISTS on application.

RICHARD SMITH & CO., WORCESTER.

NARCISSUS.

THOMAS S. WARE begs to announce that he has prepared a SPECIAL OFFER of Leading Varieties of the above, which may be bad upon application.
Hale Farm Nurseries, Tottenham, London.

AMERICAN SEEDS.

2½d. Postage on a Letter of Inquiry will secure you by return Mail our PRICES—Wholesale or Retail.

SEEDS of MAIZE for Field or Garden, PEAS, BEANS, CUCUMBERS, PUMPKINS, SQUASH, CANTALOUPES, WATER MELONS, TOMATOS, OKRA or GUMBO, COTTON SEED, TOBACCO, OSAGE ORANGE or MACLURA, TREE SEEDS, AMERICAN GARDEN TOOLS, BOOKS, &c.

All offered by the *oldest and ever the most extensive* Seed Farmers in America.

Founded in 1784.

ADDRESS:—

LANDRETH & SONS, PHILADELPHIA.

NEW SEEDS FOR AUTUMN SOWING.

TRIFOLIUM INCARNATUM, WINTER RAPE,

RYE, AGRICULTURAL MUSTARD, WINTER TARES,

ITALIAN RYE-GRASS, PERMANENT PASTURE GRASSES, &c.

Samples and Quotations on application.

THE LAWSON SEED & NURSERY COMPANY (LIMITED), 106, SOUTHWARK STREET, LONDON, S.E.

NEW BROMELIAD.

MASSANGEA TIGRINA (MORREN).

This marvellous novelty, of genuine ornamental merit, shows in many respects a first-class improvement upon any other species or variety of this fine genus. A native of Brazil, of robust and handsome growth. Leaves large and numerous, in the same way as Massangea tessellata. Colour, pale green, beautifully marbled, zebra-striped from the base to the top, of the finest ebony colour. It is of very easy culture, and requires only the same treatment as the old well-known Tillandsia splendens. A grand specimen has been awarded a First Prize Medal at the Great Horticultural Exhibition in Ghent.

Mr. J. VANDER SWAELMEN has much pleasure in offering this beautiful Bromeliaceous plant for the first time, in young healthy seedlings, with 7 to 10 small leaves, as follows:—

One Plant, 5s. 6d.; Two Plants, 10s.; Six Plants, 28s.; Twelve Plants, 52s.

Packing and Carriage included. Apply to

J. VANDER SWAELMEN,
THE LILY NURSERY, GENDBRUGGE STATION, GHENT, BELGIUM.

N.B. A remittance with Order requested from unknown Correspondents.

DUTCH FLOWER ROOTS.

THOS. METHVEN & SONS

Beg to intimate that their importations of the above have arrived in fine condition.

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THE
Gardeners' Chronicle.
SATURDAY, SEPTEMBER 1, 1883.

THE PHYLLOXERA.*

IN a French entomological periodical cited by the *Vigne Americaine* occurs a succinct statement by a very eminent authority, M. Lichtenstein, as to the Phylloxera in France, from which it may be of interest to extract some portions. It is generally known that the disease is occasioned by a small homopterous insect of American origin, observed first in 1868. The genus Phylloxera is one of the best known, and the seven species of which it consists have the most curious difference in their respective life histories. Adapting itself to altered circumstances of climate and food the Vine louse, Phylloxera vastatrix, which in America feeds on the native Vines, such as V. Labrusca, V. æstivalis, V. riparia, and other species, has here completely altered its habits of life. Instead of running its career in the space of a year, partly in the galls of the leaves, partly below ground on the roots, terminating the cycle in the form of an egg, in which state it remains during the winter, the Phylloxera in Europe remains attached to the roots for a long series of years, perhaps indefinitely, thus bringing about, if unchecked, the complete destruction of the Vines.

The very fact that the Vine louse is American, that it lives in America on the Vine, and yet that the Vine in that country is not destroyed, led observers to say—If there are Vines in America, it must be because the Phylloxera does not kill them as it does the European Vines. Nevertheless, in spite of this obvious fact, learned men proscribed the American Vines, and directed against our microscopic enemy all the batteries of chemistry. The entomologists for the most part merely shrugged their shoulders at this senseless struggle of man against the insect. If the destruction of hurtful insects—even much larger and more easily attacked than the Vine louse—were possible, there would have been no such things for years past as flies, gnats, fleas, &c. All that can be done in the way of war against such enemies must be on a small scale and within limited areas. We may close our doors and windows, fumigate our houses, sprinkle insect powder over our clothes, and use other insecticides; when the enemy attacks our crops we may substitute one crop for another; when the Wheat is destroyed by midges, &c., we may substitute forage crops, which the Wheat insects will not attack and *vice versâ*. The trees of foreign origin in our gardens and promenades, as, for instance, the Plane, do not suffer in the same way as the Poplars, the Elms, or the Ash, which, being native trees, are attacked by native insects. This, however, is a statement that must be accepted with a considerable amount of reserve, for it is but too true that the introduction of new plants seems to whet the

* The Phylloxera was first observed in this country by Professor Westwood in 1863, but was not described by him till 1869, when it was figured at p. 129 of our volume for that year, and again at p. 187. The leaf-galls were figured at p. 105, vol. viii., 1877. Incidental notices as to appearance and treatment have repeatedly been given in our columns and in those of our contemporaries. ED.

curiosity and stimulate the appetite of some of our garden pests. Slugs, of course, come to mind first and foremost, but M. Lichtenstein is specially speaking of insects. He mentions, however, the Ailantus and the Horse Chestnut, both foreigners, and which, according to his theory, should be free, comparatively at least, from insect visitations. We fear, however, that English leopard and English goat moths are not so complaisant to the foreigners as they ought to be, nor the chermes to the Spruce, nor the coccus to the coniferous trees. If we make the necessary allowances, however, M. Lichtenstein's statement may pass, and also his assertion that man successfully defends himself against insect attacks by his intelligence and forethought, never by direct action.

It is evident, he continues, that one can crush a fly or suffocate a few thousand Vine lice with bisulphide of carbon, but every one who knows what the reproductive powers of insects are, well know that the complete destruction of any insect whatever is as impracticable as the quadrature of the circle. The difficulty, then, must be evaded and the first method to be adopted in the case of the Vine is to plant Vines capable of resisting the Phylloxera. It is obvious that American Vines resisted the louse and the structure of the roots affords the explanation of their immunity. This much ascertained, the next point was to select the variety of Vine best adapted to particular soils and climate, there being great differences in these particulars in the vineyards of France. The fruit of the American varieties is far inferior as to flavour to that of the European kinds, but by grafting the best European kinds on American stocks, in the course of three years the cultivator may obtain a crop. In the first year an American cutting is planted, in the second this is used as a stock, in the third the scion bears fruit. Care must be exercised in selecting stocks suitable for particular districts, for the variety that is fitting in one place is not so in another.

M. Lichtenstein sums up by dissuading Vine growers from expending money on insecticides, and by counselling them, on the other hand, to cease from making war directly on the insect, but to pull up their French Vine stocks and plant American in their places. Twenty thousand hectares are thus annually reconstituted in the South of France, and the Vines are splendid.

We have thought it desirable to quote M. Lichtenstein's opinions almost in his own words, but it must be remembered that he is speaking of the Vine as grown on the large scale in France. The conditions under which it is grown under glass here are totally different, the disease is more under control, and does not appear to spread from place to place with anything like the rapidity that it does in France. We are not aware whether the grafting on American stocks has been practised in this country or not, and we should hesitate to recommend it in preference to the more radical methods now generally adopted, still there may be cases in which circumstances might render it advisable to try the plan adopted with such success in France.

CLERODENDRON FŒTIDUM. — As far as our knowledge goes the subject of this note and the Japanese C. trichotomum are the only two members of a large and handsome genus which are hardy in this country. C. fœtidum is a native of North China, where it was first discovered by the veteran traveller and botanist, Bunge; to Robert Fortune, however, is due the credit of its introduction. It has large compound corymbs of deep, bright lilac flowers, with dark purple anthers. In the collection of the late G. C. Joad, Esq., at Wimbledon, we saw plants growing freely in the open border, and sending up numerous suckers at some distance from the parent stem, and in our columns, more than twenty years ago, an account is given of plants that had flourished, without protection, for half a dozen years in the open air in the Canterbury nursery of the late Mr. Masters. Now that a love for hardy plants has been so largely developed C. fœtidum will probably be more commonly grown. It is now in flower at Kew, as well as C. trichotomum, an equally desirable and certainly perfectly hardy shrub.

New Garden Plants.

SARCANTHUS BELOPHORUS, *n. sp.**

A SMALL-FLOWERED panicled Sarcanthus, with rather nice ligulate undulate leaves, equally rounded bilobed at their apex (4—6 inches by 1¼). The flowers are smaller than those of the well-known Sarcanthus rostratus. Pedicels greenish, mauve at the base. Sepals and petals blunt ligulate, upper sepal apiculate, all ochre-coloured, with two purple-brown longitudinal stripes. The side laciniæ of the lip are low, rhomboid, with an inflexed apiculus at the exterior end, light orange, central lacinia sagittate, light ochre-coloured, with two purple-brown longitudinal bars. There is also a purple-brown line under each side lacinia, which is expanded outside like a bladder. The spur is depresso-cylindrical, equal to the stalked ovary, bent, abruptly narrower at the end, having a nearly complete septum. The callus under the column may be compared to a hammer, having the shanks of the transverse part bent downwards. It is a botanical introduction of Mr. Frederic Sander. *H. G. Rchb. f.*

PHALÆNOPSIS VALENTINI, *n. sp.* (*hyb. nat.?*).†

A very great surprise, of Malayan origin. I had it from Messrs. Hugh Low & Co. Its flowers are larger than those of Phalænopsis cornu-cervi, and smaller than those of P. violacea. The peduncle is said to be terete, and like that of the last-named species. The sepals and petals are purple; petals and lateral sepals white at the base inside with some purple bands. Lip much in the way of that of P. violacea, with a spreading angle at the upper corner of the side lacinia, but with a pandurate exterior lacinia, three-lobed at the top, bearing a thick umbo in the middle. There is a three-toothed lamella at the base of the median lacinia, in front of a two-toothed one, leaning on the sword-like blunt appendix. Top of lip mauve and sword-like, appendix half mauve longitudinally, and half white. The remainder of the lip is yellow, part of the side lacinia white, with some purple spots on the upper border and corner. Column yellow with red stripes at the top, purple beneath. Messrs. H. Low & Co. write that the leaves are light green, narrower than those of violacea, without the wavy crispness generally seen with that species. Mr. Day writes me about the novelty; it looks like a cross between cornu-cervi and violacea, and is very pretty. The name is given in honour of its lucky discoverer, Mr. S. H. Valentine. *H. G. Rchb. f.*

VANDA ROXBURGHII (*R. Br.*) VAR. WRIGHTIANA, *n. var.*

A variety of the purple-lipped var. purpurea, having exceedingly short lips, and the side laciniæ with a few more or less developed anterior teeth. Those who like to compare the actual state of Orchid growing with the first efforts in this direction may compare the old representations in our standard books. Both Curtis' *Botanical Magazine*, 1821, tab. 2245, and Edwards' *Botanical Register*, 1820, tab. 306, show long lax inflorescences with lax flowers where we now only see short, strong racemes with ascending strong flowers. I have dedicated this novel variety to my excellent correspondent, Mr. Edwin Wright, Gravelly Hill, Birmingham. It was grown by Mr. James Hodges. *H. G. Rchb. f.*

CYPRIPEDIUM TONSUM, *n. sp.*‡

A new Sondaic Cypripedium near Cypripedium javanicum, discovered by Mr. Curtis, and now flowering in the Royal Exotic Nursery of Messrs. Veitch & Sons. The leaves are strap-shaped, rather narrow, marked as in the green-leaved Cypripedium Dayanum. The peduncle is long, reddish-brown, with very short hairs. The bract is much shorter than the short-haired ovary. The odd sepal is wide, elliptical acute, whitish, with twenty-one strong green nerves, a small sepia blotch on each border inside, and a green area of disc outside. The lateral sepals form a narrow, acute, short body, half as long as the large lip. The petals are rather conspicuous, oblong-ligulate acute, nearly free from any cilia (!), green in the middle of the disc, washed with sepia, elsewhere with some small very dark blotches at the border against the upper sepal, some large ones in the central line, and a few others in the neighbourhood. Lip greenish, with a sepia wash on the anterior superior surface of the sac, the horns of which are conspicuous. The stalk of the lip has a few green warts. The staminode is that of Cypripedium javanicum, Reinw. *H. G. Rchb. f.*

* *Sarcanthus belophorus*, n. sp.—Foliis carnoso coriaceis ligulatis apice æqualiter obtuse bilobis; panicula laxiflora; sepalis oblongis obtusiusculis; tepalis angustioribus; labelli laciniis lateralibus humilibus rhombeis apiculo subulato antico inflexo, lacinia mediana sagittata, umbone malleiformi sub fovea, calcari cylindrato depresso obtuso, supra basin subito constricto, septo subcompleto; anthera antice ligulata emarginata. *H. G. Rchb. f.*

† *Phalænopsis Valentini*, n. sp. (hyb. nat. ?).—Foliis quam in Phalænopside violacea angustioribus; pedunculo tereti; sepalis tepalisque cuneato-oblongis obtuse acutis; labelli breve unguiculati partiuoibus lateralibus retusis angulo interiori angulatis, medio anterius umbonatis; partitione mediana pandurata apice obtuse subtriloba cum umbone mediano; ligula tridentata in basi laciniæ medianæ anteposita ligula longiori bidentata supra carinam ensiformem obtusam; columna basi utrioque angulata. *H. G. Rchb. f.*

‡ *Cypripedium tonsum*, n. sp.—Acaulia coriifolia tessellata. Aff. Cypripedio javanico, Reinw.: foliis angustis ligulatis acutis minutissime bidentatis tessellatis more Cypripedio Dayaoi; pedunculo elongato minutissime ac brevissime piloso; bractea ovarium pedicellatum dimidium non attingente; sepalo impari elliptico acuto, sepalis paribus ligulatis acutis angustis labello duplo brevioribus; tepalis ligulatis acutis prope omnino ciliatis; labelli unque marginibus involutis amplis parce verrucosis, cornubus sacci angulatis magnis; staminodio Cypripedii javanici Reinw. Ex ins. Sondaicis introd. cel. Veitch. *H. G. Rchb. f.*

AGRICULTURE AND HORTICULTURE IN JERSEY.

THOSE of our readers who are unacquainted with the spot, can hardly imagine a more picturesque one than the grounds of Victoria College, where the Jersey Royal Agri-Horticultural Society celebrated its Jubilee Exhibition last week. From the plateau of a hill to the east of St. Helier, upon which the college buildings stand, and from the slopes and wooded avenues around, the spectator obtains a charming view of a long stretch of land and sea; to the right, the lovely bay of St. Aubin with its bold headlands and cliffs; to the left the golden sands, the rocks and reefs and towers of St. Clement; in front, the tall rugged grassy promontory, upon which are erected the military works of Fort Regent, and in the hollow below the capital of the island itself, with time-worn Elizabeth Castle guarding the entrance to its roadstead and harbour. And if the said spectator will mind-picture this charming tit-bit of panorama, will fill up every suitable piece of ground around the college with tents, with a gaily decorated platform, and with the usual accessories of a fruit and flower and cattle show, will plant here, there, everywhere, gay flags and bannerols, will crowd upon pathways and gravelled walks, in dells and on rises, a mass, a dense mass, of ladies and gentlemen, not unmindful of a good sprinkling of the military element; and last, though not least, will add that most highly-prized desideratum of an outdoor *fête*, a glorious sunshiny summer day, he will fully realise the scene as it presented itself in the forenoon of Tuesday the 21st ult., when after some necessary preamble, and the reading of a loyal address to the Queen by the President of the Society, His Excellency the Lieutenant-Governor, in a well set speech, declared the fiftieth anniversary of the Jersey Royal Agri-Horticultural Society an accomplished fact, and its Jubilee Exhibition open to the public.

Taking "a line of procedure" most adapted to the objects of this journal, but which was not the follow-my-leader one either of experts or mere visitors who at once rushed away to the cattle sheds, your correspondent entered a large and lofty tent pitched upon the sward in front of the college, and where the *coup-d'œil* was one certainly of exquisite artistic taste, for without in the least sacrificing the interests of individual exhibitors or interfering with recognised rules of classification, every flowering and foliage plant seemed to have been placed exactly in the very spot where it would harmonise with its surroundings, and best show off its colouring or peculiarities. That as fine or even finer blooms, and as rich or richer foliage might not often have been seen at flower shows elsewhere by *habitués* we readily admit; but in respect to tasty and felicitous organisation we can honestly say No; and can congratulate the committees of this department of the exhibition upon their most successful results.

Entering somewhat into detail here we may remark, however, that the Pelargoniums would have been

considered magnificent in any flower display, and more particularly one specimen of Pelargonium Guillion Mangilli, greatly and deservedly admired. Of Fuchsias there was a glorious exhibit, among them Dictator, Avalanche, Aurora superba, Enchantress, Coronata, Gipsy Queen, Warrior Queen, Miss Lucy Finnis, and one plant of Basilisk had arrived at such perfection of growth that it measured upwards of 7 feet in height, was proportionately broad, and was literally a mass of well-shaped, well-set, and brilliant florets. Next to these—not of course in botanical order, but in beauty—were many varieties of Coleus; those noteworthy being George Peabody, Firefly, and Cannell's Beauty, the *primus ante omnes, primus inter omnes* being a single plant of Jubilee, exhibited by the Viscomte of the island—the High Sheriff to wit.

Pelargoniums came out well, especially a hybrid one, 6 feet high by 4 feet in diameter, and thus labelled, "Hybrid Pelargonium—a first step towards a new class, combining large flowers and sweet-scented fine foliage. Raised by Jonathan Swift, of Jersey." Many fine specimens of this class were shown, but which space prevents us from particularising. So also Cockcombs, which were well to the fore, and Achimenes, though late in the season for these flowers.

With Asters we were, on the whole, disappointed, and so, too, with Balsams. In our own poor haphazard rule-of-thumb way we have grown much, much finer in our Indian habitat. The Ferns were simply magnificent, and one group of twelve British, which obtained a Silver Cup, richly deserved that honour. As said before, space in this journal is so valuable, and matter in our hands is so superabundant, that we fear that we must run very rapidly indeed over this interesting section of the exhibition, and thus, if we omit, or "come tardy off" many a rich and remarkable instance of floriculture, our friends must pardon the omission and the neglect. But we feel bound to call attention to tuberous Begonias, to a noble, well-grown Anthurium crystallinum, with leaves at least 2 feet long; to some excellent Caladiums (the Fairy Queen notably); to Cacti and Orchids, to a fine specimen of Maranta zebrina, and to one also of Trichomanes radicans, an exquisite growth of its class.

In the tent set apart for cut flowers we have to preface our brief observations by saying that, considering the lateness of the season, and which in Jersey is always well in advance of England, the exhibits were wonderfully good — those of Roses, indeed, unparalleled. The Dahlias shown were large, well-grown, numerous, and of all descriptions and colours; the trusses of Pelargoniums, single and double, exceedingly fine; Carnations and Picotees, though good, not up to a high standard, Marigolds and Zinnias beating them. Lastly, the disciples of Mr. Oscar Wilde would have gone into æsthetic rhapsodies over their own particular bloom, the Sunflower. They blazed in all shades of yellow, and showed in the largest of sizes—one measuring more than 14 inches across.

The ladies of the island seem to have an admirable knack of putting together their table and hand bouquets. Several of these were set out upon a central table in this tent, displaying very much taste, art, and a skilled eye for colour, and that young lady who could so very beautifully arrange the commonest of hedge and field wild flowers into the charming bouquet she exhibited well earned the gold brooch she won.

The show of fruit grown under glass without artificial heat, and in the open air, again taking into consideration the season, was excellent. It consisted of Grapes, Peaches, Figs, Plums, Cherries, Apples, Pears, Melons, Currants, Gooseberries, and so on. Those we consider most worthy of a word of praise are some bunches of Black Hamburgh and Gros Colmar, some Muscats of Alexandria and Canon Hall Muscat Grapes, some Beurré d'Amanlis, Madame Treyve, and Jargonelle Pears, and a small plate of Strawberries, the Victoria Trollope, of good appearance and, no doubt, flavour.

The vegetables were decidedly A 1. They consisted of the usual sorts of the time of year, and were generally of large size; one variety of Potato, named the Royal Jersey Fluke, being literally of enormous dimensions. Of roots those exhibited by Mr. Neilson Tucker, of Mark Lane, island grown, of course were of such Brobdingnagian dimensions and of so great beauty as probably not to be seen in England at the present moment, long red Mangels and Swedes the chief of them.

From the horticultural departments we now passed into that which to the scientists and experts who had been attracted from England and France, America, and California to Jersey, was its load-star, the exhibit of the island cattle. It would be foreign to the *Gardeners' Chronicle* to dwell upon these, points of beauty, colour, *pur sang*, untainted lineage of the stock notwithstanding, so merely saying that hundreds of the very best bulls, cows, and heifers, which the island is so prolific in, were housed in sheds around a large field—the cricket ground of the Victoria Collegians—we shall dismiss this portion of our paper with the words of an English expert and visitor:—"I have been," said he, "to all the cattle shows in England—north, south, east, west—and never have I seen before so many animals upon which the most severe of critics could be able to find so few faults. Simply, one and all are perfectly beautiful."

Two whole days of this well-named jubilee *fête* were pleasantly employed by the Society, its visitors and friends, in excursions, *en masse*, to those farms and gardens, east and west of the island, best representing the systems of cattle-breeding, land cultivation, fruit growing, floriculture, and butter and cider-making. Alas! we have no room to say even a brief something of the whereabouts, the extent, the proceedings, the success of these gentlemen—farmers and gardeners—each in his own groove, or in many grooves put together. But we must observe that everywhere everything was openly shown, without reserve or secret, and that everywhere great hospitality was lavishly bestowed. Nor, still more unhappily, can we tell the wives and daughters of the perusers of the *Gardeners' Chronicle* of an admirable amateur concert given in the noble hall of Victoria College, of a ball in the Odd Fellows' new hall in the town, of the performance of *Iolanthe* at the theatre, of another concert at the Casino, and of half-a-dozen other attractions jammed—we use the word advisedly—into these five or six days of gaiety. All we dare to add, for the Editor is heard crying, "Hold, enough!" is that from the *open sesame* to the closing of the exhibition, everything has been most perfectly organised. All—all has gone off without hitch or *contretemps*, and under the most favourable circumstances of King Sol's genial influence and rays. *H. L. C.*

COMPOSTS.

THERE are few things in gardening that are more important than composts, for without soils of various descriptions it is impossible to do anything in the way of growing the different kinds of pot plants, as most of them require separate mixtures, some revelling in pure peat, and others in loam, while the greater bulk delight in a mixture of the two, or loam and leaf-mould combined. These three form the staple of most mixtures, and yet they are not complete in themselves, as sand is needed in more or less bulk to keep them open and porous. Old florists and cultivators thought much of cow-dung, which is still in great favour, and deservedly so, as it is one of the mildest, safest, and best manures any one can use in a compost where a stimulant is required, for being composed of nearly all vegetable matter, it is very agreeable to the roots of most plants, which search it out in any soil containing it, and feed on it with the greatest avidity.

For them to do this, however, it must be thoroughly decomposed, and the longer it has been lying by to make and get mellow the better, that is, provided it has been kept dry and turned, as when exposed to rain in the open it must of necessity become washed, and lose much of its goodness and virtue. This being so, the way to manage with it is to collect it during a dry time when it can be gathered up in cakes from the pastures and immediately carried to some open shed or other place to be stored and "made," the making being brought about by the chopping up, turning, and pulverising, to which it should be subjected before being used. Soot is an excellent ingredient to put with it, but being of a hot nature it is not advisable to add much, a peck or so to a barrow-load of cow manure being quite enough for most things. Sheep or deer droppings are almost equally valuable to cow-dung, and are by many preferred, the only thing against them being that they are more difficult to collect, but where they can be obtained a good store should be made, as they are sure to come in and be of great service. Cocoa-nut fibre was at one time in esteem, but I would warn all against it, except as a plunging material or for mulching the surface of beds, as it is one of the most dangerous things that can possibly be used to mix with soils, for sooner or later it is sure to generate fungus, which parasites themselves fasten to the roots of any plants that happen to be near, and soon paralyse their action by the poisoning effect they have on them, and finish up by causing the death of the plants.

Leaf-mould, in which there is no rotten wood or sticks, is the most valuable vegetable matter, and may generally be employed with much benefit in mixing with loam, its presence being specially desirable in soil used for the potting of Cinerarias, Primulas, Pelargoniums, Gloxinias, and Achimenes, the latter of which do well in it if used nearly pure. The best leaf-soil is that which has been saved from leaves of the Oak, and not much fermented, as fermentation, when carried to any great degree, often causes sourness, which is inimical to the welfare of plants. The way to get good leaf-mould is to turn the heaps frequently, which, by exposing the inner parts to the air, prevents souring, and hastens decomposition, as the fibre is soon broken down, when there is little fear of fungus, which the moving in a great measure prevents.

Peat is a good substitute for leaf-soil, and answers most purposes equally well, while for others it is absolutely indispensable, as Orchid growers must have it for those wonderfully beautiful epiphytes, that no one can fail to admire. The difficulty is to obtain such as is worth having, as the increase of population and consequent breaking up of heaths and other places for cultivation or building, and the demand there has been for peat for so many years have made it scarce, especially that which is tough and full of fibre, which is the only kind of any use for Orchids and hard-wooded plants, as it is not the earthy portion that is needed, much of which should indeed be knocked out before the process of potting begins. The finest peat is generally found on high moorlands where there is plenty of Bracken and Heather, and in selecting it choice should be made of the brown tough turves, which ought to be cut thin and stacked so that they can be kept dry, when, after a year or so, all grasses and roots will be dead, and the peat fit for use. What many call peat is nothing but bog, which soon goes close through having no fibre, and is then little better than mud, and quite as retentive of water.

Loam, as understood in gardens, is the top spit or turf from pastures, and the more organic matter it contains by way of grass roots and fibres, the better it is for plant growing, as most subjects find in the gradually decomposing material just the food they require. The most preferable kind of loam is that of a yellow colour, rather inclined to be stiff, which answers admirably for Camellias used in its fresh state, but for most other plants it is improved by stacking and keeping for a few months, during which time it becomes mellow if carted when in a proper condition, and this it generally is in the autumn, before heavy rains set in and make it too wet. During winter I like to have all soils intended for early potting under cover, where they can be chopped or broken up and mixed ready, as then they are in good order for handling, and the work can go on without any delay. *J. S.*

INSECT VISITS TO FLOWERS. — The different classes of insects show very great difference in this respect. Butterflies show but little constancy, except in a few instances; but they would appear to be guided to a certain extent by a preference for particular colours. The Diptera exhibit greater constancy, though by no means absolute. A much greater degree of constancy is manifested by the Apidæ, and this becomes all but absolute in the hive-bee. It is an interesting circumstance that this constancy appears to increase in proportion to the part performed by the insects in carrying pollen from flower to flower. A much larger number of observations is, however, needed in order to determine with certainty any general law; and especially a careful microscopic examination of the pollen attached to the probosces, mandibles, legs, and underside of the abdomen and thorax. As regards preference for particular colours, the Lepidoptera paid, while under observation, 70 visits to red or pink flowers, 5 to blue, 15 to yellow, 5 to white; the Diptera, 9 to red or pink, 8 to yellow, 20 to white; the Hymenoptera, 203 to red or pink, 126 to blue, 11 to yellow, 17 to white. *Alfred Bennett, in "Journal of the Linnean Society," p.* 184.

ECKFORD'S NEW SWEET PEAS.

THE raiser of these was undoubtedly placed at a great disadvantage when he exhibited cut specimens in a somewhat gloomy tent on the occasion of a recent meeting of the Royal Horticultural Society. The flowers had travelled nearly 200 miles, and had suffered in consequence. But though the Floral Committee may have failed to recognise (under these somewhat disadvantageous circumstances) any distinctness and enlarged beauty in Mr. Eckford's productions there is no doubt that these qualities exist in them, and when personally inspected a fortnight ago at Boreatton Park, under good cultivation and in comparison with a group of varieties already in cultivation, we were struck with the distinctness of character and fine development of not a few of them.

It is but a few years since that Mr. Eckford took in hand the Sweet Pea, while gardener to that much respected florist, Dr. Sankey, at Sandywell Park, Cheltenham. On Dr. Sankey removing to Boreatton Park, Baschurch, Mr. Eckford accompanied him, and continued there the work so well begun at Cheltenham, and in which Dr. Sankey takes a lively interest.

It may be stated that Mr. Eckford first began operations with such well known varieties of Sweet Peas as Invincible Scarlet, Violet Queen, Captain Clarke's Princess of Russia, Butterfly, The Purple, and one or two others. The flowers of these were all carefully fertilised (a work of some delicacy, requiring great care), crossing the varieties in various ways.

On carefully going through the new forms it was thought the following were quite distinct enough to merit being named or bearing the names already given to them :—Fascination, quite a new type, with a deep salmon-pink or pale rosy-lilac standard, and pale blue wings deepening in colour as the flowers age; very pretty and distinct, large, and fine. Victoria, pale rose standard dashed with pink, white wings, with a Picotee edge of blue and the wings slightly suffused with the same; distinct and very pretty. Bronze Prince, rich shining bronzy maroon standard, large, stout, and well formed, deep purple wings of a bright hue; very fine and striking. Princess, white standard, flushed at the back with pale blue, the front delicate blue, white wings, with wire edge of bright blue; this is of the Butterfly type, and like that is somewhat crumpled on the petals, but it is very pretty and distinct. Leviathan, having a very large, broad, stout standard, bright scarlet on the centre flushed with white at the sides, the wings flake with pale purple and rose; a very fine scarlet striped form, large, massive in all its parts, and very striking. Lottie Eckford, in the way of Princess, but with the standard suffused with purple, and having a wire edge of blue to the white wings: this is very pretty indeed, but must be carefully selected in order to keep it distinct from Princess; when fixed it will make a charming, delicate variety. Blue King, a very distinct and fine Sweet Pea, which report states very nearly gained a First-class Certificate of Merit when shown by Mr. Eckford in London a short time ago; it has a bright blue standard suffused with purple, quite blue at the back; the wings clear pale blue; very distinct and fine. Indigo King, the stout, well-formed standard maroon-purple suffused with blue; clear indigo-blue wings; very fine and distinct, smooth, and of good form. Salmon Queen, the standard bright salmon-carmine; very pleasing and very charming in colour, the pale wings slightly flushed with pink; very pretty, distinct, and fine. Duchess of Albany, delicate pink standard with a slight flush of carmine; delicate blush wings; very pretty and attractive. Grandeur, bright pale scarlet standard, which is stout, smooth, and striking; bright rosy-purple wings; very correct and fine in all its parts; a truly rich-coloured variety. Lavender Gem, bright rose standard slightly suffused with purple, pale lavender wings; very pleasing, pretty, and distinct. This is a yearling variety, and was obtained from Grandeur crossed with a seedling blue. Queen of Roses, also a yearling, pale bright rose standard, erect, stout, and smooth; clear, delicate, rosy-purple wings; very fine in all its parts, smooth and massive. This came from Grandeur and Bronze Prince. Empress of India is a yearling also, having a bright pinkish-rose standard, broad and stout, the wings white, very delicately flaked with blush; this also is very pretty and distinct. Blue Beauty, also a yearling; the standard plum-purple on a broad and smooth standard; clear blue wings; very pretty and pleasing, standard and wings forming an admirable contrast.

Among the yearling flowers were a few more of a distinct character, but needing another season's trial. Among them was a novel blue-striped variety obtained from Blue King, and a white variety; this opens purple and white, but changes to blue with age, and the blue becomes richer as the flowers grow older; indeed, there appears to be an almost infinite variety of dispositions of colour in this new break of Mr. Eckford's, and the difficulty presently will be what to select and what to reject.

Fertilisation is done when the flowers are quite young, and before they can be interfered with by insects. Some varieties appear to be more readily crossed than others, and, as in the case of garden Peas, so with these fragrant varieties, one pod will produce three or four varieties; and fertilised flowers do not produce so many seeds in a pod as those untouched by human agency, and it is not uncommon for the progeny to be altogether distinct in character from the parents.

And, as in the case of garden Peas, the seeds of these Sweet Peas are sown far apart; the result is, that a single plant will branch out in a remarkable manner, and form quite a bush. A single plant produced the astounding number of 2500 seeds. If gardeners were to sow their Sweet Peas a little more thinly and in good soil, they would be surprised at the results. Thin sowing in good soil is the way to produce fine flowers, and plenty of them. *R. D.*

THE SNOW PLANT.

THIS is a highly curious plant, inhabiting the coniferous forests of western North America at elevations of 4000 to 9000 feet. It is especially abundant under the Mammoth (Wellingtonia) and Redwood trees (Taxodium sempervirens), as well as under some of the Firs; and it has been supposed by some writers that it is parasitic on the roots of these Conifers; but there is considerable difference of opinion on this point. Sarcodes sanguinea is its botanical name, the generic name having allusion to its fleshy nature, and the specific name indicates the brilliant red colour of the whole plant. Why it bears the popular name of Snow Plant is not obvious, but we learn from the *Botany of California* that it "shoots forth and flowers as soon as the snow melts away," so we are content to believe that this is the reason. The Snow Plant is closely allied to our native Monotropa Hypopitys, than which it is much stouter and taller, growing from 9 to 18 inches high. In the Marianne North Gallery, at Kew, there is a striking painting of it in its home under Sequoia gigantea.

Respecting the life of the Snow Plant Mr. Thomas Meehan states, as the result of many examinations, that it is an annual, germinating on small Fir roots, and subsequently obtaining subsistence. In reply to this, Mrs. R. M. Austin contributes to Coulter's *Botanical Gazette* the following particulars :—

"I very much doubt the correctness of this statement, and, as truth should be the object of all investigation, I give the result of some of my observations, made during a residence of seventeen years in the home of the Sarcodes, and invite farther inquiry from those who are interested.

"My attention was first called to the peculiar growth of Sarcodes sanguinea as early as 1865 by a plant brought me by my brother, who was working in a hydraulic mine at the time (he had piped it out). The underground stem measured 3 feet, and a part was broken off. It is a common saying among the miners that the roots of the Snow Plant have no end. During the years 1875 and 1876 my attention was more particularly given to the growth of Sarcodes to ascertain if it was really a parasitic plant, and from what roots it drew its nourishment. The underground stem is covered with thick fleshy leaves (or scales), and in the axil of each leaf is an undeveloped flower-bud. The stem in the smaller plants extends down only a few inches, while in larger ones it reaches a depth of 3 feet or more. The root consists of a coraline mass, which contains from one to more than 100 cubic inches, according to the age of the plant. I have dug dozens of these plants, and at all seasons of the year, and always found the coraline mass greatest about the time the stems began to appear above ground in early spring. It is gradually absorbed in growing, leaving a honeycombed appearance in the soil. When the growth for the season is completed there only remains about 1 cubic inch of the mass, and just below, and a little to one side of the old underground stem, and attached to the mass of root, is a little Snow Plant.

"In the spring of 1878 I marked the place of growth of a number of these plants, as I had promised roots of them to Mr. Elwes, of England, and friends in the East, who wished to try to grow them. I dug some of these plants in November, after the rains had commenced, and discovered that the root-mass and the little plantlet had greatly increased in size. I dug some of the staked plants early in March, and found them still progressing in growth, and others that were not dug up came up and bloomed by the stakes. My conclusions are that Sarcodes is an herbaceous perennial, continuing through many years, and, by the little plantlet always being found below the older one, that it descends a little deeper into the earth each season, and this accounts for the great depth to which some of the underground stems penetrate. As to the germination and infant life of Sarcodes I know nothing, but I am satisfied that the plants receive their nourishment from the earth after they attain any considerable size."

CEREUS GIGANTEUS.

OUR illustration of this stately Cactus (fig. 39) was taken from a photograph executed in the desert regions of Arizona by Mr. Herbert Green, and kindly placed at our disposal by Mr. Worthington Smith. The figure, as it were, speaks for itself, but we may add from the *Treasury of Botany* the following descriptive note :—"While young the stems are of a globular form, gradually becoming club-shaped, and ultimately almost cylindrical, and from 50 to 60 feet in height, with a diameter of about 2 feet at middle height, gradually tapering both upwards and downwards to about 1 foot. They are most frequently unbranched, but some of the older ones have branches which issue at right angles from the stem, and then curve upwards and grow parallel with it. The stems are regularly ribbed or fluted, the ribs varying in number from twelve to twenty, and have at intervals of about 1 inch thick yellow cushions bearing five or six large and many smaller spines. The flowers are produced near the summit of the stems and branches, and are about 4 to 5 inches long by 3 or 4 inches in diameter, having light cream-coloured petals. The fruits are about 2 or 3 inches long, of a green colour and oval form, having a broad scar at the top caused by the flowers falling away; when ripe they burst into three or four pieces, which curve back so as to resemble a flower. Inside they contain numerous little black seeds embedded in a crimson-coloured pulp, which the Pimos and Papagos Indians make into an excellent preserve; and they also eat the ripe fruit as an article of food, gathering it by means of a forked stick tied to the end of a long pole." The plant is in cultivation at Kew and elsewhere, but we do not remember to have heard of its producing flowers.

THE CEDARS, HARROW WEALD.

FOUR miles north of the famous hill on which stands the "visible Church," but hidden by the trees of the "Grove," lies the range of high ground comprising Stanmore and Harrow Weald, with their picturesque and breezy commons. Stanmore Priory, as your readers are no doubt aware, was once the residence of Queen Adelaide, and since successively of the Marquis of Abercorn and Sir John Kelk. The land here is considerably higher than Harrow, the base of an obelisk in the Priory grounds being level with the vane of Harrow church. Within a mile of the aforesaid obelisk there are several noted gardens. Perhaps a short account of one or two of these may be acceptable to your readers.

The Cedars is the residence of Thos. Blackwell, Esq., head of the world-renowned firm of Crosse & Blackwell. The house, a noble stone built edifice of the Tudor order, stands at a convenient distance from the high road between Stanmore and Pinner, and is approached by a picturesque and well kept shady drive encircling an extensive lawn. Among the choice Conifers dotted about is a fine young Wellingtonia planted only seven years ago, its average yearly growth since has been exactly 18 inches; this is only noteworthy when remembering that the subsoil here is a clay, too dense even for bricks. The tree was carefully planted in a well prepared bed of turfy loam.

There are two or three grand old Cedars, which unlike the more venerable specimens at Lord Wolverton's, of Stanmore, have not been bereft of their leaders, in memory, as is said, of the unfortunate

Monmouth. No such trees as these can be purchased at nurseries—the mountain must go to Mahomet—the house to the Cedar. A noble Tulip tree, over 50 feet high, and 5 feet in girth of bole, also decorates the north lawn. On the south front there is a tastefully arranged parterre with some very effective carpet bedding. The materials for the latter were of the usual kind, with the addition of some elegant panels of the lively little Arabis lucida, edged with Echeveria secunda glauca. There is a pretty mixed border under a low boundary wall facing west; Tea Roses do exceptionally well on this little wall. The border comprised a richly varied collection of herbaceous flowers and annuals—something to look at and admire, no doubt, all the year round. One of the most pleasing and richly-coloured occupants of the bed was the much-improved Salpiglossis. A pretty glimpse of this border may be had through the Ivy-covered stone archway leading to the south front. There is a certain elegant yet homely attractiveness about these gardens, from the richness and variety of old-fashioned flowers and shrubs, and the absence of boundary walls or stiff evergreen fences, which is quite refreshing. Iron hurdles separate the lawns and borders from the green meadows and woodlands beyond.

The wooded hill and spire of Harrow are a pleasing feature in the distant landscape. On the west of the house, and adjoining the drawing-room, is a lofty and elegant conservatory, with handsome stone *façade*, over which the pretty little Ampelopsis Veitchii is allowed to climb. The centre of the conservatory is occupied by a group, consisting of a grand Seaforthia elegans, a Cyathea, and two Dicksonias, with

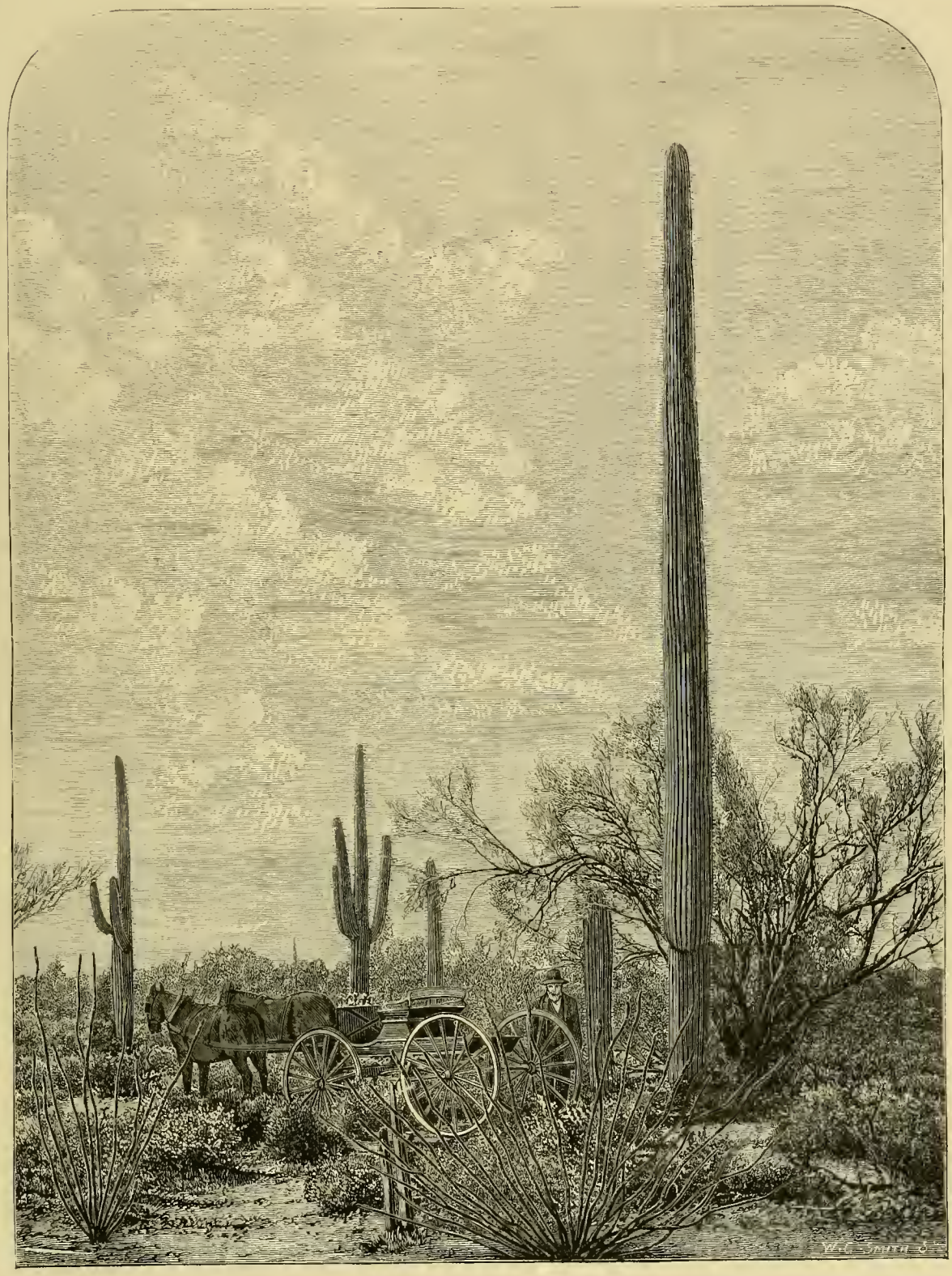


Fig. 39.—Cereus giganteus in Arizona. From a photograph. (see p. 264)

Crotons, Amaryllis, and other smaller stuff. Among these, however, were a Lælia anceps, with twenty-seven spikes; and a Peristeria or Dove Orchid, with two strong flowering stems. There were also on the side stages two remarkably well flowered Clerodendrons (Balfourianum), several Dipladenias and Ixoras. In a neighbouring house—a tall structure, lighted only from the top, and shaded by lofty Elms on the north—were some magnificent Crotons, a Cocos Weddelliana in flower, and Alocasias. These were some of the more noted specimens that had occasionally "starred" at shows in the locality. The occupants of this house seemed to enjoy the shade and moisture immensely. Ferns, of course, luxuriate here; there were fine specimens of the Todea and the Killarney Fern, quite at home in the dark corners.

The fruit-houses, though disconnected and not very conveniently arranged, had borne large crops of Pines, Peaches, and Grapes, and were in excellent order and scrupulously clean, as, indeed, were the contents of all the glass structures in the gardens. In the pinery were fine fruit of the Queen, smooth-leaved Cayenne, and Charlotte Rothschild. Succession Pines of the same varieties were remarkably vigorous. The favourite Peaches were still, both in and out-of-doors, the old Royal George and Noblesse; Dr. Hogg and Early Beatrice were also highly spoken of. Fruits of the latter grown out-of-doors had been gathered ten days before my visit. Of a Nectarine under glass, Lord Napier, great things were expected, from the astonishing growth it had made in two seasons. It covered already a wall space 10 feet by 8 inches at the back of the Peach-house. The Melon mostly in favour was Hero of Lockinge, a white-fleshed variety of excellent flavour; the skin golden-yellow, handsomely netted, and a very good cropper. The best Strawberries for crop, beauty, and flavour were President and Sir C. Napier. James Veitch also was spoken well of.

In the kitchen garden, where the good old custom of enlivening the borders of the walks with Dahlias, Sweet Peas, &c., was in vogue, there were excellent crops of vegetables, especially of Veitch's Autumn Giant and Walcheren Cauliflower and Celery, the latter having withstood a severe attack of the fly by constant and copious supplies of water and liquid-manure.

After thanking Mr. Dinsmore, the courteous head gardener—whose well won trophies, in the way of silver cups and vases and clocks, would fill a wheelbarrow—I left with a store of pleasant reminiscences of The Cedars and its interesting and thriving gardens. *T. W., Harrow, Aug.* 28.

THE SPECIES OF TULIPA.—X.

(*Concluded from p.* 234.)

Sub-genus 2. ORITHYIA.—Ovary narrowed gradually into a distinct style, which is tipped with three small stigmas.

The species of this sub-genus are all dwarf small-flowered fragile plants, of little horticultural interest, natives of Siberia, China, and Japan. They may be arranged in three groups, according to leafage.

Group I.—Leaves two, sub-opposite, placed about the middle of the stem.

59. *T. uniflora*, Baker; Ornithogalum uniflorum, Linn.; Orithyia uniflora, D. Don, in Sweet, *Flow. Gard.*, series ii., tab. 336; Regel, *Gartenflora*, tab. 906, figs. 2 to 5.—Bulb small, ovoid, with brown membranous tunics produced far above its neck. Stem slender, one-flowered, with a couple of spreading lanceolate leaves from its middle. Peduncle erect in the normal form and segments of the perianth oblanceolate, obtuse, $\frac{3}{4}$—1 inch long, pale yellow inside, the three outer strongly tinged with green on the outside, the three outer spreading in the expanded flower. Anthers pale yellow, oblong, $\frac{1}{16}$—$\frac{1}{8}$ inch long, much shorter than the glabrous filaments. Ovary narrowed gradually into a style as long as itself, with a three-lobed capitate stigma. A native of the Altai Mountains and Dahuria, introduced afresh to European gardens lately by Dr. Albert Regel. Orithyia nutans, of Trautvetter, is a variety with a flower rather drooping in an early stage, and O. oxypetala of Kunth, a variety with narrower, more acute perianth-segments.

60. *T. heterophylla*, Baker; Orithyia heterophylla, Regel, *Enum. Semenow*, p. 117.—A near ally of the last, marked by its funnel-shaped perianth, with six connivent, oblong-lanceolate, subobtuse segments. The filaments are glabrous, and in the type the lower leaf is much shorter and broader than the upper, but there is a variety—subæqualifolia—in which the two are nearly alike. A native of the Thian-schan mountains and Transilian Alatau, at an elevation above sea-level of 7000—8000 feet. Discovered by Semenow, and since gathered by Fetisow.

61. *T. dasystemon*, Regel, *Descr.*, Part ii., p. 221; Orithyia dasystemon, Regel, in *Act. Hort. Petrop.*, vi., p. 261.—Stem 1-flowered, not more than 3 or 4 inches long. Leaves two, sub-opposite, glabrous, lanceolate. Peduncle rather cernuous. Perianth funnel-shaped, above an inch long, bright yellow inside, the three inner segments oblong-unguiculate, the three outer oblanceolate, tinged green all over the back. Anthers small, oblong, bright yellow; filaments densely pilose up to the top, $\frac{1}{2}$ inch long. Ovary imperfect in the only specimen I have seen. A native of the mountains of Eastern Turkestan. My notes are taken from a living specimen sent by Dr. Wallace, of Colchester, which he flowered in April, 1881. It has not been figured.

Group II.—Leaves three, crowded near the base of the stem.

62. *T. thianschanica*, Regel, *Descr.*, Part vi., p. 222.—Bulb with the outer tunics strigose towards the tip. Leaves three, linear-lanceolate, falcate, minutely denticulate on the edge. Peduncle glabrous, much shorter than the leaves. Perianth-segments obovate-oblong, obtuse or minutely apiculate, under an inch long. Anther oblong, half as long as the filament, which is flattened and narrowed suddenly at the tip. A native of the Thian-schan Mountains, at an elevation of 7000 to 8000 feet above sea-level, discovered by Dr. Albert Regel.

63. *T. Kransеana*, Regel, *Descr.*, Part vi., p. 222.—Stem very short, with three glabrous leaves, crisped on the edge, the lower ovate, the next ovate-oblong, the upper linear-lanceolate. Flower subsessile, whitish inside, tinged green outside, the segments linear-lanceolate and acute. Anthers linear, very long, subsessile. Karatau Mountains, Central Asia; only known from a single dried specimen, gathered by the botanist after whom it is named.

Group III.—Leaves two large ones low down on the stem, and two to four small ones near each flower.

64. *T. edulis*, Baker; Orithyia edulis, Miquel; O. oxypetala, A. Gray; Tulipa graminifolia, Baker.—Bulb ovoid, the outer tunics densely woolly inside. Stem very slender, 3—9 inches long, 1—3 headed. Two lower leaves linear, flaccid, $\frac{1}{2}$—1 foot long, and two small linear erecto-patent ones a short space below each flower. Perianth funnel-shaped, $\frac{3}{4}$—1 inch long, all the segments acute, pale yellow flushed sometimes with red, strongly tinged with green on the outside. Anthers small, oblong, filaments glabrous. Ovary narrowed gradually into a long style. A native of Japan, gathered by Oldham, Bisset, Dickins, &c. The Chinese plant which I described under the name of T. graminifolia, of which we have now a good supply from Maries, is apparently the same species.

65. *T. erythronioides*, Baker.—Fully described in Trimen's *Journal of Botany* for 1875, p. 292, from specimens gathered in the snowy valley, in the province of Che-kiang, China, at an altitude of 2000 feet, by Mr. J. F. Quekett, of Shanghai. Lower leaves two, opposite, erecto-patent, $\frac{1}{2}$—$\frac{3}{4}$ inch broad, and four small linear ones near the flower. Flowers solitary, whitish, $\frac{3}{4}$—1 inch long, with oblanceolate obtuse segments. Anthers oblong, a third as long as the glabrous filaments. Style $\frac{1}{6}$ inch long. *J. G. Baker.*

PRUNUS TRILOBA.—M. André describes in a recent number of the *Revue Horticole* the fruit of this beautiful shrub, first described in these columns by Dr. Lindley, in 1857. Of the multiple carpels, of which the pistil consists, only one it appears ripens; and this is a true Plum, forming a link between the Apricots and the true Plums. M. Carrière had already called this plant Amygdalopsis Lindleii, but now M. André suggests Prunopsis Lindleii. If it be really, as M. André says, a Prunus, why not keep Lindley's name, which is shown to be generically correct, and has every right of priority? As to the specific name, it is true the leaves are not always three-lobed, in fact, as a rule, they are not so, but in this case it would appear to us to be a lesser inconvenience to retain a name which is only partially applicable, than to adopt a new synonym altogether.

FERTILISATION OF FLOWERS BY SNAILS AND SLUGS.

VARIOUS writers have recorded observations of snails and slugs acting as agents for the conveyance of pollen from one flower to another, especially of Aroids; and Dr. F. Ludwig has published (*Kosmos*, xi., p. 347—351) an article on an instance of "Adaptation in Floral Arrangement for Fertilisation by Snails," Dr. Ludwig has studied the flowering of Philodendron bipinnatifidum, and believes that it is in the highest degree adapted for fertilisation by snails. This has caused Prof. Warming to republish (Engler's *Botanische Jahrbücher*, iv., heft 3) some observations of his on the fertilisation of the same plant which appeared some sixteen years ago in a Danish serial. And Dr. Engler in the same place publishes some interesting general observations on the separation of the sexes and the conditions of pollination in the Aroideæ. Dr. Ludwig's conclusions are entirely opposed to the results of Prof. Warming's observations of the plant during three seasons in its native country (Brazil); and it appears almost certain that, although snails and slugs occasionally carry pollen from one flower to another, a real "malacophilous" or snail-loving plant has yet to be found. We should as soon have thought of a snail-loving gardener! However, there are doubtless mutual adaptations as unlikely on the surface as the one in question.

Professor Warming made observations on the various phenomena attending the flowering period. Briefly, the inflorescence of Philodendron pinnatifidum, is a stout spadix, 11 to 12 inches long (in the wild state), enclosed in a spathe just long enough to contain it. Unlike Arum, Richardia, &c., the whole of the spadix is covered with flowers, which are crowded thickly together and destitute of any kind of perianth. The lower part is occupied by female flowers; the middle by staminodes or imperfect flowers, and the upper part by male flowers. In Lagoa Santa, where Warming's observations were made, the duration of the flowering period was two days, or, to be more exact, from thirty-four to thirty-six hours. Even shortly before blooming begins the spathe is so firmly and tightly closed that it is impossible to open it without breaking it, and the spadix, of course, is completely enclosed. On the day that blooming is to begin indications of it can be seen early in the morning. Thus it was noted that a spadix which was quite closed at 7 A.M. had so far opened by 9 that the margins were about a twelfth of an inch asunder. At noon they are still farther apart, and a slight development of heat in the spadix is perceptible to the touch, but the difference between the temperature of the air and the spadix is only about 2° to 3°.5 Fahr. There is also a faint aromatic odour. The greatest observed excess of heat of the spadix above the air at 1 o'clock was about 6° Fahr. At 2 a spathe would be already wide open and the spadix bent a little outward and forward, but the heat and odour still feeble. By 3 o'clock the spathe is still wider open and the spadix more curved, and the excess of heat above the air as much as 9° Fahr. At 4 there is an appreciable difference in the heat of the staminodes and the male flowers. This was ascertained by putting the bulb of a thermometer in holes bored in the spadix and keeping it there until it ceased rising. The female flowers are scarcely at all heated. By 5 o'clock the spathe is as wide open as it ever gets, the spadix is bent forward more, and the aromatic odour is stronger. Bees and other insects begin to visit in great numbers, flying actively in and out of the spathe; and the excess of heat has risen to 21°.6 in the staminodia and 18°.4 in the male flowers. At 6 o'clock the spathe is still as wide open as at 5, and the spadix more curved. Bees are still there, and small cockchafers begin to find their way in. The maximum excess of heat observed at this time was 23°.4 in the male flowers and in the staminodes 29°.5, and the aromatic odour exceedingly strong, sometimes almost stupefying. From half-past six to seven the condition of the spathe remains about the same, while the spadix has perhaps drawn back a little. The sun is now down, and the bees have withdrawn, but the cockchafers are more numerous. At this time the excess of heat attains its maximum, being as much as 33°.3 above the air, when the latter stood at 70°.7, or an extreme heat of 104° Fahr. And Professor Warming thinks he might have obtained a greater heat with more delicate instruments, and by using wadding to prevent the influence of the external temperature. After seven the spathe gradually closes,

the spadix draws back, and the odour grows fainter, being hardly perceptible by 9 o'clock. The temperature of the spadix rapidly decreases, falling to what it was between 3 and 4 o'clock. The cockchafers seem to remain in the spathe throughout the night. On the morning of the second day the spathe is more closed, and at 6 o'clock A.M. there is neither perceptible heat nor smell, but between 8 and 9 o'clock a second period of heating occurs. This is of much shorter duration than the first, reaching its maximum at about 10 o'clock; it is likewise much less intense. Bees are again present, and with the cockchafers and other insects they swarm about in the lower part of the spathe. With the continuously tighter closing up of the spathe a new phenomenon is observed after noon; a clammy, aromatic yellow liquid trickles out of innumerable pores on the inside of the spathe. Finally, between 4 and 5 P.M. the inflorescence enters upon its last stage. The anthers open and the pollen, as in so many other Aroideæ, is ejected from the anthers in long thread-like masses, giving the upper part of the spadix a very singular appearance. Professor Warming was more interested in the heating of the spadix than in the process of fertilisation, but he adds the following note:—"The insects are still [between 4 and 5 P.M. on the second day] very active, and probably contribute considerably in furthering fertilisation." At 7 o'clock P.M. on the second day the blooming is over; the spathe has completely closed, and only the upper end of the spadix is visible; this is a consequence of the spadix having grown about three-quarters of an inch in length during the blooming period.

Dr. Ludwig not only maintains that Philodendron bipinnatifidum is eminently adapted to fertilisation by snails, he adds, "to the exclusion of other visitors." Professor Warming, as we learn from the foregoing, observed the visits of various kinds of insects in great numbers; and he further states, most emphatically, that fertilisation by means of snails is an utter impossibility in Lagoa Santa, inasmuch as he never saw such a thing as a snail during a three years' stay devoted to the collection of all kinds of objects of natural history. Fertilisation was abundantly effected in the wild state, and Professor Warming is of opinion that the females were pollenised by the males of the same inflorescence, but actual observation is wanting to verify this supposition. Professor Warming adduces other facts opposed to fertilisation by snails, notably the poisonous nature of the inflorescence, the short duration of the blooming period, and the rarity of two or more inflorescences being in the flowering stage at the same time on the same plant, even on vigorous wild plants. We have met with no later evidence than Delpino's on what he terms malocophilous plants. Two Aroids he regarded as such, namely, Alocasia odora and Rhodea japonica, the former protecting itself from being eaten by excreting an acrid juice which kills the snails—not an economical proceeding, certainly, nor one likely to perpetuate such a mode of fertilisation. The latter, on the other hand, provides food for the snails in the form of a fleshy tissue, into which the perianth is transformed, the snails being content with this provision and not touching other parts of the flower. Mr. W. Trelease (*American Naturalist*, 1879, p. 580) records having observed snails occasionally on the spadix of Symplocarpus fœtidus, an Aroid that is freely visited by hive bees, flies, and bugs. Our extracts from Professor Warming's article having been more copious than we anticipated, we must reserve Dr. Engler's paper for a separate notice. *W. B. H.*

THE SOUTHERN ALPS OF NEW ZEALAND.

(*Continued from p.* 236.)

New Zealand's great genus, Veronica, has a few representatives on this mountain. In the little snow runnels on the slopes, many handsome vivid green bushes of V. cupressoides are noticeable, as also a form of V. vernicosa; these grow to a height of 4 feet, but V. Lyalli is a little trailer with white and mauve-coloured flowers; V. epacridea, a spreading, trailing, hard-wooded species, is a most singular plant for the genus, the small red-edged leaves being densely quadrifariously imbricate, and the flowers densely packed into ovoid terminal heads. V. tetrasticha, a small species, looks much like a species of Logania, but is not of interest to the cultivator. The well known Hymenanthera crassifolia is abundant here, producing its pretty white berries in immense quantities. Another fine berried shrub is the Snowberry, Gaultheria antipoda, the large fleshy-white fruit being very pleasant in flavour and much eaten by birds. Numerous Epacridaceous shrubs of the genus Dracophyllum are plentiful, the best, perhaps, being D. scoparium. All the species on this mountain have needle-shaped leaves, and are of vivid green colour.

Species of Raoulia are very numerous on the lower slopes; most are pretty, though small plants, and would be nice things for covernig banks of soil among rockwork. On the shingle slips towards the summit grow those curious plants Raoulia mamillaris and R. eximia, known to all settlers as "vegetable sheep;" growing as they do in groups of four to twenty, these look not unlike sheep lain down, and hence the vulgar name. They vary in size from 4 to 6 inches across to as many feet, and form hemispherical cushions of dense woolly branches—so dense and firm that the finger cannot be thrust into them. When first ascending the mountain in 1866, in company with Mr. Haast, I managed to carry down a medium-sized specimen, which I believe is now in one of the museums at Kew. We have several times tried to grow them, but cannot succeed out-of-doors on account of the dry climate of this city and the arid nature of our garden. The gem of the genus is, however, R. grandiflora, Hk. f., a tiny alpine with dense silvery branches, small imbricated leaves, and large white flowers. Two other pretty Compositæ are Gnaphalium bellidioides, with fine white everlasting flowers, and the New Zealand Edelweiss, G. grandiceps, which, during the Rev. Mr. Green's adventurous ascent of Mount Cook, attracted the attention of his Swiss guides, reminding them of their own allied Leontopodium. The New Zealand plant, however, is smaller in all its parts, and has more silvery foliage. Another curious Composite is Haastia recurva, which grows only at high altitudes, and is not amenable to cultivation. Some of the plants found on Mount Torlesse are especially adapted for existence in the deep loose *débris* forming the numerous snow-slides on the steep face of the mountain. Among these may be mentioned the curious Lobelia Roughii, with peculiar nerveless, obovate, deeply-toothed fleshy leaves, and dirty white flowers. Ligusticum carnosulum, another shingle plant, has a fleshy root-stock, buried deep in the shingle, from which are thrown up a few strange-looking multifid leaves and small umbels of pinkish-white flowers. It is a pretty and most singular plant. Species of Pratia are common, principally P. macrodon, and several forms of P. angulata, all producing abundant white flowers and small pink or rose-coloured fleshy capsules. Two or three pretty dwarf kinds of Celmisia, with miniature Daisy-like flowers, grow on the peaty slopes among grass; also two species of Ozothamnus, both worthy of cultivation; and Drapetes Dieffenbachia and D. Lyalli, the two latter minute shrubs allied to Pimelea.

Returning to the road we proceed for the next 30 miles over undulating country, flanked on each side by high bare-looking ranges with occasional patches of Fagus forest, the flora being similar to that already described. In this 30 miles there are five pretty lakes, all more than 2000 feet above the sea. The largest of these is Lake Pearson, about 3 miles long, the whole bottom of which is covered with aquatic plants, the most interesting being a large species of Isoetes, Pilularia globulifera, and a minute aquatic Ranunculus (R. limosella, F. Muell.). On reaching the township of Bealey the aspect of the country changes greatly: the bare appearance of the mountains gives place to a rich clothing of evergreen forest, principally Fagus, but very dense, every tree bearing its load of beard-like lichens. Here we have to cross the river Waimakariri, and leaving the valley of that river enter that of its tributary the Bealey, which rises on Mount Rolleston, a grand mass lying to our left. Following the richly wooded Bealey valley for 8 miles we arrive at the foot of Arthur's Pass, 93 miles from Christchurch.

Arthur's Pass is justly considered to be one of the wonders of New Zealand, both on account of its peculiar geological formation and the remarkable alpine flora being here splendidly developed. On both sides rise grand mountain peaks, possessing superb outlines, and the effect is greatly improved by the fine Fagus forests, which form charming park-like groves in the valley of the Bealey, and clothe the mountain sides for 2000 feet above. On the left, high above us, towered the splendid peaks of Mount Rolleston, its flanks covered with immense snowfields, whilst on the opposite side of the valley fine waterfalls hung on the rocky mountain sides. The chief of these falls, the Devil's Punch Bowl, attains a height of 500 feet, and on our last visit its sides were covered with huge icicles, giving it a romantic appearance. Here we cross the gorge of the Bealey by a fine wooden bridge—the river flows through a deep chasm, and is a foaming torrent, its sides overhung by vegetation of the richest description. Here grew magnificent examples of the arborescent Epacrid, Dracophyllum Traversii, Hk. f., which not infrequently attains a height of 30 feet and a diameter of 1 to 2 feet. In habit the tree not a little resembles Cordyline australis, but the branches are more numerous and the leaves are shorter. The flowers are produced in dense oblong panicles at the tips of the branches, and add much to the appearance of the tree. This is one of the finest plants known to me and should prove acceptable in England. Unfortunately it has suffered much from fires, and threatens to become extinct at no very distant period. In the forest several splendid shrubs are common, among them are some peculiar conifers. Of these we may mention, in the first place, the Celery-topped Red Pine, Phyllocladus alpinus, a most singular looking shrub, or rather small tree, with peculiar flattened branchlets (cladodia), which take the place of leaves, the latter being present in the young state only. Another very fine Conifer is the Kawaka, Libocedrus Bidwilli, which has much the appearance of an Arbor-vitæ, and is only distinguished from L. Doniana by the tetragonous branchlets. The Silver Pine, Dacrydium Colensoi, Hk. f. (D. Westlandicum, Kirk), is common, and, like the other Conifers mentioned here, should prove acceptable in British pinetums.

On the slopes of peaty ground above the forests grow two more species of Dacrydium. D. Bidwilli, Hk. f., is the tiniest of the Pine tribe, of which there are two varieties, one trailing over damp ground and the other tufted, rarely exceeding 4 inches in height: its peculiar blue tint should render the latter a useful plant in carpet bedding. On many of the old trees of Fagus Solandri grow numerous Loranths, double parasitism being also rather frequent here. The most abundant species are L. flavidus, L. tetrapetalus, and L. decussatus. I believe that the Beeches themselves have not yet been cultivated in England; they are splendid evergreen trees, and seem to thrive everywhere in this country. Species of Olearia are as numerous here as in most parts of the colony, but the species of these alpine regions are quite distinct from those of the lowands; two of the large-leaved species, O. ilicifolia and O. nitida, are small trees of fine appearance. O. lacunosa, Hk. f., is a splendid shrub, with long narrow coriaceous leaves, with evident lacunæ below and densely clothed with brown tomentum. Of the small-leaved group, O. nummularifolia and O. cymbifolia are the commonest, but O. Haastii and O. moschæta are also found. All these are fine shrubs, very hardy, and of easy cultivation, and it seems strange that only one of them should have been imported into England.

The genus Panax has a number of fine species here, the finest being the Ivy tree, P. Colensoi, a fine dark-leaved evergreen, growing to a height of 12 feet. The mountain Lancewood, P. lineare, is very abundant, but is rarely found in fruit. P. simplex is common, and is a handsome little tree, the young form being very curious on account of its deeply lobed leaves, so different from those of the mature form. One of the finest shrubs of the colony is Senecio elæagnifolius, which combines the inflorescence of the common English Groundsel with the fine foliage of a Rhododendron. Smaller kinds are S. Bidwilli and S. Buchanani, the latter with pretty silvery veins. The genus Coprosma has numerous species, the most striking being C. fœtidissimum, the odour of which is exceedingly unpleasant; and the dwarf C. acerosum, bearing vast quantities of azure-blue berries. Deciduous shrubs are not numerous in New Zealand, but a few occur on Arthur's Pass. The mountain Ribbonwood, Plagianthus Lyalli, isallied to the Sidas, and is a really handsome shrub, with fine, green, lobed leaves, and multitudes of white flowers about the size of a shilling. Aristotelia Colensoi bears numerous edible black berries, and is known as Wineberry. An alpine form of Fuchsia excorticata was common, and its fine autumn tints add variety to scene. New Zealand's great genus, Veronica, is not so well represented here as further south, but still there are some fine plants of the shrubby sections. We may mention V. lævis, V. cupressoides, V. Armstrongii, V. odora, and V. canterburiensis. *J. B. Armstrong, Botanic Gardens, Christchurch, New Zealand.*

(*To be continued.*)

SINGLE DAHLIAS.

A SUPERB display of these popular flowers was made by Mr. T. S. Ware at the meeting of the Royal Horticultural Society on Tuesday last. There came from Tottenham over one hundred bunches, representing a considerable number of varieties, some decidedly novel, and all singularly attractive. But what is to be understood by the awards made by the Floral Committee on this occasion? They first of all gave First-class Certificates to massive, well-formed, good-sized flowers like Negress, rich shining maroon, very fine form, and thoroughly distinct—one of the finest of the large flowered section; and then made the same award to Bedding Gem, a small flowered sort with pale orange-scarlet blossoms wanting in symmetry; and Mr. Cannell received the same award for Midget, also a small flowered variety, of a bright scarlet colour also. It would thus appear that a small flowered section is desirable, and that they are assumed to be adapted for bedding, and of more value for cutting than the larger flowered type. But no evidence to this effect was forthcoming, and it is probable that those who fancy the single Dahlias will turn away from these small flowered and somewhat puny-looking types to such fine novelties as T. S. Ware, orange-scarlet—very fine; Indian Chief, a kind of orange-buff ground, flaked with rosy-purple; Mauve Queen Improved, deep mauve; Ellen Terry, pale pinkish-mauve — very pretty; Lucy Ireland, brilliant magenta-crimson; and In Memoriam, orange-crimson, with a slight tip of purple to each petal. If it is feared that the single Dahlias are becoming too large: there were to be found in Mr. Ware's stand a number of flowers of what might be termed medium sized, good in form, and charming in colour. Mention may be made of the following as illustrations:—Thalia, crimson-magenta; Rosalind, mauve; Union Jack, red and white; Nora, bright magenta; Paragon, difficult to beat; Pantaloon, mauve and white; Emerald, orange-crimson; Danger, deep orange; Radical, reddish-orange, &c. The Floral Committee appear just now to be in danger of being led away by what might be termed "fads."

Notices of Books.

James Nasmyth, Engineer; *an Autobiography, &c.* London: Murray.

The record of a successful career, the history of a most useful life, the narrative of the varied experiences of an artist, an engineer, an astronomer, and a man of the world, could hardly fail to be attractive. The narrative is presented to us in the book before us in the simplest, freshest, most engaging manner; no wonder, then, that it proves delightful in the reading. We cannot all invent steam-hammers, make reflecting telescopes, discover "Willow leaves in the sun," or design "astrologers' towers," and the reason why we cannot do so is well exemplified in the present volume. If in some respects the author is, like all the world's greatest men, a self-made man, in others he owes much to ancestral inheritance. To his father indeed, a well-known artist and no mean mechanic, the author acknowledges his great obligations. Circumstances acting on a man so endowed have, by a sort of natural selection, made him what he is. Without the hereditary endowments circumstances would have been futile; with them, even had the conditions been different from what they were, success would been equally certain. This conviction will come home to every one who reads these delightful memoirs, which tell of the great engineer's ancestry and parentage, the pursuits and associations of his youth, his training in Maudsley's workshops, his early inventions, his establishment in business, the evolution of the steam hammer, his travels, his astronomical hobbies and researches into the significance and history of the cuneiform inscriptions. That a mind so constituted should feel delight in Nature's beauties is a matter of course. It is the book-worm and recluse who lacks this faculty, and it is not under this category that Nasmyth must be reckoned. Justification of our statement will be found in the following extracts:—

"In those early days of art-knowledge, there scarcely existed any artistic feeling for the landscape beauty of Nature. There was an utter want of appreciation of the dignified beauty of the old castles and mansions, the remnants of which were in too many instances carted away as materials for new buildings. There was also at that time an utter ignorance of the beauty and majesty of old trees. A forest of venerable Oaks or Beeches was a thing to be done away with. They were merely cut down as useless timber; even when they so finely embellished the landscape. My father exerted himself successfully to preserve these grand old forest trees. His fine sketches served to open the eyes of their possessors to the priceless treasures they were about to destroy; and he thus preserved the existence of many a picturesque old tree. He even took the pains in many cases to model the part of the estate he was dealing with; and he also modelled the old trees he wished to preserve. Thus, by a judicious clearing out of the intercepting young timber, he opened out distant views of the landscape, and at the same time preserved many a monarch of the forest."

Here is the record of an ingenious method of planting in inaccessible places:—

"The Duke of Athol consulted my father as to the improvements which he desired to make in his woodland scenery near Dunkeld. The Duke was desirous that a rocky crag, called Craigybarns, should be planted with trees, to relieve the grim barrenness of its appearance. But it was impossible for any man to climb the crag in order to set seeds or plants in the clefts of the rocks. A happy idea struck my father. Having observed in front of the castle a pair of small cannon used for firing salutes on great days, it occurred to him to turn them to account. His object was to deposit the seeds of the various trees amongst the soil in the clefts of the crag. A tinsmith in the village was ordered to make a number of canisters with covers. The canisters were filled with all sorts of suitable tree seeds. The cannon was loaded, and the canisters were fired up against the high face of the rock. They burst, and scattered the seed in all directions. Some years after, when my father revisited the place, he was delighted to find that his scheme of planting by artillery had proved completely successful, for the trees were flourishing luxuriantly in all the recesses of the cliff."

We have not space to do more than allude to the author's love of gardening and his experiments in planting. "To thus paint, as it were, with trees is a high source of pleasure in gardening. Among my varied enjoyments this has been about the greatest." With what associations gardening may directly link itself let the following extract, with which we must close our notice, show:—

"As the 'High places' could not be transported to the Temples, the cone-bearing trees, which were naturally associated with these elevated places, in a manner partook of their sacred character, and the fruit of the trees became in like manner sacred. Hence the Fir cone became a portable emblem of their sacredness; and, accordingly, in the Assyrian worship, so clearly represented to us in the Assyrian sculptures in our museums, we find the Fir cone being presented by the priests towards the head of their kings as a high function of beatification. So sacred was the Fir cone, as the fruit of the sacred tree, that the priest who presents t has a reticule-shaped bag in which, no doubt, the sacred emblem was reverently deposited when not in use for the performance of these high religious ceremonies.

"The same emblem 'survived' in the Greek worship. I annex a tracing from a wood engraving in Fellows' *Researches in Asia Minor*, 1852 (p. 175), showing the Fir cone as the finial to the staff of office of the wine god, Bacchus. To this day it is employed to stir the juice of the Grape previous to fermentation, and so sanctifying it by contact with the fruit of the sacred tree. This is still practised by the Greeks in Asia Minor and in Greece, though introduced in times of remote antiquity. The Fir cone communicates to most of the Greek wines that peculiar turpentine or resinous flavour which is found in them. Although the sanctification motive has departed, the resinous flavour is all that survives of a once most sacred ceremony, as having so close a relation to the worship of the sun and the heavenly bodies.

"In like manner it appears to me highly probable that 'the Christmas tree,' with its lighted tapers, which is introduced at that sacred season for the entertainment of our young people, is 'a survival' of the worship of the sacred tree and of the sun. The toys which are hung on the twigs of the tree may also be 'survivals' of the offerings which were usually made to the sun and the heavenly bodies. If I am correct in my conjecture on this subject, it throws a very interesting light on what is considered as a mere agent for the amusement of children."

—— *English Botany.*—The eighty-fifth part contains figures and descriptions of British Ferns, from Botrychium lunaria to Lastrea æmula. The text is excellent, but some of the figures are not satisfactory —as, for instance, that of Lastrea filix mas.

—— *The British Moss Flora.* — The seventh part of Dr. Braithwaite's excellent monograph of British Mosses has lately been published. It contains the continuation of "Dicranum," the species of which are carefully described, and the synonyms as conscientiously worked out as in preceding parts. The illustrations are neatly executed, and to the purpose.

Foreign Correspondence.

ZERMATT.—The ride from the Rhone Valley to this place affords a continued series of delights—the walk would be far preferable did time and circumstance permit—for the way is long and steep, and there are more loose stones than fixed ones. Moreover, the back of a horse carefully engaged in looking where to place his feet, and pulling himself together to make the necessary ascent of the stairs (for such they might well be called if it were not for insulting the stairs), is not altogether the most suitable place in the world for observing the vegetation—I say nothing about the scenery—I know better than to make so futile an attempt. Those who have traversed the route know it, to those who have not no language can suffice. When Ruskin even tries his hand he writes sometimes splendid prose—at other times something very like nonsense, but he succeeds no better than the veriest Grub Street hack in conveying anything like a picture of these mountains and their investiture, be it of cloud, or snow, or herb. It is all very well to read the brilliant sentences when one is in one's easy chair at home, but in presence of the mountains themselves the art of man sinks into insignificance indeed. Still, for all that, the printed page need not, and assuredly will not, be disparaged. Even as the flattened brown fragments in the herbarium, though themselves shapeless and ugly, serve to call up cherished associations and memories of imposing scenery and lovely flowers, so the glowing prose of an accomplished writer may serve the same purpose.

The gardener or the botanist have special sources of interest in making this journey, because they may pass in a day, step by step, from the hot valley of the Rhone, with its Maize fields and vineyards, through the pastures and amid the fruit trees to the forest, and through that again to the alpine meadows bespangled with flowers—and still higher, till bare rock at length leads him above the line of perpetual snow. Some few plants will accompany him all the way; or, at least, as far as plants can go at all: the little Cobweb Sempervivum (Sempervivum arachnoideum) is one of these. We saw it just out of the hot, smelly streets of Visp, but it wasn't happy there; a few miles further on—further up, that is—it begins to enjoy itself, till, at the head of the valley it positively revels. Not a chink in the rock, not a pocket on the surface, but is filled—filled to its utmost capacity, with this charming little obesity. Little fat tufts covered with a gossamer veil, and surrounded by a circlet of smaller fat tufts, after the fashion of the hen-and-chicken Daisy. Scarcely two are alike; you may see them forming little nubbles not so large as a Marrowfat Pea, or as big as a five-franc piece; you may see them deep pink in colour, or green as a Cabbage, their veil flimsy as a cobweb, or suggestive of a crochet antimacassar; the form, too, of the leaves varies considerably, so that no doubt M. Jordan or any of his disciples would have no difficulty at all in carving for us a couple of dozen new species out of this one Cobweb Sempervivum.

In the warmer parts of the valley Prunus Mahaleb abounds, and the common Barberry, together with Lonicera Xylosteum with its clear red berries. Higher up the valley we lose sight of this old friend which is replaced at the higher elevations by the less familiar Lonicera cœrulea, with its oblong blue berries. Neither Pines nor Spruces are common, but here and there are solitary trees, like the Scotch Pine, but with shorter leaves, looser, thinner habit, and with smaller cones, and which I take to be the uncinate variety of P. silvestris. On some of the specimens bushes of Mistleto are hanging. I do not remember to have seen Mistleto on Pines at home. Sambucus racemosa is everywhere, with its rich clusters of scarlet berries, so is the curious Bladder Senna (Colutea arborescens). How it recalled boyish days to "pop" the bladdery pods! Bushes of deep green Savine, Juniperus Sabina, trail over the rocks. Further on, as we ascend, the Savine ceases and the common Juniper takes its place, to be succeeded, in its turn, on the high alpine pastures, by the dwarf variety, J. nana. Walnut trees

are plentiful and so are the nuts, Apples are wretched scrubs, and Cherries are ludicrous abortions. Aspen Poplars wave their leafy flaglets, while underneath, among the herbage, are two or three brilliantly coloured species of Dianthus, a viscid glowing Cytisus, the yellow Salvia glutinosa, the strange Globe Thistle (Echinops sphærocephalus), familiar from childhood but never seen "at home" before, and scores of other things that sorely tempt me to dismount and let the poor beast that is carrying me and my pack herborise in its fashion, while I botanise in my way. By way of digression I may say that some mules have very marked preferences for particular plants; one that I bestrode one day in the Chamounix valley disdained everything but leguminous herbage—the Astragalus glycyphyllos, and the Coronilla varia with its heads of lilac flowers proving particularly attractive, as indeed was not to be wondered at. Another animal was not to be tempted by anything but the young shoots of the Spruce, and these were browsed upon all along the route till our way was quite marked out by the cropped appearance of the Firs. As we near Zermatt, always ascending, Aconitum Lycoctomum shows itself with the scarlet berries of Daphne Mezereum, and the quaint Paris quadrifolia, while the rocks are covered with Sedum album, S. dasyphyllum, S. sexangulare, and Cystopteris fragilis; Campanula pusilla is literally everywhere, but its ubiquity detracts nothing from its simple grace. We call a halt at Zermatt and the next few days—oh, how they fly!—are devoted to rambles in the neighbourhood. As we are supposed to be following an upward course with a view to trace what can be seen at a superficial glance of plant distribution according to altitude, we may wend our way across the meadows dotted with pictural châlets, very pictural, but not quite so sanitary!—and by the side of the roaring torrent—picking the bright but small flowers of the autumn Colchicum with one hand and the dry capsules of the spring Crocus with the other. Pinguiculas and Parnassias start up from amid the Lady's Mantle, and the purple Salvia pratensis casts a glow over all, though here not so common as lower down the valley. Rocks and boulders strewn in the most picturesque confusion, some so covered with flowers and Ferns (Dianthus, Sedum, Sempervivum, Campanula, Epilobium, Cystopteris) that there is hardly room to put a knife-blade between them, filling up the crannies, squeezing between the clefts, welling over the hollows—here starved and tiny, there well fed, exuberant and glowing with colour; and the grassy undulations—who can describe the beauty of their curves, their varied tints, the richness of their shadows, here smooth as an English lawn, there broken irregularly by jutting flower-clad rock, in one place capped by clumps of elegant Larches or Firs, in another rearing their domed heads bared save for their capping of velvet-green—and to all this there is a background of forest, dark and suggestive, while towering up above—far, far above—but now one must needs hold one's breath: it is profanation to speak!

Right down into this rock garden comes silently, mysteriously, awfully, a mighty frozen torrent, born in the snows of Monte Rosa, forced on in its resistless course between rocky barriers, gleaming between the dark Cembra Pines, down till it reaches the rocky pasture just described, and there it meets its fate, and slowly, surely, constantly resolves itself into the water that rushes along the valley to find its way to the Rhone, and ultimately to the Mediterranean. The oftener one sees these glaciers the more wonderful they appear; like the mountains that give them birth, they seem to grow, stupendous as they are and awe-inspiring, the eye cannot at first realise either their mass or their beauty—probably never does so fully, so far beyond its ordinary range are these amazing objects, so utterly are they beyond comparison. Still, as one looks and looks again, and cannot choose but look, their immensity increases, their beauty becomes even more transcendent—they grow! After this, it might be expected that one would have no eyes for the lowly herbs that fringe the rough boulders brought down by the glacier, but it is not so; curiosity is aroused to the highest pitch when the first feeling of astonishment fades—it never ceases! then an almost overpowering curiosity to know all that can be known of these mighty appearances seizes one. Is this the secret which lures men on to their destruction sometimes? It may be. But whether or no I was desirous to see what vegetation there was at the very base of the glacier, where it is loosened from its icy bonds, and leaps into watery life. Sometimes, in like cases, I have seen the surface of the moraine (or rocky barrier at the sides and end of the glacier covered with a thick layer of fine vegetable mould, brought down from above by avalanches, or by the fallen rocks, and covered with Gentians and Androsace, Arabis and Primula, and other lovely little gems of the higher slopes beneath the snow-line, but this time it was not so. The river as it emerged from the glacier is hardly cradled in flowers, and the rocks just here are bare and with few plants growing between them. Still there are some, and they are characteristic. The most showy and beautiful is the Willow herb, Epilobium angustifolium, and a smaller one, more like a Clarkia than an Epilobium, but whose name I do not yet know. Then there is a deep blue Pansy close up to the ice, a few low bushes of Hippophaë rhamnoides, and a thicket of Stipa pennata, that wonderful feathery grass whose long plumes act as screws and force the fixed end of the seed into the ground, out of the reach of frost or marauding birds. As to the forests of them I propose to speak in my next. *Rambler.*

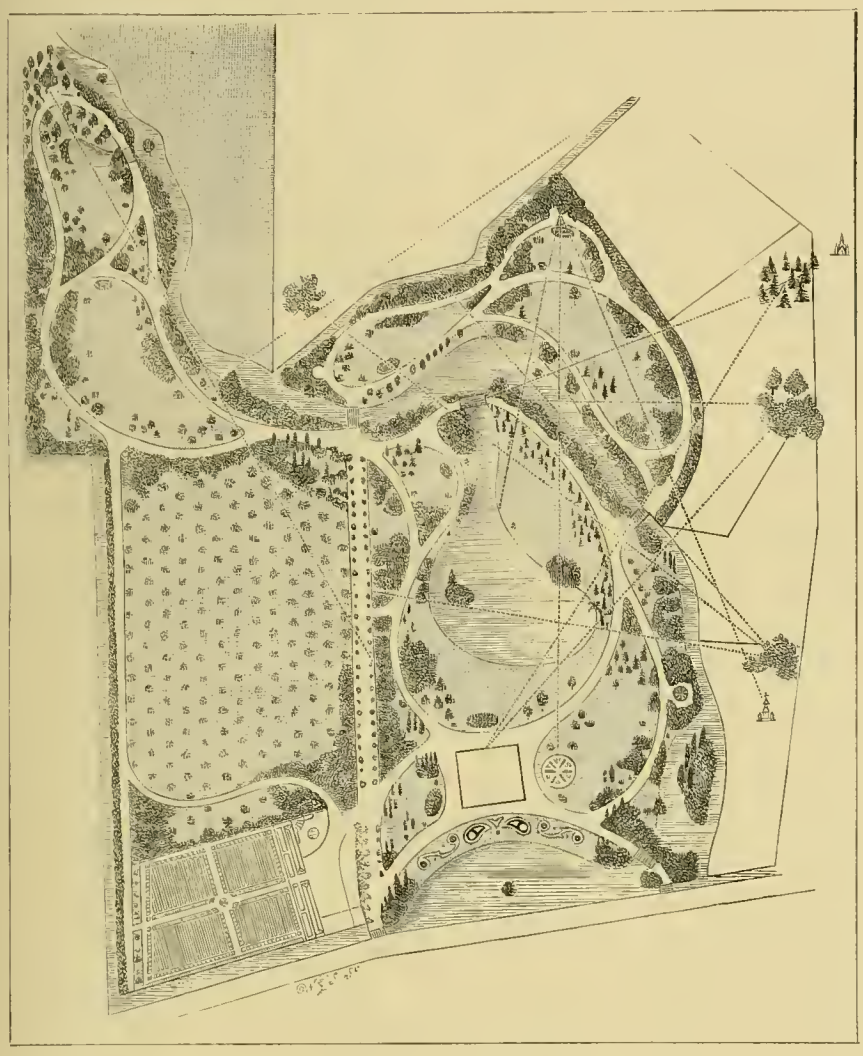


Fig. 40.—A garden in the valley of the meuse.

A DUTCH GARDEN.

The garden of which we give a plan (fig. 40) has been executed by M. Burvenich, of Ghent, for a lady residing near Maestricht, in the Duchy of Limburg. It comprises an area of about 12 acres, and is situated in the midst of meadows and woods, in the fertile valley of the Meuse, and is approached from the road leading from Maestricht to Faucquemont. The property is intersected by a large area of water, in some places badly treated, but the landscape gardener was compelled to retain much of it in its original state. A stream called the Kanjel crosses the property, which might have been turned to advantage from a decorative point of view, but the neighbours have quite spoiled its appearance and turned it to utilitarian purposes. Owing to the large quantity of water, numerous ornamental bridges have been constructed of various kinds, so as to ensure variety. One near the entrance abuts on a semicircular mass of rockwork well clothed with appropriate plants. Some of the bridges are of iron, others of Oak; others, again, of stone, but all treated from a decorative point of view. The mansion is in the Italian renaissance style, and, with the other structures, has been built under the superintendence of the architect, who also designed a pavilion in the Louis XVI. style. This pavilion is raised upon an eminence forming an island in the lake, planted with Poplars and Willows. In front of the mansion, in the centre of the lake, is a large pedestal of stone from the famous grottoes near Maestricht, and which supports a statue (Diana of Gabier), which is much admired. The beautiful front of the mansion is reflected in the waters of the lake.

The orchards and kitchen garden, seen to the left of the plan, are extensive and well managed. They are separated from the ornamental portion of the grounds by an avenue of Aspen Poplars. From various parts of the grounds fine views are obtained over the town of Maestricht and the surrounding country. M. Burvenich's design, which we selected from several that were shown at the last Ghent Quinquennial Exhibition, shows how the difficulties caused by a rather unmanageable piece of water have been successfully encountered.

European Ferns.—Messrs. Cassell & Co. announce a new serial issue of Mr. James Britten's *European Ferns*, part 1 of which is now before us.

Orchid Notes and Gleanings.

PALUMBINA AND THUNIA.—There are in the last number of the *Gardeners' Chronicle* some allusions to these genera of mine, which I do not intend to leave without a few observations. As to Palumbina it is a plant that I have only seen in good health and with good anthers at one place. It was the typical plant of Messrs. Loddiges, grown by Messrs. Stang and Schmidt, at Consul Schiller's—there it was enthroned under the glass in a very light, very cool, well-aired house, together with glorious Sarracenias—there it multiplied in such profusion as is seldom seen in a garden Orchid. What the Hamburgh Botanic Garden obtained in 1870 from Consul Schiller's widow is not better than what is seen elsewhere, chiefly sent by Mr. Linden. The plant re-appeared quite lately, having been introduced by Mr. Low. We shall see how the fresh supply will succeed. What is represented in Dr. Lindley's *Herbarium* (if my memory does not fail me) by Miss Drake, and what Mr. N. E. Brown has figured are in my opinion miserable morbid abortions, such as an experienced Orchidist knows exist by hundreds. I propose to give copies of my own sketches in the *Xenia*. My herbarium contains twenty-six inflorescences, some of which show the plant in its full development. As to Thunia, it is with reluctance that I return to the topic. I have said what is to be said, and if people do not understand it I cannot help it. The leading question is simply this, What are four, what are eight? If somebody attributes four pollinia to Cymbidium, because the two pollinia are deeply furrowed, then let him also attribute eight pollinia to Thunia if he pleases. *Grand bien lui fasse.* If the pollinia of that genus are looked at from below, their cohesion will be found easily in those cases where they are furrowed. Phaius has totally free waxy pollinia; Thunia has pulpy ones, only four in number, but now, indeed, deeply slit. The chief question is, whether the statements given by an author are correct or not. The use of those statements for generic or higher distinctions depends upon the sum of knowledge, education, and good faith of the botanist. If in our days the substance of the leaves, the tumour of the stem joints, the mode of inflorescence have been used as if of generic value—if to please the amateur such genera as Lælia, Cattleya, Schomburgkia, Miltonia, &c., have been kept for scientific purposes as genera—then really I do not understand how the same authors are not more cautious, when "sinking" (as Professor Oliver says) the genera, which have been established on the floral organs. Mr. N. E. Brown speaks of Oxalis, Pelargonium, Euphorbia, as warning examples against genera established on mere difference of habit. Every family keeping its own household, I might have quoted Orchid genera, such as Liparis, Oncidium, Epidendrum, Lepanthes, &c. At all events, I have never established genera on mere differences of habit. I feel sorry I shall have to lose much time this winter with such polemics. My friends wish me to do so. As to myself, I openly confess that, whether my genera are accepted by some or not, that is, to use Prince Bismarck's expression, "*Ungeheuerwurschtig*" to me. *H. G. Rchb. f.*

MAJOR LENDY'S ORCHIDS.—With the collection here, as in many others newly commenced, the growth has been so rapid and the specimens of Cattleyas, Lælias, &c. (which are now so easily to be obtained at a reasonable price as fresh imported plants), which have been acquired of so large a size that nothing remained to be done but to build a new house of suitable dimensions to receive the specimen plants. A very fine span-roofed, partly sunk structure, 72 feet in length, 24 feet in breadth, and 9 feet in height at the ridge, has therefore been completed and is already filled. A walk, with side stage, runs right round the house, and another walk runs down the middle, from end to end, thus dividing the middle space for staging plants into two parts, each of which, being within reach of the middle walk on the one side and the side walk on the other, is very convenient to get at to inspect the plants. The roof is supported by light iron arches spanning the middle walk, and these arches are made use of to train the long spikes of the strong-growing Oncids over. At present a very pleasing effect is created in this way by the first arch being covered with the long slender spikes of the rose and white Oncidium incurvum, and further on one covered with the beautiful loosely arranged blooms of the handsome O. zebrinum; then come the massive yellow flowers of O. macranthum, followed by a pillar of O. luridum and other arches of O. obrysatum, O. Schillerianum (which will run 15 feet when it has anything to cling to), O. Wentworthianum, &c. Just now there is not a great show of bloom, but the masses of C. Trianæ, with from eight to twelve sheaths, and the great show of flower-sheaths on most of the specimen Cattleyas and Lælias promise well. In this fine new house, however, are some good plants of Calanthe sylvatica, each with several flower-spikes, and each spike bearing from thirty to forty greenish-white blooms; it is not handsome, but so flowered it is tolerable. A plant of a very fine variety of Aërides virens also bears an immense flower-spike, 3 feet in length, and having over seventy very large blooms on it. Cattleya Loddigesii, C. Gaskelliana, C. guttata, C. guttata Leopoldi, C. Eldorado, Cypripedium caudatum (six flowers), C. niveum, Aërides quinquevulnerum, Calanthe masuca, Vanda Roxburghi, Miltonia Clowesii grandiflora, M. Regnelli, Cœlogyne corrugata, Odontoglossum hastilabium, Oncidium flexuosum, and many other Oncids and Dendrobes are blooming well. Houlletia Brocklehurstiana is also well represented. It is a lovely sweet-scented Orchid, bearing large wax-like flowers, each from 2½—3 inches in diameter, the ground colour being yellow, and the marking purplish-red. It does well with Major Lendy in the cool part of the Cattleya-house, and under his treatment blooms well every year. Although introduced as far back as 1841, and repeatedly imported since, the plant was not obtainable in recent times until Mr. F. Sander again obtained the small consignment from which Major Lendy's plant was obtained. This lot seems to be of a freer flowering habit than others before imported, as it has bloomed with nearly all who got plants of it—Mr. Dinsmore, gardener to T. Blackwell, Esq., The Cedars, Harrow Weald, being lucky enough to obtain a very fine variety, which he also flowers annually. The novel feature in the new Orchid-house at Sunbury House is that it has no bottom ventilators, and is ventilated only by a narrow strip in the ridge and the door at one end and one trap in the other. How these ventilating arrangements will answer time will tell.

The Phalænopsis are the best cultivated plants of the collection, and every variety obtainable has been procured, and they are all thriving well, the delicate P. Lowi being as much at home as the robust P. amabilis and P. Schilleriana, of which there are many fine plants with leaves 15 inches in length. They are grown tolerably cool and airy at all times, but particularly so at the present season, as when so treated they are hardier to stand against the winter. In bloom are some good plants of P. amabilis, some fine varieties of P. violacea, a large plant of the curious P. cornu-cervi, and the pretty P. rosea lencaspis, and P. antennifera rosea. Associated with the Phalænopsids are some good Angræcum citratum, A. Ellisii (many in bloom), and a very fine specimen of Utricularia Endresii, covered with its attractive pale blue flowers, along with several of its more common but equally lovely ally—the white U. montana. The Dendrobe-house is just now being treated to a good amount of sun-heat, and has at present nothing of special interest in it, and the long cold house and the intermediate house are of course at their lowest ebb so far as bloom is concerned, but the plants of Vanda cœrulea, Lælia anceps, and L. autumnalis, which were so fine last year, are bristling with flower-spikes, and bid fair to beat their previous performance; while for present attraction many well bloomed plants of Oncidium prætextum, O. Forbesi, O. dasytile, Odontoglossum Alexandræ, O. Pescatorei (one little plant bearing perfect blooms over 4 inches across), O. Roezlii, O. vexillarium, Mesospinidium vulcanicum, Epidendrum vitellinum, E. Parkinsonianum, Disa grandiflora, Warscewiczella Wendlandi, Masdevallias, &c., give abundance of interest to the visitor, even though he may not be an Orchid grower. A commendable feature in the Sunbury House collection is the presence of good specimens of many of the Orchids which, while not being worthy of being grown in quantity or worth keeping in poor specimens, frequently present to us startling objects of beauty when well flowered in large masses, as for example Aspasia epidendroides and Rodriguezia (Gomezia) planifolia.

The Kitchen Garden.

WITH a temperature in the shade of 80°, and a cloudless sky, it will be necessary to anticipate the wants of growing crops by thoroughly and effectually watering certain of them which it may be desirable to prolong the season of, and one of these is Peas. By watering freely with liquid manure and mulching afterwards, we oftentimes get the Ne Plus Ultra to last till the middle of October, or even later in open seasons. The Scarlet Runner is another very desirable crop to encourage, and large fleshy pods cannot be produced without plenty of moisture. The Cauliflower is also a vegetable which needs help in extremely dry weather, though the Autumn Giant is less susceptible of drought than many kinds. In justice to many deserving gardeners, however, who are often unjustly blamed, it is proper to state here that in a shallow soil and a gravelly subsoil autumn Peas and Cauliflowers cannot be successfully grown, and that under these conditions employers should not expect them. Choose an open piece of ground on a south border, dig in plenty of manure and on this plant the early Cabbage, which, all being well and the spring genial, will be fit for use in April. Ellam's and Hill's are the two earliest kinds, according to our experience, but if this very dry weather continues it will be better to defer planting them till suitable weather for doing so comes. As this crop is cleared off the border directly they are ready 1 foot or 15 inches will be far enough apart for them.

A sharp eye must be kept on the Cauliflower and Lettuce sown last month, and if the young plants are really suffering from want of water let them be well soaked with a rather fine-rosed watering-pot, but watering in many cases is worse than if left alone, because if it is only half-done surface roots are thus encouraged which are again scorched by the next day's sun. Where the supply of Endive is insufficient a plantation may still be made with a fair amount of success. The Lettuce sown on the north border will possibly need thinning out, but they may be left closer at this time of the year, as they do not generally grow so large. Look over the Vegetable Marrow beds two or three times a week, and cut every fruit fit for use, because nothing tends so much to cut short the bearing of the bed as a number of them allowed to grow large and form seeds. Look carefully over the Tomatos, and from the most fruitful plants take cuttings, and in well-drained pots and light soil strike the cuttings for the first supply next year; they may either be wintered in store pots on the greenhouse shelf, like Verbenas, or, what is better, if there is room, pot them off into 60's. After a trial of all the kinds in cultivation here this season, the Orangefield Dwarf Prolific is the favourite for productiveness.

The late French Beans sown in pits for a supply during October and November, will need water once a week, and earthing up; a few little twigs of Birch stuck up each side will keep the plants in position, and have the lights in readiness to put on at the very first signs of cold nights. Mushrooms in the pastures are an uncertain crop, therefore daily collect fresh horse droppings, and make a bed once a month, taking care at this time of the year that the bed is not spawned too soon, as the manure holds its heat longer now than later on; and it is well not to order in the spawn in too large quantities. See also that it is kept in a thoroughly dry place till wanted for use, as if allowed to get damp the spawn will "run" and lose its virtue. The Celery crop will need attention; the earliest must be earthed-up weekly, and if the very latest does not move into growth satisfactorily one good watering of liquid-manure will set it going. Continue to dig and store away Potatos as they ripen; the mid-season kinds are now ripe, and the crop generally is most satisfactory. The last sowing of Turnips will need thinning; clear off all crops of Beans and Peas as soon as they are finished, and let all vacant ground be occupied where the space is circumscribed, remembering that at best there is a long winter before us, when we can neither sow nor plant, and yet the kitchen must be supplied daily; therefore, even now, if there are any strong plants of Coleworts, Kales, or Broccoli, find a place for them—they will be useful. *J. Rust, Eridge Castle.*

The Orchard House.

The trees in our houses this year were well exposed to light, and the houses, being shut up early in the afternoon, the fruit has ripened much more rapidly than it did when they were grown in a large span-roofed house. The last fruits to ripen in Nectarines were Victoria, although the Pine-apple was nearly as late. Our latest Peaches are Exquisite and Dymond, both really good varieties; but Exquisite has a fault, it is a very shy setter, though its quality is really first-rate when well ripened. It is, as far as I am aware, the best of the yellow-fleshed kinds. We are not repotting any of the trees this season, but if it is intended to do so the best time is as soon as the fruit is gathered. I have so frequently described the *modus operandi* of repotting that any further remarks would be superfluous. The trees will have to be removed ouside earlier than usual this year, but we shall place them in a sunny position until the end of September, when they will be surface-dressed. This is done by removing a considerable portion of the very small fibrous roots from the surface and down the sides of the pots with the compost which has been much exhausted. Some rich loam incorporated with rotten stable manure must be pressed in firmly to replace that which has been removed. The trees will scarcely require any more water, except what they receive from the rainfall; they ought to be plunged over the rim in cocoa-nut fibre refuse. Those who have not yet gathered all their fruit would do well to maintain a rather dry and warm atmosphere; the trees also should not receive too much water at the roots, or the fruits will not be of good flavour. The seeds seem to have a much greater tendency to split this year than usual—a defect which is doubtless to be attributed to unfavourable weather at the time the trees were in flower. To account for our fruit being over, I may say that we have in previous years grown Lord Palmerston, a large showy Peach, which ripened at least two or three weeks later than Exquisite or Walburton Admirable, but the flesh used to be tough and wanting in flavour. Comet and Salway, two yellow-fleshed varieties, ripened as late as November; sometimes they were good in flavour, but more often they were not, and we discarded them. If a good late October Peach could be raised it would be a great boon. *J. Douglas, Great Gearies, Ilford.*

Melons and Cucumbers.

Melons.—The beautiful and seasonable weather with which we have been lately favoured has been most favourable to the swelling off and ripening of Melons in unheated pits and frames. In such contrivances water must be used sparingly, but should the plants be likely to suffer for want of water let them have it before mid-day, or sufficiently early to allow of the foliage getting dry before night, otherwise mildew will be likely to give trouble, and canker too. Do not wait the approach of the latter, but as a preventive—and a cure if necessary—place some quicklime and fresh soot round the collar of each plant, which will absorb any unnecessary moisture that might arise about the stems of the plants. Late plants will require the stopping, thinoing, and tying of the shoots being attended to in the usual way, and the removing of any superfluous fruits which may have set on the plants, leaving four or five of the most even-sized and best placed ones on each plant as a crop, the swelling of which will be greatly assisted by copious supplies of diluted liquid-manure being given to the roots when necessary. Damp the plants morning and afternoon with tepid water. Light the fires sufficiently early in the evening to prevent the temperature falling below 70° during the night. *H. W. Ward, Longford Castle.*

Cucumbers.—The treatment of plants recently set must in a great measure be regulated in accordance with the time when they are expected to produce fruit. If the object is to secure a supply of fruit as soon as possible, early stopping must be had recourse to, say at the second wire, which will result in fruit-producing shoots, but in the majority of places the object is to get the fruit in time only to succeed those grown in frames, in which case the plants are allowed to reach the third and fourth, and sometimes the top wire of the trellis before being stopped, and all the young fruits removed as they appear, when they break as regularly as a Grape Vine from the axil of every leaf, and the laterals from each individual plant are nearly allowed to meet before being stopped, thus concentrating all the energies of the plants on the development of wood and leaf, so that at a fixed period the plants will be in a position to produce and sustain a good and continuous supply of fruit during the winter and early spring months. To these plants water must be applied somewhat sparingly at the roots, until such time as they have become well established, with plenty of hungry roots permeating the soil in all directions in search of food, when liberal supplies of tepid diluted liquid-manure should be given to the roots as often as circumstances may render necessary. Maintain a minimum temperature of 65°, and a maximum of 75° with fire-heat, running up 10° or 15° higher with sun-heat, and plenty of atmospheric moisture at closing time. *H. W. Ward, Longford Castle.*

Plants and their Culture.

Greenhouse, Cape, and New Holland Plants.—The weather of the past few weeks has been most favourable for perfecting the growths of the majority of these plants. This will go a great way towards ensuring a successful crop of bloom another season. Give close attention to the general routine of work amongst them. The Indian Azaleas will be benefited by a syringing on the afternoons of warm sunny days, as the sun declines. Look after and guard against the inroad of thrips where there are any symptoms of this troublesome insect to be seen; keep the same in check by syringing with a weak solution of tobacco-water and soft soap. If this is repeated twice or three times, there will not be much danger of their increasing before housing time comes round, then fumigation will effectually clear them off. If any of the greenhouse Rhododendrons need a shift, this operation may be performed perhaps more advantageously at this season of the year than at any other. For this work use peat, sand, &c., as advised in previous Calendars for Cape Heaths; guard against over-potting, however; one size larger pot will be sufficient in most cases. It is surprising what a length of time these Rhododendrons will thrive and flower season after season without any repotting; this should be a hint not to over-pot them at any time. The autumn-flowering Cape Heaths, as E. Marnockiana, E. retorta major, E. Jacksoni, and E. Aitoniana, amongst the harder wooded kinds, with E. cerinthoides coronata and E. Ewerianа of the more free-growing sorts, will now be in full beauty. When they have thoroughly developed their blooms in the full exposure to sun and air, by which means the intense colours of most of them are brought to greater perfection, they may be lightly shaded from bright sunshine. The two last named varieties are amongst the most useful of their class at this season; they will bear cutting better than the other kinds, and may with advantage be grown by any one who does not already possess them. Keep E. Cavendishiana, E. depressa, and other early blooming kinds thoroughly exposed to the sunshine, and a better crop of bloom may then be anticipated in due course. Should the plants be somewhat light-rooted, a piece of canvas may be hung on the sunny side of the pot to check too rapid evaporation.

Such subjects as are liable to attacks of white scale must be well looked after, and as most plants will have to be got under cover during this month the sooner they are cleansed the better, now that they are easy of access. Such subjects as the Acacias, Boronias and Pimeleas are most liable to be attacked, but remedies that have been advised on former occasions will be found effectual when applied. The fine old Pleroma elegans, when well grown, should have been in full beauty during the last four weeks; remove the pods as the flowers fade, and do not let the falling petals remain on the foliage to do any injury. When this plant becomes tall and scrubby it should be cut hard back and "broke" again in slight heat. Cuttings of the half-ripened wood can be struck with a little patience, and they will soon make nice plants. Statices that have been bearing a good crop of spikes should have these removed as soon as possible, to give the plants a season of rest. Black thrips often attack them, fumigate the first opportunity to prevent any further mischief. Cytisus that are in a healthy state should be freely watered, and when pot-bound an occasional dose of weak manure-water will be of benefit to them. Epiphyllum truncatum will be benefited by a few weeks' exposure to sun and air in a cool greenhouse, keeping them at the same time somewhat on the dry side. Liliums of the speciosum section, if still in the open air to retard their bloom, should be placed under cover as the flowers expand. We have kept several plants in the shade to work them in for conservatory decoration during the next few weeks, with Gladiolus in pots also. As any Liliums go out of flower do not water them so much as hitherto; on the other hand they should not be kept dry, as the roots will be found to be active (though in a lesser degree) the greater part of the year. Nerines (or Guernsey Lilies) will now be sending up their flower-spikes, and those that are well established will take a liberal quantity of water. We have found them do well in the same pots for several years. Bouvardias we have this season kept in pots thus far, but in the open air; before this is in print we hope to have them turned out of the pots into a warm pit, still keeping them moderately cool for a few weeks longer. By this method of flowering them in pits we calculate that we obtain nearly double the quantity of bloom through the numbers of back breaks that they make. The best for this treatment we find to be B. Vreelandi, B. Hogarth, B. umbellata carnea, B. Dazzler, and B. Alfred Neuner. Those who are growing them in the open ground the same as with Salvias, Solanums (capsicastrum vars.), and the Libonias, will do well to check a too luxuriant growth by either cutting around each plant or else by thrusting a fork under each one, and lightly lifting the same in a partial manner. Then in a week or two they can all be taken up and potted, in readiness for placing under cover. Chrysanthemums should now be kept liberally fed with manure-water; on no account allow them to suffer, or loss of foliage will be the result. Guard against injury from high winds by securing each plant to its stake, and as a further precaution we find it an excellent plan to run two or three lengths of tar yarn along the rows of standards, each string being fixed at intervals to uprights that hold all secure. Where disbudding is practised, most of it can now be performed; but unless extra large flowers are desired we do not recommend this practice to be followed up nearly so much as many are in the habit of doing. Pelargoniums that have fairly broken into fresh growth should be shaken out and be repotted into smaller sizes, drawing the lights over them at night when pit-room can be spared for their protection.

The bulb season having again come round, no delay should be allowed in getting in the necessary stock of each kind, relying mainly on well tried sorts in each class rather than on novelties yet unproven. The somewhat scarce bulb, Urceolina pendula, may be safely tried where a stove temperature can be commanded. It is of easy growth and flowers freely when established. *James Hudson, Gunnersbury House Gardens, Acton, W.*

Peaches and Nectarines.

The trees in the early house, which is usually started in November, should by this time have completed their growth, and the wood be nearly ripe, and getting a nice brown-looking colour. If the sashes have been taken off as directed, the beautiful sunny weather we have had of late will have done the trees much good, and they will naturally be preparing to take their annual rest. Any trees which require root-pruning or any that it is desirable to move may be done any time towards the end of September or early in October, just before the trees lose their leaves, for this purpose use a mixture of good fibry turf, old mortar rubble, and wood ashes, keeping the roots well up to the surface and using plenty of old brick-bats and rough rubble as drainage. Continue to remove all laterals and useless shoots from trees in succession-houses, which are now ripening their wood very well indeed, but should we have a change to dull wet weather they may be assisted with a little fire-heat, and a free circulation of air. Expose fruit on trees in late houses, and to any that are taking their last swelling (or are at all dry) give liberal supplies of manure-water. *J. Wallis, Keele Gardens, Aug. 28.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Sept. 3	Sales of Dutch Bulbs, at Stevens and Protheroe & Morris' Rooms
TUESDAY,	Sept 4	Flower Show at Coventry.
WEDNESDAY,	Sept. 5	Sale of Glass Erections and Plants, at Upper Holloway, by Protheroe & Morris. Sale of Dutch Bulbs, at Stevens' Rooms.
THURSDAY,	Sept. 6	Dahlia Show, at Morley Hall, Hackney. Sale of Imported Orchids, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
FRIDAY,	Sept. 7	Paisley Horticultural Society's Show. Sale of Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	Sept. 8	Cottagers' Show, at Old Trafford. Sales of Dutch Bulbs, at Stevens' and Protheroe & Morris' Rooms.

WE fear that, owing to certain difficulties, which are said to be insurmountable, the consummation of a project so devoutly to be desired as a GREAT AUTUMN FRUIT SHOW is an impossibility at South Kensington this year. But if the Council of the Royal Horticultural Society are unable to help themselves at South Kensington, that is the better reason why a truly representative and thoroughly instructive exhibition should be held at Chiswick? The Society, it is true, can not expect at Chiswick to attract the general public in such numbers as to make such an exhibition a financial success; but it exists for a more noble motive than mere money-making, and what better service can it render to Horticulture than to afford facilities for a meeting of practical men interested in the culture of hardy fruits?

Though, of course, to some extent desirable, it is not absolutely necessary that the Council should issue a schedule of prizes; what is wanted, as it seems to us is, that market and private growers should be invited to contribute of their stores to the formation of as complete a collection as possible of Apples and Pears, and so provide such an opportunity for comparing notes, determining synonyms, and correcting nomenclature generally, as owing to the fickle character of our climate we may not soon have again. It seems to us that so many growers would be glad to take advantage of such an opportunity for acquiring useful information that they have only to be informed that the necessary facilities will be afforded to enter at once into the spirit of the thing, and ensure its success from a purely practical point of view.

No more appropriate place could be found for holding such a meeting than the large vinery, and if held in conjunction with a meeting of the Fruit Committee that body would have such a chance for displaying its usefulness as seldom falls to its lot, and we may be sure full advantage would be taken of the circumstance. We would also suggest that if such a meeting is organised, as there is reason to think that it will be, the Council should endeavour to increase the popularity of Chiswick by throwing the gardens open to practical gardeners and fruit growers generally on the selected day or days, but rigorously excluding on those particular days the mere exhibition lounger, so that th real business of the meeting may be carried out uninterruptedly. The Council of the Society should neglect no opportunity of carrying out its practical objects, and in organising such a meeting at Chiswick as we suggest, it has a splendid opportunity for distinguishing itself in that direction. The cost would be little, the advantage great. It would tend greatly to raise the Society in the estimation of practical gardeners, and if it only served to bring under notice what are the best and most profitable varieties to grow under particular circumstances great good would accrue. We lay stress on the advantage to practical men especially, for we fear the time is too short to develope the scheme in such a way as to be of general interest, though in truth there are few subjects of greater national importance than the supply of good home-grown fruit to the consumer at large.

—— VANDA TERES.—At p. 46 we published a letter from Mr. BROOME, Wood Lawn, Didsbury, Manchester, respecting an unusually fine specimen of this lovely Orchid then in bloom in his collection. Mr. BROOME has since very kindly sent us a photograph which Mr. SMITH has admirably followed in the engraving on the opposite page. Mr. B. S. WILLIAMS, who is well acquainted with the plant, thus writes of it in the last part of the *Orchid Album*:—"We saw this plant last year, and a most wonderful old specimen it is. It is trained cylindrically, and forms a grand massive plant, curious, withal, on account of its terete dark green climbing stems, thinly clothed with leaves which are also terete, and of the same colour. No doubt it is one of the most distinct looking of Orchids, and one, moreover, that few growers succeed in flowering well." The plant, it will be remembered, bore over 250 flowers.

—— THE INTERNATIONAL POTATO EXHIBITION.—The managers of the International Potato Exhibition have taken a step that will probably exercise an influence beyond their own charmed circle. The luncheon following upon the judging has acquired some degree of importance as an enjoyable affair. The ladies have heard of it, and have asked "Why are we not invited?" With proper gallantry the committee invite the ladies, and we hope the example will be followed whenever it is fairly practicable in the social gatherings of horticulturists. For the Potato Show luncheon at the Crystal Palace on Thursday, the 13th inst., tickets will be issued to admit gentlemen at 6*s*., or lady and gentleman at 10*s*. These charges will not include wines, which must be ordered and paid for by the guests at discretion. As a matter of course the judges will be officially invited.

—— NEW GLADIOLI.—Some truly magnificent varieties of these were shown by Messrs. KELWAY & SON, Langport, on Tuesday last, and they afforded abundant evidence that, notwithstanding the high degree of excellence to which the Gladiolus has been brought, a substantial improvement is still going on. On this occasion First-class Certificates of Merit were awarded to Lady Cavendish, lilac-pink, flaked with bright rosy-purple, very fine form and spike; Duke of Edinburgh, salmon-red, slightly flaked with purple, distinct white throat, fine and striking; and Sir Trevor Lawrence, pale bright orange-scarlet, the throat handsomely flamed with purple—a superb variety. Other fine seedlings were also forthcoming, and in addition Messrs. KELWAY & SON staged a collection of ninety-six spikes, a remarkably fine lot, including many leading named varieties and some fine seedlings. These were admirably staged in that effective style adopted by Messrs. KELWAY & SON, and it enables the spikes of flowers to be seen to the very best advantage.

—— ROSES.—Earlier in the summer there was a wide difference of expression as to this being a good or a bad Rose season, the opposite conclusions arrived at by the contending parties being, as such usually are, the result of evidence resting on nothing more reliable than observations confined to limited localities. But, whatever grounds existed for difference of opinion as to the quality of the early Roses—or, more correctly speaking, as to the flowers that were produced in the height of the Rose season—there can be little question that the later bloom has this year been such as is seldom seen. Of this there is abundant proof by the grand flowers shown at the exhibitions that have taken place through August in a good many of the best Rose counties, and which have been of such excellence as is rarely seen so late. Neither has the fine quality of the flowers been confined to a few varieties, as many of the best exhibition sorts have appeared in unusual condition.

—— AMATEUR GRAPE GROWING.—In the whole routine of amateur gardening there is nothing in which so much gratification is usually felt as in the production of a good crop of Grapes. In thus speaking of amateurs those are meant who do their garden work themselves, or with the help of the dig-pig-and-poultry-man, who may or may not work under direction. To amateurs of this class there is a continual accession, not likely to abate, although results by no means always keep pace with the expectations, especially in the matter of Grapes, which frequently, so far as the Vines are concerned, grow well enough, but with little better outcome than the production of wood and leaves. This is oftener than not owing to the imperfect ripening of the wood. North of the Tweed there is a trite saying that "You cannot get the breeches off a Highlandman," the obvious reason of which is that he has none on. The same may be said of Vines that have not had their wood ripened the season before; all the treatment possible during the current season cannot get fruit out where it was not in when the leaves fell the autumn previous; and upon the condition in which Vines such as here spoken of are a few weeks hence will depend the possibility of their bearing next year. Although now late to fetch up leeway in the maturing process, still something may be done by the use of fire-heat, if at once applied and persevered with so long as the leaves retain their vitality. There is often an erroneous impression entertained by amateurs that plenty of air will of itself effect the ripening of the wood. Such by no means is the case. Nothing less than enough heat will do it, either from the sun or with fire, or both combined, though plenty of air is an important accessory, while as to light, however desirable, it is not so much within our control. It is heat that our climate is short of for Vines, and after late springs like the past the deficiency is greatest.

—— POTATOS.—No doubt the unusually low temperature prevalent through the latter part of July and beginning of August, whilst the showery weather lasted that is usually so fatal in favouring the growth of the Peronospora, saved the bulk of the Potato crop. For, although there is a good bit of the disease in the second early kinds, the late crops have such a generally healthy appearance as rarely seen. From the sea northwards of Liverpool, right across to the eastern coast, and through the Midland and Southern Counties, as also the west as far as Somerset, the haulm of the late sorts has a fresh green appearance such as gives promise that the yield will not only be unusually good, but free from disease to an extent that has rarely occurred since the disease first made its appearance. Some of the growers in Lancashire and Cheshire on the peat soils, where even when a severe visitation occurs the disease is much less destructive than on the heavier land, seem to differ in opinion as to which is the best for them in a pecuniary point of view, a season when the disease thins the crop so as to run prices up high, or a season when there is abundance with low prices. But there can be no question so far as the growers generally on the ordinary land throughout the kingdom are concerned, or the public who have to buy this most indispensable of vegetables, as to which is the best, a healthy or diseased season.

—— ASTERS.—The collection of these shown by Messrs. CARTER & CO. at the last meeting of the Royal Horticultural Society, was of value, in that it showed something of the character of the different types of Asters, and though they were not so finely developed as could have been desired, yet the value of certain sorts for pot culture is to a considerable extent demonstrated. Out of a number of varieties the most distinct were TRUFFAUT'S Pæony-flowered; Victoria, crown-flowered, dwarf Chrysanthemum-flowered, and the dwarf bouquet. These are all flat-petalled varieties. Then the German quilled were also present in good form. Considering that all were grown in pots, it must be characterised as a most interesting and instructive exhibit. The best varieties for pot culture are the dwarf Chrysanthemum-flowered and the dwarf bouquet, an exceedingly useful and free-flowering type of a dwarf-branching, free-flowering habit.

—— RAILWAY RATES.—"From Folkestone to London," according to a pamphlet before us, "Broccoli is charged 20*s*. per ton, and Cabbage 15*s*. per ton; Beetroot is charged 20*s*. per ton, and Potatos 10*s*. per ton. It has been lately brought to my knowledge that hundreds of tons of Asparagus were brought this year from the South of France, from Italy, and from Spain, and delivered in Covent Garden Market at a less cost per ton than that of sending similar Asparagus from one of our own inland towns. Day by day we hear of the depressed state of trade, and the difficulties under which our agriculturists labour with foreigners. We hear of rents badly paid, and of no rents at all—of farms even out of cultivation; and yet there may be food at one end of a line of railway wanting mouths, and mouths at the other end wanting food, and it neither pays to bring the one to the other, nor the other to the one. The same argument applies in the case of all food."

—— ESSEX FIELD CLUB.—The seventh part of the *Transactions* of this Club bears testimony to the activity of its members and the care of its Editor. The papers comprise articles on the ancient fauna of Essex, the deneholes, the evidences of man's handiwork in prehistoric times, &c. The Club has had during the year to assume the functions of defender of the Forest, and the opinions of the members are clearly entitled to the greatest respect. At the same time it should be remembered that the Forest is intended for the benefit of the public at large, not for the special behoof of the naturalists. There is, happily, room enough for all classes—each may enjoy the Forest without materially interfering with the pursuits of the other. If the "Arries and Hanns" keep within ten minutes' walk of the public-houses, as we are told they do, they do not greatly interfere with the naturalists, who naturally betake themselves to more secluded parts. There is a great deal to be said upon both sides, and nothing will be gained by exaggerated statements or by selfish demands on the part of particular sections of the community.

—— FRUIT WOOD RIPENING.—In those localities where drought has prevailed—and there are some where it has been excessive—the season is presenting a capital opportunity to enable us next year to note the diversities that may exist between the fruit crops in those localities and those where there has been an abundant rainfall. Around the metropolis, for instance, there may now be seen many fine Elms, Limes, Horse Chestnuts, and other trees, with brown shrivelled leafage, which is fast falling, or which is for the moment all aglow with the harvest-hue of gold.

FIG. 41.—VANDA TERES IN THE COLLECTION OF J. BROOME, ESQ. (SEE P. 272.)

That fruit trees in such districts are feeling the pinch of drought we may be assured, and although the early summer gave plenty of growth and abundant leafage, yet now the trees are suffering, and specially so are those heavily laden with fruits. With such drought at the roots, and checked wood-growth, there is considerable bud development, and it is not possible to doubt but that both fruiting wood and bud will be as firm and as well ripened and matured as well can be. With these conditions it may be naturally expected that, with perhaps the exception of heavily laden Apple trees, all should next year be very productive. We shall, of course, get the customary trying weather at blooming time, but bloom from such finely perfected buds should be more capable of enduring exposure to unkind elements than should bloom on trees that are, or have been, rather overdone with moisture. It is long since such favourable conditions for the early production of ripe wood and fruit-buds has prevailed, and therefore we may well feel hopeful that, barring accidents, next year will prove for fruit growers one far from profitless.

—— NEW CARNATIONS. — Mr. GORTON's three new Carnations, viz., William Skirving, C.B., Tim Bobbin and Rob Roy, rose flakes, have passed into the hands of Mr. CHARLES TURNER, Slough, for distribution. Each and all of them have been awarded a First-class Certificate by the Carnation and Picotee Society at South Kensington.

—— AMERICAN VINES.—According to the *Vigne Americaine*, the official reports as to the progress of the Phylloxera in France all, with the exception of perhaps two, which are less decisive, speak in praise of the use of American Vine stocks for grafting as a means of resisting the Phylloxera. We are compelled, says our contemporary, to assert that the reports as to the employment of insecticides, not only as regards sulpho-carbonate, but also the sulphide of carbon itself, are far from satisfactory on a large scale.

—— UNDERGROUND STEMS. — M. COSTANTIN has been investigating the anatomical differences between these and above-ground developments. The principal changes are the great increase in the thickness of the epidermis, which for protection's sake becomes corky, and not only so, but a new formation of cork takes place. At the same time, as there is not the same necessity for an internal skeleton in the shape of thickened cells, wood fibres, &c., we find these organs greatly reduced in underground stems as compared with aërial ones. Reserve substances, like starch, are stored up largely in these rhizomes or tubers. These results are consonant with what might have been expected, and they supply one explanation of the benefits of "earthing up"—in the case, at least, of Potatos.

—— MR. STEVENS' PHOTOGRAPHS.—At the late exhibition in Brussels, to which we alluded in our last issue, Mr. HENRY STEVENS was awarded a Silver Medal for his photographic pictures of flowers, without doubt the most successful reproductions of the texture of flowers that have yet appeared.

—— INSECTICIDES AND THE VINE LOUSE.—"Bisulphide of carbon is really efficacious," says a correspondent of the *Vigne Americaine*, "when one has patience to await its results, and when the use of it is accompanied with the employment of potassic and nitrogenous manures. But these results are sometimes not attained until the fourth or fifth year, especially if the vineyards were severely affected when first treated. Having employed insecticides for five or six years, I naturally continue to use them, since I have been successful, but I cannot cease to regret not having begun by grafting our best indigenous varieties on American stocks as adapted to the different soils which compose my estate of St. Emilion. Certainly the expense would have been very little greater, and the result would have been very superior as regards the production."

—— HECKFIELD PLACE GARDENS. — Through the kindness of Viscount EVERSLEY, the beautiful gardens of Heckfield will be again open to the public on Monday next, and for the rest of the week, when all who may desire to visit one of the loveliest and best kept places in the kingdom will do well to avail themselves of the special opportunity. Heckfield Gardens are, in their way, a speciality, not only on account of the singularly beautiful flower gardening there shown, but also because of the unique formation of the soil and charming surroundings—perhaps we may, too, add, and not least, because of the marked and, indeed, almost excessive neatness that pervades every department. We have also so long and so honourably associated with the place the taste and liberality of its noble owner and of its able gardener, Mr. WILDSMITH, that there is special reason for congratulation that neither grand old age on the one hand, or much physical pain on the other, has in any way led to the severance of that connection. We have seen Heckfield Place just recently, and found it to be as delightful as ever. The terrace garden shows not a few distinctive features, and is a lovely whole. The decorative kitchen garden-walk, bounded on either side by its hedges of Cupressus Lawsoniana, the which are now being literally faced with brilliant single Dahlias, is as beautiful as in any former year; not least effective in its features are the small Retinosporas that form such charming dot plants. As usual, too, all the other departments are in first-rate keeping. Single Dahlias have been made to adapt themselves to small beds by early pegging, with excellent results; and the Lady Downe's Vines may still be seen growing in their heads, carrying a crop with just as much ease and *nonchalance* as if no such phenomenon was being exhibited. Old visitors necessarily get a little *blasés*, but all new ones invariably experience the greatest delight in seeing Heckfield.

—— THE VEGETATION OF THE ANDES. — The next morning, desiring to know how high vegetable life extended, I made the ascent of a part of the mountain (near Chimborazo) by a practicable route, and I discovered that a Malvacea (Malvastrum) flourished even under the melting snow, at 4600 mètres in altitude, the thermometer being at zero. *Ed. André*, "*Le Tour du Monde*," *June* 30, 1883, *p.* 412.

—— THE "GAPES" IN FOWLS. — M. PIERRE MÉGNIN's essay on this disease, and the parasitic worm which causes it, has been published as a pamphlet by Messrs. WEST, NEWMAN & CO., together with an introductory preface from Lord WALSINGHAM detailing the circumstances under which the essay was written. The worms inhabit the windpipe of the bird, and their characteristics and history are given in these pages. Among the most successful remedies are Garlic, which kills the worms; and also a solution of salicylate of soda, in the proportion of 1 to 100 of water.

—— IRISH AGRICULTURAL STATISTICS.—From the Registrar-General's report on the acreage under crops in Ireland, we learn that the extent of land under tillage in 1882 was 3,119,184 acres, in 1833 it is 3,004,313 acres, being a decrease of 114,871 acres. In Leinster the decrease amounted to 28,972 acres; in Munster, to 29,264 acres; in Ulster, to 46,136 acres; and in Connaught, to 10,499 acres. Compared with 1882 there appears a decrease of 58,022 acres in the acreage under Wheat; of 16,436 acres in Oats; of 3554 acres in Barley; of 29 acres in Beans and Peas; and of 571 acres in Bere and Rye; showing a total decrease of 78,612 acres in the extent under cereal crops. The acreage under Potatos has decreased by 31,254 acres; Cabbage by 1173 acres; and Carrots, Parsnips, and other green crops, by 798 acres. The extent under Mangel Wurzel and Beetroot increased by 1592 acres; Turnips by 12,697 acres; and Vetches and Rape by 226 acres; leaving a nett decrease of 18,710 acres in the extent under green crops. The acreage under Flax in 1882 was 113,484 acres; and in 1883 the extent returned under this crop is only 95,935 acres, being a decrease of 17,549 acres.

—— THE NOTTINGHAM GARDENS.—Those who visited the great provincial show at Nottingham some years ago, will remember the numerous allotment gardens in the vicinity of that town. They will bear in mind the glowing accounts then given of those gardens, and themselves had an opportunity of seeing how greatly they were appreciated, and what immense advantages accrued to the occupiers and to the town in general from these gardens. Nottingham in this respect set an example we should like to see followed in all our towns. Fresh air, wholesome occupation, and health-giving recreation are more than ever essential, and so far from curtailing the opportunities of enjoying these, every effort should be made on sanitary and moral grounds alone to extend them. From what we learn, however, there is some fear that the Nottingham folk may take a retrograde step, and abolish these useful gardens for the purpose of making an ornamental park, of course recouping the expense by building in the neighbourhood. This might be pardonable in an individual, but corporate authority has to consider the general advantage of the people in the future, as well as in time present, and in this matter *salus populi suprema lex*. Even looked at from a ratepayer's point of view, it is better to have a healthy contented population than to have to pay the penalties which arise from neglected sanitary precautions, and a deficiency of pure wholesome means of recreation. We are not sufficiently conversant with local affairs to say anything as to the compensation to be awarded—or not—to dispossessed tenants; we judge the matter from the higher ground of the general welfare of the people, and trust the authorities will not commit themselves to a retrograde and dangerous policy. We shall have more to say on another occasion as to the necessity of providing, not merely parks and promenades in our large towns, but also means of supplying innocent amusement, than which for body or mind there is none to rival gardening.

—— PALAVA FLEXUOSA is an annual Malvaceous plant of considerable beauty. It was sent from San Lorenzo, in Peru, more than thirty years ago, to the late Sir WILLIAM HOOKER, but apparently soon afterwards disappeared from cultivation. Some years ago, however, it was reintroduced by Messrs. VEITCH through their collector, PEARCE, and a figure—prepared from material supplied by the firm just mentioned—appeared in the *Botanical Magazine*, t. 5768. The flowers measure from 1 to 1½ inch in diameter, are of a light mauve colour, paler towards the centre, with the base of the petals and the anthers a bright red, the lower portion of the sepals being purple, the rest green. The absence of the outer calyx and the numerous one-seeded indehiscent carpels furnish characters by which the species of Palava may be readily distinguished from their allies amongst the Mallows. P. flexuosa is well worth growing as a highly ornamental border plant, of easy cultivation.

—— MR. H. B. ELWANGER.—The *New York Tribune* announces the death of the son of Mr. GEORGE ELLWANGER, senior partner of the firm of ELLWANGER & BARRY, of the Mount Hope Nurseries, Rochester. Mr. ELLWANGER's death is a matter of general regret in Rochester, where he was well known as an accomplished floriculturist. Not long ago he published an excellent book, *The Rose*, and an article on the same flower written by him appeared in *The Century* for July.

—— MARTYNIA FRAGRANS.—This fine old Mexican greenhouse annual is seldom met with, and we were all the more delighted to see a large patch of it at the Portland Road Nurseries of Messrs. SUTTON & SONS, at Reading, a short time since. It was not to be wondered at that visitors to the nursery asked, What is it? for its large, deep rose coloured or crimson flowers were very attractive. In the fine light warm soil of these nurseries it had made a vigorous growth, and each plant was well in bloom. It is treated here as a half-hardy annual; the seeds are sown in March in a hotbed, the plants are gradually hardened off, and planted out in May. Gardeners of all degrees, who have suitable soil and space, should endeavour to grow this plant, for it is worthy a place in the garden.

—— THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), LIMITED.—The second annual general meeting of shareholders of this company was held on August 23 in the Law Association Rooms, Liverpool, Mr. W. B. HALHED, Chairman of the Directors, presiding. The report, which was taken as read, showed that it covered fifteen months, ending June 30, for which period the receipts for the sale of plants, &c., and for contracts for horticultural buildings and other similar work, reached the total of £21,169 11*s.* 6*d.* After providing for all contingencies, the amount to the credit of profit and loss was £1552 13*s.* 5*d.*, out of which £865 3*s.* 2*d.* had been charged for interest on mortgages and other loans, leaving a balance of £587 10*s.* 3*d.* The directors did not propose to declare a dividend for this balance, but to place it to reserve. The report also dwelt upon the progressive increase of the business of the company, and mentioned that as the subscribed capital had

proved too small for the extension which had taken place, the directors had resolved, in the exercise of their powers, to issue debenture bonds for £8000. The Chairman, in moving the adoption of the report and statement of accounts, remarked that they had carried a considerable sum to revenue, which, under ordinary circumstances, the directors thought would have been carried out by most companies to credit of profit and loss, and on this account the profit was considerably less than it would otherwise have been. There were also items of expenses and commission out of which a certain proportion could very fairly have been put to capital account; but the directors had not done so, and in addition to that a sum required for the maintenance of the property had also been taken out of revenue. He mentioned that the directors had been obliged to borrow a large sum on their own personal security, and he did not think this was a thing which should go on any longer. They had, therefore, as stated in the report, decided upon recommending the issue of debenture bonds for £8000. He concluded by moving the adoption of the report and statement of accounts. Mr. WILLIAM OULTON seconded the motion, which was unanimously carried, as was also the re-election of the retiring directors. *Liverpool Mercury.*

—— PARDANTHUS CHINENSIS.—SALISBURY, in an article "On the Cultivation of Rare Plants, especially such as have been Introduced since the Death of Mr. PHILIP MILLER," published in the first volume of the *Transactions of the Horticultural Society*, thus writes of this plant:—"I am surprised not to see this fine exotic more frequently in our flower borders. Though it grows wild near Bombay, it most likely extends a good way towards the north, being so hardy as to endure the keenest frosts of our climate. In a rich soil it becomes very luxuriant, and a root planted by me two years ago in some mud near St. Helens, sent up stems last summer which measured 5 feet 8 inches in height." About ninety years ago a good figure was published in the *Botanical Magazine*, tab. 171, where the following information is given:—"In that elaborate and inestimable work, the *Hortus Malabaricus*, we have a good figure of the plant here exhibited; the author informs us that it grows spontaneously in India, attaining the height of 5 or 6 feet, and affecting a sandy soil; the natives consider it an antidote to poisons in general, and regard the bruised root as peculiarly efficacious in curing the bite of the serpent, called cobra de capello." At the present day the plant is very far from common in English gardens; at Kew, in the new rockery, however, and in some other establishments—notably in the Hale Farm Nurseries of Mr. T. S. WARE—the Iris-like leaves and peculiar spotted flowers attract general attention (in colour these latter are a rich orange-yellow, spotted with red-brown or purple): indeed it was the leopard-like spotting of the flower which suggested the generic name. Is SALISBURY correct in asserting the plant is hardy enough to endure the keenest frost of our climate? Perhaps those who have had an extended acquaintance with this truly striking and handsome Irid will record their experiences, as a guide to less-favoured cultivators of choice herbaceous plants.

—— READING HORTICULTURAL SOCIETY.—In our report of this show, mention should have been made of a number of boxes of cut show, pompon, and single Dahlias, Roses, &c., that filled a considerable space, and greatly helped the exhibition. These were sent by Mr. C. TURNER, Royal Nursery, Slough, and an extra prize was awarded to them. Messrs. SUTTON & SONS, Reading, also contributed a fine lot of cut spikes of Gladioli, of excellent quality.

—— DROUGHT IN MOROCCO.—Consul PAYTON, reporting on the trade and commerce of Mogador during the year 1882, and speaking of the drought which prevailed in 1881-82, says:—"The good rains which fell in December, preparing the soil for ploughing and sowing, did not cause so rapid and extensive an exodus of peasantry from town to country as was to be desired; this was owing to the fact that many of the poor people were so utterly ruined that they had neither cattle to plough with nor seeds to sow. Many of those who went out, and of those who had managed to remain in the country during the drought, have been subsisting lately almost entirely upon the 'Terni,' a plant of the Arum genus. This plant, springing up in great abundance after the rains, and easily distinguishable by its large dark green leaves of peculiar shape, has a root which, after sundry washings and macerations to remove an acid and poisonous juice, affords a moderately nourishing and wholesome food. It is easily dug up with a sharp stick; in some situations even scratched up by the hands of children. Wild boar are very fond of it, and root it up assiduously." It is difficult to tell what plant is referred to by Consul PAYTON, but it possibly may be Arisarum vulgare.

—— ARCTOTIS LEPTORHIZA is a Cape Composite worthy of a place in the herbaceous border. In habit it resembles a miniature Arctotis acaulis. It has pinnatifid leaves and Gazania-like flower-heads, the rays of which are orange-yellow above, and coppery below. It is at the present moment one of the most striking Composites in the Kew herbaceous department.

—— CATTLEYA ELDORADO SPLENDENS.—A fine spike of three flowers of this rare and beautiful Orchid was brought by Mr. H. BALLANTINE, gr. to Baron SCHRŒDER, The Dell, Egham, for inspection by the committee of the Royal Horticultural Society on Tuesday last. It was pronounced to be identical with the plant already certificated under that name, but far superior to those generally so named in collections. It came from SANDER's importation, which also so fortunately yielded so many of the white variety. Mr. BALLANTINE's specimen had flowers 7 inches across, of a soft rose tint, the throat of the labellum being rich orange, and the lower half a bright ruby-red. Its odour is exactly the same as that of the Honeysuckle. Cattleya Eldorado and its varieties last quite two months in bloom, the lasting properties of its flowers and their delightful perfume rendering it worthy of every attention.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending August 27, issued by the Meteorological Office, London:—The weather has been dry and fine in all parts of the country. The temperature has been about equal to the mean in the "Midland Counties," "Scotland, W.," and "England, N.W.," but above it elsewhere, the excess in "Scotland, E.," being 4°, and in "England, N.E.," and "England, S.," 3°. The maxima, which were registered on the 21st or 26th in England and on various dates in Ireland and Scotland, were as high as 82° in "England, S.," and 80° in "England, E." while in other districts they ranged from 70° (in "Scotland, W.,") to 78° (in the "Midland Counties"). The minima were recorded either on the 23d or 24th, and varied from 41° over the greater part of England to 47° in "Ireland, S." The rainfall has been considerably less than the mean in all districts. Bright sunshine shows an increase in duration in nearly all places, the percentages ranging from 60 in "England, S.W.," and 54 in "England, S.," to 36 in "England, N.E.," and 29 in "Ireland, N." Depressions observed:—During nearly the whole of this week an area of high pressure has existed over the United Kingdom, while some depressions have been observed far to the northward and over Scandinavia. Towards the end of the period, however, depressions approached nearer our northern and north-western coasts, the high pressure system at the same time receding southwards. The winds during the first few days were very light in force and rather variable in direction, but generally south-westerly or westerly in the north, and easterly or north-easterly in the south; but as the week progressed the south-westerly and westerly winds gradually extended to all parts of the kingdom, and increased somewhat in force.

—— CALLIRHOE PAPAVER.—This is a charming malvaceous plant, with long-stalked, large, magenta, white-eyed flowers, and Aconite-like root-leaves. In company with C. pedata and other showy Mallow-worts, it is now in flower in the herbaceous department at Kew. It was figured many years ago in the *Botanical Magazine*, tab. 3287, under the name of Nuttallia Papaver; from this work we learn that the plant was discovered by DRUMMOND in the Southern United States. From a garden point of view this, and the curious Sarracenia psittacina, were amongst the most interesting plants sent home by DRUMMOND in a living state.

—— GARDENING APPOINTMENT.—Mr. THOMAS BELLINGTON, from Vale Royal Gardens, Cheshire, as Gardener to J. E. REISS, Esq., Jodrel Hall, Crewe.

PLANTS IN FLOWER AT KEW.

MORINA COULTERIANA. — We recently saw this plant for the first time in a living state in the new rockery at Kew. It has spinous, toothed, glabrous, Thistle-like leaves, and yellow flowers in dense whorls in the axils of the upper short floral leaves. It is a native of sub-alpine Himalaya from Kashmir to Gurwhal, where it is found at elevations of from 9000—13,000 feet. The pink-flowered M. longifolia, another Himalayan species, is a decidedly ornamental plant, but one which is far from being generally known. The plant is flowering at Kew, probably for the first time, having been raised from seeds collected by Dr. Aitchison in Afghanistan.

GILIA AGGREGATA.—This old-fashioned annual is far too seldom seen in gardens now-a-days. It has long tubular scarlet flowers, which at first sight much resemble those of some Bouvardias. It was introduced to this country in 1827, by Douglas, who forwarded seed from California to the Horticultural Society. There are nearly seventy species of Gilia represented in the *Flora of California* alone, and nearly all of these are desirable garden plants; comparatively few of them, however, are in cultivation in this country. Gilia aggregata, according to the *Flora of California*, does not properly belong to the genus Gilia at all, but is now placed by the authors of that work under Collomia.

MANDEVILLA SUAVEOLENS. — Under the name of Chili Jasmine this handsome Dog-bane was introduced to this country many years ago. It is a charming climber, with large pure white sweetly scented blossoms. For cool conservatory work, or even in an unheated corridor, it makes a beautiful rafter plant, and there are no doubt many places where with but little shelter it would flourish in the open air in this country. If those who have succeeded with it under these conditions would record their experience it would be interesting to a goodly number of readers of the *Gardeners' Chronicle*.

ROSA MULTIFLORA. — Of late single Roses and the truly wild species of the queen of flowers have occupied the attention of many plant lovers, and several have won for themselves honourable places in well ordered gardens. The subject for the present note is a vigorous climber, and in favourable places a very free-flowering one. In colour the blossoms are a rich rosy-red. In the Rose collection at Kew R. multiflora, although under anything but the most favourable conditions, has flowered well during the present season. Has any reader of the *Gardeners' Chronicle* the double-flowered form figured in the *Botanical Magazine*, t. 1059? R. multiflora is a native of Japan.

EURYALE FEROX.—Since the introduction of the Victoria regia this noble plant has lost its title of "Queen of the Water Lilies;" and, notwithstanding it does not attain to the colossal dimensions of the latter, nor produce such massive and conspicuous flowers, yet it is a subject that well repays the trouble of cultivating for its foliage alone. The leaves on well grown plants would measure 3 feet across, and are stated to exceed that at times. As they lie on the surface of the water the eye fails to catch the beauty of the purple underside and spiny nerves, but the upper surface is also armed with strong scattered spines that project at right angles from the leaf. The flowers are comparatively small, of a violet-purple colour, but rendered interesting by the four-parted spiny calyx, which more resembles a Composite than a member of the Nymphæa family. Both this and the Victoria regia are flowering in the Victoria tank at Kew, and the former is figured in the *Botanical Magazine*, 1447.

LOUREA VESPERTILIONIS.—Curious as well as ornamental, this singular-looking member of the Pea family possesses an attraction of its own which is to be looked for, not in the small white flowers which are produced in terminal racemes, but in the anomalous character of the leaflets. These are transversely oblong, that is to say, much broader than long, and being produced in pairs, and connate by their bases, diverge horizontally at right angles to the petiole. This peculiar characteristic, combined with the grey markings on their upper surface, serves to individualise the plant, and invest it with that interest fostered by neatness of

habit and well-defined outline. Few species are known, and probably fewer cultivated. The present one inhabits Ceylon and other islands of the Indian Archipelago, flowering specimens of which are to be seen in the stove at Kew.

RUBUS PHŒNICOLASIUS.—A large specimen of this curious Japanese Bramble is a conspicuous and unique-looking subject amidst the surrounding and varied occupants of the winter garden at Kew. Whether in flower or not, the ample foliage marks it out as a Bramble, but so different in general appearance from most others that its admission into a cool-house is a desirable one, and where it can be trained to a pillar or support of the house, with plenty of light, its houseroom will not be wasted. The pink flowers produced in short close panicles terminating the laterals, are succeeded by small but deep scarlet coloured fruit. Those flowers that prove abortive are none the less interesting than those that bear fruit, from the fact of the calyx being covered with purple gland-tipped hairs. When fruit is produced the calyx segments are reflexed, but where this does not happen the segments stand erect, and show off the purple glandular hairs to advantage, and with curious effect.

CACALIA COCCINEA. — This fine old Composite still meets with some favour in gardens, a recognition which its merits justly deserve for the deep orange-scarlet colour of its discoid flower-heads, a colour which is remarkably rare in an order where purple and yellow are so prevalent. A very near approach to this we find in Hieracium aurantiacum, with this exception, that the florets of the former are all tubular, while in the latter they are ligulate. Moreover, being of annual duration, and of free branching habit, there is a greater production of flowers from a given area of ground, and if not too thickly sown they will last in gay condition for a considerable time. The corymbose clusters of flower-heads are borne well above the foliage, and would answer well amongst cut flowers, where the bright colour would stand out in bold relief amongst other subjects of a paler hue.

GUSTAVIA GRACILLIMA is, without doubt, an exceedingly handsome stove plant. It was discovered in the United States of Columbia by M. Roezl, and by him sent to Mr. Bull, who distributed the plant some few years ago. In Mr. Bull's Catalogue, where a figure and description appeared, it is truly stated to be one of the grandest and most remarkable flowering plants of recent introduction. It has a smooth slender woody stem, clothed with elongate linear-lanceolate acuminate leaves, undulate and sharply serrated on the margin. The flowers grow from the axils of the leaves in the young plants, and from the older leafless parts of the trunk in older ones; they are solitary or in pairs, 4 inches in diameter, of a charming rose colour, consisting of eight obovate oblong petals, with the yellow incurved staminal tube, bearing numerous densely packed purple anthers in a ring an inch or more across. G. gracillima is now flowering in the Victoria-house at Kew; it was figured in the *Botanical Magazine*, tab. 6151. All the Gustavias are handsome plants, but very few are in cultivation; their principal drawback is the fugacious character of the flowers, but the great beauty and large size of these go far to make up for the deficiency in the length of time which they last.

VERBENA PULCHELLA.—This is a South American species, with pretty pinnatifid leaves and rose-purple flowers. It is a free-growing and free-flowering border plant, and will do well in any light, well-drained soil. No doubt this has played its part in the production of some of the splendid garden varieties which, by the large size of their flowers and their rich and varied colouring, form such an attractive feature at some exhibitions. It, however, possesses an advantage over these highly-bred varieties in being able to hold its own and do well with little or no attention. Now blooming in the herbaceous collection at Kew.

OXALIS LUTEOLA. — Few species of Oxalis are prettier than O. luteola, some well-flowered pots of which are now to be seen in the Cape-house at Kew. It is a neat growing plant, about 3 inches in height, with a profusion of charming orange-yellow blossoms.

HOME CORRESPONDENCE.

Hybridising Campanulas.—Having now had a pretty extensive experience in hybridising this tribe I willingly contribute so much as will remove your correspondents' difficulties. The great mistake they seem to have made has been in deferring their operation till the bloom has expanded. This must not be done. Take your bloom ere it be even half open. Gently divest it, then, of all the corolla, and you will find the anthers adhering *en masse* to the central style. Take, then, say a quill or silver toothpick and gently insert it in behind the anthers at the lower part, and remove them all round; at this stage the pollen, being damp, does not escape, as it will do if the flower were farther advanced. Were the anthers at all open it will escape on the slightest touch, and self-fertilisation follow. This is the trouble all beginners have to contend with. If the care I suggest be taken the Campanula is one of the easiest flowers to cross. I began among the smaller forms of the genus, *e.g.*, C. pumila, C. pulla, C. Waldsteini, C. Portenschlagiana, or some such name, &c., and their progeny is now all over my rockery, and I have no more ornamental things upon it. But mere change of colour or habit is not all that can be done here. You may change, say a biennial into a perennial flower; for example, I have now in bloom the progeny of a Canterbury Bell crossed by C. Allioni—a perennial, and I have plants (perennials) raised from its seeds. There is much room in the tribe for showing what can be done in many ways. The names of those making inquiries satisfy me that they are in the field who can do much in various ways. *I. A.-H.*

The Palm Veitchia Joannis.—There appears to exist a little uncertainty in regard to the exact position of the plant recently introduced by Mr. Vuylestecke and distributed by him under the above name. Palms in a young state are exceedingly difficult to distinguish from each other, and especially may this be said of the Ptychospermas and Veitchias from Fiji. No doubt Mr. Wendland, who is, I believe, responsible for the above name, possessed sufficient material to enable him to name Mr. Vuylstecke's plants with some certainty, and it is likely that as they get larger they will develope foliar characters by which they may be distinguished from their allies, the Ptychospermas, to which in a small state they bear a very close resemblance. In the Kew collection there are two species of the Fijian Ptychospermas—viz., P. Seemanni and P. filifera—and also a plant of Mr. Vuylestecke's Veitchia Joannis. In addition to these there are several plants recently received from Fiji as a species of Ptychosperma which are to all appearance identical with Mr. Vuylestecke's plant. In nervation and texture of leaf segments, form and length of petiole and sheath, and habit, there is nothing to choose by in any of these plants, the only differences being the purple petiole and rachis of the Veitchia and the slightly less crowded leaf-segments of P. filifera. With regard to P. Seemanni, or rather the plant generally grown under that name, I believe Mr. Wendland is doubtful of its being the true plant, although perhaps in its present state it is almost impossible to decide what the plant is. That it is a common plant in Fiji appears pretty evident from the frequency of its arriving at Kew from thence, and it may be that Horne mistook this plant for Kentia exorrhiza, and Seemann for Veitchia Joannis. It will be seen that the principal difference between the Veitchia and the Ptychosperma is its purple petiole and rachis—that is, so far as we can tell from cultivated plants—and for horticultural purposes such a character may be sufficient. The illustration given at p. 205 is faithful enough, with the exception of what appears to be meant for spines represented on the petiole. There are no spines on the stems of either Veitchia or Ptychosperma. There is, however, a layer of fibry scales matted or interwoven together, which, along with a greyish floury substance, cover the petiole and rachis and the portion of the stem just beneath the foliage. In a reduced figure, such as the one referred to, these substances would not be discernible. In larger specimens the scales and tomentum become separated into rings and patches, which give the stem a zebra-like marking similar to what one sees in Dracontiums. It may be well to mention here that the plant known in gardens as Ptychosperma Alexandræ is not a true Ptychosperma, and is now referred to Archontophœnix Cunninghami, and that the plant grown as Veitchia Canterburyana is a true Hedyscepe, and not a Veitchia at all. All the true Veitchias and Ptychospermas have leaf segments with truncate, jagged ends, not unlike a fish's tail, whilst those of the two plants mentioned above terminate in an acute or acuminate point. For the successful cultivation of these Fijian Palms plenty of heat and moisture are requisite, and even then with every attention they sometimes get into a weak and unthrifty state. For the specialist these Palms are of more than ordinary interest, but for general garden purposes their somewhat "miffy" nature will be a point against them. *W. Watson, Kew, August* 22.

The London Parks.—Although carpet bedding, as it is termed, has been much decried, the rich patterns of colour, worked out by the arrangement of living plants, have many admirers, as may be seen any fine day now by those visiting the London parks, where there are crowds of people, most of whom seem to take the deepest interest in the beds, which they appear to regard as works of art, and criticise them accordingly. Country gardeners look on and envy those in charge of the great resources they have, especially in the supply of water, and the ease with which it may be used in quantity, as by its aid almost anything may be done, but there are few places where there are mains with pipes and hose to keep plants washed, and give them a good soak when they require it. The carpet beds have been so often described, and woodcuts given to show the arrangement, that it is unnecessary to allude to them further now, except it may be to say they are quite up to, if they do not surpass, their usual standard of beauty and keep. The staple plants in use to furnish and form these carpet beds are Alternanthera paronychioides, magnifica, and aurea, which are chiefly relied on to give the bright colours; and Sedums of different kinds, Mentha Pulegium gibraltarica, Spergula aurea, and Golden Feather Pyrethrum the ground. Among the mixed beds some of the most telling are composed as follows:—Viola Blue Bell, dotted with Lobelia cardinalis, and edged with yellow-leaved Fuchsia Golden Treasure. A better contrast than that just named was the Lobelia cardinalis, standing out from among a variegated Pelargonium named Rosamond Wright, banded with blue Lobelia, and edged with Euonymus radicans variegata. Abutilon Thomsoni interspersed among the good old Verbena venosa, showed a pleasing combination of colour, as did also a bed composed of Lobelia cardinalis, and little bushes of Fuchsias Sunray and Golden Treasure standing out from a carpeting of the large bright yellow-flowered Gazania splendens. The most noteworthy among the Pelargoniums are Henri Jacoby, a very rich dark crimson; Dr. Rawson, also after the same style; and Portia, having a similar rich glow in the petals. Taking the pink sorts, Lady Baily is the most desirable; and Lucy and Triomphe, the latter belonging to the nosegay section, are also good. A bed of Phlox Drummondi was most charming, the trusses of flowers and the individual blooms being not only very large, but beautifully marked and most varied in colour. The most effective and natural piece of ornamentation in Hyde Park is that at the head of the pond on each side of the waterfall, where many plants of the big-leaved Abyssinian Banana, Tree Ferns, and Palms are dropped in among the shrubs, from which they stand out in bold relief and impart a truly noble and tropical appearance to the part in which they are placed. A few Bamboos and other hardy plants of that character would be just at home there too, and the wonder is that they are not more used, as they give no trouble like the tender subjects that have to be moved out and in. Although the trees are not over-flourishing in Hyde Park, it is gratifying to see them doing so well in Battersea, Victoria, and Finsbury, where they look remarkably healthy and are growing very fast, especially in Battersea, and the avenue of Poplars in Finsbury, which before many years will be fine. The Planes on the Thames Embankment are equally satisfactory, but they are too thick, and would now well afford every other one being taken out, as it is a pity to cut any of them in to restrict them in size. The site for the Rhododendrons in Finsbury has been well chosen, as they are below the level of the New River, where the soil is moist and cool, and they are now in the most luxuriant health, with their shoots well studded with buds. *J. S.*

Lilium auratum.—Before Mr. Wolley Dod quite makes up his mind about the disadvantages of growing L. auratum in full sun (*vide* impression of August 18), I should like to refer him to an old number of the *Gardeners' Chronicle*. I remember the idea being discountenanced by one of your correspondents, and I thought his opinion must needs be accepted. In the very next number, however, of the *Gardeners' Chronicle*, or nearly so (if I were at home I think I could lay my hand on the passage), a traveller described, at some length, his experiences in Japan. One thing he saw was L. auratum growing in the open fields. After this I confess I went back to my former notion, wrong though it may still be. I am thankful to say that, excepting what I have heard from Mr. Wolley Dod, I do not know what spot on Lilium auratum is. *H. Ewbank.*

Rubus Leesii and Mr. Culverwell's "Hybrid" Raspberry.—Mr. Culverwell does not seem disposed to accept Dr. Focke's view of what he himself is persuaded is a hybrid between the Raspberry and Strawberry; and he forwarded specimens of more than one of the seedlings, to the Editor of the *Gar-*

deners' Chronicle, in proof of the statements in his first communication on this subject. These specimens were placed in my hands, and I have very carefully compared them with numerous specimens of varieties of the Raspberry in Kew herbarium. Mr. Culverwell is well known as a successful hybridiser, and he will be able to say whether his mode of procedure in the present instance was sufficient to exclude the possibility of any other pollen than that conveyed by himself, to reach the stigmas of the Raspberry flowers. Perhaps I may not succeed in convincing Mr Culverwell that he was mistaken in supposing that he effected the cross, for, as he states, the foliage in some respects is more like that of the Strawberry than that of the normal form of the Raspberry; but I will set down the facts bearing on my investigation of the matter. In the first place I may mention that Dr. Focke is one of the highest authorities on all that concerns the genus Rubus, while at the same time he knows perhaps as much, or more than any man living of hybridisation and hybrids, being the author of the most exhaustive work in existence on hybrids, natural and artificial. Therefore his suggestion that the seedlings in question were the same thing as Rubus Leesii, was not merely a random shot; moreover, the specimens sent by Mr. Culverwell prove that he was right. I have never actually collected Rubus Leesii myself, but I showed the fresh specimens to Mr. J. G. Baker and the Rev. W. W. Newbold, both of whom have collected it, and they at once recognised it. Whatever the origin of these seedlings, they are undoubtedly exactly the same as wild individuals of Rubus Leesii, of which the older and more appropriate name is Rubus Idæus var. anomalus. It was published under the latter name by Arrhenius of Upsala, in 1840, from a specimen found in Sweden. In 1847 Professor Babington, unaware of its previous publication, named it R. Leesii, and published a brief description of it in Steele's *Handbook of Field Botany*. It was founded upon a specimen, destitute of flowers and fruit, discovered by Mr. Lees, near Brendon, Devon. The foliage being so very different from any other species it was assumed to be an undescribed one. It has since been found at Dunster, in Somersetshire. Mr. Lees has also found it in Westmoreland, and there is a specimen in the Kew Herbarium, from near Warwick, collected by Mr. H. Bromwich. Burchell, the African and Brazilian traveller, cultivated it in his garden, in 1846, and the specimen he preserved is labelled "Rubus Idæus var. monstrosus." The last is quite destitute of prickles, except on the flowering branchlets. The only Continental specimens that I have seen are from Christiania, but Focke records it from Freiburg and Bromburg in Germany, and further states that it occurs here and there in Scandinavia, Holland, and England. That it is a degenerate form of the Raspberry there can be little doubt—similar degenerate forms are not altogether rare in the vegetable kingdom. Boswell Syme, however (*English Botany*, iii., p. 162), states his opinion that it may be a hybrid form (without giving its probable parentage), but he did not think it probable that it was a variety of R. Idæus. Focke, who, as we have already mentioned, has made a special study of both Rubi and hybrids, treats it as being unquestionably a form of the Raspberry. Here follows a translation of what he says respecting it in his *Synopsis Rubrorum Germaniæ, Die Deutschen Brombeerarten*:—"This highly curious plant has at first sight so little resemblance to R. Idæus, especially in the shape of the leaves, that I have found it in herbaria under the most diverse names, and frequently associated with the Indian species. The lowermost leaves of the canes are simple, reniform, coarsely toothed, and often lobed; the others of three leaflets, which are broad and overlap each other. Central leaflet very shortly stalked, the lateral ones sessile. Leaves of the flowering branches usually all simple, reniform, coarsely toothed, and sometimes lobed. Inflorescence remarkably long and loose. Carpels as a rule not closed, and the ovules consequently drying up after fertilisation. Solitary pips now and then ripen (in these, of course, the carpels are closed). It begins to flower in my garden regularly several days before the earliest sorts of the typical Raspberry. The R. Idæus anomalus appears to be the analogue of Fragaria monophylla and Fraxinus monophylla, which occur equally scattered. But the peculiar sterility of our Raspberry is apparently not repeated in any of those *formæ monophyllæ*. Lately I have extended my plantation of it in order to have a better chance of obtaining good seed; I should like to try to raise the plant from seed." It seems from Dr. Focke's communication, that he has since succeeded in raising it from seed. On the authority of Boswell Syme, Mr. Lees, the original discoverer of the plant in this country, had only once found fruit; and Professor Babington had seen fine drupes on cultivated plants, but they had no seeds in them. In conclusion I may mention a form, intermediate in some respects between the typical Raspberry and our plant. It was collected by Mr. Duthie, and sent with the following particulars:—"The enclosed bit of Rubus is from a damp wood in Ham Ponds, near Sandwich, Kent. Its fruit proved it to be unmistakably R. Idæus, but we were struck with its want of spines. The leaf looks like that of the var. Leesii." This specimen shows simple leaves, leaves of three leaflets, and pinnate leaves of five leaflets, like those of the ordinary Raspberry. Of course Mr. Culverwell may reply, Why are the wild plants not hybrids between the Raspberry and Strawberry? Well, I suppose nobody can be certain that the pollen of the Strawberry has had nothing to do with their parentage. It has been suggested to me that although there is no blending of the main characteristics of the two plants, it does not follow that there is no intermixture at all. It is singular that the same form, whatever its origin, should appear in a number of very distant localities. *W. B. Hemsley.*

Small Peaches and Nectarines.—Although there appears to be a full crop of these outdoors in most places, the fruit is small, and in many cases deformed, showing clearly that it was pinched by frost or cold, at or soon after the setting period, which has checked the swelling, or, judging from the very healthy state of the trees, it would have been much larger, as there has been plenty of wet for the roots, and we have been watering freely since the hot dry weather set in. We shall now discontinue doing this till after the fruit is gathered, when the trees will need further assistance to help them push up and develope their buds, on which a good crop next season in a great measure depends. To afford the wood every chance of ripening, we generally go over the walls and cut out all shoots not required for another year, by doing which air, light, and sun are let in, and under the influence of these agencies the bark assumes a fine nutty brown, and the wood becomes thoroughly hard and mature. If red-spider puts in an appearance, the only remedy is the garden engine, as by its aid a force of water may be injected, that will either wash the insects off, or so break up their webs that they can be prevented from doing much mischief, especially if the bath is frequent and cold, to which they seem to have the strongest objection. *J. S.*

The Uses of Lilies.—In this country the numerous species of the beautiful genus Lilium are grown solely for ornamental purposes, no practical use being made of any of them, so far as I am aware, beyond that of preserving the petals, and sometimes the bulb-scales of the white Lily (Lilium candidum) in brandy, to be used as a remedy for sore places, wounds, &c., one or more of the petals or bulb-scales being taken out of the brandy and laid upon the wound, and held there by a bandage. This is considered in some country places to be a very effectual remedy, though it is doubtful if there is much, if any, medicinal virtue in the Lily petals themselves; they probably only serve to prevent dust and dirt getting into the wound, whilst the brandy acts upon it, or, in other words, are an excellent means of applying brandy to an injured place. But among the Japanese the Lilies are important plants, being much used for food, according to Professor Penhallow, who gives the following interesting account of their uses in the *American Naturalist*, vol. xvi., p. 119:—"Various species of Lilium abound throughout the forests, and all those which furnish a sufficiently large bulb are utilised as a source of farinaceous food. Early in autumn the women may be seen returning to their villages loaded with bulbs. These are thoroughly crushed in a large wooden mortar, after which the starch is separated from the cellular mass by repeated washing. The former is then dried and hung up in bags for winter use, while the latter is dried in round, perforated cakes, somewhat resembling miniature mill-stones, and hung up to dry. Later, it serves as food for the Aino, and for the caged bears which are generally to be met with wherever there is a small settlement. The Japanese hold the Lily bulbs, as a source of farinaceous food, in great esteem, and the demand for them is so great, that they are cultivated (L. bulbiferum) in large quantities, and form one of the prominent farm products to be seen in the market. The bulbs are simply boiled and eaten as Potatos would be. From personal experience we are able to certify as to their qualities. It is somewhat more difficult, however, to give testimony bearing upon the flavour and desirable qualities of flowers and buds from various species of Hemerocallis. In certain sections of the island, particularly on the pumice formation of the east coast, these plants are particularly abundant, and at the time of blossoming the fields for miles along the road on either side are an almost uniform golden-yellow. At such a time the Aino women may be seen busily engaged gathering the flowers, which they take home and dry or pickle in salt. They are afterwards used in soups. I have been told that the Japanese make a similar use of them, but probably only to a very limited extent." *N. E. Brown.*

Greenhouse Plants Outside.—The heading of this note was suggested by a hurried walk through the pleasure grounds at Appley Towers, Isle of Wight, a few days ago. In all probability there is no other private garden in England where such a varied collection of greenhouse and conservatory plants may be seen growing outside, exposed to the vicissitudes of our variable climate from one year's end to the another. One of the first plants which attracted our attention—and bearing evidence, if such were needed—of the mild climate of Ryde, was Trachelospermum jasminoides; this is growing on a south wall, and notwithstanding its having been somewhat "hard hit" by the severe winters of 1880-1-2. It is now flowering most profusely, and appears to be quite at home in its present quarters. A few yards further on and we come to Lapagerias rosea and alba, these, however, it is only fair to state, look as if they would be better inside a glass structure of some kind; still, in their present abode they cover a space of probably 100 square feet. Wending our way across the lawn, and we see on the right a clump of plants and shrubs which attracts our attention for a few minutes; here, at one end, is a large plant of Phormium tenax, and at the other end a massive piece of that pretty and handsome leaved Melianthus major. Evidently this has been here some considerable time, and bids defiance to all kinds of weathers. Close by there are some very fine specimens of Dracæna indivisa, which, judging by their appearance, are doubtless twenty or thirty years old; Aralia papyrifera, Camphora officinalis, Camphor tree, and many other interesting trees and shrubs too numerous to mention, are growing in this portion of the grounds. Benthamia fragifera, Strawberry tree, is carrying a good crop of its interesting and peculiar-shaped fruit, which at the time of our visit were about the size of a small Walnut. Passing the orangery, and through a portion of the flower garden, we are soon in the midst of many other plants and shrubs which usually receive greenhouse treatment. Of Camellias there are here some magnificent specimens, which when in flower must be simply grand; on the other side of a gravel path near to where we are may be seen a fine bed or clump of different varieties of Azalea indica and A. amœna, all looking in the best possible health, as also were Habrothamnus elegans and Agapanthus umbellatus, both of which were in flower. To mention all the plants and shrubs of a like nature to the above to be seen growing outside this place would take up too much of your valuable space, and would convey but a very inadequate idea of these charming and delightfully situated grounds; suffice it to say, than an enthusiast will see much both to interest him and to learn. *J. H.*

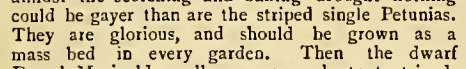
New Melons.—These seem to multiply year after year wonderfully fast, but good hardy frame sorts that you can depend on are not so plentiful. I try most of them in their turn, and after two years' trial with the High Cross Hybrid, sent out by the Messrs. Veitch some two years since, I can safely say I find none to equal it for hardiness, a good setter, and, what is more, every Melon can be eaten, and that is more than I can say of many other sorts grown in frames in the past dull seasons. We have now a frame of that sort just coming in, with the foliage as good as a Vegetable Marrow. Those who have only frames to grow Melons in would do well to grow this sort another year. *William Culverwell.*

The Zittau Onion.—At p. 215 you speak of Continental Onions, and mention the Zittau Yellow Giant as a strain of Messrs. Vilmorin & Co., of Paris, and newly introduced by this firm. This is a mistake. This sort is a very old Onion, largely grown by the gardeners of Zittau, a small town in the kingdom of Saxony, where Onions and most other vegetables are largely cultivated, and there the market gardeners gradually brought their strains of Onions to great perfection, and named it the Zittau Giant Onion (Gelbe Zittauer-Riesen-Zwichel). This Onion is no doubt of German origin. *D. H.* [We stated at p. 215 that the three varieties commented upon were of "Continental origin," and that they had been sent to Chiswick for trial by the Messrs. Vilmorin—nothing more. Ed.]

Three Interesting Plants.—The collection of plants made in Socotra, by Dr. Balfour, has yielded, as might have been expected, a large percentage of novelties, and many very interesting and curious plants are among them; but of them all the three here briefly noted may perhaps be considered as the most interesting. The first in point of interest is a wild species of Punica (P. protopunica), which may possibly be the original wild form of the cultivated Pomegranate; it departs in structure from the ordinary Pomegranate in having a superior ovary with but one series of carpels, instead of an inferior ovary with two superposed series. It is Dr. Balfour's intention to write a complete account of this interesting discovery. The second plant is one of great botanical interest, inasmuch as, besides being a new species, and constituting a new monotypic genus, it is not unlikely to also constitute a new natural order, as its structure is so anomalous that it cannot satisfactorily be referred

to any of the orders as they at present stand. The plant is certainly not much to look at, being a dwarf densely cæspitose woody perennial about 2 inches high, having the flowers and fruit partly hidden among the narrow alternate leaves; it has a gamopetalous corolla with four stamens, and a bilobed compressed fruit something like that of Veronica officinalis, which contains but one exalbuminous seed, with an embryo folded just like that of a cruciferous plant! It has not yet been decided where this remarkable and anomalous plant should be located in the system. The third of this trio is a very curious member of the Cucurbitaceæ, being the only arborescent plant in that order hitherto discovered, having a short very thick succulent trunk, with a few branches at the top, bearing palmately-lobed rough leaves, and paniculate cucurbitaceous flowers. It has been described by Dr. Balfour as Dendrosicyos socotrana. *N. E. Brown.*

Dry Weather Flowers.—Nothing can be better than the way in which some annuals behave through the remarkable spell of drought we have been suffering from here. I may preface what I have to say about them by first stating that the soil in this locality is of that clayey texture that whilst in winter it retains moisture even to saturation, and is then of the consistency of brick clay, in hot dry weather it bakes and burns, cracks and lumps in the most troublesome way, and I am often astonished that in such a season as the present things exist at all. Here, in West Middlesex, we have had for months but the merest sprinkle of rain, with one notable exception, when it came down for a short time with terrible earnestness; but falls of that kind usually do more harm than good. Well, amidst the scorching and baking drought nothing could be gayer than are the striped single Petunias. They are glorious, and should be grown as a mass bed in every garden. Then the dwarf French Marigolds, yellow, orange, chestnut, striped, and other colours, are flowering grandly — really, nothing can surpass them for floriferousness and brilliancy; they are most at home in the heat. Antirrhinums from spring-sown seed are giving a beautiful show, and these will bloom for a long time, giving beauty that those who have seen the Snapdragon in a big mass only can realise. Dwarf Nasturtiums of the compactum section — yellow, scarlet, crimson, and maroon, are very beautiful; they like a dry soil and scorching sunshine beyond all other things. Mignonette is not a showy flower, but it gives us a very beautiful mass of bloom none the less, and on a big patch the bees hover and gather sweets by tens of thousands. Bee-masters should grow Mignonette largely for autumn feeding. Single crimson Dianthuses thrive and bloom superbly in the heat; so also do the rose and orange Eschscholtzias; and not the least valuable feature of the things named is that they all bloom continuously till autumn becomes winter. *A. D.*



Florists' Flowers.

THE CHRYSANTHEMUM.—Those of us who have grown this plant for many years, have had an opportunity to observe the influence which different classes of seasons have upon it. A cold season up to July does not seem to have an injurious effect upon the character of the bloom if July is followed by a warm August. We had an apparently unfavourable season, but it has been followed by warm, dry weather in August, and the plants look as promising as I have ever seen them. Those that we have grown to produce large blooms are strong, and furnished with healthy leaves to the base. Trained specimens, when ordinary care has been bestowed upon them, are looking equally well. In how many gardens—with the exception of those where plants are grown to produce exhibition blooms—is the Chrysanthemum grown with even ordinary care? In August the plants ought to have filled their flowering pots with roots, and by the end of the month the flower-buds will be formed. This is a critical period in the life of any flowering plant, and for that reason it is so important that August should be a warm month. It causes the flower-buds to set freely, and also to set well. Two perfect flower-buds cannot produce perfect blooms. I see that some growers recommend feeding Chrysanthemums with manure-water long before the buds are formed. I have never done this, nor can I see any good reason for doing so. The plants always grow strong enough up to the time the buds are formed; indeed in some cases, such as those plants intended to produce large blooms, they grow too strong, so that, unless we are vigilant and watch the first formation of the buds, we find about three growths will start out from the base of each bud, and if these are not removed the bud will go behind; a physiological fact that clearly demonstrates excess of vigour. When the buds are well set on any of the plants manure-water must be applied with judgment, for although our present subject is a gross feeder, and will take larger supplies of rich food than any other pot plant known to me, it may not unlikely get too much of it. Guano-water is easily applied, and answers as well as any other. The plants should after this time be placed in a very open exposure. We are usually obliged for want of space to crowd our plants into small compass up to the end of July, but after that time they ought to be well exposed. Usually one of the quarters in the kitchen garden that has been cleared of Potatos, or some such crop, may be available for the plants. Each pot should stand on two bricks—the bricks are laid parallel to each other, and 2 or 3 inches apart. The holes in the bottom of the pots come between the bricks, and the air circulates freely underneath. Of course we presume that the plants are quite free from greenfly, and presently, as the nights grow longer and colder, the most troublesome pest of all, mildew, appears. If it is not destroyed at once, by dusting with sulphur, it soon spoils the gloss of the fresh green foliage and destroys it altogether in parts. It spreads most rapidly after the plants are taken inside. We begin to dust the leaves on its first appearance, and moving the plants inside gives us an opportunity to dust the whole collection, clean and unclean. *J. Douglas, Great Gearies, Ilford.*

CARNATIONS AND PICOTEES. — "An Old Subscriber" would be glad to learn the true distinction between a Carnation and a Picotee. If we take the plants there does not seem to be any difference whatever. The foliage, flower-stems, and buds, are exactly alike; showing conclusively that they are originally derived from a common parentage. When we come to consider the markings of the flowers from the florists' point of view, we find that they are well marked and perfectly distinct. The florists have divided the Carnation for their own purposes into six classes, viz., scarlet bizarres, crimson bizarres, pink and purple bizarres, purple flakes, scarlet flakes, and rose flakes. The bizarres have two colours on a white ground; the flakes one colour only on a white ground. In the first-class scarlet and maroon are the two colours; in the second, crimson and purple; the third is its own definition. It ought also to be stated that all Carnations have a tendency to "sport." To illustrate this, we take Admiral Curzon (Easom)—it is one of the oldest scarlet bizarres; Sportsman (Hedderley) is a sport from it: this is still the best scarlet flake, unless, as is very probable, Mr. Dodwell's new one, Henry Cannell, will beat it. In Sportsman the maroon is gone, leaving only the scarlet and white. More often the scarlet and white disappear from Curzon, leaving only a rich dark maroon self. The flakes also sport, the white very frequently disappears, leaving only a purple, scarlet, or rose-coloured self. Sometimes, but the instances are not common, of a flake sporting to a bizarre. One of the best rose flakes, James Merryweather (Wood), sported with me to a really good crimson bizarre; so good was it thought to be by the judges of the National Society at one of the exhibitions, that they awarded it a First-class Certificate, and gave it the 1st prize as a crimson bizarre. It was named W. M. Hewitt; but owing to its sportive character it is difficult to get up a stock. There are also Clove Carnations, which are generally selfs. Besides the old crimson Clove we have now white, pink, rose-scarlet, crimson, purple, maroon, &c.

Picotees are likewise divided into six classes, viz., heavy and light edged red, heavy and light edged purple, heavy and light edged rose. The flowers are pure white, with a broad or narrow margin, of the colours specified above. The aim of the fancier is to produce the white quite pure and free from spots or bars; the coloured margin of the petals should be dense and regular. As a type of the nearest approach to perfection in a light edged Picotee, I would select Mrs. Gorton (Simonite). The petals are well formed, the narrow red margin is clear, regular, and well defined; very seldom indeed is the white marred by spot or bar. Mrs. Payne is a medium rose edge, the flowers remarkably well formed, but it has an occasional spot or bar on the pure white ground. There is also a class of yellow Picotees with a red margin, but, as I stated in a previous number, this class, of which Prince of Orange (Perkins) is the type, are yet a long way behind the others. There are of course fancy Carnations and Picotees more or less fantastically marked or striped. One Picotee, named Novelty, has two colours instead of one on the margin, while we sometimes find the white petals disappear, to be replaced by a pink or pale purple tint. We had some flowers act in this way last year, and a still larger number this. I may say it is rather unusual for Picotees to sport in this manner. *J. Douglas.*

FORESTRY.

FOREST WORK FOR SEPTEMBER: PLANTING.—As the busy planting season is again rapidly approaching, it is highly essential that other forest work should now be pushed on to completion as quickly as possible, so that by the end of the present month all operations necessary for the preparation of the land intended to be planted during the ensuing season may be brought to a close. The many advantages derived from early planting are now so universally acknowledged that comment on this subject seems almost unnecessary; still it is well known, although much to be regretted, that comparatively few foresters have yet generally adopted autumn planting, which may probably arise from want of a firm resolution to depart from the old and beaten track. There are but few cases indeed in which it is really necessary to adopt spring planting, so that but little excuse can be offered for the frequency with which this practice is still carried on in many parts of the country. All ground intended for planting ought now to be enclosed, drained, and where necessary cleared of rank vegetation, such as Gorse, brush, or any other herbage, likely to interfere with planting operations. The pits should also be opened, and the soil exposed to the mellowing influences of the weather until the planting season arrives. Large pits are always preferable, the size for general forest planting being about 18 inches diameter by a foot in depth, great care being taken that the "pan" or subsoil is well broken up with a foot-pick. This latter is an essential that should always be enforced, not only to prevent the lodgment of water in the pit, but also to allow the tender rootlets an uninterrupted course. Remove and transplant evergreens during dull showery weather, but general planting should not be commenced until the very end of the month, and then only when the new wood is well ripened on the young plants.

NURSERY. — In the nursery make every preparation for the planting season by raising, and afterwards bedding-in all young trees intended to be removed to the woodlands during the autumn. Plants so treated may be again removed during open weather throughout the winter with much greater safety than others left undisturbed. Continue to dig, hoe, and clean all young crops, never allowing the weeds to seed on the ground. Should wet weather prevent a thorough cleaning of the breaks in the usual way, hand-picking of the weeds must be resorted to. Cuttings may now be inserted in sandy soil previously well dug and broken up, layers planted, and stocks for grafting or budding inserted in a convenient position for operating upon next season. Recent grafts should also be examined, and the ties undone where they have taken, at the same time cutting off all growths from the stock. Turn compost heaps, and dig well-rotted manure into all vacant borders, at the same time trenching or ridging it loosely up so as to expose as great a surface as possible to the ameliorating effects of the winter frosts. Collect tree seeds as they become ripe, and either sow immediately or store away in a dry and airy position.

WOODS.—Young plantations may be thinned whenever free access to the woodlands can be had without interfering unnecessarily with the game. This is also a good time to mark old timber intended for removal during the present season, as when the trees are in full leaf there is less danger of over-thinning than at any other time. Unhealthy or sickly trees can also be best detected at the present time. Where necessary, pruning may still be pushed forward, but this operation would have been all the better if performed earlier in the season. Switch and clear shooting drives; also see that rabbits have not undermined

the roads, and have all such work finished up before the shooting season begins.

Hedging.—Push forward the switching of farm and other hedges, and have the refuse collected and burnt as the work proceeds; and where necessary clear all weeds from the bottom of fences, and leave the soil both loose and free. Prepare ground for the reception of quicks by a thorough digging and trenching of the soil, which greatly assists the young plants to start into active growth in spring.

Fencing.—Erect new fences where such are required, straining or tightening the wires in warm, dry weather, when a much better job can be made than at any other time. Repair old fences as time permits, and keep all tree-guards and rabbit-proof fences in good order. As specimen trees in parks are often rendered unsightly by horses destroying the bark, a good plan is to encase the trunks, for say 6 feet or so, in wire netting, which we find much neater and more serviceable than the old wooden erections now generally in use.

General Work.—Clean all open drains and viaducts, cart metalling for the repairing of roads, collect ditch-cleanings, road-scrapings, and all nursery refuse into large heaps, and mix freely with lime, to form compost for top-dressing in the nursery or grasslands. The excessive rainfall of the present season, although injurious to many kinds of crops, has proved beneficial to most evergreen shrubs and conifers, the latter especially are making unusually vigorous growths, and it is to be hoped that we may be favoured with a dry, warm autumn to ripen thoroughly the luxuriant growths as well as unusual crops of cones and seeds which are everywhere abundant this season. *A. D. Webster, Penrhyn Castle, North Wales.*

Hailstorms and Forests. — The Geneva correspondent of the *Times* writes:—"At the annual meeting of the Swiss Foresters' Society, which has recently been held at Zug, Herr Ryniker, Chief Forester of canton Aargau, and a member of the National Council, read an interesting paper on the effect of forests on hailstorms. The apparent connection between forests and hailstorms was first pointed out twenty years ago, but it is only lately that the connection has been placed beyond doubt by a series of observations made in Aargau—observations which are still going on under the direction of Herr Ryniker and of Professors Colladon and Dufour, of Geneva and Lausanne. Up to 1867, as related by Herr Ryniker, the district of Muri had enjoyed a long immunity from hailstorms, but in that year and in 1867, 1869, and 1871, it was visited by storms so frequent and destructive as to rouse general attention. A careful examination resulted in the discovery that all the storms had broken at the same point and followed the same path—a gap in the forest of Schlatt, on the crest of the Lindenberg, produced partly by ordinary wood-cutting, partly by a violent wind which had blown down many of the trees. This discovery, and the fact that other districts had suffered in like manner, suggested to the Chief Forester the idea of extending the inquiry to the canton at large. It resulted from this inquiry that in the three years in question damage had been wrought by hailstorms in Aargau to the amount of 3,000,000 fr., and that in the south part of the canton, as in the north, the frequency of hailstorms was in inverse proportion to area covered by forests. In the forest district of Zofingen, with 40 per cent. of its surface wooded, there were two slight downfalls, which occasioned damages estimated at 40,000 fr.; in the district of Lenzburg, Kulm, and Aargau, with 32 per cent. of land planted, there were six hailstorms, the losses arising from which amounted to 280,000 fr.; in the district of Freimat, with 19 per cent. of its area wooded, the number of hailstorms was ten, and the damages amounted to 1,200,000 fr. The storms come generally from the south-east, the west, and the north-west, rarely from the north-east, and a hailstorm never passes a compact forest of Pines planted on a height. Hailstorms move in column and form in the neighbourhood of low-lying lands and well-cultivated valleys heated by the sun, and take the direction of the prevailing wind. Scattered groups of leafy trees, even when placted on a height, are not sufficient to hinder the march of a column of hail; while Fir woods, even if they are small, make very effective barriers, especially when they happen to be in the path of the storm."

Reports of Societies.

Royal Horticultural: *Aug.* 28.

Floral Committee.—Present: G. F. Wilson, Esq., in the chair; Messrs. J. McIntosh, H. Cannell, H. Bennett, J. Wills, W. Bealby, H. Ballantine, J. Dominy, W. B. Kellock, S. Hibberd, and G. Duffield. The gathering to-day, both of committeemen and subjects for their consideration, were of the usual limited order experienced at this season, though the exhibitors present had more admirers of their productions than usually falls to their lot at South Kensington. The special features of the meeting were large and brilliantly coloured collections of Asters, from Messrs. James Carter & Co.; Gladioli, from Messrs. Kelway & Son; and single Dahlias, from Mr. T. S. Ware—all of which are commented upon in another column. The Chairman (Mr. Wilson) brought up some grand cut stems of Lilies, notable among which were extra fine blooms of L. auratum rubro-vittatum, from plants growing in the open air; L. speciosum rubrum and album, L. tigrinum splendens, and L. Leichtlini, &c. The collection was recommended for the award of a Medal. Mr. Charles Bennett, of Shepperton, contributed a choice group of seedling Gloxinias, of which he possesses a good strain, his group here containing many grandly shaped and richly coloured flowers. To a pure white flower of very fine shape and great substance, named Alabaster, the award of a Certificate was made. Mr. Heims, gr. to F. A. Philbrick, Esq., Q.C., was awarded a First-class Certificate for a large, well-flowered plant of the old Zygopetalum maxillare; and also received a Cultural Commendation for a plant of the rare Angræcum Ellisii, with a spike of twenty flowers, remarkable for the length of the spur of the lip and the purity of the white in the sepals and petals. A similar award was also made to W. Vanner, Esq., Camden Wood, for a specimen of Dendrobium secundum with eleven of its short, dense spikes of rose-coloured blossoms. Mr. Cummings, gr. to A. H. Smee, Esq., The Grange, Hackbridge, showed a plant with a single flower of the pretty new Lycaste Smeeana, described at p. 198; and Mr. W. Bealby received a First-class Certificate for Begonia Madame Grody, a tuberous-rooted variety with fine double white flowers, shaded with primrose in the centre. Messrs. Cannell & Son showed some pretty single Dahlias, amongst which were several varieties of what may be called the pompon type, and very pretty things to grow for cutting where the larger sorts are objected to. Midget, a pure scarlet, was honoured with an award. The old double-flowered Chrysanthemum coronarium, under the name of double Marguerite Aurora, was also decorated on this occasion. The Swanley firm also had a fine stand of double Zinnias; and Mr. Turner sent from Slough a couple of boxes of fine Dahlias. Messrs. Biddles & Co., of Loughborough, sent the fine new Iberis Empress, noted at p. 210, and this also received the coveted mark of distinction.

The awards made were:—

First-class Certificates.

To Messrs. Kelway & Son, for Gladiolus Lady Cavendish.
To Messrs. Kelway & Son, for Gladiolus Sir Trevor Lawrence.
To Messrs. Kelway & Son, for Gladiolus Duke of Edinburgh.
To Mr. T. S. Ware, for single Dahlia Negress.
To Mr. T. S. Ware, for single Dahlia Bedding Gem.
To Messrs. Biddles & Co., for Iberis Empress.
To Messrs. Cannell & Sons, for single Dahlia Midget.
To Messrs. Cannell & Sons, for Chrysanthemum coronarium flore-pleno.
To Mr. W. Bealby, for Begonia Madame Grody.
To Mr. Heims, for Zygopetalum maxillare.
To Mr. Charles Bennett, for Gloxinia Alabaster.

Cultural Commendations.

To W. Vanner, Esq., for Dendrobium secundum.
To Mr. Heims, for Angræcum Ellisii.

Fruit Committee.—Present: Lewis A. Killick, Esq., in the chair; Messrs. W. Denning, J. Roberts, A. Howcroft, G. Bunyard, J. Lee, R. D. Blackmore, and Dr. Hogg. From Chiswick, Mr. Barron sent up to this meeting a group of three dozen well grown examples of Tomatos in pots, conspicuous in which for their fine, smooth, scarlet fruits were Carter's Mayflower and Perfection, and Horsfield's No. 1. Of a larger type but somewhat corrugated, may be mentioned the crisped-leaved large red of Vilmorin, and Williams' Conqueror; while in the yellow-fruited section Vilmorin's large yellow, by reason of its good shape and pleasing orange colour, carried the palm. The Chairman brought up some fine examples of Yorkshire Beauty, Ecklinville, Duchess of Oldenburg, Irish Peach, Worcester Pearmain, Red Joanetting, and other early varieties of Apples. Several seedling Melons also came under notice, but none of them were noticeable for anything in particular in the way of quality. Mr. Taylor, gr. to James McIntosh, Esq., Duneevan, Oatlands Park, staged three fine bunches of Foster's Seedling Grapes, and received a Cultural Commendation. Mr. H. Eckford, gr. to Dr. Sankey, showed his new Peas Victor, Progress, and Magnificent; and examples of Reading Giant and Sutton's Latest of All came from Mr. C. A. Pearse, Grey's Court, Henley-on-Thames.

Meeting at Chiswick.—At a meeting of the Floral Committee, held in the Society's Gardens, Chiswick, on Thursday, August 23, G. F. Wilson, Esq., in the chair, the following First-class Certificates were awarded:—

Verbenas.—Swanley Gem (Cannell).—Fine compact habit; the trusses and pips very large; white, shaded and edged with pale blue. Very effective. R. F. Schule (Cannell).—Good dwarf habit, very free flowering; trusses and individual flowers large, of a fine warm rosy-pink, with white eye. Marion Baker (Cannell).—Close compact growth; the trusses of medium size, the pips large, with white eye, light rosy-carmine—a very pretty shade of colour. Faust (Cannell).—Habit very close, very free flowering; the trusses large, individual flowers large, of a very rich fiery carmine. Very pretty. Beethoven (Cannell).—Dwarf habit, remarkably free flowering; trusses and pips of large size, of a deep rosy lake colour. An excellent bedding variety.

Pelargonium as a Bedding Variety.—Dr. Orton (Pearson).—Very close and compact habit, free-flowering; the trusses large, holding on well; individual flowers large, of good form, intense crimson-scarlet. A good bedding variety.

Pelargonium as a Pot Plant.—White Perfection (Eckford).—Plant of vigorous growth; the trusses of medium size, freely produced; individual flowers large, of fine rounded form, pure white.

Sweet Peas.—Orange Prince (Eckford).—Flowers very large, of a beautiful shade of salmon-pink. Very distinct and pretty. Invincible Carmine (Laxton).—A very fine self-coloured carmine variety; flowers very large and of good substance. Invincible Striped (Carter & Co.).—A very distinct and pretty variety; very lively carmine, boldly striped. Blue Edge (Carter & Co.).—Very showy variety, having the standards very light rose; the wings white, with distinct edge of blue. Very showy and effective. New Carmine Rose (Hurst & Son).—This variety in the cut state was certificated at South Kensington on August 14, and the committee on seeing it growing unanimously confirmed the Certificate then awarded. This is a very pleasing and distinct variety both as regards growth and colour of flowers, and is well worth cultivation.

Tydæas.—Venosa.—Plant of tall habit, the tubes bright carmine-magenta shaded, beautifully veined and dotted with purple. Robert le Diable.—Flowers very large, freely produced, of a most intense, almost black, crimson. Distinct and showy. Harlequin.—Plant of somewhat tall habit; the flowers large, the tube shaded with magenta and veined and dotted with purple. Podalire.—Flowers of medium size, the tubes of a pleasing cherry-red veined and speckled with purple. Showy. Æsculapius.—Flowers of medium size, the tubes bright scarlet, richly spotted and veined.

Impatiens Sultani.—A First-class Certificate was also awarded to this now well-known Balsam.

In regard to the Sweet Peas the committee considered the variety Bronze Prince (Eckford) to be superior to Invincible Black. Those named together in the following list were considered identical, or too nearly alike to be worth keeping separate:—Princess (Eckford), Butterfly (Benary), and Butterfly (Carter & Co.). Duchess of Albany (Eckford), and Captain Clark (Benary). Purple Striped (Carter) and Black Purple (Benary). Red and White (Benary) and Painted Lady (Carter). Scarlet Striped (Carter) and Red Striped (Benary). Emperor (Eckford) and Grandeur (Eckford). Dark Red (Benary), Scarlet (Carter), and Invincible Scarlet (Benary and Carter). Black Purple (Benary), Purple (Carter), and Light Blue and Purple (Benary).

Sevenoaks Horticultural: *Aug.* 23.—As usual this Society held its yearly exhibition in Montreal Park, the seat of Earl Amherst. The grounds and park alone, independently of the excellent display within the tents annually forthcoming, are well worth seeing, presenting all the charm of hill and dell for which this part of Kent is deservedly celebrated; there are fine stretches of open glade interspersed by enough timber to clothe the landscape, with here and there a glimpse of the grey-tiled roofs of the village away at some distance, and which help to complete one of the prettiest of rural pictures. The show was in every way a success, well sustaining the reputation of these exhibitions, especially in the plant department, which was well represented in the different classes for flowering, fine-foliage, and Ferns.

In the open division, for six stove and greenhouse plants in flower, Mr. Gibson, gr. to J. H. Burnaby Atkins, Esq., took the 1st prize with a meritorious half-dozen, in which was a Lapageria alba in excellent condition; Allamanda Hendersoni, Dipladenia amabilis,

and D. Brearleyana, both large and beautifully flowered: the last named was the best example of this variety we have seen, remarkable for the quality and size of the flowers. Mr. Burt, gr. to H. B. Mildmay, Esq., was 2d, staging a nice group, in which were Erica cerinthoides coronata, large and well bloomed; and a good specimen of Ixora, Prince of Orange; Mr. Pope, gr. to J. J. Barron, Esq., came in 3d with smaller but very well bloomed plants. For a single specimen stove or greenhouse plant, Mr. Cooke, gr. to De Barri Crawshay, Esq., was 1st, with a good plant of Cattleya crispa, nicely flowered; 2d, Mr. Gibson, with Dipladenia amabilis.

Fine leaved plants were largely shown, Mr. Gibson taking 1st honours with a well managed group which contained a very fine specimen of Anthurium crystallinum, Alocasia Lowii, 5 feet through; and the seldom shown Araucaria Ridwilli; 2d, Mr. Pope; and Mr. Waterman, gr. to H. A. Brassey, Esq., 3d. Ferns were forthcoming in unusually fine condition. For six exotic kinds Mr. Staples, gr. to H. Oppenheim, Esq., took the lead, showing Cyathea dealbata, C. medullaris, Dicksonia antarctica, Adiantum cardiochlænum, A. Farleyense, and Davallia Mooreana, all in excellent condition; 2d, Mr. Hatton, gr. to Mrs. Swanzy, who, in a very good group, had Marattia cicutæfolia, unusually well grown; 3d, Mr. Goodman. British Ferns were also well represented, Mr. Staples being 1st, and Mr. Hatton 2d. Orchids were nicely shown, Mr. Cook taking 1st honours for six, with a group in which were Epidendrum prismatocarpum, bearing eleven good spikes; Saccolabium Blumei, Aërides quinquevulnerum, and Cattleya crispa; Mr. Burt was 2d. With six Fuchsias Mr. Huntley, gr. to the Rev. T. S. Curteis, took the 1st prize, staging medium-sized plants, very well grown and profusely flowered; Mr. Meakin, gr. to C. R. C. Petley, Esq., came in 2d. For six zonal Pelargoniums Mr. Meakin was 1st, and Mr. Hatton 2d.

The class for Begonias here admits of the fibrous-rooted sorts being shown with the tuberous-rooted kinds, the result of which is that the collections staged have a much better effect, from the diversity in colour and form of the flowers, the half-dozen with which Mr. Meakin took the 1st prize would have been difficult to beat anywhere, being large, with stout short-jointed growth and profusely flowered. Mr. Goodman, gr. to Mrs. Crawshay, was 2d. Caladiums were well shown, Mr. Burt taking the lead with four fine plants in every way, the marking of the leaves being well brought out. The sorts were Prince Albert Edward, Triomphe de l'Exposition, Laingi, and Meyerbeer. Table plants were contributed by a number of exhibitors, and, as is generally the case, a good many were much too large for the purpose. With six Mr. Thorne, Ashgrove Gardens, was 1st, and Mr. Goodman 2d.

In the division confined to smaller growers Mr. Vallins, gr. to J. L. Worship, Esq., was 1st with four stove and greenhouse plants, and Mr. Knight 2d. Groups of miscellaneous plants arranged for effect, and also groups composed of Ferns alone similarly arranged are one of the principal features of this Society's exhibitions, and on the present occasion, as heretofore, were very well done. Amongst a number of competitors in the open class Mr. Waterman took the lead with a beautifully arranged set of plants, all suitable for the purpose, with enough but not too much colour: the latter element was mostly given by a couple of plants of the golden-rayed Lily, single stems; Celosia pyramidalis, yellow and red; Caladium argyrites, Oncidium flexuosum, and in the front a fine plant of Saccolabium Blumei, with nine good spikes, which, seen drooping amongst the Adiantums that formed the groundwork of the whole, had an excellent effect. Mr. Cook was a good 2d, and Mr. Meakin, 3d, also setting up a meritorious group. In a similar class confined to the second and third division of exhibitors, the groups were also very well put up, Mr. Vallins taking the 1st prize, Mr. Meakin the 2d. There were likewise a number of exhibitors of groups of Ferns, Mr. Webber, Quarry Hill Nursery, Tonbridge, being well in front with a a nicely arranged lot; Mr. Goodman 2d, and Mr. Staples 3d.

Here, as in several other places, Roses were shown in much better condition than they are obtainable at so late a period in most seasons. For twenty-four Mr. Gray, gr. to Earl Stanhope, was 1st, with an excellent box of blooms, the best of which were Mrs. Jowett, Dr. Andry, Maréchal Niel, Charles Lefebvre, Penelope Mayo, Marie Rady, Duke of Edinburgh, La France, and E. Y. Teas; Messrs. Bunyard & Co., Maidstone, were 2d; and Mr. W. Seale, Vine Nurseries, Sevenoaks, 3d. For twelve Roses, Mr. Blundell, gr. to G. Christy, Esq., came in 1st, with a beautiful stand; and Mr. Hollingworth was 2d. Dahlias were well shown, Messrs. Cannell & Sons taking the 1st prize with twenty-four, having, along with others, fine blooms of Mrs. Harris, George Barnes, William Rawlings, Goldfinder, and John Bennett; Mr. Seale was a close 2d. For eighteen Gladioli Mr. Cattell was 1st, and Messrs. Jeffkins & Co. 2d. Stove and greenhouse cut flowers were well represented, Mr. Burt taking 1st honours, and Mr. Cooke the 2d. For three stands of flowers for table decoration Mr. J. H. Beach, florist, Sevenoaks, came in 1st; and Mr. Hatton 2d. And for a single stand, Mrs. Bishop was 1st, with a beautiful arrangement; and Miss Staple 2d.

FRUIT was shown in considerable quantities, and mostly in good condition. With a collection of six dishes, Mr. Pope took the lead, staging nice examples of black and white Grapes, Peaches, Nectarines, Plums, and a Melon; 2d, Mr. Goodman; 3d, Mr. J. Goldsmith, gr. to P. C. Hardwick, Esq. With four dishes of fruit, Mr. Neil, gr. to R. M. Hermett, Esq., who had Black Hamburgh and Foster's Seedling Grapes in nice order, with Peaches and Figs, came in 1st, and Mr. Noble, gr. to Miss Austen, 2d, Mr. Henderson, Mabledon Park Gardens, was 1st for a single Pine, showing a nice Queen; 2d, Mr. Sears, gr. to W. J. Thompson, Esq. Three bunches of black Grapes.—1st, Mr. Henderson, with Muscat Hamburgh, fine heavily shouldered bunches; 2d, Mr. Gray, who had Black Hamburgh, nicely finished; Mr. Waterman, who was 3d, also staged Black Hamburgh, very well coloured. Two bunches of black Grapes.—1st, Mr. Lentchford, gr. to E. E. Cronk, Esq., with Black Hamburgh, small, but nicely coloured; 2d, Mr. Roberts, gr. to C. J. M. Wanton, Esq. Three bunches of white Grapes.—1st, Mr. Waterman, with Buckland Sweetwater, nice bunches, beautifully finished; 2d, Mr. Goodman, who had Muscat of Alexandria, short of colour. Two bunches of white Grapes.—1st, Mr. Neil, with Muscat of Alexandria; 2d, Mr. Noble. Three bunches of any three varieties of Grapes.—Here Mr. Gray took the lead, with Mrs. Pince's Black Muscat, very well done; Black Hamburgh, and Muscat of Alexandria; 2d, Mr. Sears, who had Muscat Hamburgh, Muscat of Alexandria, and Black Hamburgh; 3d, Mr. Goodman, staging Madresfield Court, Muscat of Alexandria, and Black Hamburgh. With a Melon Mr. Vallins was 1st, and Mr. Waterman 2d. Peaches were well shown by Mr. Goodman, who took the 1st award for six, with a beautiful dish of Royal George, highly coloured; 2d, Mr. Gibson, with Princess of Wales; 3d, Mr. Abbott, gr. to Sir W. Hart Dyke, with the same variety. Six Nectarines.—1st, Mr. Goodman, with Violette Hâtive, highly coloured; 2d, Mr. Gibson, who had Pine-apple in nice condition. Three dishes of dessert Plums.—1st, Mr. Staples, with Jefferson, Kirke's, and Green Gage, all in good condition; 2d, Mr. Goodman; 3d, Mr. Waterman. Three dishes of culinary Plums.—1st, Mr. Hatton; 2d, Mr. Sears. Three dishes of dessert Pears.—1st, Mr. Staples, with Doyenné d'Eté, Williams' Bon Chrétien, and Jargonelle: 2d, Mr. Goldsmith. Three dishes of dessert Apples.—1st, Mr. Waterman; 2d, Mr. Staples. Three dishes of culinary Apples.—1st, Mr. Waterman; 2d, Mr. Goldsmith. Dish of Cherries.—1st, Mr. Goldsmith; 2d, Mr. Waterman.

Trowbridge Horticultural: *Aug.* 22.—This was the thirty-fourth exhibition of this Society, and it proved as a horticultural exhibition one of the most successful held in this busy Wiltshire town. Like other societies it has had to struggle for three or four years past against the adverse influences of bad weather, but having in times of prosperity secured a good reserve fund, it has always had something to fall back upon when wet weather came, though the fund has dwindled somewhat from its original dimensions. It may be mentioned that the annual expense of the Society is something like £350, and only £70 or thereabouts is obtained as subscriptions, the remainder has to be supplied in takings at the gates. If the day proves wet, a substantial loss occurs; if fine, a large company is attracted. It may further be stated that this is the twentieth year of Mr. James Huntley's connection with the Society as its hon. secretary. This year the show took place in the Old Ground close to the railway station, and as usual the town was prettily decorated with triumphal arches, flags, &c., while many of the houses were very gay indeed with plants, festoons of flowers, &c. A very large company attended the show ground.

STOVE AND GREENHOUSE PLANTS.—The season considered, and the state of the weather also, there was a very good display of these. The best nine in the open class came from Mr. J. F. Mould, nurseryman, Pewsey, who had good plants of Ixora regina, Clerodendron Balfourianum, Allamanda nobilis, Ixora Colei, I. Williamsii, Erica Irbyana, and E. cerinthoides coronata; 2d, Mr. J. Matthews, gr. to W. R. Browne, Esq., Trowbridge, whose best specimens were—Bougainvillea glabra, Dipladenia amabilis, Allamanda Hendersoni, A. nobilis, and Erica Marnockiana; 3d, Mr. E. H. Pocock. Mr. Tucker, gr. to Major Clark, Trowbridge, had the best six plants, and also the best three specimens, staging in the first row Cassia corymbosa, Lapageria rosea, Rondeletia speciosa major, Allamanda nobilis, Bougainvillea glabra, and Ixora Williamsii; and in the smaller class, Anthurium Scherzerianum, Statice profusa, and Stephanotis floribunda. Mr. Matthews was 2d in both classes. The best specimen plant showing cultural merit was Croton majesticus, from Mr. A. Shadwell, gr. to T. Chandler, Esq.; Mr. Mould, of Pewsey, coming next with Allamanda noblis. The best new plant was Dracæna Lindeni, Ixora amœna taking 2d place. A plant of the old Poinciana pulcherrima, bearing one spike of flowers, was shown in this class, and it seems a pity it should have come into the category of neglected plants. Ericas were shown as small specimens, but six very good plants gained the 1st prize for Mr. Mould. Two other collections competed, generally good plants for the season of the year. Ferns were shown in groups of fifteen, and there is always a remarkably good competition. Mr. Tucker had the best group, staging very good examples of Gymnogramma peruviana argyrophylla, Gleichenia dicarpa, Adiantum Farleyense, Lomaria gigantea, Neottopteris nidus, Adiantum concinnum luteum, A. gracillimum, &c. Mr. H. Pocock was 2d, and Mr. John Cooke, gr. to A. P. Stancombe, Esq., 3d. Fine-foliaged plants were shown in groups of nine plants, Mr. Mould being 1st, and Mr. W. C. Drummond, nurseryman, Bath, 2d. Smaller groups were also shown in other divisions, and they were of great value in relieving the masses of colour afforded by the flowering plants.

MISCELLANEOUS PLANTS.—Under this heading may be quoted zonal Pelargoniums, which are always finely shown here. It was interesting to note how fine in quality some of the older varieties still are, such as Ferdinand de Lesseps, Circulator, Polly King, Madame Werle, Master Christine, and La Grande. Petunias, always a great feature here, were very fine, and Mr. Lye was, as usual, 1st. Verbenas were very good, very large, finely-grown and flowered plants. Cockscombs, Balsams, Achimenes, Gloxinias, &c., were all in good form.

FUCHSIAS.—When it is stated that these were the very finest feature of the show, we are simply dealing with the finest display of Fuchsias in the United Kingdom. In the class for six plants, twenty-four splendid specimens were staged, the tallest 10 to 11 feet in height, including the pots, the smallest 6 to 7 feet. But all were superbly grown and grandly bloomed, and generally trained in the conical rather than the bush style. Mr. J. Lye, gr. to the Hon. Mrs. Hay, Clyffe Hall, Market Lavington, was 1st with superb examples, 7 to 8 feet in height, perfect in foliage, and covered with blossoms, having as dark varieties, Bountiful, Doel's Favourite, and the Hon. Mr. Hay; light varieties, Mr. Bright, Lye's Favourite, and Emily Lye, the flowers in each case being of the finest quality. 2d, Mr. Geo. Tucker, gr. to Major Clark, Trowbridge, with the largest plants shown, splendidly grown, but requiring another week to bring them to perfection, having of dark varieties Doel's Favourite, Bountiful, Charming, and Elegance, the last named a superb variety raised by Mr. J. Lye; light varieties, Arabella and Queen Victoria. 3d, Mr. H. Pocock, gr. to J. H. Hayden, Esq., Trowbridge, with dark varieties, Doel's Favourite, Madame Cornelissen, white corolla, and Mabel, Beauty of Wilts, and Flower of the Flock, light varieties. There were also four competitors in the class for four varieties, Mr. Lye being again 1st with Henry Brooks, a very free dark variety of great merit, Star of Wilts, dark; Ellen Lye, and Rose of Castille, light varieties; 2d, Mr. H. Pocock, with Doel's Favourite, and Charming, dark; Maggie and Arabella, light. In the nurserymen's division some very good plants were shown, indeed much superior to what is usually seen, but they fell below the gardener's plants in size and general good quality.

CUT FLOWERS.—Roses were a surprisingly good feature, especially when it is borne in mind that the weather had been intensely hot for a few days previously—indeed, a large number of the flowers were as fine in quality as at the end of June. The best stand of twelve varieties, three trusses of each, came from Messrs. Keynes & Co., Castle Street Nursery, Salisbury, who had very fine examples of Madame Eugénie Verdier, Xavier Olibo, Charles Lefebvre, J. S. Mill, Beauty of Waltham, Perle des Jardins, Reynolds Hole, and Madame de St. Arnaud; 2d, Messrs. Geo. Cooling & Son, nurserymen, Bath, with remarkably good blooms of Senateur Vaisse, Madame Victor Verdier, Madame Geo. Schwartz, La France, Charles Lefebvre, May Quennell, &c.; 3d, Messrs. Cross & Steer, Salisbury. Messrs. Keynes & Co. also had the best twenty-four varieties, single blooms, having excellent flowers of Etienne Levet, Madame Victor Verdier, Captain Christy, Marie Baumann, Alfred Colomb, Charles Lefebvre, Ferdinand de Lesseps, François Michelon, Duc de Rohan, Xavier Olibo, Perle des Jardins, Beauty of Waltham, Marie Van Houtte, &c.; 2d, Messrs. G. Cooling & Son, with capital blooms of Bouquet d'Or, Mons. E. Y. Teas, Mrs. Harry Turner, a beautiful clear scarlet-rose; Madame Victor Verdier, Mrs. Jowitt, and Paul Néron. 3d, Mr. A. Durbin, Bath. In the amateurs' class for twelve varieties some excellent blooms were shown by Mr. T. Gurden, gr. to Miss Watson-Taylor, who had Marie Baumann, Jean Ducher, Alfred Colomb, Xavier Olibo, Dr. Andry, Mrs. Jowitt, A. K. Williams, Catherine Mermet, and Comtesse de Nadaillac; 2d, Mr. Campbell, gr. to S. B. Budd, Esq.; 3d, Mr. J. Davis. Mr. Gurden was also 1st in another class for twelve blooms, two equal 2d prizes being awarded. Boxes of twenty-four varieties of cut flowers were very fine indeed; the 1st prize lot, which included a valuable collection of stove and greenhouse plants, came from Mr. S. Bishop, gr. to J. Jones, Esq.; Mr. S. Frances being a good 2d.

Dahlias are always a good feature at Trowbridge, as Messrs. Keynes & Co., of Salisbury, are found among the competitors. They had the best stand of twenty-four blooms, staging superb examples of Henry Bond, Imperial, Seraph, Goldfinder, James Vick, J. C. Reid, George Dickson, Joseph Ashby, Flag of Truce, Rosetta, Mrs. Dodds, Henry Walton, Mr. Spofforth, Vice-President, Miss Cannell, James Cocker, Cremorne, Clara, Ovid, Triumphans, Mr. Stancomb, and Clara Wyatt. In the amateurs' class a very good twelve was placed 1st, but the name of the exhibitor did not transpire. The best twelve fancy Dahlias came from Messrs. Keynes & Co. They had highly finished flowers of John Lamond, Henry Glasscock, Parrot, Flora Wyatt, Mrs. Saunders, Egyptian Prince, Rev. J. B. M. Camm, Florence Stark, Miss Browning, Fanny Sturt, Letty Coles, and Jessie McIntosh. In the class for seedling Dahlias of 1862, six blooms of each, Messrs. Keynes & Co. received First-class Certificates of Merit for Lucy Berry, white, tipped with pale purple—a very pleasing flower, of fine outline, petal and centre; and Mrs. W. Haskins, of a distinct salmon-buff shade—a pleasing flower, of good form and substance. In the class for single blooms of Dahlias of the present year Messrs. Keynes & Co. were awarded First-class Certificates of Merit for Eureka, vivid bright crimson, a very fine and good-sized flower of extra quality; and Mr. F. Foreman, bright deep lilac, a distinct shade, excellent build and petal. Some charming single Dahlias were shown by Mr. A. A. Walker, Kensington Nursery, Bath, and Mr. George Humphries, the prizes being awarded in the order of their names.

Asters were very fine indeed for the season; so were Gladioli, Zinnias, Verbenas, Stocks, &c. Messrs. Keynes & Co. had boxes of cut blooms of pompon and single Dahlias of excellent quality; and Messrs. Cross & Steer, Salisbury, had boxes of cut blooms of their fine Clove Governor in its best form.

FRUIT.—If the display of fruit was not quite so extensive as usual, it was generally of high-class quality.

The chief feature is the class for a collection of ten varieties, Pines excluded, and here much larger dishes of fruit than usual were set up, which imparted great massiveness to their appearance. The best collection came from Mr. T. King, gr. to R. Valentine Leach, Esq., Devizes Castle, who had three very fine bunches each of Black Hamburgh and Muscat of Alexandria Grapes, Exquisite, Barrington, and Lord Palmerston Peaches, Prince of Wales and Pine-apple Nectarines, all very fine; Jefferson's and Green Gage Plums, and Eastnor Castle Melon; a superb lot. 2d, Mr. Miller, gr. to W. H. Long, Esq., M.P., Rood Ashton Park, Trowbridge, with Black Hamburgh, Lady Downe's, and Foster's Seedling Grapes, Barrington and Belle Beauce Peaches, Hunt's Tawny Nectarine, Melons Premier and Best of All, Plums and Cherries; a very good and worthy lot. Mr. King had the best two bunches of Black Hamburgh Grapes, very good indeed; Mr. John Cole, Old Park Garden, Devizes, being 2d. In the class for white Grapes Mr. Morris was 1st, with good Buckland Sweetwater; Mr. Miller coming 2d, with Foster's Seedling. Mr. John Jardine was the only exhibitor of Black Muscats, setting up Madresfield Court in fine form. In the class for White Muscats, Mr. G. W. Shelton was 1st, with good bunches; Mr A. Shadwell, Devizes, being 2d. Green and scarlet-fleshed Melons were well shown, and good quality was generally characteristic of the fruit shown. Cherries were represented by fine samples of Morello. There was a good lot of Peaches, Mr. John Palmer being 1st, with an excellent dish of Frogmore Golden; Mr. Geo. Pym being 2d, with Royal George. Mr. Palmer had the best dish of Nectarines, staging fine examples of Pitmaston Orange; Mr. T. King being 2d, with the same variety. Dessert Apples were decidedly good, and culinary Apples very fine. The leading fruit of the former were Irish Peach, Quarrenden, Golden Pippin, and Cellini Pippin; of the latter the best were Lord Suffield, Pott's Seedling, Emperor Alexander, Hawthornden, John Bull, and Warner's King. Dessert Pears were less numerous than usual, and were represented by Windsor, Jargonelle, and Bon Chrétien. Filberts were poorly represented, the best dish coming from Mr. W. Mattock.

One of the most pleasing features of this show was the productions shown by working men and cottagers, and by *bonâ fide* amateurs not employing a gardener. These productions filled one large tent, and this made a charming show in itself. The Fuchsias shown by working men were far before anything we had previously seen at a provincial show; the zonal Pelargoniums were superb specimens. All plants were very good indeed; and the vegetables were not only very numerous, but singularly fine in quality. One of the cottagers' classes was for a basket of various kinds of Potatos. The schedule is freely interpreted, and large shallow boxes are employed in this class. One cottager had thirty-four distinct sorts, a very fine and interesting lot. The newer sorts gradually find their way into cultivation, such varieties as Vicar of Laleham, International, Woodstock Kidney, Reading Russet, &c., were to be seen here. Good judgment is required and provided in these classes.

Maidenhead Horticultural: *Aug.* 23 — The annual exhibition of this Society took place in Kidwell's Park, a spacious plot of ground quite in the heart of the town, on the above date, and as a show proved a signal success, for not only was it larger than usual, but the quality was good throughout. Like many another Society, the Maidenhead organisation has had to suffer heavy losses through wet weather happening on each show day for a few years past, and some thought of dissolving the Society was entertained. However, the hearty determination of R. Silver, Esq., the chairman of the committee, supported by some members of that body, would essay another show, and the finest of weather smiled on their efforts. A large number of persons attended, and it is believed a decided financial success has resulted. Two large tents were filled with exhibits, one with plants, cut flowers, and fruit, the other with vegetables and all cottagers' productions.

Undoubtedly the leading feature was the class for groups of plants arranged for effect, to fill a space of 120 feet. Three of these were staged, but that shown by Mr. H. Elliott, gr. to J. Hibbert, Esq., Braywick, was decidedly 1st, with a charmingly arranged group; out of a bed of Maidenhair Fern and Thelygonum Cynocrambe, rose small well-developed plants of Dracænas, Crotons, and Palms, intermingled with these being Gladioli, Liliums, &c., with a few good Palms, &c., at the back. The groups were on stages 2 feet high, and a fringe of Panicum variegatum forming a front line all round hung over the front. Mr. E. H. Gribble, gr. to Miss Cary Malins, Canon Hill, Maidenhead, was 2d, with a group somewhat similarly arranged, and coming near to it in point of quality; 3d, Mr. G. Geyve. Mr. Elliott had the best twelve variegated and ornamental foliage plants, staging good examples of Croton Weismanni, Pandanus Veitchii, Cocos Weddelliana, Maranta Veitchii, Anthurium crystallinum, &c.; 2d, Mr. E. H. Gribble; 3d, Mr. G. Martin, The Gardens, Bisham Abbey. Mr. Geyve had the best four stove and greenhouse plants, two flowering and two foliaged, staging Dracæna Veitchii, Maranta zebrina, a very fine Valotta purpurea, and Agapanthus umbellatus. Mr. Elliott had the best six Ferns, staging larger plants than the other competitors, Messrs. Keats and Gribble being severally 2d and 3d. Fuchsias were fairly good, the best six plants coming from Mr E. Jones, nurseryman, Henley-on-Thames, Mr. G. Hopkins being 2d. Mr. Goodman was 1st with six nice plants of tuberous-rooted Begonias, and Mr. G. Hopkins 2d. Some excellent Cockscombs were shown by Messrs. Hopkins, Gribble, and Elliott. Mr. J. Moore, The Gardens, Bray Court, had the best four Coleus, showing nicely grown and coloured plants; and some charming table plants were shown by Messrs. Gribble, Martin, and Elliott, the prizes being awarded in the order of their names.

In the amateurs' and cottagers' division the plants were of average merit, and generally small in size.

CUT FLOWERS.—These were numerous and good, and the single Dahlias appeared to have a great interest for the exhibitors. Mr. John Walker, nurseryman, Thame, showed the best twelve Roses, staging good blooms for the season; Mr. J. H. Powell, Farnham Royal, being 2d. M. Walker was also 1st with twelve Dahlias, staging capital blooms of Henry Walton, James Cocker, Sunbeam, Mrs. Standcomb, Vice President, Monarch, Duke of Connaught, the Hon. Mr. P. Wyndham, Prince of Denmark, Joseph Ashby, James Vick, and Rival Queen, all very good show varieties; 2d, Mr. T. E. Shrimpton. Mr. Walker was also 1st with twelve quilled and twelve French Asters, showing very fine strains; Mr. J. Wells being 2d with quilled, and Mr. Gribble with French Asters. Zinnias were very fine. Mr. G. Head had the largest flowers, but Mr. J. Walker, who was 2d, set his up on long stems with foliage, which is much better than showing the bare flowers. In the classes for amateurs' cut flowers Mr. J. Tranter, Upper Assenden, was 1st in all the classes, showing good Dahlias, Roses, Asters, Zinnias, &c.

TABLE DECORATIONS, &c.—With three vases tastefully arranged Mrs. Shrewsbury was 1st, Miss A. Young 2d, and Miss Kate Plumb 3d—all highly creditable. Mr. Spender had the best basket of cut flowers tastefully arranged, Miss Strange being 2d, and so good were the exhibits that two others were highly commended. One class was for six Sunflowers, and Miss Strange, who was the only exhibitor, set up six very fine flowers of different varieties in a vase with capital taste.

WILD FLOWERS.—These were shown by children, and some of the arrangements were so good that hands accustomed to this work must, we think, have been employed in setting them up. They were numerous, and made an excellent display, the bouquets containing some charming subjects.

FRUIT.—There was a very nice display indeed of fruit, it was without doubt a leading feature of the show. The best six dishes came from Mr. J. Wells, Fernhill Park, Winkfield, who had Muscat of Alexandria and Cooper's Black (Barbarossa) Grapes; Royal George Peaches, Queen Pine, Green Gage Plums, and Melons—a highly creditable lot; 2d, Mr. A. Bridgeman, gr. to T. Somers Cocks, Esq., Great Marlow, with Black Hamburgh and Buckland Sweetwater Grapes, Stirling Castle Peaches, Brown Turkey Figs, Washington Plums, and Melon; 3d, Mr. G. Goodman, The Gardens, Abney House, who had better Grapes than the 2d prize lot, but inferior in other respects. The best four dishes came from Mr Gribble, who had Lady Downe's Grapes, Peaches, Nectarines, and Morello Cherries; 2d, Mr. D. Paxton, gr. to Lord Churston, with Black Hamburgh Grapes, Peaches, Nectarines, and Windsor Pears. Some very good Black Hamburgh Grapes were shown, the best three bunches came from Mr. Cakebread, gr. to Sir P. Rose, Bart., Rayner's Park; Mr. J. Moore being 2d. In the class for black Grapes, other than Hamburgh, Mr. Wells was 1st, with Cooper's Black; Mr. G. Goodman coming in next with Alicante. Mr. Cakebread was also 1st with White Muscats, showing some excellent fruit; 2d, Mr. Geyve, The Gardens, Greys House. The best white, other than Muscat, was highly finished Foster's Seedling, from Mr. Goodman; 2d, Mr. Wells, with Buckland Sweetwater. Mr. D. Paxton had the best six Peaches, Mr. Gribble being 2d; the latter was 1st with six Nectarines, staging very good fruit indeed. Melons were fairly good, Plums very good. Dessert Apples were excellent, the three 1st placed varieties being Irish Peach, Red Astrachan, and Irish Peach. Culinary Apples were numerous and very fine, and here the order of merit ran Lord Suffield, Alfriston, and New Hawthornden. The best four dishes of fruit grown in the open air came from Mr. A. Bridgeman, who had excellent Jargonelle Pears, Brown Turkey Figs, Morello Cherries, and Washington Plums—a very good lot; 2d, Mr. G. Goodman, with Peaches, Nectarines, Plums, and Pears. Fruit was also shown by amateurs and cottagers, but not in a form to call for remark.

VEGETABLES.—These were numerous in all the divisions, and, especially in the case of the gardeners, of very fine quality. Messrs. Sutton & Sons, seedsmen, Reading, offered prizes for nine dishes, and this brought a very numerous and close competition. Mr. H. Elliott, Braywick Gardens, was 1st, with a very good lot, consisting of Autumn Giant Cauliflower, red Beet, white Spanish Onions, Intermediate Carrots, Snowball Turnip, Adirondack Potatos, Yorkshire Hero Peas, Carter's Dedham Favourite Tomato (very fine), and Canadian Wonder French Beans; 2d, Mr. A. Bridgeman; 3d, Mr. H. E. Gribble, both close on the heels of the 1st prize winner. Potatos were a great and striking feature, some very excellent tubers being shown. The leading class was for six dishes, nine tubers of each: Mr. H. E. Gribble, who is a local grower of some note, was 1st with first-rate examples of Covent Garden Perfection, King of Potatos, Vicar of Laleham, Radstock Beauty, Bresee's Prolific, and Prizetaker; 2d, Mr. J. Wells, with Schoolmaster, Reading Russet, Early Border, Woodstock Kidney, Prizetaker, and Lapstone; 3d, Mr. John Eggleton, Maidenhead. Mr. Gribble had the best dish of kidney, and also of round Potatos, both of which were very fine. In the amateurs' class Mr. W. H. Vevers, Maidenhead, had the best four dishes of Potatos, staging admirable examples of Schoolmaster, Queen of the Valley, Cosmopolitan, and Vicar of Laleham; 2d, Mr. H. Arrowsmith, Littlewich, with Reading Russet, Bresee's Prolific, Schoolmaster, and Radstock Beauty. Onions, Tomatos, Cauliflowers, &c., were all very good. The cottagers and allotment-holders, who exhibited numerously, made a good show in all these classes. Some special prizes offered by Mr. Broughton, seedsman, Norfolk Road, Maidenhead, for collections of six vegetables and also for groups of six window plants, brought excellent competition.

Mr. Charles Turner, Royal Nursery, Slough, sent along a large number of boxes of Roses, show bouquets, and single Dahlias, &c., that formed a remarkably attractive feature at one end of the show tent. This most valuable exhibit was Highly Commended. Mr. E. Such, market gardener, Braywick Road, had cut flowers, fruit, &c., not for competition.

Worsley and Swinton Horticultural.—This was held on the 17th and 18th inst., in connection with the agricultural show belonging to the same district, in Worsley Park, belonging to the Right Hon. the Earl of Ellesmere, and an excellent exhibition was the result, plants, cut flowers, and vegetables being staged in a large tent, and in some classes the competition was very keen, especially among the cottagers, who are judiciously encouraged by the Society. A few groups of unusual interest were staged, and which, by the way, induced me to transcribe these notes.

FERNS.—In the class for the best collection of hardy Ferns only one collection was staged, but this was a magnificent one, contributed, too, by a working collier of the district, Mr. Robert Tydesley, Hazleburst. A better group of hardy Ferns were never I think brought together, as there were nearly, if not quite, a hundred specimens, some of which were very fine examples—thus Osmunda regalis and the crested variety were each near upon 6 feet in diameter; there was also a nice plant of O. regalis undulata, a fine specimen of the Welsh Polypody (P. cambricum). The varieties of the Hart's-tongue Fern were well represented. Among other forms were S. vulgare crispum, crispum major (fertile form), latum, Greyi, Drummondi, and one named crispum Mrs. Stabler, which most likely originated in Mr. Tydesley's garden; a very fine plant of it was shown, with fronds a foot long and from 4 to 5 inches wide, the margins copiously fringed and frilled—really a noble looking Fern. There were also ramo-cristatum, limbospermum-cristatum, Morgani, and many others. Among the Athyriums were crispum, Victoriæ, ramosissimum, Vernoniæ, &c. The male Fern was also represented by several striking deviations from the typical form, parvissimum, a very neat little variety. Blechnum spicant Aitkenianum is a very pretty little furcate and crested variety of the hard Fern. A large mass of the Parsley Fern (Allosorus crispus) was extremely pretty. But space prevents me from mentioning but a tithe of the varieties, which, without a single exception, were in excellent condition, and were well worth going a long way to see. Long may Mr. Tydesley live to enjoy his fascinating hobby! In the class for six exotic Ferns, F. A. Birley, Esq., Pendleton, near Manchester (gr., Mr. T. Hesketh), was 1st, with excellent specimens of Gleichenia dichotoma, Alsophila australis, Cibotium Shiedei, C. princeps, Davallia bullata, and Cyathea dealbata.

STOVE AND GREENHOUSE PLANTS.—For ten, Mr. E. Elkin, Hart Hill, Pendleton, was 1st, with his usual exhibit of fine plants; and for six fine-foliage plants Mr. Elkin also took the lead. Cut flowers and bouquets were also well shown.

COTTAGERS' EXHIBITS.—These occupied one side of the tent, and a most interesting lot they were—plants, cut flowers, fruits, and vegetables. Particularly noticeable were the Musk plants, the winning specimens being a fine example of Harrison's Musk. Pansies, Dahlias, Roses, Asters, Phloxes, &c., were shown in good style, the Pansies being particularly good, plainly showing that the cottagers at Worsley know how to grow this popular flower. An interesting feature was a series (upwards of fifty) of bouquets made by girls and boys of the district over ten years old, special prizes for which were offered by the Countess of Ellesmere—who, by the way, acted as judge—and a large number of prizes were awarded. A very interesting display was made, but easily recognisable was the greater taste displayed by the girls in the manipulation of the bouquet. I noticed with what delight the little prize-winners first saw their schedules, and gladly heard many of the disappointed competitors avow their intentions to make greater effort another year. It is very evident that such encouragement to children tends largely to foster in them a love of the beautiful, and may assist to cherish habits of keen observation and research.

MISCELLANEOUS.—These assisted materially to make the show what it was. Mr. Upjohn, gr. to the Earl of Ellesmere, staged a nice group of plants, fruit, and vegetables, which were all creditable to the skill of the establishment. Messrs. James Dickson & Son, of Chester, staged a good collection of cut hardy flowers, well backed up with spikes of Gladiolus brenchleyensis, amongst which were L. auratum, chalcedonicum, and Harrisi, Montbretia Pottsi, M. crocosmæflora—a very pretty hybrid between M. Pottsi and Crocosma aurea, &c. Messrs. Dickson, Brown & Tait, of Manchester, exhibited fine stands of Roses, Gladioli, and Dahlias. *Visitor.*

Shanklin Horticultural: *Aug.* 22 —This Society held its third annual exhibition in the charming and somewhat romantic grounds of Rylstone, the picturesque residence of M. Spartali, Esq.; and the exhibits, which were staged in several large tents, were highly creditable to the gardeners, amateurs, and cottagers of the district. The schedule of prizes was a very representative one, there being seventy-five classes for professional gardeners, thirteen for amateurs, and forty-one for cottagers, all of which, with few exceptions, were well contested. The principal prize-takers were Lady Harvey, Undermount, Ventnor (gr., Mr. Banting); Captain Evelegh, whose gr. (Mr. Morris) took the greatest number of prizes (twenty-one); Colonel Atherley (gr., Mr. Edwicker);

Sir P. Rose (gr., Mr. Downer); M. Spartali, Esq. (gr., Mr. Strickland); W. Gibbs, Esq., Cleveland (gr., Mr. Goldring). In the amateur class Mr. Pionchon carried off the leading prizes. Mr. Banting's Cockscombs were very much admired, as they deserved to be, as also were his foliage and flowering plants. Ferns, fruit, and bouquets. Special prizes were given by G. F. Coster, Esq., Upper Chine House, for groups of plants and flowers arranged for effect, and which brought forth a good and creditable competition. Messrs. C. Dimmick & Sons, Ryde, for six stove and greenhouse plants in bloom; Messrs. Sutton & Sons, Reading, for the best collection of vegetables (nine varieties); Messrs John Laing & Co., Forest Hill, London, for six named tuberous Begonias (distinct); Mr. W. Gibbs, Cleveland (the Vice-President and mainspring of the Society) for two epergnes for table decoration; Mrs. W. Gibbs (Cleveland), for bridal bouquet and six button-holes. These prizes—as special prizes generally are—were well contested, and the exhibits in the respective classes—especially the bouquets and button-holes—greatly admired by the large number of visitors present.

In the bee exhibition tent Mr. S. J. Baldwin, expert-in-chief to the British Bee-keepers' Association, gave an interesting lecture upon bee-keeping. Altogether the committee of this Society, and its indefatigable and courteous Hon. Secretary and Treasurer (Messrs. T. Stow and T. H. Cheverton), are to be congratulated upon the successful results of their labour, as they are also upon the fact of having, through the kindness of M. Spartali, Esq., secured such a picturesque spot as Rylstone for holding their show in. The grounds are beautifully laid out and judiciously planted with a variety of choice trees and shrubs, the well filled and tastefully arranged flower-beds and borders being very effective, especially so a type of the Crystal Palace Gem Lobelia and Pelargonium Triomphe de Stella. These grounds, the management and keep of which reflect great credit on Mr. Strickland, are bounded on one side by Shanklin Chine, with which they communicate by winding and well-kept walks, and on the other by the sea, several hundred feet below, and having an ornamental and substantial iron fence between the precipice and the velvety lawn, whence the prospect of Sandown Bay, Brading Cliffs, and Chichester and Brighton away in the distance, together with the pleasure and other boats plying hither and thither on the glassy waters, and the beach in the foreground all bustle and life, is indeed a charming one, and from which we reluctantly withdrew our gaze.

Harpenden Horticultural.—The committee of this Society, having been favoured with magnificent weather for the celebration of their fifth annual show, a goodly company assembled in the lower part of the pleasant park of Sir John Bennet Lawes, Bart., the President of the Society. Over £72 was taken at the gates, which, together with the annual subscriptions and about £50 contributed for special prizes by many ladies and gentlemen of the neighbourhood, will we trust bridge the Society over their financial difficulties, caused by the unpropitious weather of last year's show day. Two large marquees were brought into requisition for the exhibits, and there was also on the ground a bee tent, in which practical instruction in the art of bee-keeping was given by an expert of the Hertfordshire Bee-keepers' Association. Taking the exhibition as a whole, the committee are to be congratulated upon the general improvement observable in the exhibits, more especially in the cottagers' division; and amongst the vegetables Potatos were particularly fine, the present season being conspicuous for the quantity and excellence of this crop.

As space will not admit of a detailed account of the whole schedule, which was a comprehensive one, and consisted of 128 classes, we must be content with noticing a few of the most important features. At the entrance of tent No. 1 was arranged a fine group of plants, not for competition, from the conservatories of Sir J. B. Lawes, amongst which were some remarkably well grown specimens of Vallotta purpurea, whose brillant scarlet flowers sets off to advantage the elegant foliaged plants.

In division A., open to all subscribers, the 1st prize for a group of plants, arranged for effect on staging 12 feet by 6, was awarded to Messrs. E. P. Frances & Co., of Hertford, whose collection contained many rare and beautiful plants which attracted much attention. The 2d prize went to J. B. Maple, Esq. (gr. Mr. J. C. Pollard), Childwickbury, St. Albans; Miss East, Highfield Hall, St. Albans (gr. Mr. W. Littlechild), also showed in this class. Messrs. Paul & Son, the Old Nurseries, Cheshunt, whose association with Roses is well known, took 1st prize with forty-eight of the finest blooms we ever remember to have seen, amongst which we particularly observed Madame Victor Verdier, a most effective Rose of a rich bright cherry colour; Baroness Rothschild, a beautiful clear, pale bloom shaded with white; Madame John Twombe, Prince Camille De Rohan, a crimson-maroon of exquisite tint; Bouquet d'Or, one of the prettiest to our thinking of the Noisette varieties; Empress of India, Louis Van Houtte, Marie Baumann, a bright carmine, very large; the sweet-scented Camille Bernardin and Duc de Montpensier. The 2d prize was awarded to the Rev. W. H. Jackson, of Stagsden Vicarage, who as an amateur is to be very highly commended in floriculture. Messrs. Paul, of Cheshunt, also contributed, not for competition, a miscellaneous collection of cut blooms of bouquet and pompon Dahlias, a box of exquisite Tea-scented Roses of the greatest excellence, and a box of the curious but exceedingly handsome Cactus Dahlia Juarezii.

The Society is again to be congratulated upon the magnificent display of Dahlias, the late brilliant weather being the making of these flowers. Messrs. Paul & Son, Cheshunt; Mr. Henry Glasscock, Bishop Stortford; Mr. John Henshaw, Harpenden; Messrs. E. P. Francis, Hertford; and Mr. James Wigan, The Manse, Bishop Stortford, all staged collections of great merit. Mr. Henry Glasscock carried off 1st prize for the forty-eight cut blooms which was no mean victory; we, however, noticed that his flowers were generally smaller than those of Messrs. Paul, but he was doubtless fortunate in having obtained blooms in the right stage of development while those of Messrs. Paul were just past their best. The collections contained remarkably good flowers of W. H. Williams, General Roberts, wonderfully fine; William Pringle Laird, Royal Queen, John Bennet, a grand yellow flower with broad scarlet edge; Gaiety, Duke of Albany, John Wyatt, Hercules, a large yellow handsome flower, striped and speckled rich crimson; Henry Walton, and J. C. Reid. Messrs. Kelway & Son, of Langport, Somerset, were the only competitors for twenty-four spikes of Gladiolus, and worthily received 1st prize. The firm also contributed some spikes from their extensive grounds, not for competition, which were the admiration of all visitors.

The first of the special prizes, offered by J. Blundell Maple, Esq., of Childwickbury, St. Albans, for six stove and greenhouse plants, distinct, was taken by C. R. Fenwick, Esq. (gr., Mr. G. Underwood), High Firs, Harpenden, with Dipladenia boliviensis, D. amœna, Allamanda Schottii, Bougainvillea glabra, and Vinca oculata, the latter being a magnificently grown plant, about 5 feet in diameter, and completely covered with blossom. Six foliage plants from the same exhibitor included Acalypha tricolor, Dieffenbachia picta, Croton variegatus, Maranta zebrina, and Bonapartea gracilis, all of which were fresh and bright, and in excellent condition, and consequently excited a good deal of attention. Ms. Henshaw, Harpenden, obtained the honours offered by Mrs. Warde for twelve bunches of pompon Dahlias; his meritorious collection of the leading varieties of Messrs. Turner and Cannell included Little Hermann, Guiding Star, E. F. Jungker, Little Nigger, Sensation, Dora, Dove, and Butterfly. Mr. Henshaw also carried off the palm for twelve bunches of herbaceous flowers, of which plants he is a most successful grower, and the interest attached to this exhibit was heightened by the fact that in most instances the name of the natural order to which the flower belonged, and the country of which the plant is a native, was attached. A bloom of Tigridia pavonia var. grandiflora, a brilliantly coloured specimen belonging to the natural order Iridaceæ, was shown as an extra exhibit by the same gentleman. For a special prize offered by Messrs. John Laing & Co., The Nurseries, Forest Hill, London, for six named tuberous Begonias, there were three competitors, each showing well grown and healthy plants; but we think the judges were not far wrong in awarding the 1st prize to J. B. Maple, Esq. (gr., Mr. C. Pollard), whose collection contained representatives of Vulcan, Mrs. Highgate, General Wood, Yellow Gem, and Rosa superba. It may also here be mentioned that Messrs. Laing, whose names are intimately associated with the growth of Begonia, exhibited a large and brilliant collection of cut blooms of these exquisite flowers, pale yellow, deep rich golden colour, and flaming red being intermingled both of the single and double varieties, and amongst these some of the largest and loveliest specimens which we have yet seen.

The fruit was largely represented, particularly by Grapes, of which some remarkably fine bunches were noticed of the variety Black Hamburgh. Peaches and Nectarines were also good, but the Melons were pronounced by the judges to be scarcely up to average standard.

Amongst the exhibits entered, not for competition, we may mention a group of plants and a collection of cut flowers from Mr. D. Spriging, The Nurseries, St. Albans; collection of exotic Ferns and cut flowers from the Hon. H. F. Cowper, M.P. (gr., Mr. W. Gurney), Brocket Hall, Hatfield; collection of Cacti from Mr. T. Wallace, The Nursery, Abbots Langley; collection of plants from Mr. J. Wood, Luton; and collections of plants and cut flowers from C. R. Fenwick, Esq. (gr., Mr. G. Underwood), High Firs, Harpenden. (*From a Correspondent.*)

Earley Horticultural: *Aug.* 21.—This show has the merit of being a cottagers' purely as far as the competitive classes are concerned, but a first-rate one as becomes such a capital rural locality as is the suburbs of Reading. The schedule included over thirty classes for cottagers' garden products, and some 250 prizes, so that there was ample encouragement for good competition, which throughout was excellent. The show was held in the delightful park attached to the residence of Captain Porter at Earley, and which forms a part of the once famous White Knights' Estate. The residence and immediate pleasure grounds are modern, and a very curious and naturally monotonous feature of the fine shrubs in the pleasure grounds is, that in every direction all are individualised and rounded, though not absolutely stiff and formal. Arbor-vitæs and Pinuses of many kinds, Hollies, variegated and green; Laurels, Aucubas, Privet, Box, of sorts—no matter what, all handsome, rounded, single specimens, but no where a mass or bank of shrubs. The effect is most singular but it is any thing but pleasing. Let us add that some big beds of scarlet Pelargoniums and yellow Calceolarias in rich bloom quite carried us back to the bedding of bygone days, and that the place is admirably kept. The show tents were most effectively decorated by contributions from the local gardeners, who most unselfishly worked with marked goodwill to make the exhibition a success even though they have no prizes to stimulate their efforts. Mr. Lees, gr. to Mrs. Marsland, The Wilderness, placed in conspicuous parts of the tents some grand pyramidal Coleus, amongst which specially well done were, Kentish Fire, Miss Mitton, a local seedling of splendid colour; Pompadour, Mr. G. Simpson, and Miss Simpson, &c.; also Mr. Lees had a fine Dracæna volnta, Scutellaria maxima in rich bloom, and a good Statice profusa. Mr. Turton, gr. to J. Hargreaves, Esq., Maiden Erleigh, had a number of his beautiful strain of crimson pyramidal Celosias, the plants about 3 feet in height and superbly done; also a large number of fine pyramidal Fuchsias, some 7 to 8 feet in height, and many smaller ones, and also three fine bunches of Black Hamburgh Grapes. Messrs. Sutton & Sons, of Reading, as usual, put up a wondrously varied and charming bank of plants in pots and cut flowers, the former including some of their fine strain of Begonias and Gloxinias, laced with Lobelias and Isolepis gracilis; then of cut flowers, Salpiglossis in many colours, and all so very beautiful; Gladiolus, Delphiniums, double and single Petunias, Hollyhocks, Sweet Sultans, yellow, white, and purple; white Godetias, annual Chrysanthemums, Matricarias, double and single Dianthuses, Gaillardia Lorenziana in various colours, Stocks in variety, Poppies, Marigolds, Zinnias, and, not least, some pans of Phlox Drummondi, the whole making up a very beautiful collection. Mr. Phippen, also of Reading, put up a good collection of hardy herbaceous cut flowers—Gladioli, Dahlias, Asters, &c., and some well-flowered plants of Hydrangea paniculata; whilst all the cottagers' products were good, notably Potatos, of which vegetable some 350 dishes were staged, and generally remarkably good.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, AUGUST 29, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Aug.	In.	In.	°	°	°	°	°	°	°		In.
23	30.10	+0.28	76.0	53.6	22.4	62.2	+ 1.5	51.0	67	N.W.	0.00
24	30.08	+0.25	77.0	47.4	29.6	60.8	+ 0.2	52.1	75	E.; E.S.E.	0.00
25	29.99	+0.15	78.0	54.3	23.7	63.5	+ 3.0	55.6	76	E.	0.00
26	29.95	+0.11	76.2	51.0	25.2	62.7	+ 2.3	50.0	61	W.; W.S.W.	0.00
27	29.85	−0.00	74.4	55.5	18.9	64.0	+ 3.7	50.7	63	W.	0.00
28	29.80	−0.06	77.0	59.0	18.0	65.5	+ 5.3	55.1	70	W.; W.N.W.	0.00
29	29.71	−0.16	69.0	59.0	10.0	62.9	+ 2.8	54.3	74	W.N.W.	0.00
Mean	29.93	+0.08	75.4	54.3	21.1	63.1	+ 2.7	52.7	69	W.	0.00

Aug. 23.—Fine bright day and night.
— 24.—Fine bright warm day and night.
— 25.—Fine bright hot day and night; clear.
— 26.—Fine bright day and night; stars bright.
— 27.—Fine but dull day. Fine night; cloudless.
— 28.—Fine bright hot day and night; rather windy.
— 29.—Fine day, but mostly overcast. Fine clear night.

LONDON: *Atmospheric Pressure.*—During the week ending August 25 the reading of the barometer at the level of the sea increased from 30.24 inches at the beginning of the week to 30.30 inches by 9 A.M. on the 19th, decreased to 30.10 inches by 3 P.M. on the 20th, increased to 30.20 inches by 9 A.M. on the 21st, decreased to 30.15 inches by 3 P.M. on the 21st, increased to 30.18 inches by 9 A.M. on the 22d, decreased to 30.17 inches by 3 P.M. on the 22d, increased to 30.27 inches by 9 A.M. on the 23d, decreased to 30.26 inches by 9 A.M. on the 23d, increased to 30.31 inches by 10 P.M. on the 23d, and was 30.18 inches by the end of the week.

The mean reading for the week at the level of the sea was 30.21 inches, being 0.22 inch higher than last week, and 0.21 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 84°, on the 21st; on the 22d the highest temperature was 74°. The mean of the seven high day temperatures was 78°.1.

The lowest temperature in the week was 47°.4, on the 24th; on the 22d the lowest temperature was 60°.4. The mean of the seven low night temperatures was 54°.2.

The greatest range of temperature was 31°.6, on the 20th; the smallest was 13°.6, on the 22d. The mean of the seven daily ranges was 23°.9.

The mean temperatures were—on the 19th, 62°.4; on the 20th, 63°.2; on the 21st, 63°.8; on the 22d, 65°.6; on the 23d, 62°.2; on the 24th, 60°.8; and on the 25th, 63°.5; and these were all above their averages by 1°.5, 2°.4, 3°.1, 4°.9, 1°.5, 0°.2, and 3° respectively.

The mean temperature was 63°.1, being 1°.4 higher

than last week, and 2°.4 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 147°, on the 21st. The mean of the seven readings was 134°.

The lowest reading of a minimum thermometer placed on grass, and fully exposed to the sky, was 40°, on the 24th. The mean of the seven readings was 46°.7.

Rain.—No rain fell during the week.

ENGLAND: *Temperature.*—During the week ending August 25 the highest temperatures were 84°, at Blackheath, 83°.2 at Cambridge, and 81° at Sunderland; the highest at Plymouth was 71°, at Preston 73°, and at Bradford 73°.3. The general mean was 76°.

The lowest temperatures in the week were 40° at Truro, 41°.2 at Nottingham, and 41°.5 at Cambridge; the lowest temperature at Brighton was 52°, at Preston 51°, and at Leeds and Sunderland 50°. The general mean was 46°.4.

The greatest ranges of temperature in the week were 41°.7 at Cambridge, 36°.6 at Blackheath, and 35° at Nottingham; the least ranges were 22° at Preston, and 24° at Liverpool and Leeds. The general mean was 29°.6.

The mean of the seven high day temperatures was highest at Cambridge, 78°.7, at Blackheath 78°.1, and at Sunderland 75°.7; and was lowest at Liverpool, 67°.6, at Preston 68°.1, and at Plymouth 69°.2. The general mean was 72°.4.

The mean of the seven low night temperatures was highest at Brighton, 55°.8, at Blackheath 54°.2, and at Liverpool 54°; and was lowest at Cambridge, 47°.4, at Wolverhampton 47°.8, and at Nottingham 48°.5. The general mean was 51°.2.

The mean daily range of temperature was greatest at Cambridge, 31°.3, at Nottingham 25°.1, and at Wolverhampton 24°.6; and was least at Liverpool, 13°.6, at Preston 14°.7, and at Plymouth 16°.5. The general mean was 21°.2.

The mean temperature was greatest at Blackheath, 63°.1, at Sunderland 62°.8, and at Brighton 62°.5; and was lowest at Wolverhampton, 58°.5, at Bristol 59°.1, and at Sheffield and Preston 59°.2. The general mean was 60°.2.

Rain.—The largest fall was 0.14 inch at Leeds, 0.05 inch at Cambridge, and 0.03 inch at Bradford; the smallest fall was 0.01 inch at Preston. No rain fell at Truro, Plymouth, Brighton, Bristol, Leicester, Blackheath, Wolverhampton, Nottingham, Sheffield, Liverpool, Hull, and Sunderland.

SCOTLAND: *Temperature.*—During the week ending August 25 the highest temperature was 74°.3, at Dundee; at Greenock the highest temperature was 68°. The general mean was 70°.5.

The lowest temperature in the week was 42°, at Perth; at Aberdeen the lowest temperature was 49°.6. The general mean was 45°.8.

The mean temperature was highest at Dundee, 60°; and lowest at Perth, 57°. The general mean was 58°.4.

Rain. — The largest fall was 0.14 inch, at Aberdeen, and the smallest fall was 0.06 inch at Greenock. No rain fell at Glasgow, Edinburgh, Dundee, Paisley, or Perth. The general mean fall was 0.03 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

ASTERISCUS MARITIMUS: *An Old Subscriber.* This is correct.

BEGONIA, DOUBLE: *W. F. Martin.* The flower was much bruised when it reached us, but it is evidently a very good variety, and one that your customer should take care of.

BOTANICAL RECORD CLUB: *G. E. F.* We do not think the publication is on sale to others than members, but you should apply to Dr. Lees, Southampton Street, Reading.

CINERARIAS: *F. H.* The minute worms are, no doubt, the cause of the mischief, and you must kill them before you can stop the plants from going off at the collar. Try watering with a weak solution of carbolic acid, reducing it down to the safety-point by experimenting on a few plants of no value.

DAHLIAS: *P Davidson.* We should say no, but never tried the experiment.

DIGGING: *Juvensi.* About twopence per rod, one spit deep; sixpence per rod, if bastard trenched; and tenpence per rod if trenched 2 feet deep.

DISEASED PEAR LEAVES: *J. V. U.* Your trees are attacked with a fungus, Rœstelia cancellata. It is one of those fungi which exist under two or more forms, quite different in appearance, and growing on different plants. The yellow jelly-like fungus which grows on Juniperus Sabina and other Conifers is stated to be the same in a different form which attacks the Pear. The only thing you can do is to destroy all the affected Pear leaves possible, and to remove all Junipers, &c., from their vicinity.

ELDER WATER: *H. J. C.* We should think you cannot do better than use the leaves now, but we have no practical experience to offer you. Please let us know the result.

FAIRY RINGS: *J. C.* Perhaps the following extract, from the elaborate paper of Sir John Lawes, Dr. Gilbert, and Dr. Masters, on the mixed herbage of permanent meadow, recently referred to in our columns, will answer your purpose:—"It is here (plot 8, to which mixed mineral manure without either potash or nitrogen is applied), where there is no nitrogenous manure to induce luxuriance, and where there is relative deficiency of potash, that, as on plot 4, where there was equally no nitrogenous supply and less potash still, fairy rings are of very frequent occurrence, whilst they are scarcely observed on any other plot." It is fair, then, to suppose that if you apply a dressing of nitrate of soda, or employ some other nitrogenous manure, you will get rid of the fairy rings by stimulating the growth of the grasses.

HOYA CARNOSA: *Cautious.* This is a stove plant, properly speaking, though it thrives well under cooler treatment, and should not be disqualified if shown in a collection restricted to stove plants.

LARCH DISEASE: *G. F.* You will find a chapter on this subject in Mr. Michie's *Treatise on the Larch* (Blackwood). We cannot, however, say that either the nature or the cause of the disease is satisfactorily made out.

PROLIFEROUS ROSE: *G. S.* By no means uncommon. Many such cases have been figured in *Gardeners' Chronicle*, and the whole subject is treated of in Masters' *Vegetable Teratology.* Owing to some cause which cannot now be determined, the centre of the flower, instead of remaining arrested in its growth, lengthens into a branch.

FIG. 42.—PROLIFEROUS ROSE.

NAMES OF PLANTS: *C. A. Schroeder.* The large leaf sent is Garcinia xanthochymus, Hk. f. (Xanthochymus pictorius, Roxb.), but the other specimen, called Garcinia australis, we are unable to name. There is no such name as G. australis that we can discover, nor could we find anything like the plant in the Kew herbarium, although we have gone through the whole of the Guttiferæ. Please send a specimen when in flower. —*C. E. F.* 1, Lastrea dilatata collina; 2, L. spinulosa, true; 3, L. dilatata alpina.—*H. J. C.* Epidendrum ciliare, a very old species. — *T. K. & Co.* Diplacus glutinosus.—*W. M. B.* 1, Francoa ramosa; 2, Sedum carneum variegatum.—*D. P.* The common cut-leaved Alder, of which there is a better variety in existence. — *W. Inglis.* 1, Lilium auratum rubrovittatum; 2, L. speciosum rubrum, commonly called lancifolium rubrum; 3, one of the forms of L. Thunbergianum.—*C. Mermal.* Centaurea nigra.—*J. A. P.* Lathyrus aphaca. —*Connon & Reed.* Specimen insufficient, send a better one.—*G. D. Vallance.* Corynocarpus lævigata. —*L. T. D.* Syringa Emodi; the other we are unable to name without flowers. — *S. Smith.* Epipactis media, var. purpurata, rare. — *J. Cornelius.* 1, Rhus toxicodendron; 2, Populus balsamifera; 3, Viburnum lantana; 4, Forsythia suspensa. The Abies next week. — *Enquirer.* 1, Send again when in flower; 2, Hypericum calycinum; 3, Veronica, specimen insufficient; 4, Acer campestre; 5, Spiræa filipendula, with double flowers; 6, specimen too poor to name.—*J. M. P.* Dendrobium aqueum, and the other appears to be Saccolabium Wightianum. — *F. Dee.* Alstrœmeria pallida, Plumeria acutifolia.

NEW STRAWBERRY: *C. & R.* If not packed in a better manner than those sent to us it will not earn much of a character for "carrying well." The fruits were simply reduced to pulp, of which we are no judge.

PEAS: *A. R., Windermere.* An irregular growth, the main features of which are a largely increased production of bracts, and an attempt to produce flowers, the flowers being grievously distorted, and showing all sorts of transformations between green bracts and true floral organs. At one particular and very early stage of growth something happened to divert the plant from its proper course, but what that something was we cannot say, though we have often seen its effects. No doubt, when we do discover it, we shall find, as in all similar cases, that instead of a "freak of Nature"—which is a myth — everything was done in strict conformity with law and order.

WOODLICE EATING NECTARINES: *Dr. Miller* does not say whether his tree is trained against a wall, or to a wire trellis under glass. If trained against an old wall it is not an easy matter to dislodge woodlice. If under glass, clear the trees of the enemy by the aid of the syringe, then tie a linen bandage round the stem, and dress it with some glutinous compound that will not dry quickly.

*** All communications intended for publication should be addressed to the "*Editor,*" and not to the Publisher or to any member of the staff personally. The Editor would also be obliged by such communications being *written on one side only of the paper* and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

☞ FOREIGN SUBSCRIBERS sending Post-Office Orders are requested to send them to the Publisher of this journal, 41, Wellington Street, Covent Garden, and to make them payable to William Richards, at the post-office, Drury Lane, London, W.C.

CATALOGUES RECEIVED.

B. S. WILLIAMS, Upper Holloway, London, N. — General Bulb Catalogue.
W. SMITH & SON, Aberdeen—Dutch Flower Roots, &c.
WM. CUTBUSH & SON, Highgate, London, N.—Hyacinths, Tulips, and other Bulbous Roots.
JOHN SCOTT, Yeovil—Dutch and other Bulbs.
JOSEPH SCHWARTZ, Lyons, France—Roses.
HARRISON & SONS, Leicester—Flowering Bulbs.
GROENEWEGEN & CO., Linnaestraat, Amsterdam — Bulbous Flower Roots.
JAMES COCKER & SONS, Aberdeen—Hyacinths, and other Bulbous Roots.

COMMUNICATIONS RECEIVED.—An Old Subscriber (see p. 278). —W. S.—P. S.—M. N.—E. R.—E. H S.—W. S. W.—P. O.—H. W. T.—A. S. W.—H. L. & Co.—F. S. & Co—H. D., Jun.—D. R. & Co—G. E. F.—J. D., Canterbury, New Zealand.—W. C.—C & R.—A. W.—W. J. W.—M. F. —J. L.—W. J. M.—A. O.—Denton.—F. D. S.—J. Day.—W. Masson.

Markets.

COVENT GARDEN, August 30.

[THE subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. ED.]

WE have no alteration to notice this week, business still continuing dull. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 6- 2 6	Lemons, per case ..	15 0-20 0
Currants, Black, ½-sieve	3 0- 3 9	Melons, each ..	1 0- 3 0
— Red, ½-sieve ..	3 0- 4 0	Peaches, per doz. ..	2 0- 6 0
Figs, per dozen ..	2 0- ..	Pine-apples, Eng., lb.	2 0- 4 0
Grapes, per lb ..	1 0- 2 0	— St. Mich., each	3 6-10 0
Gooseberries, ½-siv.	2 6- 3 3	Plums, ½-sieve ..	5 0- 8 0
		Strawberries, per lb.	0 3- 0 9

VEGETABLES—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	2 0- 3 0	Lettuces, Cabbage, per dozen	1 0- ..
Beans, French, lb...	0 4- ..	— Cos, per dozen..	1 6- ..
— Scarlet, per lb...	0 3- ..	Mint, green, bunch..	0 6- ..
Beet, per doz. ..	1 0- ..	Mushrooms, p baskt.	1 0- 2 0
Cabbages, per doz...	1 0- 2 0	Onions, per bunch ..	0 6- ..
Carrots, new, p. bun.	0 4- 0 6	— Spring, per bun.	0 6- ..
Cauliflowers, English, dozen ..	2 0- 3 0	Parsley, per bunch..	0 4- ..
Celery, per bundle ..	1 6- .	Peas, English, quart	1 0- ..
Cucumbers, each ..	0 4- 0 8	Radishes, per doz. ..	1 6- ..
Endive, French, per dozen	2 0- ..	Small salading, pun.	0 4- ..
Garlic, per lb. ..	1 0- ..	Spinach, per bushel	2 0- ..
Herbs, per bunch ..	0 2- 0 4	Sweet Potatos, lb. ..	0 6- ..
Horse Radish, bund.	3 0- 4 0	Tomatos, per lb. ..	0 6- 0 9
		Turnips, new, bun.	0 4- ..
		Vegt. Marrows, each	0 2- ..

POTATOS.—Kent Kidneys, £4 to £5 per ton; do., Regents, £3 10s. to £5 per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	12 0–24 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 0
Asters, per doz. ..	4 0– 9 0	Fuchsias, per dozen	4 0– 9 0
Begonias, per doz. ..	6 0–12 0	Hydrangea, per. doz.	9 0–24 0
Bouvardia, dor. ..	12 0–18 0	Lilium longiflorum, per dozen.. ..	18 0–42 0
Caladiums, per doz.	6 0–24 0	Liliums, various, doz.	12 0–30 0
Calceolarias, dozen...	4 0– 9 0	Marguerite Daisy, per dozen	12 0–24 0
Cockscombs, doz. ..	3 0– 6 0	Mignonette doz. ..	4 0– 6 0
Coleus. doz.	2 0– 6 0	Myrtles, per doz. ..	6 0–12 0
Dracæna term. dor.	30 0–60 0	Palms in variety, each	2 6–21 0
—viridis, per doz ..	12 0–24 0	Pelargoniums, scarlet, per dozen ..	2 0– 6 0
Erica, various. doz.	12 0–36 0	— decorative, doz.	6 0–12 0
Euonymus, various, per dozen	9 0–18 0		
Evergreens, in var., per dozen	6 0–24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Marguerites, 12 bun.	6 0– 9 0
Asters, 12 bunches..	2 0– 6 0	Mignonette, 12 bun.	2 0– 6 0
— French, per bun.	1 0– 3 0	Marigolds, 12 bun...	2 0– 4 0
Bouvardias, per bun.	1 0– 1 6	Myosotis, or Forget-me not, p. 12 bun.	2 0– 6 0
Carnations, 12 blms.	1 0– 3 0	Pansies, 12 bunches	0 9– 1 6
— 12 bunches ..	3 0– 6 0	Pelargoniums, 12 spr.	0 6– 1 0
Cornflower, 12 bun..	1 6– 4 0	— zonal, 12 sprays	0 3– 0 6
Dahlias, 12 bun ..	3 0– 6 0	Picotees, 12 bun. ..	2 0– 6 0
Delphinium, p. bun.	0 6– 1 0	Primula, double, bun.	1 0– 1 6
Eucharis, per doz. ..	3 0– 6 0	Pyrethrum, 12 bun..	3 0– 6 0
Eschscholtzia, 12 bn.	2 0– 4 0	Roses (indoor), doz.	2 0– 6 0
Gardenias, 12 blms..	3 0– 6 0	— (outdoor), 12 bun.	3 0– 6 0
Gladioli, 12 spikes..	1 0– 3 0	— coloured, doz ..	3 0– 8 0
Heliotropes, 12 sp. ..	0 6– 1 0	Stephanotis, 12 spr.	2 6– 4 0
Lapageria, white, 12 blooms	3 0– 6 0	Sweet Peas, 12 bun.	2 0– 4 0
— red, 12 blooms..	1 0– 3 0	Sweet Sultan, 12 bun	4 0– 6 0
Liliums. 12 bun. ..	12 0–18 0	Tropæolum, 12 bun.	1 0– 2 0
Lavender, 12 bun. ..	6 0– 9 0	White Jasmine, bun.	0 6– 1 0

CORN.

At Mark Lane on Monday last the supply of English Wheat, consisting chiefly of the new crop, was very moderate, quotations ruled at 44*s.* to 46*s.* for good white, and 41*s.* to 44*s.* good red. These prices are 2*s.* to 4*s.* under the extreme rates obtained for the first few small samples. Old Wheats came down 1*s.* to 2*s.* on the week, and ranged at 42*s.* to 47*s.* for white, and 40*s.* to 45*s.* for red. Foreign Wheat met little attention. Merely a retail business was passing, and prices were fully 1*s.* per quarter lower. Flour was 6*d.* lower on the week for foreign, and 1*s.* for English. Barley was steady; Beans met a quiet demand, at previous rates; Peas were scarce, and 2*s.* to 3*s.* per quarter dearer on the weak; Maize was unchanged; Oats sold somewhat slowly, but were not pressed at any tangible decline. — Wedesday's prices for Wheat remained nominally as on Monday. For foreign Wheats the tendency of prices was adverse. Flour was steady on light arrivals. Stout Barley was fairly firm in value, but grinding sorts were drooping in value. Maize was held for Monday's rates, but did not meet ready buyers. Oat sales were not pressed, shipments being reduced. Average prices of corn for the week ending August 25:—Wheat, 43*s.* 8*d.*; Barley, 29*s.* 4*d.*; Oats, 22*s.* 11*d.* For the corresponding period last year:—Wheat, 47*s.* 10*d.*; Barley, 30*s.* 4*d.*; Oats, 24*s.* 9*d.*

CATTLE.

At the Metropolitan Market on Monday the trade was quiet for cattle, but prices were mostly sustained. For sheep there was a fair demand prevailing, and the pens cleared at fully steady values or to rather dearer. Quotations:—Beasts, Canadian, 5*s.* 4*d.* to 5*s.* 8*d.*; Danish, 4*s.* 10*d.* to 5*s.* 8*d.*; Swedish, 4*s.* 10*d.*; British, 4*s.* 6*d.* to 5*s.* 4*d.*, and 5*s.* 6*d.* to 6*s.* 2*d.*; calves, 6*s.* 4*d.* to 6*s.* 6*d.*; sheep, 5*s.* 6*d.* to 6*s.*, and 6*s.* 4*d.* to 7*s.* — Thursday's cattle trade was very quiet. Prime beasts were steady, but inferior were dull and weak. Sheep sold slowly at about Monday's prices. Calves and pigs quiet.

HAY.

Tuesday's Whitechapel Market report states that supplies were shorter than at the previous market. Quotations:—Prime Clover, 100*s.* to 110*s.*; inferior, 60*s.* to 75*s.*; prime second cut, 90*s.* to 108*s.*; best meadow hay, 80*s.* to 88*s.*; inferior, 40*s.* to 65*s.*; and straw, 29*s.* to 37*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 86*s.* to 95*s.*; inferior, 65*s.* to 74*s.*; superior Clover, 110*s.* to 120*s.*; inferior, 80*s.* to 95*s.*; and straw, 34*s.* to 40*s.* per load.

POTATOS.

The Borough and Spitalfields markets reports state that whilst the supplies increased demand was limited. Quotations:—Kent Regents, 80*s.* to 90*s.*; kidneys, 100*s.* to 110*s.*; Essex kidneys, 80*s.* to 90*s.*; Regents, 70*s.* to 80*s.*; Magnum Bonnnis, 80*s.* to 90*s.*; Roses, 60*s.* to 70*s.* per ton.—Imports into London last week:—3 bags from Ostend and 1 basket from Rotterdam.

COALS.

The following are the prices current at market during the week:—East Wylam, 16*s.*; Walls End—Hetton, 19*s.*; Hetton Lyons, 16*s.*; Lambton, 18*s.* 6*d.*; Wear, 16*s.*; Tees, 19*s.* 3*d.*; Hulam, 18*s.*; Thornley, 17*s.* 6*d.*

Government Stock.—Consols closed on Monday and Tuesday at 99$\frac{15}{16}$ to 100$\frac{1}{16}$ for delivery, and 100$\frac{1}{16}$ to 100$\frac{3}{16}$ for the account. Wednesday's closing prices were 100$\frac{1}{16}$ to 100$\frac{1}{8}$ for delivery, and as on the previous days for the account. Consols improved on Thursday to 100$\frac{1}{8}$ to 100$\frac{1}{4}$ for delivery, and 100$\frac{3}{16}$ to 100$\frac{5}{16}$ for the account.

SOLUBLE FIR TREE OIL INSECTICIDE.
For destroying ALL INSECTS and PARASITES that infest Trees and Plants, whether at the Roots or on the Foliage. Kills all Vegetable Grubs, Turnip Fly, &c. Cures Mildew and Blight. Cleans Grapes from Mealy Bug, &c., and makes a good Winter Dressing. Of all Seedsmen and Chemists, 1*s.* 6*d.*, 2*s.* 6*d.*, 4*s.* 6*d.* a bottle. Per gallon 12*s.* 6*d.*, or less in larger quantities. Maker, E. GRIFFITHS HUGHES, Manchester. Wholesale from all the London Seed Merchants and Wholesale Druggists. New York: RÖLKER & SONS.

HUGHE'S FIR TREE OIL.—Packed for transit, free per parcels post, at the following low quotation, for stamps with order:—
½ pint, 1*s.* 8*d.*; 1 pint, 2*s.* 9*d.*;
1½ pint, 3*s.* 9*d.*; 1 quart, 4*s.* 10*d.*
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Quality **equal to any** in the Market.
(All Sacks included.)

PEAT, best brown fibrous	4*s.* 6*d.* per sack.
„ best black fibrous	3*s.* 6*d.* „
„ extra selected Orchid	5*s.* 0*d.* „
LOAM, best yellow fibrous	1*s.* per bushel (sacks included).
PREPARED COMPOST, best ..	
LEAF MOULD	
PEAT MOULD	
SILVER SAND (coarse) . ..	1*s.* 3*d.* per busbel.
RAFFIA FIBRE, best only	10*d.* per lb.
TOBACCO CLOTH, finest imported..	8*d.* per lb., 28 lb. 18*s.*
„ PAPER, finest imported	10*d.* per lb., 28 lb 21*s.*
COCOA-NUT FIBRE REFUSE (see special advertisement).	

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and Sold by them and all Nurserymen and Seedsmen.
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For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

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GUARANTEED ABSOLUTELY PURE. FREE FROM ANY FOREIGN INTERMIXTURE. Manufactured on the premises from the famous "Laguna" Cocoa-Nut Husks, and can only be obtained from us direct. This article is not to be confused with so-called Cocoa-Nut Fibre Refuse, sold by dealers and others at ridiculously low prices, and dear in the end. Amongst numerous Testimonials and extracts from scientific writers, to be seen at our works, we hold the following:—From Mr. CHARLES PENNY, Head Gardener to H.R.H. the Prince of Wales: "The Gardens, Sandringham, February 28, 1883.—I must say your Cocoa-Nut Fibre Refuse is far superior to any I have ever tried; in fact, it is simply perfection; and the use of your Fibre for so many purposes in Horticulture is a thorough boon. Make what use you like of this letter." Useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bulbs, Mushrooms, Bedding-out Plants, &c.
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An elegant Bordering to Flower Beds. Combines warmth and cleanliness with valuable antiseptic and deodorising properties.
MOISTENS IN HEAT. HOLDS HEAT IN COLD WEATHER.
Terms, strictly cash with order. Prices as follows:—Sacks 1*s.* 6*d.* each; 10 sacks, 12*s.*; 15 sacks, 18*s.*; 20 sacks, 23*s.* 30 sacks, 30*s.* (all sacks included). Truck-load, free on rail, £2. Limited quantities of P. M SPECIAL QUALITY, Granulated, in sacks only, 2*s.* 6*d.* each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from the Manufacturers, **CHUBB, ROUND & CO.,**
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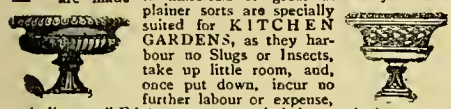

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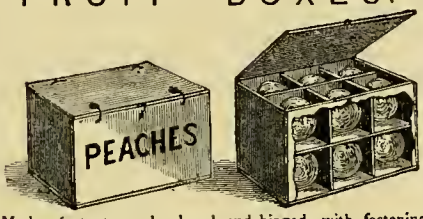

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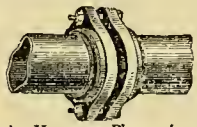

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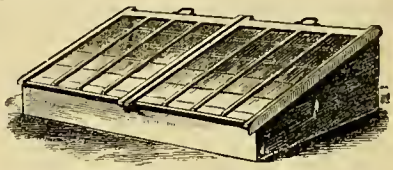

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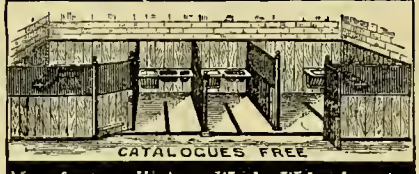

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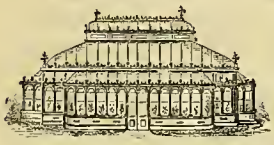

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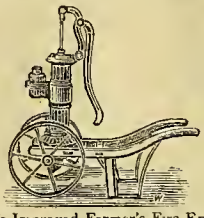

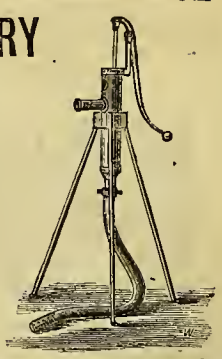

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SAMPLE BOTTLE	4s.	CARRIAGE PAID (United Kingdom)
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G. ABBEY begs to thank the numerous applicants for the situations offered on August 11, and to state that the PLACES ARE NOW FILLED.

PARTNER WANTED, in a Landscape and Ornamental Gardening and Florist's Business, now flourishing in a growing neighbourhood.—FLORIST, 5, Exeter Terrace, West Hampstead, N.W.

WANTED, as GARDENER, an experienced Propagator, with a good knowledge of Rock and Alpine Plants. References as to character and ability required.—GARDENER, *Guardian* Office, Nottingham.

WANTED, a general SINGLE-HANDED GARDENER. Poultry and Cow, no glass; married.—C. LISTER, Darley Dale, Matlock.

WANTED, a MAN and WIFE, to live in the house A thorough Gardener and good Cook. Assistance given to both. Wages £50, and all found except beer.—Mrs. HARVEY, Purland Chase, Ross, Herefordshire.

WANTED, a FOREMAN, for the Glass-houses in a Botanical Garden, to take entire charge in absence of the Curator. Preference will be given to a young Irishman who has had experience in England. As the place is a responsible one, no inexperienced man need apply.—Send all particulars to F. W. BURBIDGE, 91, Haddington Road, Dublin.

WANTED, as WORKING FOREMAN, in a Branch Nursery, a man thoroughly competent to Grow Roses, Fruit and Forest Trees, and to take charge with his Wife of Cow, Poultry, and Pigs. Salary 30*s*. per week, with house, coals, and vegetables.—ROBERT MACK AND SON, Rose Nurseries, Catterick, Yorkshire

WANTED, a FOREMAN, for Forest Tree Department in a Large Provincial Nursery.—Must be thoroughly experienced, and have had good practice in execution of Orders and Direction of Men.—Apply, stating age, wages, and where previously employed, to Z. Z., Messrs. Hurst & Sons, 152, Houndsditch, London, E.

WANTED, a FOREMAN, in the Houses. One who has been accustomed to Grow Fruit and Cut Bloom for Market preferred. Wages 20*s*. per week with room, vegetables, and milk.—Aoply, in the first instance, by letter only, to ALFRED TOMALIN, The Gardens, Oakwood, Crayford, Kent.

WANTED, a good working man, as PROPAGATOR and GROWER of Plants and Cut Flowers for Market. One being in the trade preferred, and well up in the business, with suitable reference.—State wages required to G. CONINGSBY, Beach Nursery, Southend-on-Sea.

WANTED, a FOREMAN for Flower Garden. Married; age 35 to 40. Wages 18*s*. with house and garden.—J. MARTIN, Barcote, Faringdon, Berks.

WANTED, an ASSISTANT, for the Fern Department.—GREGORY AND EVANS, Florists, Sidcup.

WANTED, a young MAN, under a Foreman, in the Houses. Understands well Watering, Tying and Potting, and clean in his work. 12*s*. per week, good bothy, milk, and vegetables.—Mr. GODFREY, Poyle Manor, Colnbrook.

WANTED, by a London Seed House, a YOUTH who has just left school. He would have every opportunity of acquiring a knowledge of the business, as well as Book-keeping. Applicants to state age, &c., addressed to B. A., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, COUNTER-HAND, for a Belfast House, energetic and trustworthy. Thorough knowledge of Vegetable and Flower Seeds, and of good address.—State salary and particulars to B. NUTTING AND SONS, 60, Barbican, E.C.

WANT PLACES.

To Noblemen and Gentlemen requiring Land Agents, STEWARDS, BAILIFFS, or GARDENERS.
JAMES CARTER AND CO. have at all times upon their Register reliable and competent MEN, several of whom are personally well known to Messrs. Carter.—Enquiries should be made to 237 and 238, High Holborn, W.C.

RICHARD SMITH AND CO. beg to announce that they are constantly receiving applications from Gardeners seeking situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

R. B. LAIRD AND SONS (late DOWNIE & LAIRD) can at present recommend with every confidence several first-rate SCOTCH GARDENERS, whose character and abilities may be thoroughly depended upon, either for Large Establishments or Single-handed Situations; also FOREMEN, UNDER GARDENERS, and FARM BAILIFFS.—17, Frederick Street, Edinburgh.

E. G. HENDERSON AND SON have always in their employ a number of selected men of tested ability and good character waiting re-engagements as HEAD GARDENERS, GARDENERS and BAILIFFS, FOREMEN, and JOURNEYMEN, of various qualifications, to suit any requirement, and would be pleased to send full particulars to any Nobleman or Gentleman requiring such.—Pineapple Nursery, Maida Vale, W.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, Garston, wish to inform any Nobleman or Gentleman who may be in want of a first-rate man as GARDENER, or GARDENER and BAILIFF, that they are at present in a position to recommend an exceptionally good man.

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ORCHID GROWER, or as HEAD WORKING GARDENER, where Orchids are Grown.—Age 32; can be well recommended. Well up in the profession.—A. J., Hugh Low & Co., Nurseries, Upper Clapton, London, E.

GARDENER (HEAD).—T. CUCKNEY, late Gardener, Duncombe Park, is at liberty to engage with any Nobleman or Gentleman requiring a thoroughly practical Gardener. Good testimonials.—Helmsley, York.

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GARDENER (HEAD), where one or two are kept.—Age 25; understands Vines, Melons, Cucumbers, Greenhouse, and Flower and Kitchen Garden. Married man's place preferred.—C. W., Ellis, Stationer, Wallington.

GARDENER (HEAD).—A GENTLEMAN can strongly recommend his present Gardener to any one desirous of having a thoroughly competent and steady young man. Full information will be given.—J. C. G., 83, Gracechurch Street, E.C.

GARDENER (HEAD).—WM. ALEXANDER, for nearly five years Gardener to Sir Hugh Dalrymple, Bart., Luchie, leaves in October, and is desirous of securing another situation in the above capacity.—WM. ALEXANDER, Luchie Gardens, North Berwick, East Lothian.

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GARDENER (HEAD, or good SINGLE-HANDED).—Age 33, married; has a thorough practical knowledge of the profession in all its branches. Six years' good character from last situation.—W. R., Lawn Cottage, Friern Park, North Finchley, N.

To Noblemen and Gentlemen.

GARDENER (HEAD), or GARDENER and BAILIFF.—Married, no family. Thoroughly practical. Wife could take charge of the Dairy and Poultry if required. Twenty-five years' good references.—A. B., Messrs. Jackson's Nurseries, Kingston Hill, Surrey.

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GARDENER.—Age 25; eight years' Gardener to the late Mr. J. R. Scott, of Walthamstow. Understands Orchids. Good references.—B. SHIP, Mrs. Scott, The Drive, Walthamstow.

GARDENER.—S. ROSS, many years Head Gardener at Highclere Castle, Newbury, Berks, is at liberty to treat with any Nobleman or Gentleman requiring the services of a thoroughly practical Gardener. Excellent testimonials.—Address as above.

GARDENER and BAILIFF.—Married, no family; has a thorough knowledge of the profession in all its branches, including Early and Late Forcing; also the Management of Home Farm. Has a good knowledge of Land and Stock, Woods, Timber, and General Estate Work. Has served five years in the above capacity with a Nobleman, through whose death he is now leaving. Can be well recommended.—F. CORBOULD, Tandridge Court, Godstone.

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GARDENER (SINGLE-HANDED), or FOREMAN in a good establishment.—Age 24; good references given.—G. H., 6, Newland, Lincoln.

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PROPAGATOR, under the Foreman, Hard or Soft-wooded.—Age 21; seven years' experience.—W. C., 76, Gloucester Street, Cirencester, Gloucestershire.

JOURNEYMAN, in the Houses.—Age 19; three and a half years' experience.—W. W., Minestead, near Lyndhurst, Hants.

JOURNEYMAN, in the Houses.—Age 18; has had good experience under Glass. Good character.—A. C., Longshaw Gardens, Chipstead, Surrey.

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JOURNEYMAN, in a Gentleman's establishment, where he can improve in the general routine of gardening.—Age 20; good character and obliging. Bothy preferred.—J. M., Park Cottage, Harrow Weald, Stanmore, Middlesex.

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IMPROVER, in a Nobleman's or Gentleman's establishment.—Age 19; has been six years in the Garden. Three years' good character.—H. N., 160, Cromwell Road, Redhill.

IMPROVER.—A young man desires a situation in the Seed Business. Four years' experience. Good references.—A. M., Clare & Son, Cotswold Seed Warehouse, Cheltenham.

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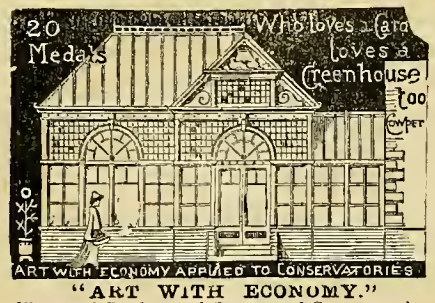

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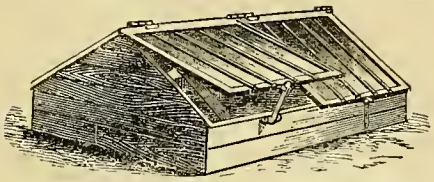

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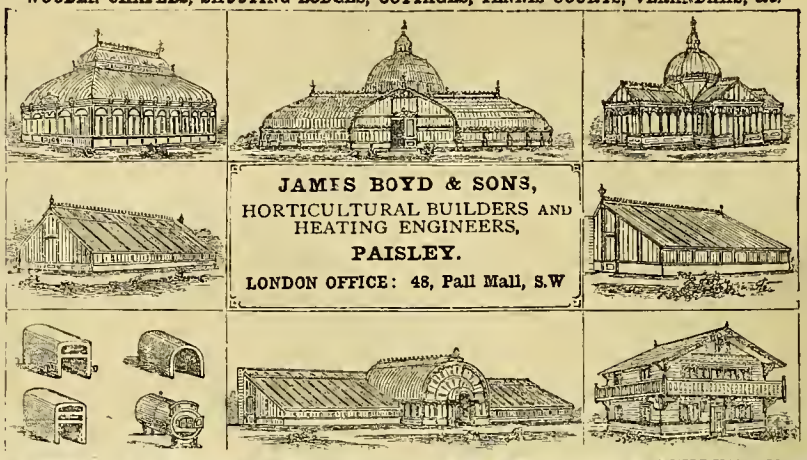

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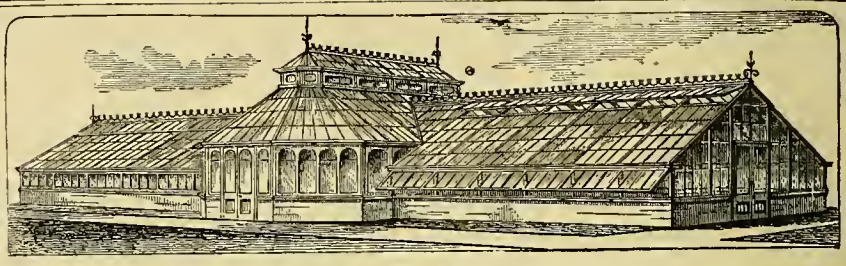

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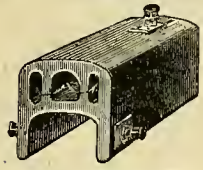

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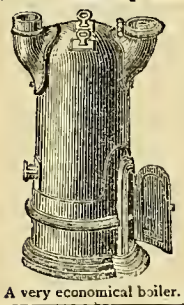

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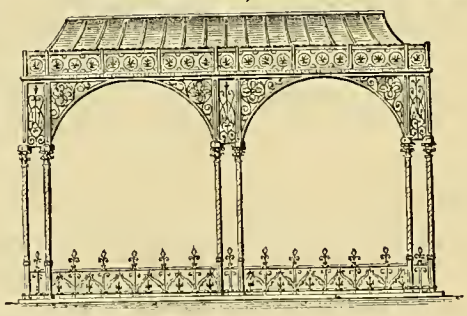

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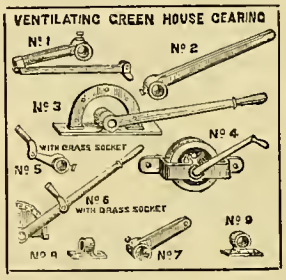

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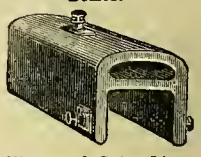

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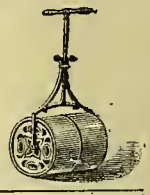

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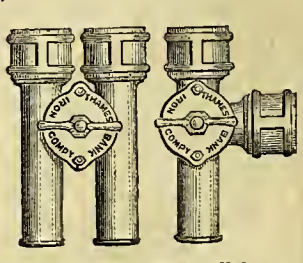

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THE

GARDENERS' CHRONICLE.

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INTERNATIONAL POTATO EXHIBITION, September 13 and 14.

The "GARDENERS' CHRONICLE" for NEXT SATURDAY, September 15, will contain a FULL REPORT of the SHOW.

THE GARDENERS' CHRONICLE IN AMERICA.
The Subscription to America, including Postage, is $6.35 for Twelve Months.
Agent for America :—C. H. MAROT, 814, Chestnut Street, Philadelphia, U.S.A., to whom American Orders may be sent.

ROYAL HORTICULTURAL SOCIETY. South Kensington, S.W.
NOTICE ! — COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M., on TUESDAY NEXT, September 11. Admission 1s., which includes entrance to the Great International Fisheries Exhibition.

READING HORTICULTURAL SOCIETY.
A CHRYSANTHEMUM SHOW (in connection with the above) will be held at Reading, on NOVEMBER 22. Regulations and Schedule of Prizes on application to
WM. SMITH, Secretary.
97, London Street, Reading.

THAME SHOW, September 19.
WALKER'S PERPETUAL PEA.
J. WALKER will give THREE PRIZES for 50 Pods, as under :—1st Prize, 20s. ; 2d, 10s. ; 3d, 5s. All Peas sent by Post will be put in fair competition.
High Street, Thame, Oxon.

Herbaceous and Alpine Plants.
PAUL AND SON, The "Old" Nurseries, Cheshunt.
Priced Descriptive LIST on application.

SPECIAL INVITATION.—Our Nurseries being now at their best, are open to all who may be interested in the cultivation of Fruit Trees and Roses.
The journey from London is an easy one, by the Great Eastern Railway to the Harlow or Sawbridgeworth Station.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

LILIES OF THE VALLEY.
Direct from the Grower in Germany.
Particulars from Sole Agent,
CHARLES FROHLICH, 14, South Street, Finsbury, E.C.

Roses on Own Roots.
REINE MARIE HENRIETTE, NIPHETOS, ISABELLA SPRUNT, RÊVE D'OR, &c. Strong plants, 12 to 15 inches high, 7s. per dozen, or 4 for 2s. 6d., carriage paid.
MAIRIS AND CO., Weston-in-Gordano, Bristol.

Pines.
FOR SALE, 44 Black Jamaica PINES, fine, stout, healthy stuff, in fruiting pots. Perfectly clean and in first-rate condition. Will be sold cheap.
F. & A. DICKSON & SONS, "Upton" Nurseries, Chester.

£2 Reward.
STOLEN, from SANDY FLOWER SHOW, on the 31st ult., a Basket of Pods, and a Sample in the straw, of Mr. LAXTON'S NEW PEA "EVOLUTION;" also a Dozen PRIZE ONIONS. The above Reward will be Paid for such information as will lead to the Conviction of the Offenders, by T. LAXTON, Seed Grower, Bedford.

CHOICE FLOWERS for WINTER.—TREE CARNATIONS, Gloire de Nancy, La Belle, and other fine kinds, strong plants, 40s. per 100. BOUVARDIAS, fine plants, with 15 to 30 shoots, best market sorts, including Alfred Neuner, 40s. per 100.
W. JACKSON, Blakedown, near Kidderminster.

PRIMULAS, CINERARIAS, and CALCEOLARIAS.—Bull's choice strain of the above, in good transplanted Seedlings, at 8s. per 100, 70s. per 1000, package and carriage free for cash with orders. Good strong Maréchal Niel and other Tea ROSES, in 48-pots, at 60s. per 100.
T. FLETCHER AND SON, Florists, &c., Chesterfield.

Wholesale Bulb Catalogue.
WATKINS AND SIMPSON, WHOLESALE SEEDSMEN and BULB MERCHANTS, Exeter Street, Strand, W.C. Their Wholesale BULB CATALOGUE is now ready and may be had on application. Contains prices of Lily of the Valley crowns or clumps, American and African Tuberoses, Double and Single Snowdrops, Winter Aconites, Spiræa, many sorts of Narciss, Tulips, Lilies, Gladioli, and all the leading varieties of Dutch, English, French and Japanese Bulbs. Special quotations for large quantities.

EIGHTY THOUSAND CLEMATIS, in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants.
Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

JULES DE COCK, Ornamental Plant Nursery, Ghent, Belgium.—Many thousand AZALEAS, INDICA, MOLLIS, and PONTICA; DEUTZIA, HELLEBORUS, SPIRÆAS, are disposable. CATALOGUE free on application.

LANE'S PRINCE ALBERT APPLE.—Come and see this prince of Apples, now in full bearing on large and small Trees, and numerous other varieties.
H. LANE AND SON, Nurseries, Great Berkhamstead.

Ten Thousand Strong and Very Healthy
STRAWBERRY RUNNERS—Sir Joseph Paxton and Dr. Hogg—for Sale. Price 2s. 6d. per 100. Apply to C. JOHNSON, Mead House, Red Hill.

STRAWBERRIES.—We are now prepared to supply strong healthy Plants, from ground and in pots, of all the most approved kinds. A select descriptive LIST post-free on application.
THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

STRAWBERRIES—Next Summer, by planting now : capital roots, 4s. per 100 ; 6d. extra per 100 for delivery by parcels post. In a Few Months, by forcing : plants in pots, 16s. per 100. Only the best varieties are offered. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

THE SELECTED BURGHLEY PRESIDENT STRAWBERRY.
Characterised by T.R.H., The Prince and Princess of Wales, as the largest in size and the best in flavour : an enormous cropper, and splendid glossy colour. Are now ready to send out on turf, to insure a full crop next season. 25s per 100 ; ordinary Runners half price.
R. GILBERT, High Park Gardens, Stamford.

MESSRS. SQUELCH AND BARNHAM, FRUIT and FLOWER SALESMEN, Covent Garden Market, W.C., are open to RECEIVE CONSIGNMENTS of choice FRUIT and FLOWERS. Baskets and Labels supplied. Terms and references on application.

WANTED, CUTTINGS of PELARGONIUMS—M. Baltet, Candidissima plena, A. J. Raspail, M. Thibaut, Duchess of Bedford, Duchess of Edinburgh, Digby Grand, &c. State price per 1000.
J. O. L., Old Manor House, Lower Mitcham, Surrey.

WANTED, 25,000 CUTTINGS of CARNATIONS, PICOTEES, yellow grounds, salmon-purple, rose, pure white and pink CLOVES. State price per 100 and 1000 for cash, or EXCHANGE CUTTINGS or PLANTS to same value of Mrs. Sinkins.
W. WEALE, Taplow, Bucks.

WANTED, AUCUBA CUTTINGS, also HOLLIES, Green and Variegated varieties ; EUONYMUS, Green and Variegated. Price per 1000 or 10,000 to HUGH LOW AND CO., Clapton Nursery, London, E.

WANTED, QUINCES and MEDLARS, for preserving. Please state price to
R. R. WHITEHEAD, Borden Wood, Liphook, Hants.

WANTED, PINES, PEACHES, NECTARINES, TOMATOS, CUCUMBERS, GRAPES, PEARS, PLUMS, &c. Also GARDENIAS, EUCHARIS, STEPHANOTIS, Maréchal Niel ROSES, &c.
WISE AND RIDES, Fruit & Flower Salesmen, Covent Garden.

PARCELS POST.—CARTERS' BULBS.

PARCELS POST.—CARTERS' SEEDS, Carriage free.

PARCELS POST.—CARTERS' SPECIAL ORDER ROOMS and Parcels Post-office now open.

PARCELS POST.—CARTERS' SPECIAL VANS and TRUCKS will deliver parcels hourly during the day to the Post-office.

CARTERS, The QUEEN'S SEEDSMEN, and by Royal Command to H.R.H. the Prince of Wales.
237 and 238, High Holborn, London, W.C.

BEAUTIFUL NEW EUCHARIS. EUCHARIS SANDERI.
Invaluable for Cut Flowers and General Decoration.
5s each ; taken by the dozen, 3s. 6d. each ; by the 100, 2s. 6d. each.
Mr. WILLIAM BULL, Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

R. H. VERTEGANS' Descriptive Pocket CATALOGUE of Alpines and Hardy Perennials. Post-free on application.
Chad Valley Nurseries, Edgbaston, Birmingham.

Hyacinths, Tulips, Narcissus, Lilies, &c.
BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland.
Wholesale CATALOGUE now ready, and will be sent post-free on application.

KELWAY AND SON, Langport, Somerset, offer GLADIOLI SPIKES, DAHLIAS, single and double ; PYRETHRUMS, single and double ; PHLOXES and TEA ROSES ; CALCEOLARIA and CINERARIA SEED. CATALOGUES gratis and post-free.

Tea Roses—Tea Roses.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this year a splendid stock of Tea and other Roses in pots. Prices and full particulars on application to
The MANAGER, The Vineyard, Garston, Liverpool.

ORCHIDS.—We invite intending Purchasers to pay us a visit and inspect our Houses.
The NEW PLANT AND BULB COMPANY, Colchester.
Send for our NEW LIST, No. 63.

CREEPERS for WALLS, TRELLISES, &c., in great variety. See Descriptive LIST. Most of these plants being in pots, may be moved now.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

WHITE CLOVES for FORCING.—10 000 of the Hybrid White Clove (Mrs. Sinkins), large, bushy stuff, 1-yr. old, transplanted, 6s., 9s., and 12s. per dozen. The Trade supplied. Cash or suitable Exchange.
W. WEALE, Taplow, Bucks.

Lily of the Valley.
ELSTER AND KOLLMANN, Lübeck, near Hamburg, offer the above, 3-yr. old, extra strong Crowns, at 34s. per 1000. Three months terms, or terms for cash price, on application.

SPIRÆA PALMATA, for Forcing.—The finest crowns grown are offered to the Trade at 10s., 15s., 20s., and 25s. per 100
CHARLES NOBLE, Bagshot.

TEA ROSES IN POTS.—Several thousands to offer, clean, healthy, and full of buds, including a fine lot of Maréchal Niel and Niphetos—the latter in several sizes. Prices on application.
F. STREET, Heatherside Nurseries, Golden Farmer, Farnborough Station.

BULBS.—Very long experience enables us to offer the best quality at a moderate price, as proved by hundreds of testimonials. Illustrated LIST, descriptive, select, and comprising important novelties, on application.
RICHARD SMITH AND CO., Seed Merchants and Nurserymen, Worcester.

SPECIAL OFFER.—PELARGONIUMS, best market varieties ; red and white BOUVARDIAS, ADIANTUM CUNEATUM. Strong plants of each, in thumbs, 20s. per 100, for prompt cash.
ROBERTS BROS. AND ARNOLD, East Grinstead, Sussex.

PANSIES. — Prize varieties as competed with at the leading Scotch Exhibitions, twelve pairs, cuttings, 3s. 6d., 4s. 6d., and 5s. 6d., warranted best sorts only. PENTSTEMONS, extra fine sorts, twelve pairs, cuttings, 2s. 6d. and 3s. 6d. PANSIES, twelve seedling, large plants, in bloom, most beautiful, 2s. 6d. PANSY SEED, from my Prize Collection, 1s. and 2s. 6d. All post free.
M. CUTHBERTSON, Public Park Nursery, Rothesay, N.B.

Prize Cob Filbert Trees.
GENTLEMEN desirous of obtaining the true WEBB'S PRIZE COB FILBERT TREES, for delivery in October and November, should now send their orders to Mr. COOPER, F.R.H.S., Calcot Gardens, Reading, of whom alone the various sorts can be obtained.
Price LISTS on application.

SALES BY AUCTION.

Dutch Flower Roots, every Monday, Wednesday and SATURDAY.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely, a large consignment of first-class DOUBLE and SINGLE HYACINTHS, in all colours; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, Early ROMAN HYACINTHS, and other BULBS, just received from well known farms in Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale, and Catalogues had.

Wednesday Next.
IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, September 12, at half-past 12 o'Clock precisely, by order of Messrs. Shuttleworth, Carder & Co., an importation of CATTLEYA MENDELLI, CATTLEYA TRIANÆ, ODONTOGLOSSUM CRISPUM (Alexandræ), O. PESCATOREI, O. VEXILLARIUM, MASDEVALLIA MACRURA, M. TROCHILUS, M. HARRVANA, M. SHUTTLEWORTHII, and the rare M. CUCULLATA, PAPHINIA CRISTATA, &c., all in good condition; also a small parcel of CINCHONA SEEDS from Ceylon, ORCHID BASKETS, &c.

On view morning of Sale, and Catalogues had.

Thursday Next—(Sale No. 6462.)
VANDA HOOKERII, true.—VANDA LOWII.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, September 13, at half-past 12 o'Clock precisely, by order of Mr. F. Sander, a grand importation of the true large-flowering VANDA HOOKERII, from Borneo—Vanda Hookerii is of such great beauty that there are few Orchids like it so well adapted for cultivation in quantity; some very fine plants of VANDA LOWII, CYPRIPEDIUM HOOKERII, C. STONEI and others; a splendid lot of ODONTOGLOSSUM ALEXANDRÆ, CATTLEYAS, MASDEVALLIAS, ODONTOGLOSSUM VEXILLARIUM, &c. Also twenty-five plants of MUSSÆNDA THEIFERA.

On view morning of Sale, and Catalogues had.

New Aerides.

MR. J. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on WEDNESDAY, September 19 a splendid specimen of a new AERIDES in flower. The plant was brought home about two years ago by the Collector, and is the only one received. The Collector found it in flower, and took special care of the plant. It has many growths, is entire, with broad leaves, and in extra health, being well rooted and growing freely. The flowers are of extraordinary size, thirty on the spike, of great beauty, and we consider it the finest Aerides extant. The specimen may be inspected at St. Albans.

On view morning of Sale, and Catalogues had.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, September 20, at half-past 12 o'Clock precisely, the small but CHOICE COLLECTION of ESTABLISHED CATTLEYAS, &c., formed by Edward Salt, Esq., of Fernihurst, Shipley, near Leeds, who is disposing of all his Orchids which require other than cool treatment. The Cattleyas, many of which have been bought in flower, comprise some almost matchless varieties. They include many specimen plants, have been grown with little or no shade, are in the most perfect condition, and well set with flower-sheaths. Three magnificent specimens of ANTHURIUM ANDREANUM will be included, one of which is believed to be the largest plant in the country if not in Europe, and very floriferous. The sale will include all the Cattleyas of the collection, none being reserved.

On view morning of Sale, and Catalogues had.

Blenheim Palace Gardens, Oxon.

In consequence of re-arrangements about being made in the above Gardens,

MESSRS. J. AND W. SCROGGS will SELL by AUCTION, on TUESDAY, September 18 (the same day as the Woodstock Agricultural Show), at 11 for 12 o'Clock, SELECTED PLANTS. The Catalogue will include drafts from the Stove and Intermediate Houses at Blenheim Gardens, and will comprise several large and well-grown specimens of Clerodendron Balfourianum, Allamanda Hendersoni, Anthurium crystallinum, Cycas revoluta, Medinilla magnifica, Stephanotis floribunda, Adiantum Farleyense, Croton Johannis, Davallia Mooreana, and Cissus discolor.

The plants will be on view the day previous to sale, by ticket only. Catalogues and orders to view may be had at the Estates Office, Blenheim Palace, of Mr. CLARK, Head Gardener, and of J. AND W. SCROGGS, Auctioneers, Kidlington, Oxon.

N.B. In consequence of the absence of the Family on September 18, notice is hereby given that the Palace and Gardens will be open to the Public for that day only.

Dutch Bulbs.—Great Unreserved Sales,
Every MONDAY, THURSDAY, and SATURDAY.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every MONDAY, THURSDAY, and SATURDAY, at half-past 11 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other ROOTS from Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Tuesday Next.
CATTLEYA ELDORADO SPLENDENS.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. F. Horsman & Co., of Colchester, to SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, at half-past 12 o'Clock precisely, a magnificent importation of CATTLEYA ELDORADO SPLENDENS, the true species collected on the River Amazon. These were gathered at the proper season, and are consequently full of leaves, and plump, unstarted dormant eyes. They are in unusually good condition, and the whole consignment being offered, this sale presents an exceptional opportunity for obtaining splendid specimens of this rare Orchid. At the same time will be sold a fine lot of LÆLIA ANCEPS, from quite a new district, and other ORCHIDS.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Friday Next.
SACCOLABIUM HENDERSONIANUM.
CYPRIPEDIUM NIVEUM.
CALANTHE VESTITA.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, at half-past 12 o'Clock precisely, a splendid importation of SACCOLABIUM HENDERSONIANUM, a plant of rare beauty and merit; a grand lot of CYPRIPEDIUM NIVEUM, in varieties; CALANTHE VESTITA, several other CALANTHES; a fine lot of ODONTOGLOSSUM ALEXANDRÆ, O. VEXILLARIUM, CATTLEYAS, &c.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Lee, Kent, S.E.

GREAT ANNUAL TRADE SALE to commence punctually at 11 o'Clock, in consequence of the unusually large number of 1100 lots.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. B. Maller to SELL by AUCTION, on the Premises, the Burnt Ash Nursery, Lee, Kent, S.E., adjoining the Lee Railway Station, on TUESDAY, September 18, at 11 o'Clock to the minute, without reserve, 20,000 WINTER-BLOOMING HEATHS, beautifully grown and well set with flower-buds, including 10,000 ERICA HYEMALIS, 3000 gracilis, 2000 Wilmorea 1000 caffra, and large quantities of melanthera, ventricosa, grandinosa, and other best varieties; also a quantity of Erica hyemalis, and other sorts, in large and small 60-pots for growing on; 7000 SOLANUM CAPSICASTRUM, well-berried; 2000 ADIANTUMS, cuneatum, gracillimum, and Farleyense, remarkably well-grown; 500 LOMARIA GIBBA, and other choice DECORATIVE FERNS, in 48 and 60-pots; a fine lot of GREVILLEA ROBUSTA, CYCLAMEN PERSICUM, AMPELOPSIS VEITCHII, 2000 GENISTAS, 6000 BOUVARDIAS, 1000 decorative PALMS, extra strong STEPHANOTIS, HOYAS, English-grown CAMELLIAS and AZALEAS, Maréchal Niel and other dwarf ROSES, double BOUVARDIAS, President Garfield and Alfred Neuner, in 48 and 60-pots, and OTHER STOCK.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C., and 8, New Broad Street, E.C.

Lea Bridge Road Nurseries, Leyton, E.
UNRESERVED SALE.—EXPIRATION OF LEASE.
GREAT ANNUAL TRADE SALE of WINTER-FLOWERING HEATHS and other PLANTS, by order of Mr. John Fraser.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, the Lea Bridge Nurseries, Leyton, E., on WEDNESDAY, September 19, at 11 o'Clock punctually (in consequence of there being upwards of 1100 lots), without reserve, many thousands of WINTER-BLOOMING and other HEATHS, remarkably well grown, and including hyemalis, gracilis, Wilmorea, regerminans, caffra, persoluta alba, and others; 1000 EPACRIS, of the choicest kinds; 2000 CYCLAMEN PERSICUM, 1000 GENISTA FRAGRANS, Tea-scented and Noisette ROSES, SOLANUM CAPSICASTRUM, in berry; several hundreds of well-grown CAMELLIAS, well set with bloom; 400 early flowering and other CHRYSANTHEMUMS, 200 Maréchal Niel and other ROSES, from 7 to 10 feet; a large quantity of fine plants of AMPELOPSIS VEITCHII, STOVE and GREENHOUSE PLANTS, in variety, including Acacias, Ixoras, Dipladenias, Boronias fine healthy young plants of Lapageria alba and rosea superba, and other stock.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C., and 8, New Broad Street, E.C.

Tottenham.

GREAT ANNUAL TRADE SALE; to commence punctually at 11 o'Clock, there being upwards of 1100 lots.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Brunswick Nursery, Tottenham (close to White Hart Lane Station), on THURSDAY, September 20, at 11 o'Clock precisely, by order of Mr. John Maller, without reserve, 20,000 winter blooming HEATHS, beautifully grown, and abundantly set with flower-buds, including Erica hyemalis, gracilis, caffra, Wilmorea, and other best kinds; 5000 remarkably well berried SOLANUM CAPSICASTRUM, unsurpassed in the Trade; 1000 ACACIAS, 1000 handsome PALMS, 1000 well furnished ADIANTUMS, 500 FICUS ELASTICA, 3000 TREE CARNATIONS, best varieties; 5000 BOUVARDIAS, 1000 CYCLAMEN, 1000 EUPHORBIA JACQUINIFLORA, 1000 AZALEAS, large plants of AZALEAS and CAMELLIAS, for cutting from, 4000 GENISTAS, 500 MYRTLES, 200 EPIPHYLLUMS, 500 GREVILLEA ROBUSTA, 1000 Double White PRIMULAS, including Gilbert's splendid new varieties; several thousands of small ERICAS, GENISTAS, &c., for growing on, and large quantities of DRACÆNAS, CROTONS, FERNS, BEGONIAS, GARDENIAS, AMPELOPSIS VEITCHII, CLEMATIS, &c., suitable for the Trade, and other extensive buyers.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B. The whole stock is in first-rate condition, the Ericas being especially well set for flowers.

Wood Green, N.

SECOND ANNUAL TRADE SALE of unusually well grown Stock.—Important to Nurserymen, Florists, and others requiring well furnished Plants for Immediate Decoration.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Lordship Nursery, Lordship Lane, Wood Green, N., near the Green Lanes and Wood Green Stations, on FRIDAY, September 21, at 12 o'Clock precisely, by order of Mr. J. W. Hurst, 15,000 DECORATIVE FOLIAGE PLANTS, in 48 and 32-pots, including 2000 Palms, consisting of Latania borbonica, Seaforthia elegans, Corypha australis, Phœnix reclinata, and others; 1600 Dracænas, including a splendid lot of the true rubra variety; 10,000 choice Ferns, including 1200 Lomaria gibba, 1500 Lastræa aristata variegata, 1000 Pteris serrulata, 750 Pteris (Dicksonia variety), 5000 Adiantum cuneatum—fine plants, principally in 48-pots, 300 Dicksonia antarctica, 600 Phlebodium aureum; large Ficus, Stephanotis, Camellias, Crotons, and other Stock, the whole of which is remarkably well grown, and an inspection is invited.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C., and 8, New Broad Street, E.C.

The Sidcup Hill Nursery, Foots' Gray, Kent.
By Order of the Executrix of the late Mr. R. Sim.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, as above, without reserve, on TUESDAY, September 25, at 12 o'Clock the first portion of the Stock-in-Trade, comprising an unusually large variety of FERNS, forming one of the finest collections in the Trade; 3000 Standard and Half-standard ROSES, and OTHER STOCK.

N.B. The Old Established NURSERY BUSINESS is for DISPOSAL, on easy terms, and the Auctioneers will be pleased to furnish particulars on application.

Eaton Nurseries, near Norwich.
GREAT UNRESERVED CLEARANCE SALE of beautifully grown NURSERY STOCK, by order of Messrs. Ewing & Co., who are giving up their Nurseries.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, the Old Established Nurseries at Eaton, near Norwich, on WEDNESDAY and THURSDAY, September 26 and 27, at 12 o'Clock precisely each day, the second portion of the VALUABLE NURSERY STOCK, comprising the plants in pots, consisting of about 10,000 Roses in pots of such sorts as Maréchal Niel, Niphetos, Gloire de Dijon, and other best varieties of Teas and Noisettes; 5000 Clematis in great variety, of the newest and best kinds; 5000 variegated and green-leaved Ivies; Ampelopsis Veitchii, and other hardy Climbers in pots in superb variety; also about 5000 choice young Evergreens and Flowering Shrubs, many of them new and rare; and large quantities of Japanese Evergreens, Aucuba japonica, &c.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, London, E.C.

N.B.—A GREAT SALE of FRUIT and ORNAMENTAL TREES and SHRUBS to be held on NOVEMBER 6 and 9, particulars of which will appear in due course.

Alteration of Date.
LÆLIA ELEGANS.—PRELIMINARY NOTICE.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY, September 28, and NOT September 21, as previously advertised, a wonderful lot of LÆLIA ELEGANS, in masses of unprecedented size and condition. Further particulars will duly appear.

Richmond, S.W.—Expiration of Lease.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Herbst (who has received notice from the Crown Commissioners to give up the land) to SELL by AUCTION, on the Premises, The Nursery, Kew Road, Richmond, S.W., on FRIDAY, September 28, at 12 o'Clock precisely, the whole of the NURSERY STOCK growing upon that portion of the ground, comprising finely furnished specimen Coniferæ for effective planting; Cupressus Lawsoni lutea in quantity; Lilacs for forcing; Hollies and small Coniferæ for potting; Hardy Ferns, and a variety of Greenhouse Plants; 40 Double White Camellias from 5 to 7 feet, and other Stock.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C., and 8, New Broad Street, E.C.

N.B.—The Stock must be cleared by the 10th of October.

Richmond, S.W.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. G. & W. Steell to SELL by AUCTION, on the Premises, the Nursery, Richmond, S.W., on WEDNESDAY and THURSDAY, October 3 and 4, a large quantity of unusually well-grown NURSERY STOCK in excellent condition for removal.

Full particulars will be duly advertised.

Catalogues (when ready) may be had of the Auctioneers.

Weybridge.—Preliminary Notice.
GREAT UNRESERVED CLEARANCE SALE of well-grown NURSERY STOCK, the Land being required for Building Purposes.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Oatlands Park Nursery, Weybridge, about a mile from Weybridge and Walton Stations, on TUESDAY, October 9, and following days, by order of Mr. Henry Chapman, several Acres of young and thriving NURSERY STOCK, in fine condition for removal, full particulars of which will appear in future Advertisements.

Catalogues may be had, when ready, of the Auctioneers, as above.

Ealing, W.—Preliminary Notice.
GREAT UNRESERVED CLEARANCE SALE.
Important to Noblemen, Gentlemen, Nurserymen, and Others largely engaged in Planting.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Charles Lee & Son to SELL by AUCTION, on the Premises, The Ealing Nursery, Ealing, W., on TUESDAY, October 16, and following days, 12 Acres of beautifully-grown NURSERY STOCK, in young and thriving condition, Thousands of Fruit Trees, &c.

The Auctioneers beg to call attention to this highly important and unreserved sale.

Catalogues will be published in due course, and will be forwarded on application.

Manor Park, Little Ilford, Essex.
To NURSERYMEN, MARKET GARDENERS, BUILDERS and OTHERS.
VALUABLE FREEHOLD BUILDING or MARKET GARDEN LAND.

MR. W. H. COLLIER is instructed by the British Land Company (Limited) to OFFER by AUCTION, at the "Princess Alice," Romford Road (near Forest Gate Station), on MONDAY, September 24, at 6 for 7 o'Clock in the evening. Six Lots, of about 2 acres each, of valuable MARKET GARDEN LAND, having important building frontages of about 240 feet each to the main Ilford Road, opposite the "Rabbits' Tavern," and several Lots of eligible FREEHOLD BUILDING LAND, having frontages to the new road leading from the Ilford Road to Little Ilford, situate close to Manor Park Station, on the Great Eastern Railway, and near Wanstead Flats. The property will be sold free from Tithe and Land Tax. Nine-tenths of the purchase money may remain on mortgage or contract at 5 per cent. interest, to be paid in nine years by equal half-yearly instalments, but the whole or any part of the balance may be paid off at any time, without notice. Free Conveyance will be given on the Vendor's Title being accepted, without further investigation.

Particulars, Plans, and Conditions of Sale may be obtained about ten days before the Sale, at the "Rabbits' Inn," Ilford Road; of Messrs. R. & A. RUSSELL, Solicitors, 59, Coleman Street, London, E.C.; of the Auctioneer, at the Offices of the British Land Company (Limited), 25, Moorgate Street, E.C.; and at the place of Sale.

DUTCH FLOWER ROOTS

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEY HAVE RECEIVED THEIR ANNUAL SUPPLY OF

HYACINTHS, NARCISSUS, TULIPS, and other BULBOUS ROOTS;

and are pleased to say that they are in fine condition.

BULB CATALOGUE FOR 1883

Has now been posted to all our Customers; any one not having received the same, a duplicate copy will immediately be forwarded Post-free on application.

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

NEW AËRIDES.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. SANDER, on WEDNESDAY, September 19, a splendid Specimen of a

NEW AËRIDES IN FLOWER.

The plant was brought home about two years ago by the Collector, and is the only one received. The Collector found it in flower, and took special care of the plant. It has many growths, is entire, with broad leaves, and in extra health, being well-rooted and growing freely. The flowers are of extraordinary size, 30 on the spike, of great beauty, and we consider it the finest Aërides extant. The specimen may be inspected at St. Albans.

On view morning of Sale, and Catalogues had.

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

TUESDAY NEXT.

CATTLEYA ELDORADO SPLENDENS.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. F. HORSMAN & CO., of Colchester, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, at half-past 12 o'Clock precisely, a magnificent Importation of CATTLEYA ELDORADO SPLENDENS—the true species, collected on the River Amazon. These were gathered at the proper season, and are consequently full of leaves and plump, unstarted, dormant eyes. They are in unusually good condition, and the whole consignment being offered this sale presents an exceptional opportunity for obtaining splendid specimens of this rare Orchid. At the same time will be sold a fine lot of LÆLIA ANCEPS, from quite a new district, and other ORCHIDS.

On View Morning of Sale.

CATALOGUES at the ROOMS, and 8, NEW BROAD STREET, LONDON, E.C.

TO INTENDING PLANTERS.

Expiry of Lease.—Clearing Sale.

THE LAWSON SEED AND NURSERY CO. (LIMITED), EDINBURGH,

Have resolved to clear off the entire stock of SEEDLING and TRANSPLANTED FOREST TREES, FRUIT TREE STOCKS, ORNAMENTAL TREES for immediate effect, &c., contained in Windlestrawlee Nursery, Granton Road, as they do not intend to renew the lease, which expires next year; their other Nurseries, however, will be carried on as usual. All the stock not previously sold by private bargain, will be exposed by

PUBLIC AUCTION on the 10th and 11th of OCTOBER NEXT;

meanwhile special offers will be made upon application.

Particulars in future Advertisements, and Catalogue now in preparation.

Highly Important Sale of Camellias and Orchids.

MESSRS. SMITH AND DEWAR have been instructed by Messrs. Wm. Thomson & Sons, Clovenfords, Galashiels, to SELL, in their Auction Rooms, 79, Great George Street, Edinburgh, on THURSDAY, September 13, a very valuable lot of CAMELLIAS in tubs (nearly all Alba plena) and covered with flower-buds; also some splendid SPECIMEN ORCHIDS, all in perfect health and well worthy of the attention of Orchid Growers.

Plants will be on view on September 12. Catalogues to be had on application.

Oxford.

To NURSERYMEN, FLORISTS, GARDENERS, CAPITALISTS, and OTHERS.

All that valuable piece of FREEHOLD NURSERY GROUND, situate in Marston Street, Cowley Road, together with a good DWELLING HOUSE thereon, containing two Sitting-rooms, Kitchen, and other Offices on the Ground Floor; two Bed-rooms and W.C. on the First Floor, and two Bed rooms on the Second Floor; also two Stables, Coach-house (with Loft over), five large GREENHOUSES (containing about 4000 square feet of Glass), fitted with Hot-water Apparatus; Brick-built Pits, Frames, conveniently arranged Potting Shed, and large Garden stocked with Fruit Trees in full bearing, the whole covering an area of about 1 Acre. Gas and Water laid on to the Premises.

MR. WALTER GRAY will SELL the above by AUCTION, at the Roebuck Hotel, Oxford, on WEDNESDAY, September 19, at 6 for 7 o'Clock in the evening.

This desirable Freehold Estate is admirably adapted for carrying on the business of a Florist, a good remunerative trade having been conducted on the Premises for a period of 25 years, and forms a rare opportunity for any one desirous of entering upon such an enterprise, or may be laid out in Building Lots, for the erection of small Villas, or good Cottages, for which it is well suited. The Property is subject to a small Tithe-Rent of about 6s. per annum, and the Land Tax has been redeemed.

The Purchaser will have the option of taking to the Stock-in-Trade at a valuation.

The Fruit Trees will be sold with the Land.

Tram Cars pass within half-a-minute's walk of the Nursery Gate, at the Cowley Road end of Marston Street, and there is also a carriage entrance from Iffley Road.

A Plan of the Land may be seen at the Offices of the Auctioneer. The site will be pointed out on application to Mr. Thomas Robinson, the occupier, and possession will be given upon completion of the purchase.

Should the Property not be Sold in One Lot it will be offered in Two Lots, as staked out and marked on the Plan.

Further particulars may be obtained of G. D. D. DUDLEY, Esq., Solicitor, Cornmarket Street; of Mr. T. F. HAWKINS, St. Giles' Street; or of the Auctioneer, 30, New Inn Hall Street, Oxford.

Sander's Lane Nurseries, Woking.

Three miles from Woking Station, and 1 mile from Worplesdon, L. & S. W. Railway.

TWO DAYS' NURSERY SALE.

MR. H. W. COPUS has been honoured with instructions from Mrs. Chapman (who is giving up the Trade) and from Messrs. T. Holdforth & Sons, to SELL by AUCTION, on MONDAY and TUESDAY, September 24 and 25, a large assortment of EVERGREEN SHRUBS, 5000 Berberis Darwinii, 2000 Cotoneaster microphylla, Cedrus Deodara, 5 to 7 feet; 5000 Thuia Lobbii, 2000 Cupressus Lawsoniana, Colchica and common Laurel, Pinus austriaca, Retinospora plumosa argentea and aurea, Green and Variegated Hollies, Ribes sanguineum, American Arbor-vitæ, Abies Douglasii, Acer Negundo, 10,000 Dwarf ROSES, best named sorts; Oval-leaved PRIVET, 5000 LABURNUM, 2 to 8 feet; 2000 HONEYSUCKLES of sorts; 2000 ASH and OAK, transplanted; White and Yellow BROOM, POPLAR of sorts, LARCH and Scotch FIR, HYACINTHUS CANDICANS, VINCA ELEGANTISSIMA and MAJOR, VIRGINIAN CREEPER, Irish IVIES, ASPARAGUS, SEAKALE, and 5000 Standard and half-Standard ROSES, best leading sorts; together with FILBERTS, FRUIT TREES, &c.; useful HORSE, HARNESS, VAN and TILT; Two small Ricks of Meadow HAY, small GREENHOUSE, complete; WINNOWING MACHINE, CHAFF CUTTER, &c.

A Conveyance will meet trains arriving at Woking Station at 10.50 down, 10.41 up, Portsmouth line; 11 9 Southampton, to take up Purchasers.

Sale to commence at 12 o'Clock precisely each day.

Catalogues in due course (post-free) of the Auctioneer, 16, Friary Street, Guildford, and on the Premises.

Corsham, Wilts.—By the Railway Station.

FOR SALE, the Established BUSINESS of a NURSERYMAN, FLORIST, and SEEDSMAN. The Premises comprise Dwelling-house, Stable, Glasshouses, choice stock of Vines, Fruit Trees, Shrubs, Seeds, &c. More than an acre of Land.

Apply to Mr. D. KEEVIL, Corsham; or, to Messrs. KEARY, STOKES, AND GOLDNEY, Solicitors, Chippenham.

FOR SALE, a NURSERY, about 1 Acre. 3 Greenhouses, 18 Lights, 4-roomed Cottage. Lease 17 years. For particulars, apply H. CROOK, 6, Belmont Place, East Greenwich, S.E.

To Nurserymen, Seedsmen, and Florists.

FOR SALE.—An ESTABLISHED CONCERN in the above Business for IMMEDIATE DISPOSAL, in a good Market Town. In present hands over twelve years. It includes extensive Peach and other Houses, a large Garden, House and Shop in main street, with Greenhouses at the back. A good chance for a man who knows his Business and has £100 at his command.

Further particulars to be had from Mr. R. GILLETT, Valuer, Witney, Oxon.

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

Strawberries.

PAUL AND SON have now strong Plants, both in small pots and transplanted; Runners of all the best kinds of these fruits, now a speciality of the many. LIST on application.

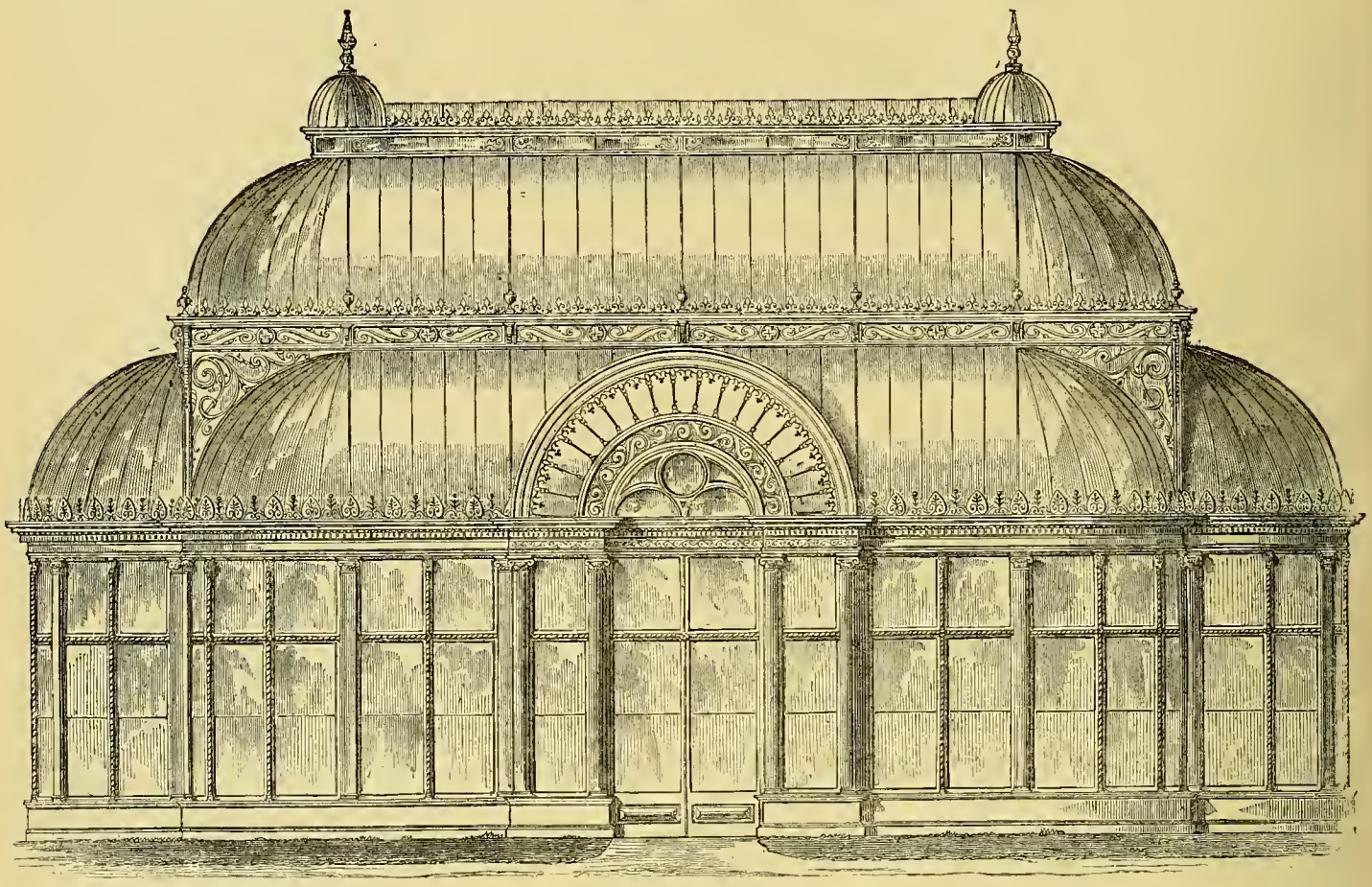
The "Old" Nurseries, Chesbunt.

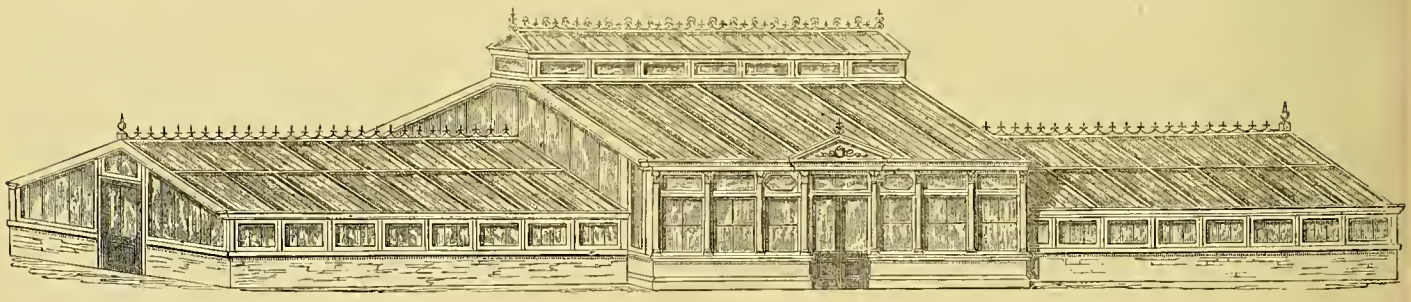
CABBAGE PLANTS.—Good strong Early Rainham Cabbage Plants now ready for putting out, raised from Seed direct from Rainham. Apply F. TROWELL AND SON, Elms Farm, Barnes, Surrey.

HENRY ORMSON,

HORTICULTURAL BUILDER AND HOT-WATER APPARATUS ENGINEER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, S.W.





THE BEST BUILT HOTHOUSES AND CONSERVATORIES.

Surveys made and Gentlemen waited on in any part of the Country.

CATALOGUES, PLANS, AND ESTIMATES SUPPLIED ON APPLICATION.

UNSURPASSED BOILERS AND HEATING APPARATUS.

Carters'

FORCING BULBS

PLANT AT ONCE
TO ENSURE WHITE FLOWERS
AT CHRISTMAS.

Carters' Early White Roman Hyacinths,
The Best in the Market.

12 Fine Bulbs	post-free	3s. 0d.
24 Fine Bulbs	post-free	6s. 0d.
50 Fine Bulbs	post-free	11s. 0d.
100 Fine Bulbs	post-free	21s. 0d.

Carters' Early Paper White Narcissus.

12 Fine Bulbs	post-free	2s 0d.
24 Fine Bulbs	post-free	4s. 0d.
50 Fine Bulbs	post-free	7s. 0d.
100 Fine Bulbs	post-free	12s. 6d.

Carters' Extra Large Snowdrops.

100 Fine Bulbs	post-free	3s. 6d.
50 Fine Bulbs	post-free	2s 0d.

For full particulars, see
CARTERS' Illustrated CATALOGUE
OF BULBS, ROSES, AND PLANTS,
Gratis and Post-free.

The Queen's Seedsmen, and by Royal Command to H.R.H. the Prince of Wales,
237 and 238, HIGH HOLBORN,
LONDON, W.C.

SPECIAL CHEAP OFFER of HARDY PERENNIALS, SUITABLE for PRESENT PLANTING.
CONSISTING of most Useful and Effective Varieties, principally strong plants from Ground, gratis and post-free upon application.
THOS. S. WARE, Hale Farm Nurseries, Tottenham, London.

FERNS A SPECIALITY.

EXOTIC and BRITISH FERNS and SELAGINELLAS,
Suitable for STOVE and GREENHOUSE Cultivation, for OUTDOOR FERNERIES, and other purposes, in immense number and variety. Our ILLUSTRATED CATALOGUE (price 6d.) contains much useful information as well as "Hints on Fern Culture." SPECIAL LISTS, issued at intervals during the year, giving extremely low quotations, may be had FREE on application.
W. & J. BIRKENHEAD,
FERN NURSERY, SALE, MANCHESTER.

THE HOME FOR FLOWERS.

All fond of Flowers will find ours the MOST COMPLETE CATALOGUE of all floral requirements during the autumn and winter, which has been posted to our valued Customers, and we should also be pleased to send a copy to those whom we have not yet had the pleasure of doing business with. It will be found both useful and interesting, and supplying a want so much needed in every Garden. Our Stock is the finest we ever had, and comprises nearly everything for the supply and production of the Choicest Flowers in every private home all the year round, and supplied at the very lowest price consistent with quality and correctness, and packed to all parts of the world. New and old SOFT-WOODED PLANTS, ROSES, BULBS, HERBACEOUS PERENNIAL PLANTS, WINTER-BLOOMING PLANTS, DAHLIAS, CHRYSANTHEMUMS, CARNATIONS, and PICOTEES, with the best varieties of all sections of Popular Flowers, &c.
H. CANNELL & SONS,
SWANLEY, KENT.

BEAUTIFUL FLOWERS
AT CHRISTMAS
May be secured by planting
SUTTONS'
FORCING BULBS

SPECIAL COLLECTIONS OF BULBS
Most suited for Late Summer and Early Autumn Potting,
INCLUDING
EARLY ROMAN HYACINTHS, DOUBLE ROMAN NARCISSUS, PAPER WHITE NARCISSUS, SNOWDROPS, CROCUS, JONQUILS, DUC VAN THOL TULIPS, SCILLAS, &c., &c., at
42s., 31s. 6d., 21s. and 10s. 6d. each.

ROMAN HYACINTHS
(*FOR FORCING*).

			s.	d.
Single White	per dozen 3s. 6d.;	per 100	25	0
Single Blue	" 2s. 0d.;	"	14	0

EARLY NARCISSUS
(*FOR FORCING*).

			s.	d.
Double Roman	per dozen 2s. 6d.;	per 100	17	6
Paper White	" 2s. 0d.;	"	14	0

SUTTONS' HYACINTHS
(*FOR FORCING*).

	s	d.
50 Hyacinths, in 25 named varieties	42	0
25 " 25 " "	22	6
12 " 12 " "	12	0

EARLY TULIPS, Single & Double
(*FOR FORCING*).

	s.	d.
100 Tulips, in 10 varieties	15	0
50 " 10 "	8	0
25 " 5 "	4	0
12 " 4 "	2	0

For full particulars of
SUTTONS' CHOICE FLOWER ROOTS
SEE
SUTTONS' AUTUMN CATALOGUE,
Gratis and post-free on application.

ALL GOODS CARRIAGE FREE
(if of 20s. value).

Sutton & Sons
THE QUEEN'S SEEDSMEN,
and by Special Warrant to
H.R.H. THE PRINCE OF WALES,
READING, BERKS.

THE
Gardeners' Chronicle.
SATURDAY, SEPTEMBER 8, 1883.

THE NITROGEN OF SOILS.

THE subject of nitrogen in its relation to vegetation has occupied the attention of agricultural chemists, more or less, for the last 100 years; for it was just between 1770 and 1800 that Black, Scheele, Lavoisier, Cavendish, and Watt, were engaged in establishing that common air consists of nitrogen and oxygen, with a little carbonic acid—that carbonic acid is composed of carbon and oxygen—and water of hydrogen and oxygen; and it was within the same period that Priestley, Ingenhousz, and others laboured to show the mutual relations of these bodies and vegetable growth. To De Saussure we owe the quantitative illustration of the fact that plants in sunlight accumulate carbon, hydrogen, and oxygen, at the expense of carbonic acid and water. And from his numerous experiments he was led to the conclusion that air and water contributed a much larger proportion of the dry substance of plants than did the soils in which they grew; also, that the source of the nitrogen of plants was very probably the nitrogenous compounds to be found in the soil, together with the small amount of ammonia which he demonstrated to exist in the atmosphere.

Closely following on the footsteps of the above observers came Boussingault, Liebig, then Lawes and Gilbert; and the question whether or not plants assimilate the free or uncombined nitrogen of the atmosphere, and whether the stores within the soil itself are an important source of the nitrogen of our field and garden crops has, for the past forty years, been the subject of laborious inquiry in the elaborate experiments at Rothamsted.

In recent publications of Sir J. B. Lawes, Dr. J. H. Gilbert, and their coadjutor, Mr. R. Warington, much valuable information has been put forward bearing on the question of the sources of the nitrogen of our crops, and on some of the changes which nitrogenous matter undergoes within the soil. From these authorities we learn that an ordinary arable field of clay soil in fair agricultural condition, when all stubble and roots have been removed, contains in the first 9 inches of the surface-soil a quantity of organic matter containing about 3000 lb. of nitrogen, and 30,000 lb. of carbon per acre, and that this organic matter of the soil has been derived either entirely from the decay of vegetable substances left in the land by preceding generations of plants, or to some extent from past applications of farmyard or similar organic manure. The present fertility of a soil in great measure, therefore, is a natural consequence of its past productiveness.

In growing the same crop year after year at Rothamsted, on the same land, without any supply of nitrogen by manure, it has been found that the average yield of nitrogen per acre per annum was, in the case of Wheat, grown for thirty-two years without manure, 20.7 lb., and in that grown for twenty-four years with a complex mineral manure, 22.1 lb. Barley, grown for twenty-four years without manure, yielded 18.3 lb., and when grown for twenty-four years with a complex mineral manure, 22.4 lb. Root-crops, treated for thirty-six years (including three years of Barley), with a complex mineral manure, 25.2 lb. Beans, twenty-four years without manure, supplied 31.3 lb., and twenty-four years with a complex mineral manure, 45.5 lb. In the case Clover, six crops

in twenty-two years, with one crop of Wheat, three crops of Barley, and twelve years fallow, without manure, 30.5 lb.; with complex mineral manure, 39.8 lb.; with Clover on land which had not grown the crop for very many years, one year, 151.3 lb.; with a rotation of crops, seven courses, twenty-eight years without manure, 36.8 lb.; and with superphosphate of lime, 45.2 lb.; with a mixed herbage of grass-land twenty years without manure, 33 lb.; and with complex mineral manure, 55.6 lb.; lastly, with Bokhara Clover, five years with mineral manure, between 80 lb. and 90 lb. of nitrogen per acre per annum.

Thus the root crops yielded more nitrogen than the cereal crops, and the leguminous crops very much more still; and in all cases of the experiments on ordinary arable land—whether with cereal, root, leguminous, or a rotation of crops (excepting, as yet, the Bokhara Clover)—the decline in the annual yield of nitrogen, none being supplied by manure, was very great.

Having briefly summarised the yield of nitrogen in different crops, we must now consider the question, whence comes the nitrogen? The following actual or possible sources may be enumerated:—The nitrogen in certain constituent minerals of the soil; the combined nitrogen annually coming down in the direct aqueous depositions of rain, snow, dew, and hoar frost; the formation of ammonia and nitric acid in the soil from free nitrogen and nascent hydrogen; and the direct absorption of nitrogen from the atmosphere by plants themselves.

A consideration, however, of these several sources of the nitrogen of the vegetation which covers the earth's surface, shows that the determined amounts of combined nitrogen annually coming down in the measured aqueous deposits from the atmosphere in the open country, are entirely insufficient to do more than supply a very small proportion of the nitrogen assimilated by our crops. Also that the balance of direct experimental evidence is decidedly against the supposition that plants appropriate to themselves the free nitrogen of the air.

If, then, the supply of mineral constituents of the soil be not defective, and the yield of our crops is in the main dependent on the amount of nitrogen which is available to them within the period of their growth from the soil itself, the manure applied to it, or from crop residue, there can be little doubt that the fertility of a soil must be largely measured by the amount of nitrogen it contains, and the degree in which it becomes available. And if this be so, then the soil may, as Lawes and Gilbert aptly put it, be a *mine* as well as a *laboratory*.

The following table of experiments with Wheat illustrates the fact of the dependence of the nitrogen and carbon of the soil on the luxuriance of the previous cropping:—

TABLE I.

Annual manuring, and average produce of land continuously cropped with Wheat during thirty-eight years. Also the percentage of nitrogen and carbon, and the quantity of nitrogen as nitrates per acre, found in the soil at the end of that period.

Plot 4. No Manure.	Plot 5 A. Mixed Mineral Manure.	Plot 10 A. Ammonium Salts, 400 lb.	Plot 6 A. Mixed Mineral Manure and Ammonium Salts, 200 lb.	Plot 7 A. Mixed Mineral Manure and Ammonium Salts, 400 lb.	Plot 2. Farmyard Manure, 14 ton.
Average Annual Produce (Corn and Straw) per Acre, 1852—81.					
lb. 2227	lb. 2394	lb. 3450	lb. 3954	lb. 5710	lb. 5695
Nitrogen per cent. in first 9 inches of Soil, October, 1881.					
0.092	0.098	0.103	0.111	0.121	0.184
Carbon per cent. in first 9 inches of Soil, October, 1881.					
1.010	1.033	1.095	1.205	1.267	2 132
Nitrogen as Nitrates per Acre in first 27 inches of Soil, October, 1881.					
lb. 16.3	lb. 25.1	lb. 33.8	lb. 29.4	lb. 40.1	lb. 51.8

An inspection of the above figures will show that the percentage both of nitrogen and carbon in the soil is greater according to the weight of the crop annually produced; the quantity of nitrogen and carbon in the first 9 inches of soil is indeed more than one-fourth larger on 7 "a", yielding 32¼ bushels of corn and 32¾ cwt. of straw, than on Plot 4, where the produce was 14 bushels of dressed corn, and 12 cwt. of straw only.

Turning to the experiments with Barley, which has been grown continuously on the same land for thirty years, we again find, as in the case of Wheat, that with the continued production of a large crop, the nitrogen and carbon in the soil are distinctly in excess of the quantity found when only a small crop has been obtained. The differences, however, are far less marked in the case of Barley than with Wheat, the distinction between the two crops supposed to be chiefly due to the much smaller proportion of root-residue left by a Barley crop.

TABLE II.

Annual manuring and average produce of land continuously cropped with Barley during thirty years. Also the percentage of nitrogen and carbon, and the quantity of nitrogen as nitrates per acre, found in the soil at the end of that period.

Plot 1 O. No Manure.	Plot 2 O. Superphosphate, 3½ cwt.	Plot 1 A. Ammonium Salts, 200 lb.	Plot 2 A. Superphosphate, 3½ cwt.; and Ammonium Salts, 200 lb.	Plot 1 C. Rape-cake, 1000 lb.	Plot 7*. Farmyard Manure, 14 tons.
Average Annual Produce (Corn and Straw) per Acre, 1852—81.					
lb. 2150	lb. 2604	lb. 3609	lb. 5368	lb. 5243	lb. 6040
Nitrogen per cent. in first 9 inches of soil, March, 1882.					
0.093	0.090	0.090	0.102	0.123	0.211
Carbon per cent. in first 9 inches of soil, March, 1882.					
1.021	0.957	1.026	1.060	1.327	2 486
Nitrogen as Nitrates per acre in first 9 inches of soil, March, 1882.					
lb. 16 9	lb. 19.2	lb. 22.9	lb. 27.6	lb. 32.1	lb. 45.5

If, however, the Barley field furnishes less striking illustrations than the Wheat field of the influence of crop residues, it supplies us with some capital examples of the accumulations of organic matter in the soil, which may result from the use of organic manures. In the Barley field the increase of nitrogen and carbon in the soil from the continuous use of farmyard manure is shown by the figures in the table to be even greater than in the Wheat field; while on the plot annually manured with 1000 lb. of Rape-cake a similar though smaller accumulation has occurred.

In regard to the changes which the organic matter undergoes in the soil, it may be stated that in a fertile soil oxidation by various agents is continually taking place, the general result being its conversion into water, carbonic acid, and nitric acid. The vegetable residues left by crops are in this way reconverted into plant food, and made fit to support the life of a new generation of plants. But the rapidity with which the oxidation of organic matter takes place in the soil when the land is under tillage renders the nitrates produced extremely liable to be washed away by drainage, unless the skill of the agriculturist is displayed in so arranging his methods of culture that the nitrates shall be a source of profit instead of loss. The effect of peroxidation in the productiveness of land is strikingly shown at Rothamsted by the fact that arable land, though containing only half the amount of nitrogen that is found in pasture, is, nevertheless, capable of yielding a greater weight of annual produce per acre.

AGAVE AMERICANA FLOWERING AT OXFORD.—The two fine old American Aloes—the green and the variegated forms—so much admired by visitors to the Oxford Botanic Garden for many years past, are now flowering in that establishment, and under favourable circumstances will continue to expand a succession of flowers for several weeks to come. The plants are supposed to be about ninety years old, and the flower-stems—which have each twenty-four lateral branches, as well as a terminal cluster of flowers—are now 22 feet and 21 feet in height, respectively, from the tubs in which they are growing.

New Garden Plants.

MASDEVALLIA GEMMATA, *n. sp.**

THE lovely little dwarf is a connecting link between the Triaristella and the Fissæ group. Its leaves are fleshy, coriaceous, cuneate, linear, obscurely tridentate at the apex, reaching 2 inches in length. Mr. J. O'Brien, who kindly forwarded me the gem, says, however, "the leaves grow twice the length of those sent." The thin peduncle bears one flower—at least, only one at a time. Upper sepal triangular, with microscopical cilia passing into an orange tail of equal length, light ochre-coloured. Lateral sepals larger, oblong, unequal, the inner halves being larger and more projecting, ochre at the base, with orange nerves, purple on the anterior part. Tails nearly equal in length, orange, the halves being unequal. There is some resemblance to the Triaristellæ, which is strengthened by the leaves, which are totally those of Masdevallia tridactylites; yet in the old Triaristellæ the lateral sepals extend into a long angle, and the small tails stand laterally, or like bristles, or like the teeth of the Babirussa pigs. Petals very small, one-nerved, oblong, with three very obscure teeth at the apex. Lip cordate, triangular, short, purple. The name "gemmata" is applied in reference to the hundreds of purple, neatly light-breaking papillæ, which stand by crowds on the anterior parts of the sepals, and a few on the lip. What a pleasure to look at them with low microscopical powers! One might compare the ornament with the velvet glory of Masdevallia Veitchiana. Mr. O'Brien informs me the flowers are semi-recumbent. They are equal to those of Masdevallia picturata. *H. G. Rchb. f.*

MASDEVALLIA GASKELLIANA, *n. sp.*†

This was imported last year by Mr. F. Sander, and it has just flowered (end of July) with my excellent correspondent, Mr. Holbrook Gaskell, Woolton Wood, Liverpool, under the management of Mr. W. Davies. I suspect I may have had it before, as I have had lately some smashed and crushed flowers, which I could only name as Masdevallia radiosa?—this being the sister. Mr. Holbrook Gaskell understood to let me have the plant in the best state. Though it is one of the smaller Saccolabiatæ, it is a very elegant thing. The lanceolate acute, narrow, somewhat thin leaves scarcely exceed 4 inches in length. The peduncles would appear to remain one-flowered. The outer surface of the sepaline cup is purple-mauve, with two yellow areas on the inferior base and apex of the lateral sepals. Tails longer, mauve-purple on both sides. Inside the cup is light yellowish, hairy, full of mauve spots. Petals purple-mauve; bivalved in the usual manner at top, and these with acute asperities. Lip calceolar, narrow, long (as in Masdevallia Backhousiana) with one chief longitudinal keel, and one on each side; light yellow. Column light yellow with a very long beak. It stands nearest to Masdevallia radiosa. *H. G. Rchb. f.*

CŒLOGYNE PRÆCOX (*Lindl.*) TENERA, *n. var.*

This very nice variety flowers at its best in association with the leaves. The flowers are of the lightest and most delicate colour, lightest lilac and yellow, and have a few fine purple-mauve blotches on the lip. It was kindly sent by Mr. W. Bull. *H. G. Rchb. f.*

CYPRIPEDIUM MACROPTERUM, *Rchb. f., hybr.*

A fresh inflorescence at hand, kindly sent by Messrs. Veitch & Son—a great improvement. Three flowers in lieu of two, wider, and with finer colours, give evidence that this is one of the most stately artificial products of Cypripedia. *H. G. Rchb. f.*

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* *Masdevallia gemmata*, n. sp.—Foliis cæspitosis cuneato linearibus ligulatis apice minute tridentatis; pedunculo capillari unifloro (semper?); sepalo impari triangulo trinervi minute ciliato; cauda æquilonga; sepalis lateralibus oblongis medium usque fissis, dimidio interno amplioribus; caudis æquilongis; papillis multis in parte anteriori; tepalis oblongis obscure tridentatis uninervosis; labello cordato triangulo trinervi. *H. G. Rchb. f.*

† *Masdevallia Gaskelliana*, n. sp.—Minor, dense cæspitosa; foliis cuneato linearibus lanceolatis acutis; pedunculo iunifloro (semper?), cupula modica, sepalorum partibus liberis trangulis, intus hispidis, caudis longe extensis; tepalis ligulatis acutis, apice bivalvibus inter valvas inæquales muriculatis; labello calceolari angusto ore denticulato, carinis longitudinalibus ternis; columna apice longe rostrata, rostro lineari apice retuso, dentato. *H. G. Rchb. f.*

A BUCKINGHAMSHIRE GARDEN.—XI.

August 6.—The Lime avenue is pleasanter than ever now, on these bright afternoons, when the low sun strikes amber shafts through the branches, and light shadows lie on the parquet of brown and yellow leaves beneath. With every breeze, hundreds of the winged fruits, like queer little teetotums, come twirling down. The wrens are busy with their second or third nests—without counting the cock-nests at the beginning of the season; the porch swallows are thinking of a second brood, and scatter straws of hay and patches of wet mud untidily upon the stones underneath their nests; thrushes go about the lawn followed by two or three great awkward young ones (the third family), too foolish to pick up worms for themselves. As for the sparrows, they are hard at work with probably the sixth or seventh nest of their series. Roses are coming on in their second bloom; low bushes and standards of La France show large buds and attar-scented blossoms; while crimson Roses of many names glow in richest bloom here and there all over the garden. Precious as are these late Roses, the chord of colour has changed so much since Roses were in their prime, that fresh pink or crimson seem almost misplaced among the fiery reds and scarlet. White Roses are seldom so beautiful as one feels they ought to be; but a small plant of Rosa rugosa, in its first season with us, has been a great pet this summer, with its large white petals; the Macartney also is welcome, flowering as it has, for the first time in its life, here. The buds have hitherto always fallen off, without an attempt at unclosing, and it has only kept its place on the wall for the sake of the lovely evergreen leaves, and yearly promise of abundant bloom. But the only perfect white Rose, the White Moss, remains still a dream, and nothing more. There are tall old blueish pink Roses at the back of the Beechen close, which have been blooming in almost rank luxuriance. They, with a few Cabbage Roses and Maiden's Blush, and a yellow Banksia, were all of Roses the garden had when first we came here, eleven years ago. At that time they were thought too ugly almost to live, and were banished to the outskirts. But time has brought them round to the front again; and now these relics of a bygone Rose age are beloved for their redundant and perfumed though irregularly-shaped bloom, and their most uncommon colour, the red in them being so largely mixed with cold blue. The York and Lancaster Rose—long lost and long-coveted—will, I hope, ere next season be established with us. For the other day in Somersetshire we found one growing near a ghostly house in a deserted garden, and from this plant we have some healthy suckers.

I find I cannot keep pace with the new Roses; they are mostly too large and heavy. They seem to run too far from the flatness of a really typical Rose type. We have not made *pot pourri* this season; but the Lavender harvest is gathered in, with spikes unusually fine. I am not sure, however, that they smell much the sweeter for their size. It is a pleasant time when the Lavender is laid out in trays, and the house is full of the sweetness of it. On these bright windy mornings the broad walk looks its best. Looking up from south to north, the end of the walk, framed in with trees, is bounded by a low quickset hedge, beyond which lies meadow-land with glimpses of yellow cornfields. Beyond all, the soft blue of distant wood. Along the Yew hedge on one side are long beds in the turf of single Dahlias; and on the other side, under the wall, the border flames with scarlet: the scarlet of those tall Lychnis which the children call "summer lightning." And there are sheafs of finely dyed rose-red Phloxes, and pyramids of blue and white Campanula, and clumps of dark blue Salvia, grey and feathery Gypsophila paniculata also, which is quite priceless for the setting off of delicate Poppies, and such-like refined and frail kind of flowers in glasses. Yet the mass of colours would be far more brilliant, but for the bulbs which lie hidden under the earth. They must not be disturbed by putting things in, so there is nothing in the border but that which grows of itself; all that is in it has its place there, perennially.

Spaces in the wall behind—where the ancient Pear trees may have perished from old age—are sometimes dressed with spreading Vines. Last month, a tall blue Larkspur was caught by the wandering tendrils, and so they grew together—the Larkspur upheld by her friend the Vine with a strong and tender grasp. Green streamers of this Vine also enrich the head of an iron gate empurpled with intermingling Clematis. Here, also, almost against the old wall, at regular intervals, are our Sunflowers—some of them grow to nearly 10 feet in height. After many trials of other spots, we think now they seem to do best planted thus. The shelter saves them all conflict with wind and rain, and they are tall, and straight, and full, having no cares of weather to divert their gradual growth to beauty. There was a time when I did not love Sunflowers. Their constant repetition as a kind of æsthetic badge, can scarcely fail even now to tire. In those days they had no place in the garden, or only in some out-of-the-way obscure corner. But once I found a little song of William Blake's, and ever since, for the music of it, the Sunflower has been beloved, with the feeling that to know her is to give her your heart.

> "Ah! Sunflower! weary of time,
> Who countest the steps of the sun;
> Seeking after that sweet golden prime
> Where the traveller's journey is done;
> Where the youth pined away with desire,
> And the pale virgin shrouded in snow,
> Arise from their graves and aspire
> Where my Sunflower wishes to go."

Perhaps there is not much of common sense in the words, but there is something so much better. How grand these Sunflowers are! and there is a sweet and gracious look in the Sunflower's open face. With all her grand mien and stately stature, she never stares up direct at her god; the golden head half bends down—downward also point the bold symmetrically set broad leaves, delicately shaped *en cœur*. The whole aspect is one of contemplation, at least, one fancies it to be so. There is also a sort of majesty in the one strong single stem from which proceeds so fine a show of buds, and flowers, and leaves. Yet I have never had the happiness to see her act the part of a poet's flower—the real Sunflower of our earthly gardens could never turn her head so fast; all that I know she does, is to bloom on which ever side of her the sun arises. Poets, nevertheless, are the true seers, and, without doubt, they know what they say. The French name "Tournesol," would seem to imply a popular belief that the flower follows the sun.

The silly Dahlia would turn her face to the wall, or any way. Brilliant as are these single Dahlias, they are rather trying in their ways; so much rank leaf and stalk, and so little flower. The plants sometimes too large and bushy, sometimes too thin; and then it is so irritating when their backs are turned as one passes along the walk! The so-called Cactus Dahlia, however, is not at all tiresome; it is as beautiful as possible both in form and colour.

August 26. *Sunday Morning.*—After a hundred years, if the Seven Sleepers awoke on an English Sunday morning they would certainly at once know what day it was. There is nothing else like it for the feeling of intense repose. No other stillness can compare with the deep calm of a Sunday morning such as this. No leaf stirs, there is no cloud moving above in the hot, hazy blue; the clatter of the iron road has ceased, the very birds are still. Swallows alone are ever on the wing, and the silence is so profound that the beat of their wings can be heard as they dart by in rapid course. The busy cornfields lie empty in a golden rest. Only here and there, where the harvest is not yet gathered in, the sheaves, like praying hands, stand together on the field. In the green pastures the grazing cattle seem to tread with hushed and silent step. And there is a sound of church bells on the air, coming clear, yet faint across the level country. There will be no church for the tired harvestmen whom we saw yesterday lying on the dusty grass by the roadside. They are too tired and too ragged and dirty, but one may hope for them also some restful influences from the quiet of the day, under such a blue sky.

The early morning is always the time of all others for the garden, while the flowers are refreshed with the dew and the darkness and cool of night, and are rejoicing yet in the light of a new sun. Soon they will begin to flag in the long weary round of burning hours. To one who only knows the garden after 8 o'clock A.M. a walk round it between 7 and 8, or earlier, would be a revelation. On this special morning the flowers in the east border seem penetrated through and through with the rapture of existence. Each Sunflower stands with half transparent shadow, sharp-cut upon the wall behind it; its petals fresh gilt, its centre sparkling with dew. Rose-red Phlox and flaming sword Lilies, blue Salvia intermixed with brilliant stars of Dahlias, and an indescribable mob of smaller more insignificant things. Round the corner a great mass of common white Clematis fills the air with fragrance. It is all whiteness and sweetness—it is a summer cloud—a white cumulus of surpassing beauty. One of the stone vases of the gate pillars is completely hidden under the white foam. But this matters not; nothing matters but that we should have the Clematis there in its loveliness. The Tigridias in the entrance court are wide open, and none would guess how brief their hours were to be. There are a few perfect Roses—morning glories, and orange Nasturtiums with bluish leaves. The dew lies upon all, and one may say in the garden the Psalmist's words about the valleys thick with corn, for the flowers all seem to laugh and sing with joy. Ten glorious days of almost uninterrupted sunshine have made us very dry. Daily waterings help to keep things alive, but the grass is a little brown in some parts of the lawns, and there are yellowing leaves on the Elms and the older Laburnums. The dead dry leaves rustle so thick under foot in the Lime avenue, that one looks up to see if any green are left.

Most of our German fancy grasses are already cut, though a few have still to ripen. We always sow a good variety, they look so fresh while in the borders, and afterwards when dried for the winter. There is the pretty Tussock-grass with soft downy tufts, and the long feathery kind, like waving hair, and one most delicate and spray-like; and new to us this season, is a sort of miniature Bulrush with a green curved head; and then there is a little forest of our English Bashaw-grass. This is very handsome, and gigantic in size, and came up of itself in one of the wild bits. The handsomest of all our grasses this year, however, is a fine blue grass (Elymus? arenarius), from the dunes of Holland. The colour, amongst other greens, is absolutely blue. It grows so strong and the leaves so long, that it might almost be mistaken for a kind of Iris. It is strange that this grass should thrive apparently as well, or even better, in a Buckinghamshire garden, as in its native sands! Near the old Syringa on the turf at the greenhouse door, two large pots of white Campanula are stood out for change of air. They are so tall, that, passing by in the gloaming, one is startled by these tall white people suddenly appearing out of the dusk! Others of the same pyramidal Campanulas remain in the house. They are pale pinkish blue and white. Hundreds of blossoms cover up and hide the whole plant entirely, and nothing is seen but the mass of wide open flowerets. So cleverly are the flowers arranged, there is not a sign of over-crowding, and yet one cannot tell how it is done, for they are set quite close and even. The auratum Lilies have promised soon to open for so long that I have almost lost patience. Our little grove of them looks well, and the buds are large and numerous. The dry weather may possibly have caused them to delay. Constant watering seems now, however, to have taken effect, and there are two or three superb blooms. The bulbs are not taken up for the autumn; they are only covered over with fine ashes or cocoa-nut fibre. If a plant will consent to live in its own place winter and summer, it seems so much more real, somehow. I wished to try the plan with our Spanish Irises, but in their case it proved a complete failure. This autumn we mean to try cutting down Salvia patens, and covering up the roots with ashes. I am told that success is certain.

The parterre is at this time in its full perfection. In other gardens I observe the blue Lobelia is done, but our four beds of the seedling we raised, with dark bronze foliage, is as fine as it was two months ago. I cannot say the blue is so cool as the others, but the staying power of this special kind is of real importance, and the beds are most luminous in colour. I am greatly enjoying a beautiful large blue Agapanthus in a green tub, which has been placed on the grass near a cut Box tree, with a black Irish Yew in the background. The scarlet Pelargoniums (must that long name be said?) glow so hotly, they seem to want as much blue and green as we can give them. Never has our Magnolia grandiflora flowered so well; I have counted nine great blossoms on the two trees at the same time. The texture of no other flower comes near to the beauty of the Magnolia. I remember long ago a white-chested beautiful boy, whose mother called him in play her Magnolia boy. That little child was the only thing I ever saw that could compare with the Magnolia. *E. V. B.*

A LANCASHIRE COTTON-MILL FLOWER SHOW.

To note good beginnings is always pleasant; far more satisfactory yet is it to watch substantial continuous work, the objects of the original start kept steadily in view, and the agreeable and useful results which always arise from perseverance in a praiseworthy undertaking, however simple. We have been led to make this very trite remark through visiting over again the annual flower-show got up by the horticultural portion of the work-people employed in the great cotton-spinning concern at Guide Bridge, near Ashton-under-Lyne, the property of Mr. Hugh Mason, M.P., and locally known by the name of the Oxford Mills. It is nine years ago, almost to the day, that we first made our way thither and described what we then saw in the *Gardeners' Chronicle* (Sept. 12, 1874). The visit of Saturday last, the opening day of the current show, that which we now purpose to speak of, was thus to a spot of well remembered interest, and at the outset we may say that the nine years' growth seems to have strengthened everything, and at all points. The mills themselves are of great magnitude. The wealthy and liberal proprietor, some thirty or thirty-five years ago, provided for his workpeople, men, women, and children, to begin with, a handsome and commodious building, containing newspaper and conversation rooms, baths, a fine lecture and music-hall, &c. Outside, a capital gymnasium was laid out, with bowling-green, a drying-ground to give completeness to the women's wash-tub arrangements, and other such addenda as there should invariably be to a great establishment where it is remembered that workpeople are not simply "hands," but living souls whose health is quite as important to the community as that of their "betters," not to speak of their moral condition. In due course the excellent idea was conceived of adding plots of garden ground to be placed at the command of good and faithful members of this great cotton family, for such the Oxford Mills people really deserve to be styled, the gardens falling in turn to whomsoever, among the deserving, is willing and able to undertake the management of one, though in truth they are too precious to change hands often. For the gardens a low rent is charged; everything else above-mentioned is perfectly free. It is the produce of these little gardens which the occupiers are encouraged to exhibit, so far as the season will permit, and get prizes for, once every year; and as local operative friends are allowed to contribute Ferns and flowers for ornament, though not for competition, the display is rendered not only cheerful, but pretty, bright, and animating. Going first through the gardens, it is astonishing to see how every inch of ground is utilised. Every yard of soil is covered almost as thoroughly as a lady's table of fancy work at a bazaar. The specialities, of course, are on the side of the useful, Greens, Celery, Onions, and Rhubarb being predominant. This is just as it should be, since the best characteristic of a garden, where the space is not indefinite, is the abundance of what the owner's whole family can profit by and enjoy. Nosegays are good, but wise men think first of what will grow in their garden that is nice to eat; and perhaps the test even of the most accomplished and universal of gardeners is found in the quality of his Grapes and Melons. Flowers, of course, are not forgotten. At the time of the annual show the most conspicuous are Phloxes, Stocks, Antirrhinums, and others of the more easily managed hardy herbaceous plants. The display of cut Stocks on September 1 was really astonishing—splendid flowers, chiefly of the rosy-red varieties, by the score, and in the aggregate said by the judges to be very decidedly superior to those of any former year. There were quantities also of very good double Dahlias (a favourite flower with South Lancashire operative gardeners), and plenty of capital Gladiolus blooms, with Asters, Marigolds, Pentstemons, and even Roses. A large number of very well grown Ferns from a man who we understood to be a wheelwright by occupation, served as a very pleasing foil to the gay colours of the flowers. There were examples also of dwarf Palms, with plenty of such cottage-window plants as Fuchsias, Hydrangeas, and Lemon Pelargoniums. The show was thus a great success in regard both to quantity and quality, and all concerned in it were well worthy of the commendation they received. To give additional interest to the affair, it is Mr. Hugh Mason's practice to invite some gentleman who is accustomed to speak in public, to lead off with anything he likes to say that will be appropriate to the occasion. This time the platform was occupied by Mr. Leo Grindon, of Manchester, who discoursed for nearly an hour upon topics such as the company present—about 150 working-people—would be likely to be pleased with. We have often thought that the managers of flower shows everywhere, and at all times, would do wisely to secure the attendance of some gentleman at home with every detail connected with the plants exhibited, free of utterance, and able to make himself intelligible—one who, without being exactly a showman, should accompany all visitors who cared to avail themselves of the opportunity, round the tent, or whatever it may be, where the plants are set out, and explain the most curious and interesting. The idea was strengthened by the experience of September 1, Mr. Grindon, on the conclusion of his formal address, giving at least another hour to personal instruction, plant by plant—a sort of walking botany lesson round the room.

The example set at the Oxford Mills is so good that one cannot but hope it may be extensively followed wherever there is land adjacent to the works that can be utilised in similar manner. We have many times journeyed though the manufacturing districts of South Lancashire, observing on our way how much land is lying idle, or at all events unproductive, close to factories, and which could certainly be put to a use as good and salutary as that which adjoins the Oxford Mills. The need, we fear, is the generous and far-sighted spirit of a Hugh Mason. Whether there is any connection between the two things we do not know, and have no means of estimating; but it is certain that, at Mr. Hugh Mason's mills, there has never been an instance of a "strike," and we should not be unwilling to lay a wager, could the evidence, *pro* and *con*, be got, that none of Mr. Hugh Mason's workpeople have ever been before the magistrates for outside misconduct. After all these thirty or forty years' endeavours to provide, in the best way he can, for the intellectual as well as the physical wants and welfare of his workpeople, the annual flower show coming up, with never a break, to prove the vitality of the work, it must assuredly be a proud and happy thing for him to see that his generous enterprises have fructified so well. If there is a man one can warmly congratulate and wish long life to, it is plain that we have got him in the proprietor of the Oxford Mills, Ashton-under-Lyne. *Viator.*

DORONICUM PLANTAGINEUM VAR. EXCELSUM.

WE are indebted to the kindness of Mr. Wolley Dod for the opportunity of illustrating (fig. 43) the free flowering Composite, described by Mr. N. E. Brown under the above name at p. 230. As described by Mr. Brown, it is a very fine and striking plant, remarkable for its habit of flowering from March until October. It grows 5 feet or more in height, and is increased freely by division.

HYBRIDISING CAMPANULAS.

ONE of your correspondents, whose name is not given, suggests (August 11, p. 180) that the difficulty experienced in crossing species of this genus may be due to self-fertilisation having already occurred in the bud. Will you kindly allow me a little space for several reasons why this theory is insufficient?

The facts, as he states them, are indisputable. The aothers shed their pollen on the pistil before the bud opens, and there seems, at first sight, no reason why fertilisation should not have occurred before the effort to secure hybridisation is made. But a comparison of a bud with a flower which has been open for some time shows that the pollen in the bud is not placed on the stigma, where it must go in order to effect fertilisation, but that it is packed about the style, and held there by a set of collecting hairs. The true stigma, meantime, is undeveloped, and it is only in older flowers that it comes to maturity, when the three or more lobes of the style, which are stigmatic only on their inner faces, diverge and are ready for fertilisation; as, I believe, Dr. Gray has said somewhere, the Campanula is, in this regard, a very good example of how Nature has contrived not to do it.

Around the base of the style is a yellow disc that secretes a sweet fluid, which is gathered by bees. In feasting on the sweets, however, they carry pollen from the style of a young flower to the stigma of an older one; and this is precisely what your correspondent should do, taking his pollen from a bud just ready to open, and placing it on fully expanded stigmas, *Wm. Trebase, Madison, Mis., U.S.A.*

SINGLE DAHLIAS.

THE more extensively these are cultivated, and the more their beauty and variety are developed, the more the wonder grows that they could have been neglected and ignored so long. Talk of the slaughter of the innocents among plants, one is appalled at the destruction of single Dahlias by thousands and tens of thousands year after year. Novel in shape, brilliant beyond power of description in colour, endlessly diversified in stature and habit—but single. Away with it; it is not fit a single Dahlia should live. Such was the theory and practice of the florists for years. Nor does it become us to blame them too severely. There is a fashion among flowers as well as dress and other matters, and fashion is ever tyrannical. Besides, in this matter of forming the flat single Dahlia into a round ball, the florists had reason on their side in destroying the single flower. It is only needful to note the prodigality of pollen on single Dahlias to see how hopeless would have been the task of making the flowers double with all this profusion of pollen filling the air, and rendering it and the bees superpotent in favour of singles. No, possibly the suppression of single Dahlias was a needful step in the production of those magnificent testimonies to the truth of the theory of development and the success of the skill and perseverance of florists. One can readily enter into their feelings of excitement and enthusiasm as floret was on floret piled till their number and prodigality obliterated the Daisy-like eye of the single Dahlia, and left in its stead the rounded mountain top of short floret for a perfect centre to a hemisphere of beauty, as perfect in form as brilliant in colouring. [This is scarcely a correct statement; the florets are not necessarily increased in number, though they are sometimes. What really occurs is a complete alteration in the size and form of the florets. ED.] Still it is impossible to measure the loss sustained by decorative horticulture by the rigorous suppression of single Dahlias for so many years. Fortunately the indestructible tendency of double Dahlias to hie back to primitive, that is, single types, and their unlimited powers of variation are now furnishing us with single Dahlias in enormous numbers and in infinite variety. So rapidly, in fact, are single Dahlias increasing that some are already crying out that we have too many of them. But surely complaints mostly come from those unacquainted with their beauty, or incompetent to judge of their substantial merits for general or special decorative purposes.

In the decorative gardening of the near and more distant future the single Dahlia is likely to take the first place. Verbenas are well nigh extinct, the Scarlet Pelargonium fever has almost burnt itself out, jaundiced hues and masses of Calceolarias have perished, the proud Hollyhock has fallen a victim to a foreign fungus, subtropical succulents and carpet bedding are passing away under the pinching grip of agricultural depression and a series of unfavourable seasons; while show and fancy Dahlias, however magnificent as single blooms, have never taken a prominent part in the actual embellishment of our gardens or the enlivening of our landscapes. The more, in fact, their special merits have been developed the more unfit double Dahlias have become for general decorative uses. Hence, however much it is to be regretted, it is hardly to be wondered at that the chief admirers of double are the main decriers of single Dahlias. The two plants are so distinct that they will not bear comparison, and the less our single Dahlias resemble our double ones, the more valuable the former for the general furnishing of our gardens.

The more of double Dahlias grown in any garden, the more single ones are needed as a foil to their stiffness, as a relief to their ponderous weight, that at all points the two present striking contrasts. Double Dahlias exhibit the possible development and real grandeur of single bloom, single ones the rich capacities and telling effects of masses of Dahlias in garden and landscape. Double Dahlias, again, are seen to most advantage in show boxes on exhibition tables; single ones are among our useful material for the filling of vases, glasses, &c., for church, room, or table decoration. True, this bloom rather lacks staying power; but they are produced with a prodigality that enables the decorator to cut and come again if needful. Double Dahlias, when of liliputian dimensions, are useless for bouquets or personal adornment, whilst not a few of the single Dahlias of the present, and doubtless more of those of the near future, may possibly become formidable rivals of even the

FIG. 43.—DORONICUM PLANTAGINEUM VAR. EXCELSUM: FLOWERS YELLOW: POLLEN-GRAIN MAGN. 320 DIAM. (SEE P. 296.)

Eucharis, the Rose, the Camellia, &c., for ladies' hairdress, or bouquets, or gentlemen's button-holes.

The fact is, single Dahlias are daily assuming new forms, sizes, colours, statures. Instead of the flat, floppy, flimsy flowers and gawky plants they were at first, they are developing new types and sizes and forms of beauty that will render them far more useful for decorative purposes. The taste for this is also extending so rapidly that it is difficult to satisfy; and yet few plants can be more rapidly or cheaply produced. The merest novice in gardening knows how readily Dahlias are propagated by cuttings and root-division; few, however, but experts know how rapidly Dahlias may be raised from seeds. The difficulty with double flowers is to get the seed. Without special culture and skill but little seed is produced or ripened in double flowers, for the best of all reasons—that the doubleness is at the expense of the stamens, and so makes an end of their capacity to produce fruitful seeds. But with single Dahlias all this is changed, and the centre, which stands up, a cushion of gold resting on a flat base of crimson or other coloured petals, is a veritable seed-bed. These also ripen freely, and in the open air in our climate during ordinary summers; and any one of them, duly ripened, dried, and preserved, and sown in heat in February, and pushed on under shelter till the end of May, may be grown into a flowering plant, a foot or yard high, and as much through, according to its natural stature, by the middle of August. True, the single Dahlia does not come true from seed, unless, indeed, only one variety be grown—and probably not then, for it has variation in its very blood. But this only enhances its charm. The element of uncertainty about the results is one of the strongest allurements and sweetest pleasures in the raising of seedlings. Those who want uniformity can propagate by cuttings and root division; those who prefer variety, may throw their old roots away and raise their single Dahlias annually from seeds. What if some may prove worse, others will as certainly be better, and nearly all different from their parent. Of course, too, the best of the varieties should be selected for seeds, and also for saving for stock, and thus two classes of single Dahlias be obtained—the one developing fixity of character, and the other the most uncertain and unexpected qualities. The latter class will possess the most absorbing interest, and there is no fear but that the seedlings will vary so widely that hardly two will prove alike. This wide diversity—even from seed of one species or variety, say Dahlia coccinea—is at once one of the chief mysteries and highest pleasures of single Dahlia growing. To give an idea of how diverse single Dahlias become—in the third generation from coccinea, and also to show what some of our seedlings are like — I have forwarded a box of our flowers. These, however, while showing something of the rich variety of size, colour, character, and form of the blooms, can give no idea of the differing habits and structure of the plants. These differ as surely as the flowers — and it is such differences that add so greatly to the decorative value of the single Dahlia in bed and border. For example—we have rich orange or yellow varieties a yard or more high, and others little more than a foot. While the former are admirably adapted for mixing with Phloxes, Michaelmas Daisies, &c., in the backs of mixed borders, the latter are the most valuable substitutes for Calceolarias in flower beds or borders. The habits of the plants are also as diverse as their stature: some being thin and lanky, others dense and bushy. While intense floriferousness is the chief characteristic of most single Dahlias, yet there are degrees of this; and while some plants have their ten or twenty flowers, others have their thirty or even fifty.

The form, as well as the size of the flowers, are also infinitely varied. Many of our seedlings, as may be seen by the enclosed samples, are becoming small by degrees and beautifully less—those marked Daisy Dahlias are not larger than the wild Daisy of our meadows. Some of these miniature flowers are flat, some cupped, some swelling, and others so nearly reflexed that the lower part of the petals touch the stems—the latter characteristic giving the blooms a most undahlialike appearance.

A more distinct, beautiful, and rare form is one called here Begonioides, from the fact that at a distance the flowers resemble Begonias of the boliviensis section. The florets are narrow and pointed, and the centre of the bloom also narrow and prominent. Most of this class are also of buff or orange colour.

The "Poppy" Dahlias are brilliant and beautiful as a group of Poppies at a distance. This section is dwarf, most free-flowering, the flowers large, of beautiful form, and moderately reflexed. They have a peculiar chasteness as well as brilliance that is most satisfying and pleasing. These are sure to have a great future for the furnishing of beds and borders, and probably also for pot culture for spring and autumnal furnishing. Single Dahlias in transition are interesting as a botanical study, from which you will see how they are making progress towards doubling a step at a time. Some of the steps are short and apparently uncertain ones, a row of semi-abortive florets standing up around the central mass of stamens; others are semi-double, and one you will see is on the high road to becoming a Cactus, or a Japanese Dahlia on the lines of the twisted petals of the Japanese Chrysanthemum. This latter transformation is the more wonderful, as we have not flowered the Cactus Dahlia here this year.

Among the novelties and best varieties sent is one named Lucy Goldworth Fish, very distinct, and pronounced very beautiful by all who have seen it—a white, with a scarlet bar or edging down each side of each petal. There are others among them of which it would be a pleasure to learn your opinion through the *Gardeners' Chronicle*. The rich variety of colouring is the more marvellous, as we grow hardly any Dahlias here, with the exception of the white bedding one, floribunda nana. Our first packet of seed of Dahlia coccinea gave us some yellows, next year we had a white, and from selections of the same strains all the varieties of forms and colours, habits, &c., have sprung. There seems literally no limit to the wide range and rich diversity of colour among single Dahlias, and some of the pinks, mauves, or magentas sent, as well as the striped buffs or orange, seem new shades among Dahlias.

Like most other seedlings the single Dahlia needs time to develope and fix its character, and it is a matter of absorbing interest to watch the opening of the first few blooms while the form and colour of the flowers are yet in a liquid rather than a fixed condition. Now a petal, then colour or form, and yet another change. But after a little practice the baby plant learns to walk into fixed habits, and firmly establishes its character. The danger to single flowers is doubleness. Not a few of them seem bent on kicking over the single traces and running in double harness without our assistance; and we must beware lest by exciting and stimulating culture we help them in that direction.

Neither should they be encouraged to grow larger. Single Dahlias the size of tea plates would be less useful than those the size of Daisies. Variety of form, vividness of colour, substance, and finish of petal are among the most valuable characteristics of single Dahlias. As to form the more erratic and less Dahlia-like the better. In this connection the Cactus Dahlia is likely to render good service and may bring that freshness and interest to the family that the Japanese strains have done to Chrysanthemums. The ragged-looking petals and staying properties of the Cactus Dahlias render it most valuable for bouquet or other decorative purposes.

By careful and persistent selection from the more dwarf strains, the single Dahlias will also be brought much nearer to the ground. We have already many seedlings of compact habits and short stature, as to be admirably fitted to take the place of Calceolarias without either pegging down or staking up. Most of our Poppy section are of this character, and several of these, alike from their short stature, amazing proliferousness, intrinsic beauty, and exquisite finish of the blooms would be admirably adapted for pot culture for early summer and late autumnal decoration indoors; possibly for this work our improved dwarf Dahlias in pots may soon become as popular as Bouvardias, Pelargoniums, or even Roses. *D. T. Fish.* [There is a danger that single Dahlias may become too large and too symmetrical, too much like double Dahlias, perhaps the ugliest in form, not in colour, of all the products of art—but this is a matter of opinion. In addition to those above mentioned, we have received a fine assortment from Messrs. Cannell, to which we have no space to allude in this number. ED.]

SABBATIA CAMPESTRIS is certainly one of the most beautiful annuals now in flower in Kew. It is a fragrant Gentian-wort, and possesses the bitter properties which mark so many of its allies. The flowers measure an inch or an inch and a-half in diameter, are a beautiful rose colour, with a bright yellow eye. It is a native of the Southern United States, where it inhabits the open prairies, spangling them with its handsome star-shaped blossoms. S. campestris is one of the long list of high-class garden plants for whose introduction to cultivation we are indebted to that ardent plant lover and very successful gardener, Mr. W. Thompson, of Ipswich.

SHIRLEY HIBBERD.

FEW names are more familiar to horticulturists than this—few faces better known where horticulturists most do congregate. The approaching Potato show gives us an opportunity of putting before our readers the portrait of one whose zeal and energy have been in this and other matters always at the service of the horticultural community. The general public knows Shirley Hibberd best as an accomplished writer, whose rapid pen is ever dipped in the most flowing ink. His restless zeal is aptly reflected in his fluent style of writing, always permeated by a dash of humour, not unfrequently by a pinch of good-humoured satire, and occasionally softened by pathos, which excites in others the sympathy he feels himself. His public utterances are of the same genial, unconventional character; the fluency of his pen is only equalled by his eloquence and wit as an orator. What he writes and what he says attract attention by their originality. They take reader and listener alike by surprise, and the sound sense underlying is apt at first to be overlooked in the startling effect produced by his eloquence. He indulges in paradox as well as in parable, but at the same time he preaches by practice as well as by precept. Those who most relish his utterances are those who know best what he does, and what he has done, for the practical advancement of horticulture. If work is to be done either by the pen or by practice Shirley Hibberd is ever ready, ever to the fore. He is no mere scribe, dashing off brilliant articles at the desk, but what he says and what he writes is based upon long experience and constant practice. His practical turn is shown not only in his experimental cultures carried on in his suburban retreat, but also in his ever-ready help on all occasions in which the progress of horticulture or the welfare of any of its followers are concerned. We may not always agree with his precepts or his practice—that is no matter—we can always respect his motives, and envy his zeal and industry. If we say more we shall shock his modesty—better confine ourselves to the following brief outline of his career.

Shirley Hibberd is the son of "an Old Salt" who served under Nelson in the fighting days when "wooden walls" were more talked of than now. He was born in the then rural village of Stepney in the year 1825, and in due time was put in training to become a bookseller. From this occupation he soon changed for that of a bookmaker, and at the early age of twenty-five years was the Editor of a weekly newspaper and the author of a budget of essays called *Brambles and Bay Leaves*, in which rural subjects were treated from the sentimental point of view. His love of the country and early attachment to rural pursuits coloured his labours and tastes from the first. Having pitched his tent in Pentonville, and having a wife who shared his sympathies, he undertook many experiments to determine the true principles of what may be termed urban horticulture. One of the results of the "observation of Nature" in the midst of houses was the *Town Garden*, the first edition of which was published in 1855, and which has been many times reprinted. This work gave a distinct impetus to the cultivation of "country life in town," and it must be gratifying to Mr. Hibberd to see so general a development of taste and spirit in town gardening as we are now familiar with in our every-day life.

Having shifted his quarters to the classic land of Stoke Newington he was enabled, having space at command, to enter into experimental horticulture on a scale sufficient to ensure useful results. He developed the "plunging system" of garden decoration which was so admirably carried out during some twelve years at Lordship Terrace. This system provides for a limited area a brilliant display the whole year round, the plants for the purpose being all grown in pots, and plunged in groups as needful, being removed and replaced by others from time to time. The severe tax on the resources of the garden to keep this system in action for the dressing of a garden laid out expressly for the purpose led to the getting together of collections of Ivies, Hollies, and whatever could be turned to account for pot culture to keep the game alive during the winter. It was in illustration of the system that at a meeting of the Central Horticultural Society, with which the late Mr. George Glenny, Mr. George Gordon, and Mr. Prestoe were connected, that Mr. Hibberd exhibited an extensive collection of berry-bearing shrubs glistening with their several kinds of fruit, all grown in pots and prepared for grouping in the open ground as winter dressing for the

flower garden. Amongst these were Pyracanthas, Cotoneasters, Skimmias, Hollies, and the first of the Aucubas bearing red berries that had been seen in the country. While residing in Stoke Newington Mr. Hibberd started a number of gardens. On the spot where Park Street shows its Gothic villas he had a trial ground for Potatos, Peas, and other useful subjects, and it was here that, after five years' systematic crossing and selecting, that he raised that best thing of its class—Hibberd's Prolific Vegetable Marrow. Another of his gardens, devoted to fruit culture, was on the land now occupied with Mr. Oubridge's nurseries. Here various systems of grafting, training, pruning, and the like were carried on, and observations were made tending to the doctrines on fruit culture that were expounded in a lecture before the Society of Arts in 1876, but which did not find favour with some of the practicals. At the same time he entered into the pretty pastime of raising zonal Pelargoniums, and contributed his share towards the improvement of the race, especially in breadth of petals. In this he was in advance of his old friend and neighbour, the late Dr. Denny, who may be said to have commenced when Mr. Hibberd, having too many irons in the fire, gave up the zonals. It is the fate of such work to pass away when a general advance of the standard of merit has been accomplished; hence we do not now find many of Mr. Hibberd's seedlings in cultivation, but one of them, named Alice Spenser, a noble oculate flower, is still in favour at Swanley. But perhaps the most important work carried on at Stoke Newington was the Rose growing, which was very systematically carried on for testing methods of procedure and determining the relative merits of classes and varieties. The results of these labours were embodied in the *Rose Book*, published in 1864, and from time to time republished, with occasional revisions by the author.

The rapid spread of buildings drove Mr. Hibberd from his comfortable nest, and he pitched his tent in another rural spot hidden away between Tottenham and Muswell Hill, where, with a private road only to give access to the happy vale, and with woodland and water scenery, some useful gardens were formed for experimental purposes. One of these, devoted to fruit culture, furnished the model trees that were employed to illustrate the lecture referred to above. On a trial ground devoted to roots and vegetables all the more important varieties of Potatos, Peas, Onions, Beets, &c., have been "passed through the sieve," and were duly reported on, and it was here that the famous Magnum Bonum and other sorts that perhaps deserve to be equally famous were "discovered," for the advantage of the raisers, the traders, and the general public.

Amongst other labours of our friend we must mention his series of works for amateurs on the Flower Garden, the Greenhouse, the Kitchen Garden, the Rose, &c. His treatise on Watercress Culture is remarkable, not only for its novelty and utility, but for its literary style, and for the vein of pathos that runs through certain parts of it. His illustrated work on Beautiful-leaved Plants appeared in 1870, and his monograph on the Ivy in 1872. Some other works we pass over, for it is impossible in a brief sketch to record all the doings of a restless spirit.

It was we believe in January, 1858, that Mr. Hibberd first appeared as the Editor of a horticultural paper. The *Floral World*, which then made its appearance, very quickly attained to a circulation until then scarcely heard of for a work of that class. From this he retired in 1875, leaving it strong and healthy, but it appears that its decline was rapid, and it no longer exists. His connection with the *Gardeners' Magazine* dates from August 12, 1861; that, under his management, the paper has advanced in usefulness and popularity needs not to be told; we have but to wish the success achieved may be long-continued.

It should not be forgotten that Mr. Hibberd has been a frequent contributor to these pages on a variety of subjects, but always such as are known to be his own. We have just turned to a paper of his which appeared October 29, 1859, on growing Tomatos in pots. It is, we believe, the first published paper on the subject; at all events, it is interesting to note that his notions on Tomato culture were in their way very prophetic.

Bees and Monkshood.—Mrs. Watney will find that the Aconites are specially arranged for cross-fertilisation by bees while they are getting the nectar from the two curious petals that project into the hood. Commonly hive-bees leave the honey alone—presumably because their tongues are too short to reach it—so that humble-bees are most frequently seen at the flowers. I do not think, however, that she need fear poisoning by the nectar. *W. T.*

THE SOUTHERN ALPS OF NEW ZEALAND.

(*Concluded from p. 267.*)

Ascending to the summit of the Pass, where the road had been blasted through large angular masses of rock, mostly old morainic accumulations, we found a rich and varied herbaceous flora, comprising many beautiful plants, scarcely one of which is yet in England. The soil about the summit of the pass (3010 feet) is mostly composed of a rich fibrous peat, in small pockets between rocks of considerable size. It is always kept moist during summer by the constant trickling of melted snow down the rocky and steep slopes of the adjoining mountains. In such positions the Mountain Lily, Ranunculus Lyalli, grows abundantly. In its wild state this is truly a magnificent plant. The leaves, which rise from a thick, fleshy rootstock, and are deciduous, are frequently 10—12 inches in diameter, and look like huge saucers. The flowers are panicled, and the panicles have sometimes as many as twenty to thirty flowers, the central and terminal one opening first, and being much the largest, not infrequently measuring 3 inches across. The colour of the most common variety is pure white, but there is a cream-coloured form (R. Traversii), and rumours of a pink variety have reached us from the head of the Kakaia. In cultivation the plant does well enough if planted out and left alone in a shady position and peaty soil, but it does not thrive in pots, nor in situations where it is much disturbed. Another splendid herbaceous plant is Senecio Lyalli. This has numerous long, narrow, somewhat fleshy leaves, arranged in a crown, sending up branching scapes of fine large Marigold-like flowers, varying much in colour from yellow to orange, or almost salmon-pink, and in size from 1 to 3 inches or more. Another pretty Senecio, new to science (S. setulosa, Armstrong), with oblong bristly leaves, and bright yellow flowers, was discovered on wet, shady banks. S. bellidioides in several forms is also common. Gnaphalium grandiceps is also common here, frequently forming fine hemispherical masses of its silvery branches by the sides of the coach track. Though inferior in the flowers to the Swiss species it has finer foliage, but is a bad plant to manage in cultivation. The Harebell, Wahlenbergia saxicola, abounds on grassy slopes, and varies in colour from pure white to the deepest blue. Celmisia (Compositæ), the colony's greatest genus of alpines, is well represented on Arthur's Pass by about thirteen species, all beautiful plants. C. coriacea, the Cotton-plant of the colonists, is a splendid thing, with fine leathery leaves 1—2 feet long, densely clothed below with snow-white cotton, and producing numerous handsome white flowers 2 inches across. C. Monroi is similar, but smaller and less cottony; while C. petiolata has brown or buff-coloured cotton and purplish midribs; all the above species have strap-shaped leaves, but C. bellidioides has obovate bright green leaves, 1 inch long, and forms large carpet-like masses on rocks. C. incana and C. hieracifolia are spreading species of dwarf habit with small hoary leaves. All these Celmisias are easy to grow and do well in any, excepting the driest situations.

Conspicuous amongst the vegetation of the Pass are three species of Ourisia, all with pure white flowers. The finest, O. macrocarpa, has foliage like Saxifraga crassifolia, but more varied in tint, and the flowers resemble those of Lobelia fulgens except in colour. O. macrophylla is similar, but the leaves are smaller and are hairy, whilst those of O. macrocarpa are perfectly glabrous. O. cæspitosa is a small creeping species with small vivid green leaves. All these Ourisias are really fine things. In stony places a perennial Euphrasia, E. Munroi, was common; its flowers are large for the genus, and the colour is pure white with a yellow throat. The Droseras are here represented by two kinds growing in a little bog on the summit of the Pass. Two pretty herbaceous Veronicas, V. linifolia and V. Lyalli, are common, and the bright blue flowered V. canescens occurs in some places. One of the prettiest things here is the Bladder-wort, Utricularia monanthis, its purplish blossoms resembling those of some miniature Orchid.

On a rocky mound to the south grew a very beautiful species of Aciphylla in abundance. It is allied to and perhaps a form of A. Munroi, but the leaves are much greener in colour, more divided, and the plant looks like a miniature Palm. Another species of the family, also new, was found here, and has been named A. grandis; this forms impenetrable masses of perfectly glabrous bright green bayonet-like leaves, each 4 or 5 feet long, and as sharp pointed as a dagger. The flower-stem rises to a height of 5 feet. On a rock to the north we gathered the peculiar Snowdrop plant, Callixene parviflora, bearing its pretty white blossoms, also two kinds of the Stylidiaceous genus Forstera. The peculiar white-flowered Bog plant, Donatia novæ-zealandiæ, belonging to the same order, forms large masses in bogs; three or four fine species of Ligusticum abound, the finest being L. piliferum and L. Haastii.

On account of the great altitude Ferns are not so numerous as in most parts of the colony, but still a few fine ones were collected; of Hymenophyllum four species were gathered at 3000 feet, viz, H. multifidum, H. villosum, H. tunbridgense, and H. Armstrongii, Hk. f. (Trichomanes Armstrongii, Baker). All of these grow in positions where they are frequently frozen hard, and yet they all look healthy and thriving. Polystichum sylvaticum is common, as also P. cystostegium on the higher slopes. Alsophila Colensoi forms long trunks along the surface of the ground in the bush at 3000 feet, rarely growing erect; Cystopteris novæ-zealandiæ occurs in clefts of rocks along with Grammitis australis and Asplenium trichomanes. On the higher slopes the little Grammitis pumila, Armstrong, forms a close sward-like grass, whilst Hypolepis millefolium and Lomaria minor are plentiful. In a few places Gleichenia Cunninghami forms fine patches, thus showing its great hardiness. On the western side the Pass descends into the deep gorge of the Otira, through dense sub-alpine forest of the richest description. The road for a few miles passes along zig-zags and steep grades, sometimes travelling along the edge of enormous precipices. In about six miles there is a descent of at least 2000 feet, so that very careful driving is required along such a road as this. For some time the forest does not differ much from that already described, except in the increased numbers of Dracophyllums, but as we descend the Rata, Metrosideros lucida, becomes abundant, and clothes the sides of the gorge during summer with a brilliant mantle of scarlet; in foliage this plant much resembles the common Myrtle, but the fruit is very different. The Kamai, Weinmannia racemosa, also appears, and is a very handsome shrub, distantly related to the Hydrangea. Still further down the two species of Beeches already mentioned give place to two others, Fagus Menziesii, and F. fusca, the latter not infrequently a splendid tree, 100 feet high, and 4—10 feet in diameter.

After a few miles the gorge opens out into the lowlands of Westland, and from this point to the coast the whole route lies for 45 miles through some of the richest forest lands in New Zealand. Indeed this county of Westland is one vast forest, only broken by the channels of the numerous large and very rapid rivers which carry the melted snow and ice of the great mountain chain to the sea. During the first 10 or 12 miles, although the elevation is not more than 800 feet, there is a linger of the subalpine forest. The Rata is still common, but reaches a much greater size, and the same may be said of the Kamai and the Dacrydiums. But Ferns rapidly become more numerous, Todea superba being particularly common, whilst old trees are clothed with numerous Filmy Ferns, prominent among which is the splendid H. pulcherrimum. In the way of trees the species of Podocarpus—the colony's finest timber trees—become plentiful, and continue so right through to the coast. Of these P. totara, the most valuable timber of the colony, affects the sloping well drained grounds, whilst on the wet lands the White Pine, P. dacrydioides, is most abundant, often reaching 200 feet in height. On the other hand the Black Pine, P. spicata, grows indifferently on either wet or dry lands, and the same may be said of the Miro (P. ferruginea), which has a peculiar appearance on account of its rusty colour and large handsome fruits. Species of Pittosporum, or Matipas, as they are called by settlers, are very numerous. Of these the finest are P. Colensoi and P. eugenioides, both fine trees. That splendid Conifer, the Rima, Dacrydium cupressinum, is here very abundant, and is a most beautiful tree, its long, slender, pale green branches weeping to the ground. Trunks 250 feet high and 70 feet from the ground to the first branch, are not uncommon. A remarkable Liliad in the shape of Cordyline Barkeri var. Gouldiana appears on the banks of rivers, and is a magificent object, with a slender trunk 10 to 12 feet high, and a large spreading head of linear-lanceolate

leaves 6 to 8 feet long and 3 inches wide. The splendid C. indivisa also occurs on the tops of the lower hills.

As we progress towards the coast Ferns become more numerous. Gleichenia Cunninghami forms dense thickets under the trees, extending for many miles, and presenting an impenetrable mass of interlaced fronds. Trichomanes reniforme clothes old trees and rocks with its peculiar masses of reniform dark green fronds. In the valleys Tree Ferns abound, magnificent examples of Cyathea Smithi, C. dealbata, C. medullaris, and Dicksonia squarrosa being present in thousands.

It would be, of course, impossible to enumerate all the fine Ferns found in this land of Ferns and mosses, but a few more may be mentioned. Lomaria Fraseri is a most peculiar species, with a slender trunk as long as a walking-stick, and no thicker, bearing a crown of dark green bipinnatifid fronds. L. nigra is a dwarf species, with lyrate-pinnatifid fronds, lying on the ground in dense woods. Of the Filmy Ferns, which are probably more abundant here than anywhere else in the world, there are nearly twenty species in the country, the finest of them being Hymenophyllum Lyalli (a rea gem), H. dilatatum, H. polyanthos, H. crispatum, and H. pulcherrimum. Of Trichomanes there are several kinds, the most beautiful being the lovely T. Colensoi. Lindsaya has four species, all fine little Ferns. In some of the warmer gullies nearer the coast Cyathea medullaris not infrequently reaches a height of 40 feet, with fronds 30 feet long; and under its shade Todea hymenophylloides is sometimes as much as 4 feet or more high. On account of its heavy rainfall (more than 100 inches per annum) Westland has a very moist climate, and Ferns and mosses are consequently at home. Almost all the species found in New Zealand grow here, and exhibit a luxuriance unknown elsewhere. In the forests grow numerous climbing plants, such as Clematis, Rubus, Parsonsia, Metrosideros, &c. Perhaps the finest climber is the well-known Clematis indivisa, which frequently climbs to the top of the largest Totara, and covers it with its fine white blossoms. There are many varieties, some having flowers as much as 4 inches across. It likes a rich, moist, loamy soil. The Kie-kie of the Maories, belonging to the Pandanaceous genus Freycinetia, is abundant, its rope-like stems ascending small trees and bearing crowns of linear leaves. The fruit is said to have been an article of food with the natives. Species of Astelia, or "Bush Flax," are common, especially A. nervosa and the kind known as A. grandis.

On nearing the coast (47 miles from the Pass) the vegetation changes somewhat, several species of Olearia appearing again, especially O. avicennifolia. The Flax, Phormium tenax, becomes plentiful, as also do the Tea trees, Leptospermum scoparium and L. ericoides. The soil being poorer, plants common on the east coast, but rare in the intervening country, make their appearance here, such as the Wild Irishman, Discaria, and the Supplejack, Rhipogonum scandens; also the Tutu, Coriaria ruscifolia. The shore of the Western Pacific being now reached, with its seaside band of gold washings, the botanical section across the south island of New Zealand is complete. *J. B. Armstrong, Assistant Curator, Botanic Gardens, Christchurch, New Zealand.*

The Rosery.

PROPAGATING ROSES BY CUTTINGS.—We have frequently been asked for information on this point, and have several times detailed the methods employed by those who are the most successful; nevertheless, and notwithstanding the desire for Roses on their own roots and the pains taken to raise them, we still hear of lamentable failures in the majority of cases, and of but partial successes in others. The plan adopted by Mr. Alex. McLeod, gardener to L. J. Drew, Esq., Sudbury House, Harrow, of the success of which we have had ocular demonstration, seems to us to be so simple, and to guard against the possibility of mistake in the one vital point so effectually, that we are glad of an opportunity of describing it. In former times Mr. McLeod experienced all the difficulties in striking Roses which so many of our correspondents describe, and at last resolved to try them in a close case without removing the glasses until they were rooted; in this way a much better result was secured, but still nothing like perfection had been attained, as from one to two-thirds of the cuttings usually died. These losses Mr. McLeod always attributed to the removal of the glasses by persons out of curiosity or by accident. Eventually he always hermetically sealed the case, and failure was no longer known.

As this year's case of 310 cuttings which we saw only contained five which had not rooted when removed on August 28, the *modus operandi* in this particular instance had better be described. The case or box is made of common rough deal boards. It is 3 feet 6 inches long and 1 foot in depth. Within half an inch of the top a groove is cut inside the box, into which the glass is slid, after the manner of a sliding box-lid. In the end of the third week in July the box was placed in the kitchen garden under the shadow of a high north wall; it was then about half filled with good turfy loam, to which had been added a little leaf-mould and a good sprinkling of sharp sand. The soil was pressed down very firmly (the box being nearly half full when pressed), and then thoroughly well soaked with rain-water, and allowed to stay uncovered until the next day. The next day good stout cuttings (with a heel where possible), were taken of all the Roses, both Tea and hybrid perpetual, which it was desired to add to the stock. They were then inserted closely and firmly in the soil, just over the bottom leaf, the glasses were slipped on and puttied down, the groves in which the glass slid and even the joints in the glass being filled in with putty, so as to exclude all air. The whole thing

FIG. 44.—ROSE CUTTING: ⅓ NAT. SIZE.

was completed, nothing more remained to be done but to leave the box in its cool, shady nook for five or six weeks, when the growing points of the free-starting kinds gave notice that the glasses might be removed, a bit at a time, with safety. Nothing could be more simple, or demand less skill, and the operation may be carried out successfully by an amateur at any time during the season when good firm cuttings can be got, and when six weeks' tolerably fine warm weather may be counted on.

The success of the whole thing depends on having the glasses fixed so that they be not removed until the cuttings are rooted, and in placing the boxes in a shady place. So treated Carnations, and many of our shrubs and herbaceous perennials, may be propagated by unskilled persons with certainty, and without much trouble; and the pleasure they would experience in uncovering a well-rooted batch which have taken care of themselves, must certainly make amends for the loss of the employment of daily removing the glasses, watering and picking out the dead cuttings, until, as it too frequently happens, there are none left to tend.

VEGETATION OF THE ANDES.—On the parts exposed to the sun the snow disappears, to give place to the short vegetation of the higher Andes, so well described by M. Weddell in the *Chloris Andina*. It is characterised by Gentians, Drabas, Saxifrages, Vernonias, by the red and felt-like leaves of Culcitium rufescens, &c., and above all by a strange plant that I saw and gathered for the first time—Lupinus alopecuroides. This species had the appearance of pyramids, or rather clubs, of silver-white, planted upright in the soil and covered with little violet flowers, as though wrapped up in their silky calyx. No other plant can give the idea of this bizarre production. *Ed. André*, "*Le Tour du Monde*," *June* 30, 1883, *p.* 408.

FAWKE'S IMPROVED WALL-TREE COVER.

JUDGING from the experience of practical men, there cannot be any doubt that efficient protection not only increases the general productivess of wall-trees, but lessens the risk of losing a promising crop of fruit. But by "efficient protection" must be understood a combination of conditions. Not merely power to check, when necessary, the upward current of air, so that a wall warmed by the sun may not too rapidly part with its heat; protection from heavy rains or descending currents of air—protection from beating wind or horizontal currents of cold air—protection from wasps and birds; but also power to give easy rapid ventilation in any part, to any extent, even to that of stripping the wall of any protection whatever. These necessitate of course durability, lightness, extreme portability, complete absence of complication, so that no skilled labour may be required in its erection, manipulation, or removal. If to all these conditions we add cheapness and sightliness, we have very nearly exhausted the conditions which go to make up a thoroughly efficient wall-tree cover.

The annexed illustration (fig. 45) will be almost self-explanatory of a wall-tree cover designed by Mr. F. A. Fawkes to meet the above requirements. As will be seen by the engraving, the cover consists of a light permanent framework in front, slightly inclined from the perpendicular, held in its position by light cast T iron ribs, which can be fixed to the wall by bolts and nuts; or, where there is an objection to anything passing through the wall, by coach screws. The roof ribs are hollowed in the centre to carry to the front any drip or rain which may find its way between the roof sashes. Upon the roof and front are lights held by special hinges, so constructed that the lights are secure and yet may be unhooked in a moment when it is necessary to do so. Each light is provided with a simple ratchet set-open, so that ventilation to any extent may be effected from the inside or out, and the lights are held automatically in whatever position they may be placed; or the cover can be stripped of upper or lower lights or both in a few moments. Nets may be hung in place of upper or lower lights or both.

This cover is being manufactured by Messrs. T. H. P. Dennis & Co., of London and Chelmsford (the sole licensees for its manufacture), and it is sent out painted, glazed, and ready to put up with great ease by any labourer. As the lights simply drop on to the framing there is a little margin for "play," and ease in erection is further facilitated. Although cheap enough for the most struggling market gardener, the cover, as will be seen, is fit, so far as appearance is concerned, for a nobleman's fruit wall.

Of course, independently of a wall tree cover, pure and simple, the front portion of the structure may be used for growing early strawberries, small salad, &c.; and by the addition of suitable rods and gearing the lights may be opened simultaneously. *X.*

Foreign Correspondence.

ZERMATT.—*The Forests.*—In my last letter I followed the course of the Visperthal up from its commencement as an offshoot of the larger Rhone Valley to the foot of the glacier which blocks it up at the far end, immediately beneath the Matterhorn. According to the natural order of things, of course I ought to have begun with the glacier, and worked downwards, as the glacier and the river issuing from it have done. But one often has to study convenience and expediency, and to take things out of their proper order, and so now it suits my purpose in dealing with certain matters relating to the coniferous forests to take the one I saw last first in order. I allude to a magnificent forest of Silver Firs in the French department of Doubs, not far from Portarlier. This rather vague indication of locality is due to the fact that all I saw of it was from the railway carriage window; but for symmetry, light and shade, and contrast of colour, this bore the palm over the mixed forests of broad-leaved and coniferous trees of Fontainebleau or Switzerland. It was less monotonous and gloomy than the Spruce forests of the Chamonix district, grander in colour than the Cembras of Zermatt, less battered and weather-stricken than those wonderful Larches of the Forclaz over above Martigny. The tall shafts, soaring superbly aloft, glistened after the recent rain like burnished silver, and formed a most striking contrast

to the velvet-black hue of the crowns. As we commonly see the Silver Fir in England its appearance is too often spoiled by some injury to the leader, so that the tree forks at the top into two or more secondary leaders, and so loses its symmetry; but this did not seem to be so general here; owing to their numbers they protected one another, and displayed their majestic proportions to full advantage. Every here and there one stood out like a burning bush, or as if studded with gold-coloured Mistleto. No doubt this appearance was due to the growth of a fungus, and that the glowing Mistleto was none other than the "hexenbesen," or Witches' Broom of the Germans.

At one portion of the Rhone Valley the carriage-road passes through a forest of the most singular character. Little is seen of it from the railway, but any one interested in such matters, and able to spare the time, would be amply rewarded by a few hours' stroll through the Pfyner Wald. The constituent trees, if they may be so called, are indeed Pines; but instead of the erect shafts and spreading boughs we are accustomed to associate with Pines, we have here tall bushes, with short trunks breaking up into a thicket of intricate tortuous branches. The Pine here is the P. montana, and it monopolises the whole area. It is, indeed, remarkable how one species of Pine or Fir occupies the territory to the almost entire exclusion of any other. The only Cembra I saw in the Chamonix district was a solitary specimen overhanging the Glacier des Bossons, and at an elevation considerably above the last Spruces; indeed, it formed the very last straggler in the way of shrubby vegetation that I met with on the slopes of Mont Blanc.

The Fir of the Chamonix Valley is the common Spruce, and its gloomy pyramid of foliage is perhaps a trifle monotonous, and its shade so dense as materially to check the undergrowth. Nevertheless it is easy, when the eye becomes a little trained, to pick out numerous variations in habit and colour. Every one knows the Clanbrassil and allied forms, in which the stem is so dwarfed that the plants form delightful little hummocks, just the thing for the rockwork. These are usually thought to originate as bud-variations—as, indeed, they do, for one may see them on the boughs, but they may occasionally be seen also on the ground, as if they originated from seed; but it is requisite in this matter to be sceptical in the case of any that are found growing by the sides of the mule-paths, for some of those animals—like one that I bestrode—seem to have an insatiable appetite for the twigs of the Spruce Fir, and they crop an ordinary Spruce into a "Clanbrassil" in a very short time. The Spruce is most at home along the slopes of deep valleys, where its roots revel in the abundant moisture at their disposition. Wisps of grey lichen hanging from its branches indicate the moist atmosphere in which it delights, and where a clearance has been made the protruding rocks are covered with a rich green covering of velvet moss, and their damp sides so richly bedecked with Saxifrages and Whortleberries that the heart of one who has a fancy for a rock-garden must sink into his shoes at the thought of the impossibility of producing by art such a wealth of colour, or such delicious texture. The elegant Campanula barbata shakes its light blue bells in the wind, and dense thickets of Rhododendron ferrugineum attest what a brilliancy of colour must exist earlier in the season. R. hirsutum, so common on the Rigi, is not found hereabouts. The Spruce Fir would seem, either for choice or necessity, not to send its roots so deeply as some others of its race; thus, though the Cembras and Larches are soon broken and dishevelled by wind-storms and avalanches, their trunks often broken off near the ground, yet they are not so frequently blown out of the ground, as it seems to me, as Spruces are. On our way to the Pierre Pointue, half way up Mont Blanc, we had to pass through a forest of Spruce, and a wonderful sight it was to see where a violent storm of wind had overthrown the trees. Many of them were broken off short close to the ground, but others, quite as many or more, were uprooted. The force of the wind seems to have exerted itself in a narrow belt not more than 150 or 200 feet in width, and within that area not a tree was left standing. A track is cut through the forest, from above downwards, as straight as if it had been made for a railway. Within the track utter destruction, on either side little or no trace of anything unusual. It was curious to pass and repass this scene of destruction as we zig-zagged our way up, losing it for a few minutes till another bend in the pathway brought us again in the "line of fire," immediately above where we had been before.

A word as to names. There is sufficient confusion both as to the Latin and the vernacular names, and in the hope that I might arrive at something definite as to the latter, I enquired, and found that the Spruce is, in the Chamonix district, known as the "Sapin." Some writers—for instance, Grisebach and Parlatore—call the Spruce "Pesse," and the Silver Fir "Sapin." For once in a way, then, our English names have the preference; for, in spite of the tangle, every one knows what is meant by a Sprue Fir, and by a Silver Fir, and the two are never confounded.

On the Simplon route the Larch grows higher than any other, and even close by the famous *hospice* the Larch may be seen as a stunted tree "in difficulties."

Of the Larch forest on the Forclaz I regret I can say but little. In spite of notice-boards almost as numerous as those in Epping Forest, and all forbidding trotting under the severe pain and penalty of a fine of 2 francs at least, our driver tooled us down (I believe that is the correct technical expression) at a spanking rate. All I can say is that the Larches there are the most wonderful I ever set eyes upon, each one, as it seemed, more venerable, more tempest-tossed, more grotesque and pictural than the last, their roots so gnarled and prominent that as we bumped over them we came to the conclusion that if that sort of thing went on long our personal symmetry would become as grotesquely distorted as that of the Larches themselves. But by-and-by we lost the Larches, and, in spite of the jolting, I must say to my regret, for the Beeches which followed were in no wise remarkable; the Sweet Chestnuts would not rival those on the Italian side of the mountains; and the Cherries and Walnuts, which followed in their turn, were only the heralds of the scorching heat and pestilent flies of the Rhone Valley.

At Zermatt the forests which clothe the mountain sides are almost exclusively composed of Pinus Cembra. Less symmetrical than the Spruce, and less graceful than the Larch (in its natural state), the Cembras form dark oblong masses of foliage, concealing to some extent even the base of the trunk—at any rate leaving less of it exposed than in the case of the Scotch Fir. The bark has much the rich orange-brown tint of the last named tree, but as a whole it is less pictural. The fragrance is distinct, and more delicate in character than in the case of most Pines. The cones are very distinct, like broad eggs in out line, with rounded scales not so thick and prominent as in the case of most true Pines, but when fresh of a lovely plum-blue colour, the plum-like appearance being heightened by the "bloom" on them. For some reason that I do not know the cones are very scarce; by far the majority of the trees were entirely destitute of them; and though I climbed, on more than one occasion, from one limit of the forest to the other, I only succeeded in getting two or three perfect cones. A few remnants, the remains of a feast at which the squirrels had "assisted," lay on the ground; and on one occasion we met a lad with a small basket half full of purple cones. Although the seeds are good eating, and the cones are perhaps collected for fire-lighting purposes, yet their deficiency on the trees this year must be attributable to some climatal reason. Of male catkins there was an abundance, but of female ones in any stage there seemed to be a great scarcity. A word is due to the squirrel; as agile and restless as his British brother, this one is handsomer, with his back of black velvet, and his chest with a broad stripe of white. In the hotel garden there is a perfect menagerie, and among the rest a cageful of these beautiful squirrels, as restless and active as monkeys, and more graceful in their movements.

But to return to the Cembras, the older ones are knocked about by winter storms and avalanches, much as the Larches before mentioned, but they stand the buffeting better—not much, but still better—hence even the old ones are not quite so gnarled and deformed as are the Larches, but still quite enough so as to be strikingly picturesque. The shade they give is much less than in the case of the Spruce, and so there is a fuller undergrowth. Alder bushes and Rhododendron ferrugineum constitute the staple undershrubs, and here and there from the dense slippery carpet of fallen Pine-needles uprose the singular looking Gentiana purpurea, and the leaves of Cyclamen and Hepatica indicated what might have been seen in spring. I must admit, however, that botanising was done under difficulties, and that our first care was to avoid being precipitated among the tree-stumps and jutting rocks. Beguiled by a patch of purple Gentian, we not very wisely left the beaten track—such as it was—for one that wasn't beaten at all; and what with the slope of the ground, the treacherous rocks, and the slippery covering of Pine-leaves, our descent was much too rapid and perilous to be comfortable. The beaten track, as usual,

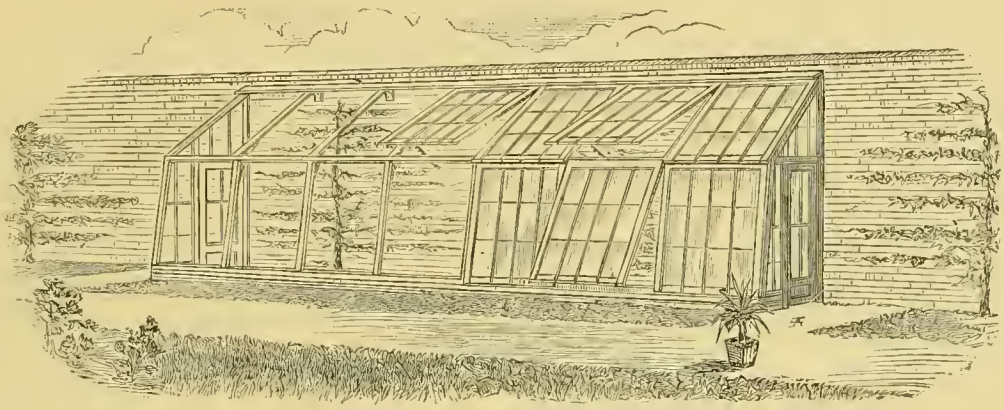

Fig. 45.—Fawke's improved wall tree cover. (see p. 300.)

ascends in zig-zags, so that we were buoyed by the hope that we were sure to strike into the track; but we didn't; and when, at last, we emerged from the forest, hot and breathless, but fortunately without sprain or bruise, we found ourselves down in the very valley, having traversed the whole of the forest slope in the manner indicated. The next day we went up again, but—as we counsel others in like case to do—we kept to the path. Nevertheless, we did not see any more Cembra cones, nor, barring minor variations in habit, did we see much variation from the general character of the tree.

Alpine Plants.—Above the limit of trees one comes upon the home of the alpine plants proper. Gardeners will know what is meant, and will kindly dispense with definitions which it would be difficult to frame. The season was too far advanced to see the full galaxy of beauty, but we were enabled to pick Gentians, from the large acaulis to the tiny nivalis and the lovely verna, till for very shame we could pick no more. Primula farinosa and Androsaces, Draba aizoides and Arabis alpina, Pedicularis and Myosotis, Pansies and Gnaphalium, hummocks of Silene alpestris, and many more. Of these it is the less necessary to speak, as M. Correvon, in his letters on alpine plants from Geneva, published in the *Gardeners' Chronicle*, has, as we were enabled to judge, very accurately sketched the nature of their habitat, &c., the different characters of the soil on which they grow naturally, and their general requirements under cultivation.

Perhaps the most surprising thing, to those who look at the seemingly hard rock, its often bare surface, or its thin skin of turf, is the really vast quantity of fine rich open soil at these elevations, just of the consistence that gardeners like for potting. Those who are making rockwork, and think they have done enough in filling up their "pockets" with soil to a depth of a few inches, would be surprised to see how bountiful Nature is in the matter of soil. On the ground itself the projecting rocks attract so much attention, they seem so ubiquitous—you have but to scratch the surface and you come to rock—that one is apt to overlook, or rather not to see, the extent of the intervening chasms, or the depths of the depressions in their surface, and how full they are of soil. The tourist, however, is pretty sure to come upon the track of an avalanche in the course of his rambles, and then he will be enabled to judge, not only of the overpowering mass of rock and snow dislodged on such occasions, but of the vast amount of fine soil brought down in its course. Clearly avalanches, though frightfully destructive, are not unmixed evils, for they bring with them into the valleys a large amount of the richest soil, and on such heaps, as also by the sides of the moraines, the quick eye of the botanist may often detect "alpine plants" which it would, except for the avalanches, cost him many a steep climb to obtain. The flora naturally differs according as the rocks are calcareous, sandy, micaceous, or granitic; but in any case the superincumbent soil is usually deep, rich, fine, moist, full of vegetable mould and thoroughly drained. In spring it is saturated by the melting snow, and in summer the plants are exposed to intense light and burning heat by day, while at night the temperature may go to freezing-point, their roots all the time being uniformly cool and moist. Often, as the snow and ice melt, the grass and herbage beneath seem—or perhaps are—entirely destroyed, and look as if burnt. Whether the "crowns" and roots are destroyed or no, the *débris* of dead foliage forms an excellent mulch, and ensures a rich deposit of vegetable mould for the benefit of the next comer. *Rambler.*

Florists' Flowers.

SEASONABLE NOTES: THE AURICULA.—I do not know what the state of the plants may be in the North this year, but the condition of ours, at present is this:—The weather, during the summer, was cold, moist, and dull, causing the plants to make much sappy growth. The month of August has been dry and warm, with the inevitable result that there is considerable autumn bloom. Those plants that show for bloom during August and September will form a new heart, and a truss will also be formed down in the centre before the winter. It is very desirable that the old plants be kept well on the side of dryness, and that air be admitted freely; the glass lights should be constantly removed from the plants, except when it rains heavily—a gentle shower would do no harm. During the hot weather greenfly spreads freely on the plaats if it is not checked, either by brushing it off, dipping the plants, or fumigating them with tobacco smoke. Seedlings and offsets ought to be repotted as they require it, as it all depends upon whether the plants have sufficient pot-room to produce a good bloom next season. It must not be understood that I advocate large pots, as none of the yearling seedlings or offsets are ever put into larger than 60-sized pots.

CARNATIONS AND PICOTEES.—If layering is not finished, no time should be lost in getting it all done. Our whole stock was finished before the middle of August, and most of them are well rooted now. Seedlings may be planted out where they are to flower next season; if the plants are put out some time this month they become well established before the winter, and are thus so much better adapted to stand the vicissitudes of our changeable climate. The layers will be ready to take off, and either be potted up for the winter or be planted out about the last week in September; but if the work is not quite finished before the first or second week in October, it will not be too late. At the time of layering we put in a number of pipings from the yellow Picotees, and also from some perpetual flowering Carnations; they take a long time to form roots without bottom-heat, but if slow they are sure, when kept close under bell glasses or close hand-lights: the glasses are kept quite close until roots are formed.

DAHLIAS.—The plants are now in full beauty; the stems should be neatly tied to the sticks, and in a way to show the bloom to the best advantage. Earwigs have been very troublesome during the recent hot weather. Old beanstalks cut into lengths, so that the insects may crawl into them at night, whence they are dislodged in the morning, or small pots with a little dry moss in the bottom inverted over the sticks, will also attract them; they must be shaken out and destroyed in the day. Those who intend to exhibit will have to shade the lighter flowers; they are more delicately beautiful when shaded. Thrips are also very troublesome, they get into the petals and sadly mar their beauty.

GLADIOLI.—These will always find admirers, and many persons will continue to grow them notwithstanding the many discouragements there are to contend with, such as valuable bulbs dying off in the various stages of their growth, and the whole collection deteriorating after a few years' culture. I generally found they succeeded best after the ground on which they were planted was well worked early in the autumn of the previous year. If possible the ground should be trenched and well manured now. Those who are saving seeds should look over the plants daily, and the pods that are ripe ought to be gathered and laid up to dry. The earliest blooms will now be over, but in a large collection many will be at their best, and some that have not yet shown flower. During the present dry weather all such late-flowering bulbs should be watered.

HOLLYHOCKS.—Although the wild Mallows have been smothered and the leaves desiccated by the disease within a quarter of a mile of us, so far we have escaped it. Our plants have given us a good succession of bloom from the autumn and spring propagated plants. The flowers are of large size. The first cuttings we put in are now good rooted plants, and from the latest blooming plants another batch of cuttings are ready to put in. The eyes start away best if they have just a little bottom-heat. The withered flowers should be picked off daily; in the first place they are very untidy if left on, and they destroy the seeds if they are allowed to decay. Seedlings may now be planted where they are to flower. Allow 3 feet between the plants.

PANSIES.—No delay should occur in getting in cuttings of these; it is better that they should become established early in the autumn—indeed, this holds good in all classes of plants, whether they are hardy or tender. Plants such as the Hollyhock, Pansy, Pink, or Pyrethrum are hardy enough when they are well established before frosty weather sets in; but if they are not established they seldom winter well. The ground should be well prepared for them by being turned over two or three times before the plants are ready for it. The Pansy has small, very tender fibrous roots, which do not seem as if they would penetrate deeply; but they do not strike deep into the soil, and unless the ground is deeply trenched and well manured the plants will not give a continuous bloom all through the season.

PINKS.—The laced type succeeds well out-of-doors during winter, but they ought to be planted out by the middle of September. Like the Pansy, they like a generous soil. If the plants are not very large they do well planted 8 or 9 inches apart. The Pansy should have a foot between each plant, as they spread out in the summer, and require pegging out, whereas the Pink does not spread much.

THE PHLOX.—We were fairly successful with a batch of cuttings put in at this time last year; the small growths were taken from the base of old established plants, they were put into small pots in light soil, and with the aid of a little bottom-heat they soon filled the pots with roots. The best time to put in cuttings is early in the year, when the growths are about an inch in length. They root freely in a greenhouse or frame, and plants from these cuttings have flowered freely in the autumn either in pots or planted out. If they have been grown in pots for greenhouse flowering, they ought to be planted out now in the open ground, unless it is intended to take cuttings from them when the cuttings can be obtained much earlier if the plants have been wintered in a greenhouse or cold frame during the winter. *Jas. Douglas, Great Gearies, Ilford.*

Orchid Notes and Gleanings.

WORK IN THE HOUSES.—It is generally admitted that the early part of the autumn is a favourable season for potting and top-dressing any of the cool Orchids that may stand in need of this attention. The reason for selecting this season for interfering with the roots of these plants may be mentioned. The excessive heat of summer is past, and the nights are cool and genial, which renders the state of the atmosphere just suitable for this class of plant, and as this may be expected to continue for another two months, the plants have time to establish themselves before winter. The only drawback to potting them at this season is the declining days, which always tell seriously against the full development of growths made at this season of the year. Another season favourable for potting these plants is the early part of February, and it will be found in practice that some plants will be in right condition for autumn potting, while others will be bette done in spring. It must be understood that only plants (Odontoglossums principally) now starting into growth, and those that are just completing their growth are in right condition for potting at this season. On no account should any plant that has half completed its growth be disturbed at the root, otherwise the growth of the foliage ceases, and the bulb commences to form, and never attains the strength it would have done undisturbed at the root. Plants in this latter stage of growth should simply be top-dressed with a little fresh sphagnum moss, which will carry them on to the spring, when they will be in right condition for potting at that season. To all Odontoglossums and other cool Orchids potted at this season give ample drainage and a free open compost of one part sphagnum moss and two parts best fibrous peat; to this should be added a small amount of broken crocks and charcoal, and a slight dash of coarse sand. The Masdevallias will be best left undisturbed at this season, except it be any small plants that have become very pot-bound, and these should be potted with as little destruction of their roots as possible. Any of the tender Odontoglots, such as O. citrosmum, O. grande, and O. Phalænopsis, that have been grown in the cool-house during the summer months, should be removed to the cool end of the Cattleya-house before the nights begin to get cold. The Dendrobes commencing to ripen, and those finishing their growths, will require careful treatment at the present time to prevent them starting into new growth. Pleiones and Thunias will now require to be kept dry; but as soon as the former show signs of flowering a little moisture at the root will be beneficial to them. Dispense with shading as much as possible after this date, especially over the Vandas, Cattleyas,

and Lælias. Ventilate freely on all favourable occasions, and avoid overloading the atmosphere with moisture during dull weather. *J. Roberts, Gunnersbury Park Gardens.*

ORCHID ILLUSTRATIONS.

Odontoglossum Leeanum, Rchb. f.; Moore, in *Orchid Album*, t. 101.—See *Gard. Chron.*, vol. xvii., p. 525; xix., p. 694. Hort. Soc.

Pleione Humilis var. tricolor, Rchb. f., in *Orchid Album*, t. 102.—A beautiful winter flowering variety, with spreading linear violet sepals and petals, and a broad yellow lip fringed at the edges and barred and streaked with reddish-brown spots.

Dendrobium Draconis, Rchb. f., *Gard. Chron.*, xix., 598; Moore in *Orchid Album*, t. 103; also known, but incorrectly so, as D. eburneum.—Racemes on leafy stems; sepals and petals spreading lanceolate, ivory-white; lip hastate, 3-lobed, with a rich orange stain at the base and prolonged into a long spur.

Oncidium Forbesi, Hook.; Moore, in *Orchid Album*, t. 104.—Evergreen, producing many-flowered panicles from the base of the pseudobulb, each flower 2½—3 inches across, sepals and petals spreading, lip much broader obovate, all yellow, heavily spotted and barred with reddish-brown.

Lælia elegans prasiata, Rchb. f., in *Gard. Chron.*, n.s., xix., p. 11; *Orchid Album*, t. 97.—Sepals rose-magenta, whitish in the centre and towards the base; petals rosy-lilac; lip white where it wraps round the column; disc of the richest magenta.

Coryanthes maculata var. punctata, Lindl.; T. Moore, in *Orchid Album*, t. 98.—One of those very remarkable Orchids similar to one of which we gave a figure and detailed description at p. 597, 1882, vol. xvii. The present species has pale yellow flowers, thickly beset with small reddish spots, and with a bucket-shaped lip, free from ridges, but heavily blotched with purplish-brown.

Dendrobium Farmeri aureum, T. Moore, in *Orchid Album*, t. 99.—A form with sepals and petals bright golden-yellow, the lip orange.

Lycaste Harrisoniæ eburnea, Moore, in *Orchid Album*, t. 100.—Sepals and petals ivory-white, lip three-lobed, white with purple veins.

The Flower Garden.

The heavy storms and boisterous weather we have had lately have tended greatly to destroy the unusually brilliant effect presented in the flower garden this autumn, by the splendid weather we experienced during the month of August. Seldom have we seen the beds better furnished, or the colours more glowing and effective, than they were during the period mentioned. Some of the more tender subjects, it is true, appeared to suffer from the low temperature in July, and have scarcely even yet recovered sufficiently to produce a fair display; but the Pelargoniums, Calceolarias, Verbenas—and especially the better class of herbaceous and annual plants—quickly assumed a brilliant appearance as soon as the fine weather set in, while the tenderer foliaged plants appeared too much chilled to be able even to make fresh growth, but still continued dull and cheerless; this fact should, and undoubtedly will, tell immensely in favour of the former class for bedding purposes, and tend to remove that prejudice which exists in some minds against their presence in the geometrical garden. In addition to this, they undoubtedly possess a great advantage over the carpet-bedding section by their ever-varying, ever-changing charms; no two days does a bed present exactly the same appearance—always something fresh to relieve the eye, interest the mind, and gladden the heart, and also remove the cause for that too oft repeated plaint, "magnificent, but monotonous." The late storms have, however, sadly marred the effect, which can only now be rectified and renewed for a few weeks at most by a return of fine sunny weather on the one hand, and strict care and attention on the other in tying, trimming, and picking them over daily, and instantly removing all dead and decaying subjects as soon as they appear, and in immediately filling up any unseemly blanks which may occur, with suitable plants. Cleanliness, neatness, and order must be incessantly enforced and maintained at this season, otherwise the garden will quickly become a source of annoyance and pain rather than pleasure.

Propagation.—Where the required stock of the various kinds of plants has not already been secured no opportunity should be now lost in obtaining the requisite quantities. In respect to those plants which easily strike and require but little heat, such as Pelargoniums, Calceolarias, Salvias, &c., there is no difficulty, as they will succeed if placed in a cold frame or vinery; but with such things as Heliotrope, Iresine, Coleus, and even Verbenas, they will at this late season be much more certainly increased if subjected to a moderate bottom-heat; and where a properly constructed propagating-house is not available a three-light frame placed on a well-prepared dung-bed, with a few inches of sawdust or other similar material wherein to plunge the pots, will answer every purpose, care being taken not to have the heat too violent nor allow the rank steam to accumulate in the frame without proper means of escape. As soon as struck they should be immediately removed to a cooler position to harden off. Dahlias, Phloxes, Asters, Anemones, Gladiolus, and all similar autumn-blooming plants are exceptionally robust and floriferous this year, and should therefore receive, especially during this boisterous weather, particular attention in training and tying, for upon them we must chiefly depend for the late autumn display. The layers of Carnations, Picotees, as well as the cuttings of Pentstemons, Dianthus, Pyrethrums, and all similar plants, should now be potted and placed in an exposed position, prior to being stored in moderately dry frames for the winter. Where the position, however, is somewhat elevated and comparatively dry, many of them may with safety be planted out in the open borders at once, but my experience in a low-lying damp locality for many years has taught me that they are only safe when in cold frames during winter. *T. S. C.*

Grapes and Vineries.

All vineries from which the fruit has been cut must have plenty of air on the front and back ventilators, and plenty of clear cold water at the roots when the border is dry. As the leaves begin to ripen and drop off in the earliest house, keep them gathered up so that the house is tidy, and if the lateral growths are crowded, cut them out so that the sun and light can act upon the remaining foliage to ripen it off as soon as possible. Houses containing ripe fruit must be kept cool and dry, and only sufficient water be given to the roots to keep the berries plump, give air on all favourable occasions. Late Hamburghs must be kept at a night temperature of 65°, with a rise of 10° by day until they are ripe, when the temperature must be lowered, and plenty of air be given when the external atmosphere is light and dry. Late Muscats must be kept at a night temperature of 70°, with a rise of 10° by day (or a few degrees lower if the nights are cold) until they are ripe, when the temperature must be steadily reduced; if the foliage is crowded, thin out the laterals so that the bunches will be partly exposed to the sun, which will help them to colour better. Go over the houses every week with a hair broom, taking down all the spiders' webs, or they will get about and disfigure the bunches; water the border when dry with clear tepid water at a temperature of 85°, and leave a little air on the back ventilators all night. Give front air on all favourable occasions with caution. Late varieties of Grapes must be kept at a night temperature of 65° to 70°, with a rise of 10° by day. If the border was watered when they first began to change colour, examine it now, and if dry apply clear tepid water. Leave air on the back ventilators all night, and increase it in the daytime according to the state of the external atmosphere, and use sufficient fire-heat to keep up a circulation of warm air. Do not damp the paths and borders after this time, as the nights are longer, and less surface moisture will be required. Young Vines of the first, second, or third year's growth, if very strong, must have fire-heat and plenty of air until the wood is well ripened, and when the border is dry water with clear water; when the wood is ripe stop fire-heat and leave the front and back ventilators open night and day. The earliest pot Vines for fruiting next year will be ripening their wood now, and if the room is required they may be placed outside against a south wall, where they can be made secure from the wind, and they must not be allowed to get dry at the roots; those that are not ripe in the wood must be kept inside a little longer, and have plenty of heat and air until the wood is well ripened, and then they can be placed outside. Planting canes can be placed outside, but the pots should be plunged in cocoa-nut fibre, and the tops be made secure from the wind. *Joshua Atkins.*

The Hardy Fruit Garden.

Daily attention should be given to the gathering of Peaches, Nectarines, and Plums, before they become dead ripe on the tree, for if left till such is the case, not only is the flavour of most kinds deteriorated, but wasps, earwigs, and ants select the ripest and best to feed upon. The fruit, if gathered as soon as they easily separate from the tree, and placed on shelves in a dry and well ventilated fruit-room, are much improved in flavour. Place the small muslin bags on Figs a few days before they show signs of ripening, to prevent attacks from birds, wasps, and flies. Keep the leading shoots of wall trees fastened in, to prevent them from being broken by high winds, and keep all sublateral growths closely pinched in. Peaches and Nectarines from which the fruit has been gathered may have some of the bearing wood cut away which would otherwise be cut at the winter pruning, in order that the new shoots may be as much as possible exposed to the influences of sun and air to ripen them up. The premature falling of the foliage, caused by attacks of red-spider, may be prevented by applying the syringe or engine on its first appearance; if the tree is already infested, add sulphur to the water when syringing.

Turn the leaves from the fruit on late Peaches to obtain colour and flavour. Net up late Peaches, Plums, Cherries, and autumn bearing Raspberries. Make gatherings of Pears of each kind at intervals of a few days, as they become fit, to prolong the season of each. The crops of Apples of the various kinds should be taken as soon as they readily separate from the tree, before high winds shake them down. Early varieties are, as a rule, more tender-fleshed than the later ones and require careful handling; lay them out singly on the shelves in the fruit-room.

Make the final stopping of the secondary growths on bush, pyramid, espalier, and cordon Apples, Pears, Plums, and Cherries; both the fruit and wood will then have the full benefit of sun and air to accelerate the ripening process. A memorandum should be made of all trees making a too vigorous growth so that when the time comes root-pruning may be resorted to, that the evil effects may be remedied. Notes should be made now of what fruit trees are required for planting, and also of the variety most suitable for the soil and locality decided upon, so that all may be in readiness to commence planting-in the early part of the season, which begins with October. Keep old and new plantations of Strawberries free from runners and weeds. Autumn fruiting plants should have a mulching placed around them to keep the fruit clean. *D. C. Powell, Powderham Castle, Devon.*

Clianthus Dampieri.—Not without some difficulty at first we now succeed very well in growing this curious and remarkable plant in the open ground. In March we sow the seeds on the spot, taking care to protect the tender little plants from heavy rains, leaving them, however, quite to themselves later on. The flowering period commences in June, and lasts until Christmas. It produces seed, however, rather sparingly, a third part of the flowers only forming pods, very likely for want of the proper insects. It affords a splendid aspect to look at the number of Clianthus plants grown in the open ground, and we do not doubt that this brilliant Papilionacea will accommodate itself more and more to our climate and soil. It cannot be doubted either that seeds raised here will grow much better than those imported from Australia or elsewhere, two-thirds of which generally fail. *Dammann & Co, Portici.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Sept. 10	Sale of Dutch Bulbs, at Stevens' and Protheroe & Morris' Rooms.
TUESDAY,	Sept. 11	Royal Horticultural Society: Meeting of Fruit and Floral Committee, at 11 A.M. Sale of Imported Orchids, at Protheroe & Morris' Rooms.
WEDNESDAY,	Sept. 12	Royal Caledonian Horticultural Society's Show (two days). Sale of Dutch Bulbs and Imported Orchids, at Stevens' Rooms. Sale of Properties, at the Auction Mart, by Protheroe & Morris.
THURSDAY,	Sept. 13	International Potato Show at the Crystal Palace (two days). Sale of Imported Orchids, at Stevens' Rooms: and of Dutch Bulbs, at Protheroe & Morris' Rooms.
FRIDAY,	Sept. 14	Royal Horticultural Society of Aberdeen, Autumn Show (two days). Sale of Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	Sept. 15	Sale of Dutch Bulbs, at Stevens', and Protheroe & Morris' Rooms.

THERE is every reason to anticipate that the annual EXHIBITION OF POTATOS which will take place at the Crystal Palace on Thursday and Friday next will be not only one of the largest, but in every sense the best yet held. We have had an exceptionally good Potato season; not only has the crop proved to be large, but it has proved further to be unusually free from disease. The promoters of this great annual Potato gathering will have abundant reasons for congratulation that, whatsoever benefit has resulted to the Potato through their efforts, both the growers and the public will largely share in the almost universal abundance of their favourite tuber.

The Potato exhibitions have been exceptionally favoured in the patronage they have from the first received from the magnates of the City of London. There can be no doubt but that those civic dignitaries who from time to time have given freely of their wealth and of the prestige of their patronage and presence, have in so doing been actuated by an earnest desire to promote the culture and improvement of an article of food which is of such vast importance to the nation at large that it probably ranks second only to Wheat in value. The patronage thus given has had a double benefit. It has honoured the givers and the great city which gives them position and wealth; it has also honoured and helped the annual exhibitions, and for it the promoters, and, indeed, all interested in their success, have never ceased to be grateful.

The origin of these shows is now a matter of history, growing, as it did, out of the wondrous success that attended the first really great show of Potatos held in this country—viz., that at Manchester in 1872. This suggested the design to one or two minds to strive for something truly national. Another factor was what might have been but seeming, but which nevertheless appeared to be a real slight, given to Potato exhibitors in metropolitan quarters, where encouragement had been expected, but, as it proved, disappointed. The earlier shows held at the Alexandra Palace and the Royal Aquarium were veritable surprises, but in all points these have been far outshone by the displays since from year to year at the Crystal Palace.

Some important features distinguish the Potato show from other special exhibitions. There can be no doubt but that it is in its individual way doing far more for the Potato than any heterogeneous body could accomplish for it. Then there is the peculiar fact that its chief workers are mainly non-exhibitors. One or two may show a little, but not largely; indeed, we have seen its most ardent supporter and Treasurer, Mr. MCKINLAY—himself one of the most successful cultivators of Potatos in the kingdom—often exercise the greatest self-denial in the matter of competing for prizes when he had but to exhibit to win. With not a few of special bodies, which have been organised for the prosecution of the culture of some special flower, the promoters are almost the sole exhibitors. It is a specialism that perhaps finds few admirers, or rather cultivators, and the promoters themselves are fain to compete largely to make their exhibitions. Potatos, however, find myriads of admirers and growers; they are grown everywhere, and shown everywhere, and experience has manifested that it is but to offer prizes, and growers in scores, far and near, come to stage their favourite tubers, and to submit them to the severest ordeal offered perhaps at any exhibition in the kingdom.

Necessarily the work of the exhibitions, their arrangement, preparation, and organisation, must be carried out by a very limited number of persons, because the calling together from all parts of the kingdom of the large general committee would be impossible. That in such case the burthen rests all the more heavily upon the shoulders of those few who conduct the exhibitions may be expected; but it is lightened by the knowledge that the utmost confidence of the numerous subscribers and exhibitors is felt in the executive. Mr. MCKINLAY enjoys the esteem and confidence of all with whom the shows have brought him into contact, and not less is the warm good feeling towards one who has from the first been found to be a tower of strength and a power of usefulness, Mr. SHIRLEY HIBBERD. This gentleman, an honoured and distinguished leader in the Horticultural Press, has not spared himself amidst his multifarious engagements to devote himself unsparingly to the Potato and its culture, and not least, to its great International Exhibitions. Mr. HIBBERD is endowed with not a little of that fire and enthusiasm that are supposed usually to be the attributes of youth alone. Those elements of force and usefulness he has carried into the management of these Potato exhibitions, attending to the smallest details with the same thoroughness that has been given to the more popular portions of the arrangements. Even attendances at Chiswick upon the seedling committee, and the most patient attention to the merits of even the most unpromising of new kinds, have never been neglected. In matters of such interest and usefulness, Mr. HIBBERD has always been foremost: and those raisers who have sent their seedling kinds to Chiswick need not fear that, as long as he is directing the labours of that seedling committee, so long certainly will its work be done with zeal and impartiality. The admirable portrait of this gentleman which we give on the opposite page, comes as a fitting reminder of the honourable association of the original with the International Potato Exhibitions.

There are some persons who will perchance ask, What good do the Potato shows accomplish for the esculent, which has not inaptly been termed "the noble tuber?" It is not our place to give reply to such a question; but we may suggest to such critics to look around. Any such criticism, it must be remembered, will apply not only to Potato shows, but to all others, for the very *raison d'être* of their existence is that for the objects they include they are designed to do good. The Potato is not merely the favoured subject of the International Potato Show Committee, it is almost universally exhibited, and has so been for many years. One great need on the part of judges at the provincial shows was a better knowledge of the qualities which make up good Potato samples, and growers through defective knowledge on the part of their censors were being led astray. Very much of this comparative ignorance the International Potato Shows have been instrumental in correcting. They have set up a high standard of excellence, very far excelling that generally found in provincial districts, and they have taught very much concerning the Potato of which in the past even assumed good judges were ignorant. The shows have also done something for that depressed class—Potato raisers. They had for many years worked hard but very aimlessly, knowing little of what was needed, and still less of what kinds already existed. Seedlings are now taken in hand, and submitted to an ordeal of the severest kind. They are tested in every useful point, and if found wanting are discarded, but if found good are encouraged with certificates and prizes. In time our trade lists will be purged of all inferior sorts, and it is hoped of all synonyms, and that only first-class kinds will be offered in commerce. Thus the Potato is being lifted to the highest elevation of popularity, excellence, and usefulness.

—— WOOLHOPE CLUB.—The assembling for the week's diversions will commence on Monday, October 1, with the annual foray on Thursday, October 4. To meet at Hereford.

—— HACKNEY NATURAL HISTORY SOCIETY'S annual fungus excursion will take place on Saturday, October 13. To enter Epping Forest from the Chingford side.

—— SCOTTISH CRYPTOGAMIC SOCIETY.—The annual conference and foray will be held at Dumfries on September 11, 12, and 13.

—— ESSEX FIELD CLUB.—The annual fungus meeting is fixed for Loughton, for Epping Forest, on Saturday, September 29.

—— CAMPANULA VAN HOUTTE×.—M. RODIGAS tells us in the *Illustration Horticole* that this plant was raised some twenty years since by Dr. RODIGAS between C. nobilis and C. grandiflora. It was at first called C. hybrida. We suppose the name of VAN HOUTTE became attached to it as the one who distributed the plant, but it is clear that it would have been more just to have called it C. Rodigasii×, or, to avoid confusion, C. Dr. Rodigas.

—— THE HAMPTON COURT VINE.—The total number of bunches of Grapes on the great Vine at Hampton Court this year is about 1300, or 130 in excess of the number last year. The Vine, it will be remembered, was planted in 1768 from a slip from a Vine at Valentines, in the parish of Ilford, Essex, and it has been known to produce as many as 2200 bunches in one year.

—— DROUGHT EFFECTS.—The splendid weather which till recently marked the autumn and made that season one of the most glorious harvest times for many years, has in its operation become in some parts of the kingdom, and notably around London, exceedingly trying to vegetable life. Those who reside in localities where rain has been abundant, will read with surprise of large Elms and Limes already denuded of their foliage, and in all directions is the ground strewed with leaves, or on the trees they are of that golden hue which rather marks October than August. To the gardener who loves tidiness, the early fall of the leaf is most distressing, as he sees before him a long season of litter and consequent labour. To the lover of the beautiful in Nature, the early defoliation of the trees is even more painful, as our summers are now far too short, and a burnt, browned, leafless vegetation is the reverse of pleasing or picturesque. Worst of all, the gardener, and specially the market grower, is seeing the rich promise of the early summer marred by the long-continued drought, which is withering the Apples, Pears, and Plums ere they are ripe for gathering, and causing the foliage to fall, so that many fruit laden trees are leafless. Green crops are suffering terribly and look miserably blue. Early sown Turnips are stunted, and late sowings absolutely refuse to germinate, so that the vegetable prospect where the drought prevails is but a poor one at present. All early Potatos have been got up without a speck of disease, but late ones are now withering up, and the prospective crop greatly discounted, so that there may not be the anticipated great abundance of Potatos after all, except in those more favoured localities where rain has been plentiful. Within the last few days cold rains have fallen and violent gales done much havoc in orchard and Hop garden.

—— THE GRASS AND CLOVER CROPS.—Advices received up to the end of August from Germany report quite unfavourably on the prospect of the crops of grass seeds in that country. The continued dry-

ness of the weather, the total want of rain, and the absence of all moisture during early spring caused the destruction of much seed, lost in consequence of the plants being positively dried up. Even in those districts which promised somewhat better, and where some expectations of a crop were entertained, the great want of fodder caused the grass to be cut, instead of being left to produce and ripen seed. So general a failure has not occurred for years, and it is difficult to mention a single sort of grass of which it could be said there is a satisfactory crop. The consequence of this scarcity has resulted in a stronger competition than usual in the purchase of these seeds; and as a result a general rise in the prices, and purchasers are paying much higher than has hitherto been paid for current qualities. The demand for Meadow Foxtail and Meadow Fescue will, to all appearance, be very heavy, these seeds being among those most sought for. The crop of reliable seed is very small; many producers cut their seed much too early, and in consequence the seed is very inferior, showing but poor germinating power. True Meadow Fescue is very scarce and high in price, but what there is is of very fine quality. Poas have been harvested in very small quantities, but the quality appears to be very fine. Hard and Sheep's Fescue are in very great demand, and the supply is expected to fall much short of what is really required. The Clover fields look very fine, but not finer than at the corresponding period, when the hopes of the growers were very great. But it depends on the weather during the first half of September whether they will be disappointed, as last year, or have an abundant crop.

—— Novelties in Nomenclature.—It is not unusual to hear exclamations against the "crackjaw" names botanists bestow on plants, yet we often find that these names are rendered unintelligibie and unpronounceable by persons who are not botanists. Seldom, however, do we find such radical alterations in names as appear in the report of a flower show lately held at Ardrossan. After leading up to some exhibits of Ferns with a proper procession of sentences the report continues :—"These were beautiful in shade and variety, including as they did, specimens of the 'De Vala Moreana' and others, and the effect was very pleasing. The other table was loaded with perfect specimens of Hydrangeas, Coleus, Tree Carnations, Dracænas, Gluckcenas, and Ada Anthiums, while, overtopping all, was a noble Tree Fern, supported by a Dixonia and Croton (variegated) Ferns." We do not accuse the reporter of wilfully modifying the names, indeed in one case he protects himself with inverted commas; but the "De Vala" and "Ada Anthium" look like an attempt at a humourous rendering of the more homely Davallia and Adiantum. But this merciful view of the matter is completely upset by such a name as Gluckcena.

—— Pratia arenosa.—In the herbaceous department at Kew this handsome New Zealand Lobeliad is now, and has been for a considerable time, flowering freely. It is a stronger and more robust grower than the better known P. angulosa (the old Lobelia litoralis), which under its correct name was certificated as a new plant a year or two ago. P. arenosa forms dense cushions of light green fleshy leafage studded with numberless pure white blossoms.

—— Mr. Lawless' Specimen Plants. — We regret to hear that, through prolonged illness, Mr. George Cole is about to sever himself from the very fine collection of exhibition plants which he has so long grown for J. Lawless, Esq., of Exeter. It is also much to be regretted that such a collection should have to come under the hammer of the auctioneer, as, we believe, is the present intention of their owner. Such successful growers as Mr. George Cole are not too plentiful in the land, and it is to be hoped he will soon be restored to health again.

SHIRLEY HIBBERD.

—— A Japanese Work on Systematic Botany.—We have seen the first part of a new Japanese work consisting of coloured illustrations, and, apparently, for we regret to say we are unable to read the language, descriptions of plants, wild or cultivated, in Japan. We understand it is being published under the auspices of the Japanese Government. The book is of folio size, and the arrangement is systematic; this part being devoted to plants belonging to the natural orders Ranunculaceæ and Magnoliaceæ. Botanical names and authorities are given in Roman characters, therefore this part of

the letterpress is intelligible to us. The plants figured are:—Pæonia moutan, four varieties; Chimonanthus fragrans, three varieties; Illicium anisatum var. religiosum, Magnolia obovata, two varieties; M. conspicua, M. Kobus, M. stellata, two varieties; M. parviflora, M. hypoleuca, two varieties; M. grandiflora, Michelia champaca, Magnolia compressa, and Magnolia sp.: in all twenty-two plates. The figures are boldly drawn and well coloured, so they are readily recognised.

—— HELENIUM TENUIFOLIUM grows about 1½ foot in height, has somewhat slender stems clothed rather thickly with narrow linear leaves, and crowned with corymbed heads of bright yellow flowers. It is a smaller growing and more elegant plant than the Sneeze-weed, the popular Helenium autumnale. Both species are now flowering in the herbaceous collection at Kew.

—— CHINESE JOSS PAPER.—It is stated in a Government report that Foochow enjoys a high repute for the quality of its joss paper, which is annually shipped in large quantities to Tientsin and Chwang, where it is distributed throughout the north and west to the very confines of the empire. The export increased from 9261 piculs in 1880 to 11,119 piculs in 1881. Joss paper is manufactured from imported tin, which is first rolled and then hammered into very fine sheets; these sheets, together with paper specially prepared for the purpose, are sent out to the surrounding villages, where women and girls are employed in pasting them together and drying them carefully in the sun. Should a golden hue be desired, an admixture of Rice starch and the extract of Senna seed appied with a brush imparts the necessary tint. When the process of pasting and drying is complete the sheets are cut into sizes suitable for the market, the uncoloured kind being supposed to represent silver paper.

—— ASTERS.—We desire to correct a slight error in our note on the plants exhibited by Messrs. JAMES CARTER & CO. at the last meeting at South Kensington. The plants were lifted the day before from seed-beds, numbering in all about 15,000 plants, and had not been, as we stated, grown in pots for exhibition. The beds at the present time are in great beauty, and well worth a visit by any one who can find time to go and see them.

—— WINDOW GARDENING IN SHEFFIELD.—The Sheffield School Board on Saturday last made an interesting experiment with the view of encouraging the love and culture of flowers, and especially in regard to window gardening, among the scholars. Five thousand plants were given out to boys and girls in one district to be reared for competition. The exhibition took place in Duchess Road schools, when 2500 plants were brought forward, many in very fine condition. The Mayoress of Sheffield presented prizes to over a hundred scholars, and so great was the interest exhibited by the parents of the children and the public that from 15,000 to 20,000 people visited the exhibition during the day. The success will lead to general competition extending to all schools.

—— SPORTIVENESS IN THE DAHLIA.—This fact in the physiology of the Dahlia was abundantly illustrated at the recent show at the Crystal Palace at Sydenham. Not a few of the fancy Dahlias sport to a self form, and in this character can be shown as show flowers, and at this particular exhibition such fancy varieties as George Barnes, Hugh Austin, Rev. J. B. M. Camm, Lady Antrobus, James O'Brien, Charles Wyatt, &c., were seen among the self show flowers. One show flower, Flag of Truce, was shown as a fancy; it is a white flower, occasionally tipped with lilac, and striped and splashed with this colour also, and then it is admissible as a fancy variety. Mr. TURNER's stand of twenty-four fancy varieties contained three distinct sports from the fancy Gaiety, all of which were shown as separate varieties. Gaiety is a yellow ground flower, striped with red and distinctly tipped with white. Of the sports, one resembled the type, only that there was no white tip; another had a clear yellow ground charmingly tipped with white, but without a trace of the red stripes common to it; the third had a pale yellow ground heavily tipped with a kind of dull orange-red, with a flush of purple and very slight stripes of red; and yet Mr. TURNER was not able to show a bloom of Gaiety in his stand of fancies. In Messrs. KEYNES & CO.'s winning stand of twenty-four fancies could be seen a sport from Gaiety answering exactly to the character of one of those in Mr. TURNER's stand. Sports of good character occasionally become fixed, and they are propagated and distributed as distinct varieties. The new sport from James O'Brien—Duchess of Connaught—is a case in point, and it was awarded a First-class Certificate at the Crystal Palace as a distinctly new fancy.

—— LAPAGERIA ALBA, &c.—This superb greenhouse climber is doing grandly at Bearwood, where Mr. TEGG has two very strong plants growing in 24-inch pots at either end of a long house, and on the northern or coolest side. Midway there is placed a strong plant of L. rosea, and the growth meeting that of the white kinds, and becoming intermixed with it, literally fills all that part of the roof with beautiful red and white balls, which are hanging by hundreds, and presenting a very striking sight. As the plants are thus a little in shade, the blooms are far more enduring than when grown in the strong sunlight. They are found after being cut to keep well in a cool room for three weeks. In an open frame there were the other day growing a number of stout dwarf plants of that beautiful winter Fuchsia, the hybrid Dominiana. These were from spring-struck cuttings, and when in a greenhouse in the winter will be found to be the most valuable of winter blooming plants. It is one of those winter specialities that has always done well at Bearwood. Allamanda Schotti trained along the roof of a span greenhouse is a superb climber. When, as presented to the public gaze at flower shows, this noble Allamanda is "cribbed, cabined, and confined" to a globe wire trellis, rich coloured as its flowers may be, it looks anything but happy. It is, however, when seen growing in rich profusion, and almost wildly, as at Bearwood, that the full merits of the plant as a house-climber are seen. Another plant that merits notice is the charming pea-flowered Swainsonia Osbornei, the blooms of a pleasing rosy-purple hue, and most freely produced. This is not only a charming warm greenhouse plant, but it furnishes capital cut blooms. Amidst such an abundance of Ferns and foliage plants, it is pleasant now and then to find a good old plant in bloom.

—— HARDY HEATHS.—Looking through a collection of hardy Heaths at the close of the last week in August, the following varieties of the common Ling were far superior in general effect to any other of the numerous forms with which they were growing, all being under precisely similar conditions in every respect. Calluna vulgaris Hammondii is a tall free-flowering white form, and a strong vigorous grower into the bargain; the variety dumosa makes compact, dense, cushion-like masses scarcely more than 6 inches in height. After most of the other kinds have passed this remains in nice flower; it is a very neat and pretty plant, with brighter coloured flowers than the common Ling. Another variety, thoroughly distinct from the last named one, although somewhat similar in habit, is coccinea. This has bright red flowers and twigs, and young growths so decidedly hoary as to give a greyish-white tint to the plants, and render it conspicuous amongst its neighbours. In the genus Erica certainly the showiest plant in flower was E. Mackayii, a sub-species of the common cross-leaved Heath, which is found wild in Ireland, where it is restricted to heaths between Roundstone and Clifden, in Galway. This plant, which according to some authorities is a hybrid, is also found in Spain, but nowhere else.

—— HEIMIA SALICIFOLIA.—Some three or four species of Heimia are recorded as having been introduced to this country, but two of them—namely, H. linariæfolia and H. myrtifolia, both from South America—are referable to the species under notice. H. grandiflora is confined to Buenos Ayres, along with H. salicifolia, while the latter occurs also in Mexico and Texas. It is a highly ornamental evergreen shrub, with erect twiggy branches, and both species are remarkable as the only yellow-flowered members of the order of Loosestrifes. The foliage of the Willow-leaved species much resembles that of the Pomegranate, another allied plant. Planted against a wall at Kew, it never fails to bloom at this season, and onwards till cold weather sets in; and this year the flowers are, if anything, unusually abundant. Formerly it was reckoned as a stove plant, probably because coming from such warm countries; but the present plant never receives any protection in winter, and although it loses its leaves, young shoots break forth again in spring, attaining by the end of summer a height of 3 to 5 feet. It is self-supporting, and receives no pruning or training beyond keeping it in bounds, or cutting away dead wood. It is a shrub that deserves more attention for its distinct appearance and late-blooming properties.

—— COCCOCYPSELUM DISCOLOR.—The plants belonging to this genus of the Cinchonads are not remarkable, or indeed valuable, for their flowers, which are small and uninteresting—a defect which is redeemed by the berried and sometimes highly-coloured fruit. The berries in this instance are produced in axillary clusters, and assume a fine blue colour as they approach maturity. They are also botanically interesting for their axile placentas, which are many-seeded, occupying a central position on the inner angle of each of the two cells of which the fruit is composed. Several plants of the present species, fruiting finely in the stove at Kew, illustrate their value as basket-plants for decorative purposes. Flowers are produced at almost any season, but the fruit seems to set best during the summer months. The slender pendent stems and the underside of the leaves are covered with a violet-purple pubescence, which lends an additional interest and value to the plant, as well as being suggestive of the specific appellation.

—— JASIONE MONTANA.—It is rather singular that this, one of our native wildings, and a really ornamental plant, receives so little attention at the hand of the horticulturist, when far less effective exotics have so much time and attention devoted to them. In a wild state, where it grows on rather dry banks, as on Wimbledon and Ham Commons, as well as on railway embankments westward of that, the leaves are apt to wither up on the lower part of the stem, but under cultivation it retains these, forming an admirable setting for the capitate blue flower-heads. The mode of inflorescence is imitated by some of the Phyteumas and Gilia capitata, but most of all by the members of the Scabious family. As it ripens seeds freely there would be no difficulty in perpetuating a stock of it from year to year, as a border annual worthy of attention, and deserving the space it would occupy. There is a figure of the plant in *English Botany*, 142.

—— DAHLIAS.—Mr. TURNER informs us that he intends to exhibit a full collection of show, fancy, bouquet, bedding, and single Dahlias at the meeting of the Floral Committee at South Kensington on Tuesday next; and we mention the fact in the interest of those lovers of this fine autumn flower who were unable to get to the grand show at the Crystal Palace last week, and who would yet like to have a look at "the beauties" ere it is too late.

—— BEE PLANTS.—At a recent monthly meeting of the Montgomery County, Ohio, Horticultura Society, the Rev. L. L. LANGSTROTH, the inventor of the movable frame hive, recommended the planting of all waste places with the Golden Rod and the Wild Aster, the bees being so fond of these flowers that they will forsake almost everything else for them.

—— THUNBERGIAS.—It is not often that one sees these charming plants in gardens now-a-days. They have the reputation of being dirty plants when grown in a house, being subject to red-spider and attacks of insects, which soon causes the plants to become foul and disagreeable in appearance. But did people who grow flowers know what charming outdoor subjects they are when properly grown, they would be cultivated much more generally than they are. It is worth a journey all the way from London to see a batch of Thunbergias growing in the open ground at Messrs. SUTTON & SON'S, Portland Nurseries, at Reading. Let us, in a few words, set forth the mode in which these plants were treated, that others may be encouraged to "go and do likewise." The sorts were T. alata, and its varieties alba and aurantiaca. The seeds were raised in a brisk hotbed, where there was a great deal of moisture; then, when large enough, four plants were put into a 60-pot, and later shifted into a 48-pot; a few twigs of a birch-broom, about 18 inches long, being placed round the sides of the pots for the shoots to cling to. They were gradually hardened off, and encouraged to make a vigorous healthy growth. Early in June the plants were turned out of

the pots and planted out-of-doors without disturbing the balls; they soon became established and form handsome cones, while the side shoots completely carpet the spaces between the mounds. Here then is a "wrinkle" how to form a bed of Thunbergias. The plants have thriven amazingly, and are now masses of bloom, and a singularly pretty and, it can be added, unusual, sight to look upon—the bright orange of aurantiaca contrasting in such a pleasing manner with the buff of alata and the whiteness of its variety. Need it be stated that there was not a trace of red-spider on these flourishing plants?

—— LATHYRUS ROTUNDIFOLIUS.—This handsome everlasting Pea, certainly one of the most desirable members of a genus which supplies not a few high-class ornamental plants for our herbaceous borders, is now blooming in the herbaceous department at Kew. It is a native of South Russia and Asia Minor, has been long cultivated in England, but how and when it was introduced to this country is not certain. It is a perfectly glabrous climber, with broadly winged branches and rather long-stalked racemes of somewhat large deep rose-pink flowers. When, in addition to the brilliancy and delicacy of its blossoms, one adds that it is perfectly hardy, is a free grower and an equally free flowerer, enough has been stated in the way of recommendation to prove that the species is well worth growing in any garden. It is, however, by no means common, and it is but recently that it was added to the Kew collection. A figure of the plant was published in one of the recent volumes of the *Botanical Magazine*.

—— SAMOLUS LITTORALIS.—Under the same conditions requisite for the successful cultivation of the pretty little Anagallis tenella, the delicate and charming Wahlenbergia hederacea, the Bird's-eye Primrose, Primula farinosa, and other of our native bog or moisture-loving plants, which of late have begun to find favour with the general public, Samolus littoralis will grow freely. It is an infinitely more beautiful plant than our native Brook-weed, Samolus Valerandi, and one, moreover, which scarcely demands more attention. It is a perfectly glabrous herb, with creeping barren stems clothed with small fleshy leaves and upright flower-stems, bearing clusters of pretty pink-tinted flowers. It is a native of marshy places near the sea, throughout the islands of New Zealand, and is abundant in Australia, Tasmania, and the Pacific Islands; it has also been found in South Chili.

—— ARGEMONE HISPIDA.—There are few Poppy-worts more decidedly worth a place in the herbaceous border than the subject of the present note. It was first raised at Kew some few years ago from seed collected by Sir JOSEPH HOOKER in Colorado, where, according to its discoverer, this fine plant is, during its flowering season, one of the greatest ornaments of the vegetation; it abounds in open grassy and stony places in great profusion, flowering for three months of the year. The flowers are of a snowy white, and the brush-like mass of golden anthers lends an additional charm. A. hispida grows nearly double the height of the yellow-flowered A. mexicana, which is so well able to take care of itself, that according to Sir JOSEPH HOOKER'S *Journal of a Naturalist in the Himalayas*, it occurs as a roadside plant for hundreds of miles in India. In Kew also, in company with the two species already named, is a charming form of the latter with pretty white-veined foliage and pale primrose coloured flowers: this attains a height of not more than 15 or 18 inches.

—— A GRAND NEW AERIDES is now in bloom in Messrs. SANDER & Co.'s Nursery, at St. Albans. It is of massive habit, both as regards the plant and also the flower, and may be considered the finest Aërides ever introduced. The plant, which is only now getting established, bears a spike 2 feet 6 inches in length, furnished with thirty bold wax-like flowers, the ground colour of which is clear white, each segment tipped with bright mauve, and the centre of the flower marked with crimson-mauve. The whole aspect of the plant is very striking, the largest leaves being 2 feet in length by 2 inches in width. Only the mass in question was ever imported.

—— AZOLLA PINNATA.—A large pond by the roadside at Eastcote, near Pinner, is covered with this pretty little stranger, which seems to be quite at home, and even overrides the common native Duck-weed, the red tint giving quite a new aspect to the pond vegetation. It is interesting when we consider that only a few years ago it came to this country in a small box, and has no doubt found its way to the Eastcote pond from the tank of a private garden near.

—— ODONTOGLOSSUM ALEXANDRÆ VIRGINALE, a pure white variety, with only a light yellow mark in the centre, and one of the rarest and finest of the O. Alexandræ, is now in bloom with Messrs. SHUTTLEWORTH, CARDER & Co. It is a very pleasing form, and the pity is that it will never be other than rare.

—— BURGLARIES AT CHESTER.—Two daring burglaries were committed early on Wednesday morning at Chester, on the premises of Messrs. F. & A. DICKSON & SONS, and Messrs. JAMES DICKSON & SONS, in Eastgate Street. The thieves entered Messrs. F. & A. DICKSON'S establishment from the back, which faces Chester Cathedral, and got in through the skylight in the roof, which they reached by ladders. The premises where then thoroughly ransacked. A safe in which large sums of money were placed was unsuccessfully attacked with jemmies, and, foiled at this, the thieves descended to the shop and forced open the counter till, but secured only about £1 in silver. Annoyed at their ill luck after forcing nine desks and locked drawers, they wantonly scattered about large quantities of goods and then left. Passing over the roof of the Green Dragon Hotel, they entered the warehouse of Messrs. JAMES DICKSON & SONS, and descended to the shop, which they ransacked in the same manner, but obtained only £2 and a number of postage stamps. Considerable damage was also done to drawers and property at this establishment. The thieves got safely away, though some time must have been occupied in the burglaries. The burglaries were the work of experienced hands, as shown by the way in which the locks were forced.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Sept. 3, issued by the Meteorological Office, London:—The weather, which at the opening of this period was fair in the S. and S.E., subsequently became unsettled, dull, and showery in all parts of the kingdom, the disturbance culminating in very heavy rains and violent winds at almost all our stations. The temperature has been slightly above the average in "England, N.E.," and "England, E.," and about the average for the season in "Scotland, E.," but elsewhere the readings have been a little below their normal value. The maxima were recorded in most places on Aug. 28, and varied from 67° in "Ireland, N.," and 69° in "Scotland," to 77° in "England, S." The minima, which were generally registered on September 1, ranged from 41° in "Scotland, E." to 47° in "England, S.," and 48° in "England, N.W." The rainfall has been more than the mean in all districts, the excess in "Ireland," "Scotland, E.," and "Central and South-western England" being very considerable. The bright sunshine percentages show a great decrease in all parts of the country, ranging from 15 per cent. of the possible duration in "England, N.W.," and 17 per cent. in "Ireland, N.," to 28 per cent. in the "East of Scotland," and "East of England." Depressions observed:—During the first, and greater part of this period, the barometer was highest over France, and lowest over Scandinavia, while some small, shallow depressions passed in an E.N.E. direction over the United Kingdom, the winds in our islands consequently being moderate or fresh from the south-westward or westward. By the morning of September 1, however, a very deep depression was observed approaching the S.W. of Ireland, causing the barometer to fall rapidly on our S.W. coasts, and the wind to increase to a gale from S. or S.E. during the following day, as the disturbance moved rather slowly eastward or north-eastward, the wind increased to a gale at nearly all our stations—from S.E. or E. in the E. and N., from N. or N.W. in the W., and from between W. and S. in the S. and S.E. By Sept. 3 the depression had reached the North Sea, off the Scotch coast, and the wind, which had veered to the northward or north-westward, was moderating in force. Over the N. of France, the Channel, and the S. of England, the gale was unusually severe.

—— GARDENING APPOINTMENTS.—Mr. R. THOMPSON, for six years Plant and Fruit Foreman at Alnwick Castle, as Gardener to General STANSFIELD, Esholt Hall, Yeadon, Leeds.

BROCKHURST NOTES.

AFTER a three weeks' absence on holiday in Scotland, there is much to note in one's garden at this season of the year. It was strange to find at Moffat that vegetation was a clear month later than at home. Our Strawberries and Gooseberries were nearly over when we left home the 1st week in August, and on leaving Moffat at the end of August the Elton Pines were in perfection, and the Gooseberries and Raspberries were just ripe. I wonder the Scotch nurserymen do not send more fruit to the English market. It would be almost as valuable the latest, as the Channel Islands fruit is in the earliest season.

This year we started our seeds very early, and in consequence a great many of them are now blooming which usually take two years before they mature. We sowed almost everything in 6-inch pots, and placed these closely covered over in a warm vinery early in March, and in from ten to twenty days they showed their leaves. We then removed them, and by gradually hardening them off they reached the outdoor frames in May, and were then pricked-out in shallow boxes. Finally they were transferred to the open garden, and a good many are now in bloom.

Primula obconica, or more properly, perhaps, P. poculiformis, has done remarkably well. It was sown March 2, and it is now plentifully in flower in our garden. It is a lovely plant, and bids fair to be a valuable one. It has a yellowish-green foliage in rosettes, from which rise stout stalks bearing trusses of pale pink flowers of the rosea type; some of the flowers are nearly white. It is very floriferous. Another novelty now in bloom from seed sown in March last is Glyphosperma Palmeri, the seed of which was sent to me by Mr. Falconer, of Harvard University Botanic Gardens, as a new genus and new species from Northern Mexico. We have been successful in raising a good stock of it, and the first flowers bloomed to-day. It is allied to the Anthericums, has Rush-like foliage, and stout stalks bearing pinkish-white flowers, with a dark line along the centre of each petal. I fear it will scarcely be hardy, but it will probably do well if wintered in a frame. As, however, it flowers thus the first year, it will be well worth growing from seed; it is a very lovely flower. Another American plant, Tagetes Perryi, has not proved so satisfactory. It has flowers like the French Marigold, but the smell is very offensive. It is very strongly scented when only in leaf. Iberis gibraltarica hybrida, and Iberis Pruiti, raised from seed planted in March last, are now blooming plentifully, as are also several of the Lychnis and Agrostemmas. Of these there are now some lovely varieties—L. Flos-Jovis has a most beautiful carmine-pink shade, and the variety of L. coronaria mexicana has a deep claret-pink, almost crimson, of great beauty. These plants are most useful for border work at this season, when flowers are scarce, and especially bright ones. I would encourage all lovers of hardy and alpine plants to endeavour to grow their stock thus from seed. We have in this way succeeded in raising over a hundred sorts, many of them exceedingly rare—and the failures have been few. Not only have we supplied our own requirements, but we have also had the pleasure of giving to many friends from our surplusage.

A few notable plants are now blooming with us which deserve a passing notice. Of the Hypericums, H. empetrifolium is a very pretty plant, having Heath-like foliage, with an erect shrubby habit, and bearing beautiful spikes of yellow flowers. H. ægyptiacum is another excellent variety, having Thyme-like leaves and pale yellow flowers; the stamens form a boss in the centre of each flower, giving it a distinctive appearance. Anomatheca cruenta, kindly given me last year by Mr. Pöe, of Riverston, is a most lovely plant, having flowers of the richest pink, with dark carmine centres. One of the Lobelias of the syphilitica type is also of great beauty—a rich claret-crimson, brighter even than Lobelia cardinalis, which blooms near it. These Lobelias are sometimes cried down, but they are valuable autumn plants, and some of the varieties are of sterling value. Lobelia ilicifolia is a charming rockery plant, having a close foliage and a creeping habit, with tiny flowers of pure white dotted over the leafage. Ranunculus magellanica is in flower here for the first time, and is a lovely plant, reminding one of R. glacialis, but having more delicate white petals, with a boss of yellow anthers in the centre. Silene Schafta, which blooms near it, is just now one mass

of lovely pink—a grand rockery plant. A new Spiræa, sent out by Froebel as species nova, from Japan, is now blooming, and is a very interesting dwarf plant. Possibly it may come taller next year, but at present it forms a bush about 8 inches high, with dark green foliage, every branch carrying a small tuft of pink at the end, reminding one of tiny bosses of S. palmata. It is a perfect gem, and I hope will maintain its dwarf habit, which fits it admirably for rockwork. [Probably Spiræa bullata. See p. 680, vol. xviii. ED.] The Spiræas have been unusually fine here this year, S. palmata and S. venusta having been one mass of lovely pink for many weeks.

The Tradescantias have been also very floriferous, especially one that is new to me, T. congesta. It grows 3 feet high, each stalk carrying a dense ball of pale blue flowers, which succeed each other for many weeks The white and crimson varieties of Tradescantias are also excellent border plants, and there is a lovely dwarf variety, T. pumila, which grows only 4 inches high, with deep blue flowers. We are now gay with Anemone japonica Honorine Jobert, of which grand plant there cannot be too much in any garden. Galtonia candicans is also very beautiful. Lilies have not done well here this season. *Wm. Brockbank, Brockhurst, Didsbury, Sept.* 2.

FRUIT NOTES.

APPLE AMERICAN MOTHER (*Florist*, August, 1883).—Fruit medium-sized, sub-globose, with a short stalk and shallow eye; skin golden-yellow streaked with crimson and sprinkled with russet dots. Flesh white, crisp, aromatic. Of full quality, but shy.

PEAR MARGARET MARILLAT (*Revue Horticole*, August 1).—A large Pear, seemingly of the Williams' type, but which does not blet or rot in the centre. It is a Pear of large size, oblong pyriform, with a short thick stalk, and a rich yellow skin speckled with brown.

NECTARINE HUMBOLDT (*Florist*, July). — A variety highly spoken of by Mr. Miller, of Combe Abbey, for outdoor culture. Fruit medium-sized, rich Indian-yellow, dull crimson on the sunny side. Flesh orange-yellow, parting freely from the stone; juicy, and of rich flavour.

WEEDS.

IN common with many other farmers, I have found it exceedingly difficult to keep my Mangels—under which crop I have at present on the farm about 30 acres—free from weeds. I have, however, about 8 acres of Mangels under experiment, on land which has grown nothing but roots for more than forty years, and here, in consequence of the careful attention which it is absolutely necessary to employ in carrying out an experiment, the Mangels are almost entirely free from weeds. The farm Mangels have been heavily dunged, and when the plant was fairly established about 1¼ cwt. of nitrate of soda was applied as a top-dressing. In walking over the two fields I have been very much struck by the more rapid progress of the experimental roots as compared with those grown in the ordinary cultivation of the farm, and the fact has led me to consider how far the growth of the latter has been retarded by the presence of the weeds. Assuming that the soil contains a sufficient supply of alkalies and phosphates, it may be said that the weight of the crop would depend upon the amount of nitric acid which the Mangels could take up from the soil. The nitric acid may be derived from various sources—(1) from the stock of organic nitrogen in the soil; (2) from previous applications of manure; (3) from the manure applied in the present season; (4) from the nitrate applied as a top-dressing. Now as weeds take up large amounts of nitric acid, their roots and finer fibres when destroyed underground may nitrify and serve as food for the Mangels grown this year. But the bulk of the weeds which are destroyed by hand, or by horse-hoeing, remain on the surface, and do not nitrify until they are ploughed under the soil. This conversion of nitric acid into organic nitrogen in the form of weeds, instead of crop—although in some cases unavoidable—becomes a source of considerable loss, and in my own case I have very little doubt that on some parts of the field the weeds have taken up as much nitric acid as was contained in the nitrate of soda applied as a top-dressing, and that the crop of Mangels will be so much the lighter for the loss. The rapid appropriation of nitric acid this year by weeds is very apparent in our Wheat fields where the plant is thin. When the crop is in bloom it usually takes but little nitric acid from the soil, but if at this time the surface soil is moist nitrification takes place rapidly, and a field which was comparatively clean when the Wheat was in bloom, may have become one mass of luxuriant weeds when the crop is cut. *Sir J. B. Lawes, in the "Agricultural Gazette."*

HOME CORRESPONDENCE.

Rubus phœnicalasius (p. 271).—I have seen and admired this fine Bramble in the Temperate-house at Kew, but I think it comes far finer when grown in the open air, the colour both of the stems and the fruit being much deeper and richer. Here it has been in bud and fruit for more than six weeks, and no shrub has been so attractive. It is quite hardy, and I grow it in the open ground, trained to a high stake. *Henry N. Ellacombe, Bitton Vicarage.*

Salix triandra.—A correspondent sends us male catkins flowering in autumn. There is nothing very unusual in that, and Host has even described as a variety S. semperflorens. Andersson, moreover, in his monograph says:—"Catkins . . . developed in autumn in the axils of the persistent leaves," but in the specimens before us the catkins are terminal, and they are greatly altered in appearance. The upper part presents the usual character, but the lower and sometimes the middle portion of each catkin is swollen, and densely covered with white hairs. Knowing how frequently there is a tendency for the male flowers to assume the guise of female flowers, or *vice versâ*, we expected to find the alterations in shape dependent upon some such metamorphosis. It is, however, not so. The flowers are all male, and they only differ from their ordinary condition in their much greater development of white shaggy hair on the stamens and on the edges of the scales. On examining further we found a number of larvæ (of some midge, Cecidomya, according to Professor Westwood), and we have no doubt that the increased shagginess is due to the irritation set up originally by

FIG. 47.—SALIX TRIANDRA.

the puncture of the insect as she deposited her eggs—perhaps even the premature development of the catkins was due to the same cause. In any case the larva has a nice warm nest provided for it out of the ken of predatory birds.

Rosa multiflora.—You ask if the double orm, figured in the *Bot. Mag.* and *Bot. Reg.*, is to be had. I have often inquired for it, but never saw it, and should be glad to get it. I have, however, a semi-double white, which is pretty, and of which I can spare cuttings. *Henry N. Ellacombe.*

Hyacinth Disease.—In the *Gardeners' Chronicle* of August 25 last a translation is given of Mr. Wakker's notes on yellow sickness and black canker (black rot), from the *Botanisches Centralblatt.* This induces me to give you a few further particulars on the subject. The constant readers of the *Gardeners' Chronicle* may remember that in the number for January 11, 1879, p. 43, I made some remarks upon Professor Sorauer's observations on Hyacinth diseases, and on that occasion I expressed myself to the effect "that such observations and researches would be best undertaken in Holland, where the material is at hand to carry them out thoroughly." Since then I have attempted several times to prosecute such researches, till I had the good fortune to interest Professor Dr. Hugo de Vries, of the University of Amsterdam, in the matter. At the botanic-physiological laboratory of the Amsterdam University the necessary researches were made, under the superintendence of Professor de Vries, principally by one of his pupils, M. Wakker. The ring disease, the black and white rot (canker), the yellow sickness, and other diseases, were the objects of observation. I furnished the material necessary—and was assisted therein by several other cultivators—especially for the yellow sickness, which was only found in some localities well developed, and of which I could not furnish regularly good specimens from my own collections. Especially in the summer of 1882 this yellow sickness attained an extraordinary development compared to former years. It seemed necessary to do everything possible to stop the disease. To make growers acquainted with the few results the scientific researches had given till now, Professor de Vries had the kindness, at the invitation of the committee of the General Association of Bulb-growers, to deliver a lecture on Hyacinth yellow sickness, which was attended by perhaps 400 bulb growers, among them being the most eminent cultivators of Hyacinths. The influence of this lecture on the auditory was such that generally it was found necessary to do everything possible to become acquainted with Hyacinth diseases in order to learn how to stop them if possible. In a following meeting of the Society *carte blanche* was given to the committee to execute this purpose. The committee of the Society has, in consequence, given several general rules to growers to be careful with infected bulbs or parts of Hyacinths, that soil and stoves might be as little infected as possible, and these regulations have been generally accepted with sympathy. Besides the committee has engaged Mr. Wakker for three seasons to give his whole time to the researches of diseases of Hyacinths and other bulbs cultivated in the neighbourhood of Haarlem, as well as of diseases of plants related to that culture. Mr. Wakker began his task on May 1 last. The notes given in the *Botanisches Centralblatt* speak of the observations made before that date. The Government of the Netherlands and the Provincial Government of North Holland have both given a subsidy of £50 for the researches in this way for 1883. Annually a report on the matter will be made by Mr. Wakker. It is satisfactory, however, to know that the season of 1883, up to the present, has been much more favourable to Hyacinth growers than was that of last year. The yellow sickness, which in 1882 did so much damage, seems to be not so contagious in the present season; bulbs even of those sorts which suffered especially before are now found but little infected by eruption, so that there is hope that this disease will lose its dangerous character, although it may remain to show its ravages occasionally, as other diseases do. Nevertheless, the promotion of the scientific observation of all these parts seems to me to be one of the principal duties of our Society. *J. H. Krelage, Haarlem, Sept* 3.

Mandevilla suaveolens (p. 275).—There is no doubt this is quite hardy in the South. I have grown it here for many years, but have lost it once or twice. Out-of-doors it is a clean plant, and flowers well—indoors it is apt to get covered with insects. *Henry N. Ellacombe.*

The Gale and the Fruit Crops.—During Saturday night, Sunday, and Sunday night, we were visited by a most terrific gale from the south-west which swept over this part of the country, and anything like the destruction amongst the Apple and Pear crops I never before witnessed. On entering the orchard on Sunday morning it was enough to make one's heart ache to see at least half of the glorious crop which bore down the boughs on Saturday now by the violence of the wind lying on the ground bruised and besmeared with wet soil. I never in all my experience—extending now over some years—saw such a sight; Codlin and Lord Suffield Apples lay quite thick on the ground, and the Blenheim Orange and King of the Pippins were nearly equally bad, and even such small kinds as Golden Knob and Golden Harvey were half down, and my favourite Sturmer Pippins, which would have helped out the dessert next March and April, were terribly knocked about. For years I have steadfastly set my face against planting large Pears on standards such as Duchesse d'Angoulême, Easter Beurré, Hacon's Incomparable, Van Mons, Brockworth Park, &c., so I thought surely here we shall fare better; but by hundreds lay the small Bergamot, Dunmore, Beurré de Capiaumont, Seckle, Knight's Monarch, Louise Bonne of Jersey, and others. It is true we shall have sufficient left for the daily supply, but one could not but lament the loss of such fine fruit, and the loss of so much nourishing food. And what has happened here I fear has also done so over a good part of the kingdom. My moral is, in exposed places to plant dwarf trees, and if on cultivated ground let the stocks be either Quince or Paradise; but these will only answer on cultivated ground — in grass orchards the free stock must still be planted. And my second would be, to plant more and more shelter around our gardens. This most certainly will apply to the spring blossom as well as the autumn crop, for it is surely labour in vain to ransack the earth for new plants and fruits and not to protect them with shelter to sift the air and mitigate the stormy blast. John, Duke of Athol, was wise when he said to his son, "Aye be stickin' in a tree; it will be growing when ye are sleepin'." *J. Rust, Eridge Castle.*

—— For the past forty-eight hours the wind has been, with only slight intermissions, blowing a perfect gale, as it set in on Saturday night, and has continued up to this evening (Monday, the 3d). The destruction to the fruit crop here and around is quite grievous to see, as the

orchards and the ground under Apple and Pear trees is literally strewn, and much of the fruit left on the weather side is bruised and chafed to such a degree as to disfigure it greatly, and I fear, should it hang on, will spoil it for keeping. To market growers the loss will be very serious, as it is useless storing any, for though some of the early kinds may be forward enough, the bruised parts are sure to show decay in a few days, and the whole quickly rot. Oaks and all other deciduous trees have their foliage lacerated and torn, and much of it as well as small branches carried away by the wind, which has now been playing on them so cruelly for the time stated above. In the West of England I hear they have had much rain, but here we only had a good shower on the night of the 1st. It is fortunate that the harvest about these parts is well night finished, as the standing corn must have been threshed out by the violent friction of the ears as they dash to and fro. *J. Sheppard, Suffolk, Sept. 3.*

Impatiens Sultani. — Although cuttings of this plant strike very easily, I find that it is much the best plan to raise it from seeds. Seedlings form much better specimens, and branch sufficiently without the aid of pinching. Seeds are not produced in our houses without artificial pollenation. The stigmas are not ready until the stamens have fallen away, and then it is easy to apply pollen. Even after the corolla has fallen fertilisation takes place. *L.*

International Horticultural, Floricultural, and Forestry Exhibition for 1884.—I hope we are now within measurable distance of this much-desired and long-talked-about exhibition, judging from the report which appeared a few days ago as to the result of the International Fisheries Exhibition, and the proposal made before the Executive Committee by the Chairman, Mr. Birkbeck, that the Commissioners were inclined to try what effect an exhibition of horticulture, floriculture, and forestry would have upon the public of this and other countries who have contributed so much to make the present exhibition such a gigantic success. In my opinion there cannot be the slightest doubt as to the result, if immediate publicity be given first of all that such an exhibition will take place next year, and that an immediate intimation be given through the Press which shall speedily reach all parts of the Continent and the colonies; and, secondly, that the Executive Committee should, as early as possible, call a meeting of the principal horticulturists in this country, and also invite as many as could attend of our foreign brethren, or in the event of foreign horticulturists not being able to attend, the Commissioners representing the various parts of the world at the Fisheries Exhibition, and who are still in London, might be invited to attend, and through them the idea might be transmitted to their countrymen. I believe such an exhibition might be made even more attractive and instructive to the great mass of the people than the exhibition now being held in the Gardens of the Royal Horticultural Society at South Kensington, because it would or could be made to embrace a much greater variety of subjects and an ever-varying change of exhibits from the month of April to November. The whole of the space now occupied by the piscatorial exhibits could be filled by exhibitors with plants, seeds, and all kinds of horticultural implements and appliances, together with the food products of the colonies, &c. On October 25, 1878, whilst engaged at the great Paris Exhibition, I had the honour of offering to His Royal Highness the Prince of Wales and Her Majesty's Commissioners for the Exhibition of 1851, some suggestions respecting a proposed Colonial Museum for London (a copy of which I herewith enclose) some of which I respectfully submit might be usefully adopted in connection with the proposed Horticultural Exhibition next year; such, for instance, as an exhibition of grain, seeds, roots, &c., from the colonies and the United Kingdom of Great Britain and Ireland. I am of opinion that the exhibition should open about April 15, in order that the Belgian horticulturists should exhibit their marvellous collections of Azaleas, &c, whilst splendid collections of Cyclamens, Primulas, Auriculas, &c., would be staged by English growers, and French horticulturists might be induced to exhibit many of the specialities, both in flowers and vegetables, they cultivate so successfully in the early part of the year. During the month of May grand displays of Roses, Azaleas, Orchids, Pelargoniums, stove, greenhouse, foliage plants, Ferns, Palms, &c., our own countrymen know so well how to cultivate. About this time one of the finest displays ever seen might be made by the market growers, which would be highly attractive to foreign exhibitors as well as the general public. In June the finest display of Rhododendrons could be sent up from Knap Hill, Bagshot, and elsewhere, to be followed in July and August with Pelargoniums, Carnations, and many other well-known favourites. September would furnish a glorious display of Dahlias, Gladiolus, Phlox, Pentstemons, and many other well-known gems so plentiful at that period. In October and November, fruits, vegetables, and Chrysanthemums would make an exceedingly attractive display. I have only mentioned a few of the leading objects for exhibition; hundreds of others will naturally occur to the minds of those who may have the compiling of the schedules. I think I have sufficiently indicated what may be done, and have shown in as concise a form as possible how such an exhibition might be brought to a satisfactory issue by the amalgamation, to some extent, of horticulture, floriculture, and forestry with agriculture. In order to make the exhibition still more attractive, and to give greater variety, the aquarium part of the present exhibition might remain with advantage. I trust all will join heartily in endeavouring to make this exhibition worthy of the age we live in, and dispel the opinion too firmly taking root in the minds of Continental horticulturists, that Englishmen cannot organise and develope a grand international horticultural exhibition, although we have greater means and more facilities than any other nation in the world. Now that the opportunity is opened to us, with everything pointing to success, we have only to organise our forces and pull together, when success will be assured. *John Wills.*

Succulent Tropæolums. — The accompanying illustration (fig. 48) represents a condition not

Fig. 48.—Tropæolum roots.

very uncommon in cultivated Tropæolums. The lower part of the branches swell, while the upward growth and the development of flower are checked, if not entirely stopped. On examination we have not been able to find any traces of injury either from insect or from fungus; the constituent cells appear healthy, but with the microscopic appearances presented by tissues in rapid growth. As many of the Tropæolums naturally form tubers, and their near allies, the Pelargonium form gouty stems, so we are disposed to look on this overgrowth of the cellular tissue as possibly a reversion to some ancestral condition. Possibly some accidental circumstance at a particular stage of growth, such as a sudden accession of heat or a deficiency of water, may have induced the swelling, but these are mere guesses.

The Law of Fixtures.—We shall be glad of a little information as to the power of nurserymen to move their houses, and will state the case we want help in. A. took a plot of land on lease for nursery purposes from the trustees of a charity; in the lease nothing is mentioned as to A. erecting greenhouses whatever, but it is mentioned that he has power to move on the expiration of the term all trees, &c. Before the term expires A. applies for another lease, and whilst this is in course of preparation one of the trustees raises the question as to A.'s power to move the greenhouses he has erected, and contends that they have become the property of the trustees, the consent of the trustees not having been obtained previous to their erection. A.'s solicitor has not found a case where this question has been decided in a court, although he advises A. that he can move the greenhouses he erected. A., having always understood that nurserymen, in the absence of a special agreement as to moving, had the right to move by law, would be glad if you can give, or if any of your readers can give particulars of, or reference to, any case that has been decided by any of the courts, or, failing this, mention any Act of Parliament affecting nurserymen on this point. The lease commenced in 1872. An answer through your columns will be a favour to *A.* [We can only refer you to the case of Jenkins *v.* Gething, reported in our number for December 13, 1862, and in the second volume of Johnson & Hemmings' *Chancery Reports*, p. 520. Ed.]

The Odour of Pinus Cembra.—In passing a part of our nursery where several rows of Pinus Cembra are growing we have from time to time remarked a strong perfume coming from them which could be easily distinguished several yards away. We have now discovered that the scent, which is different from the usual odour of the Pine, comes from one particular tree, and we find that none of the others have any scent. Is not this a very unusual thing? We should like to know if any of your readers have ever known of a scented Pinus Cembra. *Isaac Davies & Son, Ormskirk.* [Yes, certainly. See "A Rambler's" letter from Zermatt, at p. 300. Ed.]

PLANTS IN FLOWER.

Campanula isophylla.—This beautiful species is now draping the rockery with its copiously flowered branches; it has a very pretty habit for the rockery. I have also plants in a low bed, and I think these are even more floriferous; the delicate blue flowers are about 1½ inch across, nearly flat, deeply five-lobed—a most charming flower. I have also the white-flowered variety, equally if not more attractive. These are two Campanulas which every hardy plant cultivator should possess, and yet they are comparatively scarce, although there is no difficulty in increasing them by means of the young shoots in spring, which root freely enough in a cold frame or cool greenhouse. *T.*

Campanula grandiflora pumila, a very dwarf form of the autumnal Bell-flower, growing only about 9 inches high, with freely branched stems, carrying numerous flowers, each about 2 inches across when expanded, of a deep purplish-blue colour, much resembling those of the old C. grandiflora. It is a very distinct and pretty plant, very floriferous, and, I believe, quite hardy; the tuft from which these notes are made having occupied the same position for three years, and although but a tiny plant when put in it has now several shoots covered with flowers, and it is ripening seed freely this season, although it failed to do so last. It seems rather a difficult plant to increase, at any rate slow. Perhaps the young shoots will strike in spring if carefully attended to, but up to the present they have not been very plentiful. *T.*

Wulfenia carinthiaca.—This old plant has greatly pleased me this season, as it has flowered very freely; one clump has not less than eight spikes of its bright blue flowers, each a foot or more high, crowded for the greater portion with them, and the lowermost ones have left nice capsules of seed swelling well, so I hope to raise a young batch. Writers frequently recommend you to plant this in peat, but it does well enough, and, as far as my experience teaches, better in ordinary soil and in a damp position. The tuft referred to above is very healthy, the beautiful foliage bright green, and quite a foot across. Thus seen, this is a very pretty plant, well worth growing. *T.*

Gentiana affinis.—This is, I believe, a Rocky Mountain species. The root-leaves are in large rosettes, 2 feet or more across, 15—18 inches long, lanceolate, spathulate, slightly undulated, bright green and shining. Flower-stems axillary, 12—18 inches high, floriferous; flowers sessile, in terminal and axillary clusters, the terminal cluster surrounded by a large involucre of leaves, about an inch long, the calyx nearly or quite as long as the corolla, which is bell-shaped, white, with the back striped with green. It is a very noble-looking plant even before the flower-stems show themselves, the large spreading leaves have a distinct effect; true, the flowers are not very showy, but it is by no means a weedy plant. *T.*

Reports of Societies.

Grand National Dahlia Show, Crystal Palace, Sydenham : *Aug.* 31 *and Sept.* 1.—This was a most successful exhibition, the number of competitors in some of the smaller classes being very large. There was a great display of blooms, and the tabling which had been supplied for the reception of the flowers proved inadequate, and side tables had to be extemporised. The blooms were generally very fine, though the hot weather of the previous fortnight had told upon them; still, while of good size, there was but little trace of coarseness. Here and there flowers were somewhat past their best, and in a few cases they were a little under-blown; but taking the exhibition as a whole, it was very encouraging to the promoters, and it would be a great pity were this annual display to fall through for lack of adequate support. The Northern growers did not put in appearance quite so numerously as last year; probably a fixture of a week later would have suited them better; but the blooms shown by Messrs. Harkness & Sons, who came out of Yorkshire, were so good as to place the exhibitors in the front rank of Dahlia cultivators.

The pompon varieties and the single Dahlias also made a charming display; the way in which the beautiful bunches of flowers were set up by Mr. Turner, was most praiseworthy, and we were glad to see that the lead he last year showed in this respect was so generally followed. But it was interesting to note how the visitors to the Palace clustered about the leading stands of show and fancy Dahlias, admiring the massiveness of the flowers, their symmetry and striking colours. The single varieties were a source of great interest also; nor were there wanting admirers of the pompon varieties—Mr. Turner's stand of twenty-four bunches, so admirably set up and so good throughout, came in for a great share of attention. Messrs. Rawlings Bros. had to suffer disqualification in this class through setting up a bunch of the small green Dahlia. In one of the classes for single Dahlias, Mr. R. T. Veitch, of Exeter, was also disqualified, having a bunch of the new single Dahlia Pantaloon—some of the flowers having in the opinion of the judges a superfluity of petals; thereby setting up the rule that a single Dahlia should have one circle of florets only. There was a marked absence of seedling Dahlias, only about three varieties being shown, but two of them were deemed good enough to be awarded First-class Certificates of Merit. Messrs. Keynes & Co. were not able to exhibit a single seedling in presentable form at this meeting.

SHOW DAHLIAS: NURSERYMEN.—In the class for forty-eight varieties, distinct, there was a close contest between Slough and Salisbury, the advantage going to the former, but the judges were some time in settling the question of supremacy, and every flower was passed in review, being subjected to the severest criticism. The varieties composing Mr. Turner's stand were Lillie Ward, a charming new flower, white with a tinge of pale rose in the centre; James Cocker, Harriett Tetterell, George Barnes, a deep lilac self sport from the fancy variety of this name; Ovid, Mrs. Percy Wyndham, John Standish, Georgiana, a large white flower slightly tinted with cream, very fine form and substance; Lady Antrobus, J. B. Service, H. W. Ward, James Vick, Prince Bismarck, Ethel Britton, a lovely delicate flower; Muriel, Drake Lewis, Constancy, George Smith, W. H. Williams, Cream of the Valley, Alexander Cramond, James Stephen, Charles Lidgard, Michael Saunders, Royal Queen, Canary, Henry Walton, Champion Rollo, Cardinal, William Rawlings, John Wyatt, Herbert Turner, Clara, Hugh Austin, Cecilia, pale yellow self; Thomas Goodwin, Lizzie Leicester, Rosetta, a fine purple self of 1882; Julia Wyatt, Rev. J. Godday, Pioneer, rich glossy black, probably the darkest Dahlia in cultivation; Lady Gladys Herbert, Lord Chelmsford, J. Neville Keynes, Joseph Green, Bessie, a pleasing lilac self of 1882; Flag of Truce, and Prince of Denmark. 2d, Messrs. Keynes & Co, Salisbury, with fine blooms of Enchantress, George Barnes, both in rare form; Countess of Ravensworth, James Cocker, Charles Leicester, John Wyatt, Ethel Britton, Mrs. Harris, Vice-President, Royal Queen, Triumphant, Joseph Ashby, James Vick, Canary, Prince Bismarck, J. W. Lord, Professor Fawcett, Henry Walton, Imperial, deep purple, shaded with lilac—new and good; Mrs. S. Hibberd, Mr. Spofforth, Mrs. P. Wyndham, J. Neville Keynes, W. P. Laird, John Bennett, Hugh Austin, Rebecca, Princess of Prussia, Goldfinder, Seraph, blush—a new variety, and a fine back row flower; Bessie, Duke of Connaught, J. C. Reid, Prince of Denmark, Harriett Petherell, Rev. J. B. M. Camm, Rosy Morn, Sir Garnet Wolseley, reddish-chocolate—new of 1882; Rosetta, Miss Cannell, Mrs. John Laing, Harrison Weir, Lord Chelmsford, and seedlings. 3d, Messrs. Harkness & Sons, Bellerby Grange Nurseries, Yorkshire; 4th, Mr. Henry Clark, florist, Rodley, near Leeds. Messrs. H. Cannell & Sons also competed in this class.

In the class for twenty-four varieties there was a close competition also, the three first stands being very good. The 1st prize went to Messrs. Rawlings Bros., florists, Romford, who had excellent blooms of George Rawlings, Ethel Britton, Mrs. Harris, J. C. Quennell, Goldfinder, Shirley Hibberd, Clara, James O'Brien, a sport from the fancy variety bearing that name; James Vick, Mrs. S. Hibberd, Joseph Ashby, Harrison Weir, Rev. J. Godday, Emily Edwards, Prince Bismarck, Rev. J. B. M. Camm (sport), Hon. Mrs. P. Wyndham, James Service, Sunbeam, William Dodds, John Bennett, Modesty, H. W. Ward, and J. W. Lord. 2d, Messrs. Paul & Son, the Old Nurseries, Cheshunt, with George Baines, Admiration, John Wyatt, Royal Queen, Prince Bismarck, Julia Wyatt, General Roberts, Alex. Cramond, J. Saunders, Ethel Britton, Victory, Fred. Smith, W. H. Williams, Leah, James Service, Champion Rollo, Mrs. Harris, Mrs. Dodds, B. Crossland, Hon. Mrs. P. Wyndham, Countess of Pembroke, Prince of Denmark, Adelaide and Joseph Ashby. 3d, Messrs. J. Saltmarsh & Sons, nurserymen, Chelmsford; 4th, Messrs. J. Cheal & Sons, nurserymen, Crawley, Sussex. There was a fifth competitor also in this class.

In the class for twelve varieties, six stands competed, Mr. John Walker, nurseryman, Thame, being placed 1st, with a very nice even lot of flowers, consisting of Prince Bismarck, Emily Edwards, a charming light variety, inclined to be over-large in the petal; James Cocker, George Standish, Goldfinder, Alex. Cramond, Duke of Connaught, Hon. Mrs. P. Wyndham, Joseph Green, Prince Arthur, Mrs. S. Hibberd, and James Vick. 2d, Messrs. Gilbert & Son, nurserymen, Ipswich, with good blooms of Shirley Hibberd, Ethel Britton, William Rawlings, Mrs. P. Wyndham, Pioneer, Henry Walton, Alexander Cramond, Mrs. Dodds, Flora Wyatt, Mrs. Compton, James Vick and J. W. Lord; 3d, Mr. W. Burbury, Crewe Farm, Kenilworth, with Burgundy, J. C. Reid, George Barnes, Alexander Cramond, Vice-President, Joseph Green, Pioneer, Emily Edwards, Fred. Rawlings, Hon. Mrs. P. Wyndham, J. B. Ward, and Charles Leicester; 4th, Mr. G. Humphries.

SHOW DAHLIAS: AMATEURS.—In the class for twenty-four varieties there was a capital competition, the 1st prize going to Henry Glasscock, Esq., Bishop's Stortford, who had excellent blooms of Prince Bismarck, Joseph Ashby, Mrs. Spofforth, Goldfinder, Emily Edwards, William Rawlings, Earl of Ravensworth, James Cocker, Modesty, Black Knight, Hon. Mrs. P. Wyndham, Cardinal, Alex. Cramond, Countess of Ravensworth, Shirley Hibberd, Ethel Britton, Rev. W. Moffatt, Harrisnn Weir, Revival, Mrs. Harris, Mary Nisbet, and Georgiana. 2d, Mr. Joseph Nation, Whitmore, Staple Green, Taunton, with Constancy, Gen. Roberts, Henry Walton, Rev. J. Godday, George Smith, Crown Prince, Major Cornwallis West, Hugh Miller, Lord Chelmsford, Mrs. Harris, William Rawlings, Amie Neville, Canary, Shirley Hibberd, J. W. Lord, Royal Queen, Prince Bismarck, Goldfinder, Artist, Criterion, Yellow Boy, Chas. Ridley, James Service and Duke of Connaught; 3d, Mr. R. Petfield, Dodington, Buckden, Huntingdon; 4th, Mr. W. Butterworth. With twelve varieties, J. F. West Esq., Cornwalls, Brentwood, was placed 1st, having very good blooms of J. W. Lord, Ethel Britton, Hugh Austin, George Rawlings, Hon. Mrs. P. Wyndham, Pioneer, Prince Bismarck, Henry Walton, Shirley Hibberd, Mrs. Dodds, Joseph Ashby, and J. C. Quennell. 2d, Mr. B. Clarke, Shottesham, All Saints, Norfolk, with Henry Walton, Acme of Perfection, George Smith, A. K. Williams, Shirley Hibberd, Emily Edwards, James Cocker, Empress, William Rawlings, Rosy Morn, Prince Bismarck, and Pioneer. 3d, Mr. J. Tranter, Upper Assenden, Henley-on-Thames; 4th, Mr. M. Godden, Tovil Green, Maidstone. As many as eleven competitors showed in this class. In the class for six varieties, Mr. George Boothroyd, Wornville Hall, Dover, was 1st with capital blooms of Alexander Cramond, James Cocker, John Bennett, Constancy, Joseph Ashby, and Thomas Goodwin. 2d, Mr. T. Masters, Shepherd's College, Penenden Heath, with Chris. Ridley, Goldfinder, James Cocker, Henry Walton, Flora Wyatt, and J. N. Keynes. 3d, T. C. Shrimpton, Englefield, Reading; 4th, Mr. E. Mawley, Addiscombe, Croydon.

FANCY DAHLIAS: NURSERYMEN.—Here Messrs. Keynes & Sons were 1st with a very fine lot of flowers, consisting of Rebecca, Gaiety sport, Mandarin, Gaiety, Hugh Austin, Professor Fawcett, Hercules, Mrs. N. Halls, a charming variety, tipped white on a red ground, extra fine form and substance; James O'Brien, George Barnes, Oracle, Mrs. Saunders, Henry Glasscock, John Lamont, Gaiety sport, Flora Wyatt, Madame Soubeyre, rosy-lilac striped with carmine, very pretty; John Forbes, Fanny Sturt, Charles Wyatt, Annie Pritchard, and seedlings. 2d, Mr. Charles Turner, with an excellent lot, consisting of Mrs. N. Hall, Hercules, Fanny Sturt, Duchess of Connaught, Grand Sultan, Rebecca, James O'Brien, Annie Pritchard, Lady Antrobus, Robert Burns, Rev. J. B. M. Camm, Professor Fawcett, Miss Browning, Fred. Smith, John Forbes, Lucy Fawcett, Oracle, Henry Glasscock, John Lamont, Magician, three Gaiety sports, and Jessie McIntosh. 3d, Mr. H. Clark; 4th, Messrs. H. Cannell & Son. In the class for twelve varieties Messrs. Saltmarsh & Sons were 1st, with a very good stand, comprising Egyptian Prince, Mrs. Saunders, Peacock, Grand Sultan, Fanny Sturt, Flag of Truce, John Lamont, Gaiety, Mrs. N. Halls, Enterprise, Octoroon, and Fanny Sturt. 2d, Messrs. Rawlings Bros., with Egyptian Prince, Mrs. Saunders, Barnaby Rudge, Mrs. N. Halls, Hercules, George Barnes, Galatea, Chorister, Professor Fawcett, John Forbes, Henry Glasscock, and Enchantress; 3d, Messrs. Paul & Son; 4th, Mr. John Walker.

FANCY DAHLIAS: AMATEURS.—The best twelve came from Mr. Henry Glasscock, who had charming blooms of George Barnes, Henry Glasscock, Barnaby Rudge, John Forbes, Fanny Sturt, Egyptian Prince, Mrs. N. Halls, Jessie McIntosh, Edward Peck, Miss Browning, Viceroy, and Professor Fawcett. 2d, Mr. Joseph Nation, with Henry Glasscock, Mrs. Saunders, Gaiety, Richard Dean, Chang, Hugh Austin, Leopardess, Cameo, Chorister, Egyptian Prince, Oracle, and William Ady. 3d, Mr. R. Petfield; 4th, Mr. J. Ridout, gr., Woodhatch Lodge, Reigate. Mr. J. T. West had the best six blooms of fancy varieties, staging very good examples of Hugh Austin, George Barnes, Hercules, John Forbes, Jessie McIntosh, and Oracle. 2d, Mr. J. Tunbridge, Broomfield, Chelmsford, with Enchantress, Miss Browning, Mrs. N. Halls, Fanny Sturt, Flag of Truce, and Gaiety. 3d, Mr. G. Boothroyd; 4th, Mr. J. Wigan, Cromwell House, Mortlake.

PREMIER BLOOMS.—The premier show Dahlia was Georgiana, a white self, slightly tinted with cream, sent out by Messrs. Keynes & Co. in 1882: this was in Mr. C. Turner's stand of forty-eight varieties. The premier fancy Dahlia was George Barnes, in Messrs. Rawlings Bros.' stand of twelve fancies: this also was distributed by Messrs. Keynes & Co. a few years since.

SEEDLING DAHLIAS.—As already stated, but few of these were produced. Two First-class Certificates of Merit were awarded—one to Mr. Hurst, a beautiful delicate flower, white, with a tinge of sulphur, and soft fleshy-pink centre, fine petal outline and centre, from Mr. George Hurst, Enfield Highway; and to fancy Dahlia Duchess of Connaught, pale yellowish-buff, tinged with orange, flaked and striped with rosy-purple, good outline and build, high centre; a sport from James O'Brien; this was shown by Mr. C. Turner, who also had Muriel, pale yellow, the centre slightly suffused with buff, distinct and promising.

POMPON DAHLIAS.—As already stated, these made an admirable display, and the stand shown by Mr. C. Turner was an exhibition in itself. His twenty-four varieties consisted of Wilhelm Nitsche, Gruss ans Wien, White Aster, Gem, intense scarlet, new and fine; Professor Bergeat, Comtesse von Sternberg, Adonis, Favourite, dark maroon, edged with crimson; North Light, Little Duchess, Titania, Mabel, lilac, very pretty; Lady Blanche, Prince of Liliputians, Mdlle. Valentine Faconet, Nymphe, Garnet, orange-scarlet; Fair Helen, Isabel, Hedwig Polwig, Little Arthur, The Khedive, deep crimson, suffused with white at the base; and C. F. Jungker. 2d, Messrs. Keynes & Co., with capital examples of Lady Blanche, Sappho, E. F. Jungker, Hebe, Garnet, Royalty, Pure Love, Roustapaud, Peasant Fire, Gem, Fanny Weinar, Mont Blanc, Nemesis, Hedwig Polwig, Little Dear, Mdlle. V. Faconet, Isabel, Darkness, Rosetta, White Aster, Flora McDonald, and Favourite. 3d, Messrs. H. Cannell & Sons. Messrs. Paul & Son had the best twelve varieties, staging charming bunches of Butterfly, A. Hubner, Little Mabel, Little Nigger, White Aster, Pure Love, Fanny Weinar, Dr. Webb, Dora, Forstmeister, Dove, and Nemesis. 2d, Messrs. J. Gilbert & Son, with Guiding Star, Handelsgartner, Sensation, Pure Love, Rogier Chauvière, Lady Blanche, Dove, H. Milesky, Little Mabel, Fair Helen, Little Nigger, and one unnamed. 3d, Mr. John Henshaw, Harpenden, St. Albans; 4th, Messrs. F. T. Smith & Co., West Dulwich. Mr. J. T. West had the best six varieties, staging Little Dear, Sensation, Dr. Ranch, J. E. O. Enke, Little Ellen, and Dove; 2d, Mr. J. Tunbridge.

SINGLE DAHLIAS.—In this class Mr. C. Turner was 1st, with splendid examples, shown in finely arranged bunches of the following:—Mauve Queen, Alba, Rob Roy, Yellow Gem, Gracilis elegans, Purity, Duke of Teck, Beauty of Cambridge, Highland Chief, Firefly, Paragon, and Beatrice. 2d, Messrs. Keynes & Co., with Avalanche, Red Gauntlet, Althea, Paragon, Picturata, Acquisition, Evening Star, Vesuvius, Bertha, Yellow Queen, White Queen, and Defiance. 3d, Messrs. Paul & Son. 4th, Messrs. H. Cannell & Son. The best six varieties came from Mr. G. Humphries, New Langley, Chippenham, who had charming bunches of Bountiful, Perfecta, Beauty, Golden Star, Picta, and White Queen. 2d,

Messrs. J. Gilbert & Son, with White Queen, Scarlet, Defiance, Sir Garnet Wolseley, George Clarke, Mauve Queen, and Halo. 3d, Mr. John Walker, with Nora, White Queen, Duke of Teck, Albatross, Pink Queen, and Amaranth. 4th, Messrs. J. Cheal & Sons.

SEEDLING SINGLE DAHLIAS.—Of these a large number was shown by Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, who, with the addition of a number of named varieties, made a most imposing display, some of his newer forms being very fine. The only First-class Certificate of Merit awarded was to Mrs. Bowman, magenta-purple, distinct in colour, fine shape, and very pleasing, from Messrs. J. Saltmarsh & Son, Chelmsford.

MISCELLANEOUS CONTRIBUTIONS. — These included a very fine lot of cut Roses and some grand blooms of the Cactus Dahlia from Messrs. Paul & Sons, Cheshunt; a collection of Asters in pots, from Messrs. James Carter & Co.; nineteen bunches of small summer-flowering Chrysanthemums, from Mr. W. Piercy, of Forest Hill; quilled Asters, Roses, and other cut flowers, from Mr. John Walker, nurseryman, Thame; cut blooms of Carnation The Governor, from Messrs. Cross & Steer, Salisbury; Balsams in pots, from Messrs. F. T. Smith & Co., Dulwich; Begonias, from Messrs. J. Laing & Co., Forest Hill—a very fine lot indeed; cut zonal Pelargoniums, Salpiglossis, Indian Pinks, &c., from Messrs. H. Cannell & Sons, Swanley; a group of summer-flowering Chrysanthemums, from Mr. N. Davis, Chrysanthemum Nursery, Camberwell, an extremely interesting collection; a stand of very fine Hollyhocks, without a name; a collection of cut flowers of hardy plants, &c., from Messrs. J. Cheal & Sons, Crawley; and a truly, wonderful collection of cut spikes of Gladioli, from Messrs. J. Kelway & Son, Langport; and First-class Certificates of Merit were awarded to the following varieties:—Sir Stafford Northcote, Duke of Bucclench, Duchess of Teck, Thomas Moore, and W. E. Gladstone.

Crystal Palace Autumn Fruit Show: *Aug.* 31 *and Sept.* 1.—This annual exhibition was held in conjunction with the Grand National Dahlia Show above reported, and, as compared with each year's display, may be considered generally to have slightly the advantage. The excellent prizes offered for a collection of not less than twenty-four dishes of fruit brought out two very fine lots, either of which would have done credit to any exhibition in the land. The exhibitors were Mr. Coleman, Eastnor Castle, and Mr. Goodacre, gr. to the Earl of Harrington, Elvaston Castle, Mr. Coleman securing the chief prize, with a thoroughly representative collection as regards variety, while the quality all through was of an unquestionably high character. The collection included Muscat of Alexandria, Black Hamburgh, Foster's Seedling, and Alicante Grapes, Peaches, Nectarines, Plums, Cherries, Melons, Figs, Pines, Apples, Pears, Strawberries (Elton Pine), Oranges, Currants, Gooseberries, and Cob Nuts. Mr. Goodacre's collection was also deserving of high praise. The class for twelve dishes brought Mr. Coomber, gr. to J. A. Rolls, Esq., M.P., The Hendre, Monmouth, into the front rank as an exhibitor, he being successful in beating such experienced hands as Mr. Goodacre and Mr. Roberts, of Gunnersbury, who were respectively 2d and 3d, and who both showed well. Mr. Coomber's collection was strong in Grapes, his Muscat of Alexandria and Alnwick Seedling both being of prime quality; and in Pines, Charlotte Rothschild and Smooth Cayenne; and he had also a handsome fruit of the Hendre Seedling Melon, a large, handsome, round, scarlet-fleshed variety (that made its mark the same year as Blenheim Orange); Royal George Peaches, Humboldt Nectarines, Hemskirk Apricots, Kirke's Plums, Vicomtesse Hericart de Thury Strawberries, Jargonelle Pears and Figs, &c. For a collection of eight dishes, Mr. G. J. Miles, gr. to Lord Carington, came in 1st, beating Mr. Elphinstone, gr. to E. M. Mundy, Esq., Shipley Hall, Derby, and Mr. Nash, gr. to the Duke of Beaufort, Badminton. Mr. Miles had excellent samples of Black Hamburgh and Foster's Seedling Grapes, a handsome Queen Pine of 4 lb. weight, Figs, Crawford Early Peaches, Elruge Nectarines, Morello Cherries, and Victory of Bath Melon. The best collection of ten sorts of Grapes, a highly meritorious lot of fruit, came from Mr. Roberts, of Gunnersbury; Mr. A. Barker, gr. to Sir H. Allsop, Bart., Hindlip Hall, Worcester, being a good 2d. The Gunnersbury collection consisted of highly-finished examples of Madresfield Court, Alicante, Muscat of Alexandria, Alnwick Seedling, Golden Champion, Black Hamburgh, White Tokay, Gros Maroc, Buckland Sweetwater, and Muscat Hamburgh. Mr. Miles again came to the front with five varieties, showing first-rate samples of Black Hamburgh, Foster's Seedling, Gros Maroc, Muscat of Alexandria, and Lady Downe's. This was a very good class, in which Mr. Tucker, gr. to J. L. Lovibond, Esq., Start's Hill, Farnborough, Kent, came in a good 2d; and Mr. Woodbridge, Syon House Gardens, 3d. In the single variety, specially named, classes the awards went as follows:—Black Hamburgh: 1st, Mr. Coleman; 2d, Mr. Roberts; 3d, Mr. Bailey. Shardeloes, Amersham. Muscat of Alexandria: 1st, Mr. Geo. Middleton, gr. to R. Pilkington, Esq., Rainford Hall, St. Helens; 2d, Mr. Woodbridge; 3d, Mr. Coleman. Gros Colmar: 1st, Mr. Coleman; 2d, Mr. Elphinstone; 3d, Mr. Geo. Tucker. Madresfield Court: 1st, Mr. Goodacre; 2d, Mr. Roberts; 3d, Mr. Coleman. Alicante: 1st, Mr. Nash; 2d, Mr. Elphinstone; 3d, Mr. W. Howe, gr. to H. Tate, Esq., Park House, Streatham Common. Any other white variety: 1st, Mr. Tucker, with Duke of Bucclench; 2d, Mr. Roberts, with Golden Champion; 3d, Mr. Adams, gr., The Brokes, Reigate Hill, Surrey. The Pine classes were weaker than usual. That veteran competitor, Mr. Bailey, of Shardeloes, had the best two Queens, and Mr. Miles the best two fruits in the "any other variety" class. Peaches and Nectarines were excellently represented. With both fruits, in the classes for four dishes, distinct, Mr. Coleman was 1st, showing highly-coloured fine fruits of Alexandra, Noblesse, Violette Hâtive, Bellegarde, and Royal George Peaches, and Lord Napier, Stanwick, Albert Victor, and Pitmaston Orange Nectarines. Mr. Roberts and another were winners of prizes with the former, and Mr. Goodacre and Mr. Hanagan, gr., Hooton Hall, Chester. In the single dish classes, Mr. Blair, gr., Shrubland Park, was 1st, with Peaches, with a grand dish of Barringtons; Mr. Coleman 2d, with Bellegarde; and Mr. Nash 3d. With Nectarines, Mr. Coleman came in 1st, with Stanwick Elruge; Mr. Elphinstone 2d, with Elruge; and Mr. Ridout 3d, with Lord Napier. The best green-fleshed Melon was Hero of Lockinge, shown by Mr. Goodacre; and the best scarlet-fleshed variety, Blenheim Orange, exhibited by Mr. Barker. The poor character of the Plum crop was well illustrated by the examples shown in the three classes here, none of them calling for any comment.

The miscellaneous class included extensive collections of Apples and other fruits from the nurseries of Messrs. Veitch & Sons, Messrs. Cheal & Sons, Crawley, and Messrs. Paul & Son, Cheshunt; Grapes from Messrs. John Laing & Co., Forest Hill; hardy fruits from Mr. G. Neighbour, gr., Bickley Park; and Pears, Gooseberries, and Currants from Mr. Walker, of Thame.

Yorkshire Naturalists' Union.—On Saturday, September 1, the members of this Union occupied most of the day in investigating the fauna and flora of Malham Dale. This was the last excursion of the season, and, despite a dull sky which threatened rain, there was a good muster of members from the principal societies in the county. During the summer, meetings have been held at Doncaster, Filey, Strensall Common, and Otley, but the Malham investigation was pronounced the most successful meeting of the year. The operations of the day commenced early in the morning, when a small party of botanists, under the guidance of the writer, left Bell Busk Station, and proceeded through an interesting district towards Malham. Another party of geologists and botanists, under the direction of Mr. J. W. Davis, F.G.S., proceeded to Settle, and from thence made the ascent of Langcliffe Scars, and visited the famous Victoria Cave. The former party arrived in due course at Malham, and were strengthened by another party of conchologists and botanists, who at once made their way to Malham Cove, a gigantic escarpment of mountain limestone, due to the Craven fault. The party then worked up the old bed of the Aire to Malham Tarn, the largest natural sheet of water in the West Riding, where considerable time was devoted, in the peaty bogs which surround the lake, to the collecting of plants, &c. At the head of the tarn stands Malham Tarn House, a noble mansion, the residence of Mr. W. Morrison, High Sheriff of Yorkshire, who had given permission for the party to inspect his grounds, and afforded the most complete facilities for carrying out the investigations of the day. In addition to this the High Sheriff kindly invited the members to Tarn House, and provided them with a sumptuous luncheon, after which a boat was provided for the conchologists, and Mr. Morrison conducted the botanists into the bogs, where he pointed out Drosera longifolia (planted there last year), Cinclidium stygium, a very rare moss, and many other rarities.

At the close of the day's work the party were driven to Malham, accompanied by the High Sheriff, where were met upwards of forty members, who had been engaged investigating Gordale Scar, Gemmet's Cave, &c. A substantial tea was provided at the Buck Hotel, after which sectional meetings were held, followed by a general meeting, at which the High Sheriff presided, and the various reports were given of the work done during the day.

Mr. J. W. Davis, F.G.S., reported for the geological section, and Mr. W. D. Roebuck reported for the conchological section, the latter gentleman stating that formerly nothing was known of the mollusca of Malham Tarn, but it was found richer than expectation, considering its altitude above the sea. Amongst the species collected was one new to Airedale, and a variety of Limnea stagnalis that required further investigation.

Mr. P. F. Lee and the writer reported on the flora of the district, stating that botanically Malham was one of the richest districts in the county. Upwards of 280 species of flowering plants had been observed and collected, amongst which were the following:—Actea spicata, Cochlearia alpina, Thlaspi occitanum, Polemonium cœruleum, Geum intermedium, Ribes Smithianum, Geranium sanguineum, Carduus nutans, C. heterophyllus, Galium sylvestre, Serratula monticola, Pyrus rupicola, Primula farinosa, Potomogeton lucens, P. prælongus, P. densus, P. perfoliatus, Blysmus compressus, and Asplenium viride. Of fungi about forty species had been collected. These included Helvella lacunosa, Agaricus mollis, A. squarrosus, A. ephemerus, Phragmidium acuminatum, P. obtusum, P. mucronatum, Æcidium prenanthis, accompanied with Puccinia prenanthis, Corda (P. chondrellæ, Fckl.), Puccinia poarum in close proximity to Æ. tussilaginis, and Puccinia sessilis on Phalaris arundinacea, near a wood where Æcidium allii occurred in profusion in June last.

The usual votes of thanks brought the meeting to a close, and, excepting those of the party who remained as the guests of Mr. Morrison, the members were conveyed in waggonettes to Bell Busk Station in the midst of a heavy downpour of rain, and were then taken up by a Midland express train, specially stopped, for the convenience of the members of the Yorkshire Naturalists' Union. *H. T. Soppitt, Saltaire.*

Preston and Fulwood Horticultural: *Aug.* 29 *and* 30.—Preston and the adjacent suburb of Fulwood have until recently each had a separate horticultural society, a state of matters obviously not calculated to increase either the influence or the interests of either. But now the two societies have amalgamated, a proceeding which evidently tends to mutual advantage, for there can be no possible gain by subdivisions that divide the local support upon which success in a great measure depends. The show was held in the new public hall and assembly room attached, which is well adapted for the purpose, so far as a building can be, for whatever advantages there are on the score of being to some extent independent of the weather, still this a questionable gain which those conversant with such matters look upon as more than counterbalanced adversely by the absence of green turf, and the usual surroundings of an exhibition under canvas. On this occasion the show was about the usual average for the district, so far as plants, fruit, and cut flowers are concerned, but the vegetable department, for which the neighbourhood is justly celebrated, was unusually well represented, both in extent and quality.

In the class for twenty miscellaneous plants, confined to nurserymen, there was a close competition between Mr. Payne and Mr. Troughton. The former gentleman, who took 1st, was stronger in blooming plants than his opponent, staging nice examples of Dipladenia amabilis, Allamanda Hendersoni, Stephanotis floribunda, and Bougainvillea glabra, with the usual fine-leaved kinds; in Mr. Troughton's group were handsome medium-sized examples of Kentia Belmoreana, K. Fosteriana, Dasylirion acrotrichium, Dicksonia antarctica, Agave Richardsiana, A. schidigera, and others of like character. With twelve miscellaneous plants Mr. Rigg, gr. to J. Forshaw, Esq., was easily 1st, showing amongst others Franciscea calycinea, nicely bloomed; and Eucharis amazonica, with some dozen and a-half spikes of its fragrant white flowers; Mr. Taylor, gr. to E. Redgett, Esq., was 2d; Mr. J. B. Dixon 3d. With six stove and greenhouse plants, three in flower, and three fine-foliaged, Mr. Rigg again secured 1st honours, staging large examples of the red and the white varieties of Lapageria, Latania borbonica, and Cocos Weddelliana; Mr. White, gr. to C. W. Hawkins, Esq., was 2d, in his group being a large specimen of the best variety of Dasylirion, with straight bayonet-shaped leaves, and a nice plant of a fine form of the red Lapageria. For three stove and greenhouse plants, in bloom, Mr. Rigg was also 1st; and Mr. Leayell, gr. to R. Smith, Esq., 2d.

FINE-FOLIAGE PLANTS.—With six, Mr. Newton, gr to W. Birley, Esq., took the lead, showing a pretty half-dozen, in which was a well-coloured plant of Croton Weismanni, and fine examples of Cocos Weddelliana and Latania borbonica. Mr. Rigg was 2d, his best specimens being of Croton majesticus and Gleichenia flabellata. For three fine-foliage plants Mr. Leayell was 1st.

Ferns were well shown, Mr. White taking the 1st prize for six, staging in a nice group Gleichenia rupestris glaucescens, Adiantum Farleyense, and A. macrophyllum, the last-named one of the best plants of the kind we have seen. Mr. Newton, who came in 2d, had well-grown examples of Davallia Mooreana, Woodwardia radicans, and Adiantum tenerum. For three Ferns Mr. Taylor was 1st, with a nice group, in which was a well-grown plant of Gleichenia rupestris; 2d, Mr. Leayell. In the class for three Lilies Mr. J. B. Jones was easily 1st, with L. auratum, L. speciosum, and L. speciosum rubrum, the last unusually well grown; 2d, Mr. White. Three Coleus.—With these Mr. Taylor was well in front, with dense bushy examples, highly coloured; 2d, Mr. Leayell. Six zonal Pelargoniums.—1st, Mr. J. B. Dixon, who staged medium-sized examples, nicely flowered; 2d, Mr. Newton. Three tricolor Pelargoniums.—1st, Mr. Taylor; 2d, Mr. J. B. Dixon. Tuberous Begonias.—1st, Mr. Newton, whose plants were nicely grown and well flowered; 2d, Mr. Rigg. Fuchsias were shown in medium-sized plants, well bloomed. With six Mr. White came in 1st, and Mr. Newton 2d. Hardy Ferns were nicely represented, Mr. Newton being 1st with six. Group of plants staged for effect, occupying a space not exceeding 40 square feet. Amateurs.—1st, Mr. T. Moss, with a prettily arranged collection; 2d, Mr. C. Parker.

Dinner-table plants were forthcoming in plenty, most of the exhibitors realising the fact that to be suitable for the purpose the plants must not be too large, nor possess a heavy dense habit of growth. In the class for five Mr. Leayell was 1st, Mr. Rigg 2d, and Mr. Newton 3d. Three Dracænas.—1st, Mr. Leayell; 2d, Mr. Newton; 3d, Mr. Rigg. Three Petunias.—1st, Mr. Leayell. The Royal Horticultural Society's Silver Banksian Medal for the best plant in the exhibition was won by Mr. White, with Gleichenia rupestris glaucescens—a beautifully grown example of this elegant Fern.

CUT FLOWERS.—There was a large display of cut flowers, which formed an important feature of the show. Roses, as might be expected, were past their best. With twelve Mr. Newton had 1st, Mrs. Swainson 2d, Mr. Wilding 3d. Twenty-four Dahlias.—With these the veteran exhibitor, Mr. R. Teebay, Fulwood, took the lead, staging an excellent stand of large finely grown flowers, the best of which were Artiste, The Countess, George Smith, Emily Edwards, and the Hon. Sidney Herbert; 2d, Mr. Harding; 3d, Mr. J. B. Jones. Six single Dahlias.—1st, Mr. J. B. Jones; 2d, Mr. New-

ton. Six Hollyhocks.—1st, Mr. Dewhurst, gr. to E. Birley, Esq.; 2d, Mr. Atkinson. Twelve Phloxes.—1st, Mr. Newton. Six Phloxes.—1st, Mr. Atkinson. Asters were well shown by Mr. Newton, who took 1st for twelve with large, well-developed flowers; 2d, Mr. Swainson; 3d, Mr. J. B. Jones. Six Asters.—1st, Mr. Worden; 2d, Mr. Moss. Twelve quilled Asters.—1st, Mr. Atkinson; 2d, Mr, Newton. Twelve Gladiolus.—1st, Mr. J. B. Dixon; 2d, Mr. Newton. Six Gladiolus.—1st, Mr. Taylor. Twelve fancy Pansies.—1st, Mr. T. Moss; 2d, Mr. Rigg. Twelve French Marigolds.—1st, Mr. E. Billington. Stand of cut flowers.—1st, Mr. Wilding; 2d, Mr. Harding. Mural wreath.—1st, Mr. Moss; 2d, Mr. Frisby, gr. to the Misses Ffarington. Bouquets were well shown, being tastefully arranged, with the colours nicely balanced, and in most cases the materials not overcrowded. Bride's bouquet.—1st, Mr. Moss; 2d, Mr. Newton. Hand bouquet.—1st, Mr. Newton; 2d, Mr. Rigg. Bouquet of wild flowers.—1st, Mr. Turner; 2d, Mr. Newton; 3d, Mr. Worden; an extra prize was awarded to Mr. Robert Lord, of Todmorden, for a beautiful stand of four dozen Carnations and Picotees, that were in every way deserving of the honour.

FRUIT was present in nice condition. With six dishes Mr. Frisby took 1st prize, showing Black Hamburgh Grapes, a Queen Pine, a Melon, Peaches, Green Gage Plums, and Jargonelle Pears; Mr. McLean, gr. to S. C. de Trafford, Esq., was a close 2d, having along with others beautiful examples of Alnwick Seedling Grapes, Royal George Peaches, and Elruge Nectarines. Six dishes of hardy fruit.—1st, Mr. Newton, with a nice lot, in which was a good dish of Moorpark Apricots; 2d, Mr. Frisby. Two bunches of black Grapes.—1st, Mr. McLean, here again staging Alnwick Seedling, in fine condition, perfectly full, handsome bunches of good even berries, black as coal, and heavily covered with bloom; 2d, Mr. Dewhurst, with black Alicante, fine in bunch and berry, but deficient in colour. Two bunches of Grapes, one black and one white.—1st, Mr. McLean, with Alnwick Seedling, and Buckland Sweetwater, both good. Dish of Peaches.—1st, Mr. Leayell; 2d, Mr. McLean; 3d, Mr. Newton. Dish of Nectarines.—1st, Mr. McLean. Green-flesh Melon.—1st, Mr. Leayell; 2d, Mr. Taylor. Three dishes of dessert Apples.—1st, Mr. W. Finch; 2d, Mr. J. B. Jones. Single dish of dessert Apples.—1st, Mr. Dewhurst; 2d, Mr. Rigg. Three dishes of culinary Apples.—1st, Mr. Finch; 2d, Mr. J. B. Jones. Three dishes of Pears.—1st, Mr Frisby; 2d, Mr. Newton. Single dish of dessert Pears.—1st, Mr. Frisby; 2d, Mr. Rigg, Mr. McLean took the Royal Horticultural Society's Bronze Banksian Medal, offered for the best dish of fruit in the show, with Alnwick Seedling Grapes. Mr. Troughton received a First-class certificate for a new Apple, The Guild.

VEGETABLES were forthcoming in immense quantities and the finest condition, with an almost total absence of the large overgrown stuff, the only use of which is for pig food. With twelve dishes Mr. Newton had 1st, Mr. Frisby 2d. Six dishes.—1st, Mr. Cumpstey; 2d, Mr. Moss. Mr. Troughton had 1st for a very fine collection of vegetables in another class; and Mr. J. Ward received an extra prize for some thirty heads of Veitch's Autumn Giant Cauliflower, of unusual excellence, which, notwithstanding their large size were perfectly close and white.

Lancashire is famous for cottage gardening, and in no place are plants and flowers, along with the more useful productions of the garden, better done than at Preston. The cottagers' productions, in the shape of vegetables, hardy fruits, cut flowers, and window plants, filled a large space, and exhibited the best cultivation.

Chalfont St. Peter's, Bucks: *Sept.* 4.—This small show is one that attracts, not only by the capital average quality of the exhibits shown by the cottagers, for whose special benefit it is promoted, but also for the very picturesque combination seen in garden products, dishes of capitally cooked Potatos, fine home-made and baked loaves of bread, supers and glasses of honey, quaint and serviceable needlework, and many other things, all of which so materially aid to make the cottager's life happy and prosperous. Held in the charming park attached to the residence of J. N. Hibbert, Esq., the beautiful gardens being freely thrown open to all visitors, it was but natural that contributions from the garden should be prominent in the exhibition. Mr. Herrin, indeed, had filled a centre table, some 40 feet by 6 feet, with a varied assortment of plants arranged with singularly tasteful effect, and forming a feature worthy of all praise. With some tall Palms projecting from the centre, and at either end a fine Alocasia metallica, were also Crotons, Dracænas, Marantas, Colens of many kinds in rich colour, Caladiums, &c., intermixed with Fuchsias, Begonias, Achimenes, Gloriosa superba, and other flowering plants, the whole being edged with Isolepis gracilis, Panicum variegatum, Tradescantia zebrina, and other suitable plants. Mr. Herrin also exhibited a fine example of his Madresfield Court Grapes, a capital Hero of Lockinge Melon, and some splendid Giant Rocca Onions, Snow's White Autumn Giant Cauliflowers, and excellent dishes of Omega, Ne Plus Ultra, and Dean's Early Perfection Peas—the latter a new dwarf Marrow, having long curved pods, and which had been sown only a few weeks. From the large courtyard which connects the servants' offices of the house came a collection of fine Fuchsias, Pelargoniums, &c. These have special interest, as they are in charge of the hall porter, who houses his plants during the winter in sheds and as best he can, yet keeps the yard singularly gay with them all through the summer months. Another very fine lot of plants came from Mr. Hilton, the bailiff to the estate, who is an enthusiastic gardener; as also some huge samples of Vicar of Laleham, Queen of the Valley, American Purple, Beauty of Hebron, Magnum Bonum, and Schoolmaster Potatos; fine Filberts and Plums, and capital cut Dahlias and Asters. The flower gardens were seen in great beauty, some of the beds, and those planted after the prevailing carpet fashion, especially were exceedingly bright and pleasing. Grapes in the vineries are very fine, and full of promise for some really good bunches later on. Muscat of Alexandria is first-class, and Gros Colmar, Madresfield Court, Alicante, Lady Downe's, Mrs. Pince, and White Tokay are excellent. Mr. Herrin has to grow Grapes under great difficulties as regards structures when compared with houses of more modern erection, but in spite of these he does them in a way that calls for the warmest commendation.

Devon and Exeter Horticultural: *Aug.* 23 *and* 24.—The second exhibition for the year was held on the public grounds of Northernhay, Exeter, and was the 156th held by the Society. The schedule of prizes was on a more liberal scale than usual, and comprised several valuable silver cups, presented by the Mayor of Exeter (S. Jones, Esq.), the Town Council of Exeter, H. F. Willey, Esq., Sheriff of Exeter, B. W. Cleave, Esq., ex-President, and Messrs. R. T. Veitch & Son; and money prizes by Mrs. Thornton West, Messrs. J. T. Tucker & Son, and Messrs. Lucombe, Pince & Co. This liberal offer of prizes induced a great number of competitors to enter the lists, there being good competitions in most of the classes, producing a display for a summer exhibition second to none ever held by the Society. The fine collection of plants belonging to J. Lawless, Esq., (gr., Mr. G. Coles), were once more exhibited in their own city, a rare occurrence in past years, as may also be said of others present, the scale of prizes heretofore being insufficient to cover cost of transit to say nothing of compensation for extra labour and trouble in connection therewith, and of which exhibitors alone know the amount. Mr. Lock, gr. to B. W. Cleare, Esq., Newcombes, Crediton, staged in many of the classes for plants, and ran Mr. Cole very closely for 1st honours, in several of them. Mr. Rowland, gr. to W. Brock, Esq., Parker's-Well House, Exeter, also staged very fine and well grown collections of plants. These three competitors divided the honours between them in the principal classes for plants, and their exhibits as a whole would compare favourably with those staged at any exhibition in the kingdom. To Messrs. Lucombe, Pince & Co. much praise is due for the very excellent display made by them, about 75 feet run of staging being occupied with the best collection of clean, healthy, and well-grown plants the firm has ever put up. A pair of splendid specimens of Cycas revoluta stood at each end, and in the back row were fine specimens of Latania borbonica and other Palms, with a magnificent specimen of Croton undulatus, well coloured and about 7 feet in diameter. Croton Queen Victoria, Warreni, Prince of Wales, MacArthuri, Baron James de Rothschild, were all most beautifully coloured. Their Dipladenias amabilis and Brearlyana were very handsome, so also their Allamandas nobilis and Hendersoni. The firm are noted for their collection of well-grown Allamandas, which grace almost every exhibition tent in the West. The specimens of Stephanotis floribunda and Bougainvillea glabra were, as usual, superb. In front of these were a miscellaneous collection of decorative plants, in variety, comprising Pancratium fragrans, Orchids, Gloxinias, Vallotas, Begonias, Cocos Weddelliana, Geonoma gracilis, &c. The same firm also staged boxes of pompon and single Dahlias in great variety, herbaceous Phloxes, Pansies, and The Governor Carnation. Messrs. R. T. Veitch & Son exhibited a quantity of their Saxony fossils, arranged very artistically to represent an ornamental rockwork, by their landscape gardener, Mr. Meyer. Several varieties of Palms, with a large assortment of stove, greenhouse, and hardy Ferns, were effectively interspersed in and between the rockwork, together with several varieties of Japanese Maples, Orchids, and Lilies. The whole made up the largest and most tasteful arrangement the firm has exhibited, and it was much admired. They also contributed stands of Carnations and Picotees in variety, fine specimens of double and single Dahlias, also the Glare of the Garden Dahlia—a semi-double brilliant scarlet variety, the free flowering habit of which renders it a suitable plant for growing in masses. Splendid boxes of Roses were also staged by Messrs. Veitch, also a good strain of double Stocks and herbaceous Phloxes. Mr. W. H. Godfrey, Ottery St. Mary, set up a superb collection of Potatos, in forty-three distinct varieties, comprising all the best well-known sorts, and several seedlings. A white kidney variety named Pride of Devon was especially handsome. Mr. Walter, Rose grower, of Exeter, sent ten boxes of Roses, those of Marie Baumann and Alfred Colomb being especially good for the time of year.

The 1st prize in the class for twelve stove and greenhouse plants in flower, a £10 silver cup, given by the Town Council, was awarded to Mr. G. Cole, for his excellent lot of specimens, which embraced Erica Fairieana, E. Marnockiana, E. æmula, and E. Jacksoni, Clerodendron Balfourianum, Dipladenia amabilis and D. Brearleyana, Allamanda Hendersoni and A. nobilis, Stephanotis floribunda, Ixora Prince of Orange, a grand piece; and Eucharis amazonica. Mr. Lock was 2d, with fine plants of Ixora Prince of Orange, Erica obbata purpurea, Clerodendron Balfourianum, a splendidly-flowered Dipladenia amabilis, Eucharis, Stephanotis, and Bougainvillea glabra. For six specimen plants Mr. Rowland took the 1st prize, included in his collection being good and well-flowered plants of Stephanotis, Clerodendron Balfourianum, and Lapageria rosea. For nine stove and greenhouse foliage plants Mr. Cole was again placed 1st, with grand specimens of Croton variegatus, C. undulatus, C. Johannis, and C. Disraeli, Latania borbonica, Alocasia Thibautiana, Kentia Belmoreana, and Areca lutescens. Mr. Lock again came in 2d. In his collection Croton Williamsoni, Warreni, Disraeli, and Weismanni, Alocasia intermedia, Latania borbonica, Areca lutescens, and Seaforthia elegans, were shown very creditably. In the class for six Mr. Rowland was awarded the 1st prize. The class for nine stove and greenhouse Ferns brought Mr. Cole, and an antagonist in Mr. Lock, who succeeded in winning the 1st prize with a grand lot of plants. Davallia Mooreana, about 8 feet in diameter, was splendid; so also Gleichenia Speluncæ, Nephrolepis davallioides furcans, Cyathea dealbata, Adiantum tra peziforme, Marattia Cooperi, and Cyathea medullaris. Mr. Cole was close on the heels of the former, with a very fine lot, comprising Davallia bullata, Gleichenia Mendelli, Davallia Mooreana, and D. polyantha, Microlepis hirta cristata, Gleichenia rupestris glaucesens, and Dichotoma, Adiantum Farleyense, and Neotopteris nidus. For a miscellaneous collection of plants, arranged on a stage 20 feet by 5 feet, for which a £5 Cup was given by the Sheriff, H. Willey, Esq., Mr. Lock most deservedly was given the 1st place, his collection being quite a centre of attraction and admiration. He seems to have studied this class very much to achieve such a tastefully arranged display. such things as Crotons angustifolius, Warreni, Johannis, and Prince of Wales, Eulalia japonica variegata, Cyperus alternifolius variegatus, Cocos Weddelliana, Chæmodorea graminiflora, all of medium size, with a groundwork of Ferns, principally Adiantum cuneatum, Isolepis gracilis, Selaginella cæsia, and Dactylis glomerata variegata. Mr. Rowland took the 2d award: his plants, though valuable, were heavy, in contrast with the 1st prize lot. This last named competitor secured the 1st prize for six Orchids, with Cattleya Eldorado, Dendrobium giganteum, D. Dearei, D. chrysanthum, and Oncidium flexuosum; also the highest award for nine tuberous-rooted Begonias. Mr. Lock succeeded in taking 1st prizes for twelve British Ferns, specimen stove and greenhouse plant in bloom (Ixora Williamsii), specimen Lycopodium, specimen stove Fern, specimen greenhouse Fern, six tricolor Pelargoniums, and six bronze; and 2d prize for six Lycopodiums—Mr. Coles taking the 1st. For six Liliums, Mr. Bartlett, gr. to Lady Hotham, was 1st, with some splendid specimens of L. auratum. For nine Fuchsias, W. Farrant, Esq. (gr., Mr. Counter), took the 1st prize, with a very even lot of well-grown specimens; and for six, J. Harding, Esq. (gr., — Staddon), was placed 1st, In the classes for six zonal, single, and six double Pelargoniums, Mr. Staddon and J. Harding, Esq., took 1st and 2d in each respectively.

OPEN CLASSES FOR CUT FLOWERS.—For twenty-four Roses, distinct, Mr. Powell, gr. to the Earl of Devon was awarded the 2d prize; and for forty-eight double Dahlias, distinct, Mr. Dobree, Wellington, Somerset, was 1st, as also 1st for forty-eight Gladioli, which were very good indeed. For twenty-four bunches of cut blooms Mr. Cole took the 1st prize with a very choice collection, Mr. Lock being 2d; and Mr. Barnes, gr. to T. Daniels, Esq., Tiverton, Commended. In the general competition, Mr. Nation was 1st for double Dahlias, twenty-four varieties, twelve fancy varieties, and twelve single sorts; and for twelve Gladioli, Mr. Dobree was 1st, Mr. Powell 2d. For twelve Roses, Capt. Christy was 1st; and Mr. Leach, gr. to John Drew, Esq., 2d.

The fruit prizes were strongly contested, especially in the classes for Grapes, about 120 bunches being staged. Mr. Austen, Ashton Court Gardens, Bristol, took the 1st prize, a Silver Cup, value £5, given by Messrs. R. T. Veitch & Son, for a collection of fruit composed of ten dishes. He staged Alnwick Seedling, three bunches, very fine indeed, and beautifully finished, the three weighing 11¼ lb.; Muscat of Alexandria, Smooth Cayenne Pine, Brown Turkey Figs, Bellegarde Peaches, Moor Park Apricots, Jargonelle Pears, Blenheim Orange Melon, Cherries, and Pine-apple Nectarines. Mr. James gr. to Sir J. Walrond, Bart., Bradfield, took 2d, included in his collection being very fine Early Crawford Peaches, Highcross Melon, Black Tartarian Cherries, Red Astrachan Apples, and well-finished Black Hamburgh Grapes. For a single Pine-apple, Mr. Bull, gr. to Sir Redvers Buller, took the 1st prize, and Mr. Powell the 2d. Mr. Austen was 1st for Black Hamburgh Grapes; and Mr. James 2d. For three bunches of Muscat of Alexandria Mr. Geeson, gr. to Lord Haldon, had the best stand, Sir J. Phea, being 2d. For any other sort of black Grape the Revr H. Clark was awarded the 1st prize, for Madresfield Court; 2d, Mr. Rowland, with Bidwell's Seedling. For three kinds of Grapes, three bunches of each, Mr. Geeson again succeeded in obtaining the 1st award, G. P. Benmore, Esq., coming in 2d. For nine Peaches B. C. Gidley, Esq., was placed 1st, and T. Rowe, Esq., 2d; and for nine Nectarines, 1st, Mr. Powell; 2d, Mr. Leach. Melon, green-flesh.—1st, Mr. Coombes, gr. to Captain Thompson; 2d, Mr. Powell. Scarlet-flesh Melon.—1st, Mr. Geeson. Apricots.—1st, C. Hind, Esq.; 2d, W. H. Dunsford, Esq. Twelve Plums, light coloured.—1st, W. M. Potter, Esq. Twelve ditto, dark.—1st, J. Milford, Esq. For Cherries, red and white Currants, Mr. Powell was 1st in each class. Black Currants.—1st, W. H. Dunsford, Esq.; and for Gooseberries, 1st, Mr. James.

The vegetable classes were strongly contested, and were all of great excellence. For a collection of twelve kinds Mr. Leach was placed 1st, and Mr. Powell 2d. For six kinds ditto Mr. Sedgely, gr. to Lord Coleridge, won the 1st prize, and Mr. Counter the 2d. For a collection of salading, 1st, Mr. Leach. For the special prizes offered by Messrs. Lucombe, Pince & Co. splendid collections were staged, Lieut.-Colonel Troybe being 1st, his collection including fine Sulham Prize Celery, Pince's Improved Parsnip, Woodstock Kidney Potatos, Mushrooms, and fine Autumn Giant Cauliflower; 2d, W. T. Waldy, Esq.

Royal Horticultural: *Chiswick, Aug.* 30.—At a meeting of the Fruit and Vegetable Committee, held at Chiswick on the above date, Charles Silverlock, Esq., in

the chair, the collections of Tomatos, Potatos, and Onions growing in the garden were severally examined, First-class Certificates being awarded to the following:—

Tomato Improved Large Orange (Henderson).—Fruits large, round, smooth; deep orange-yellow in colour. Very handsome.

Tomato Chiswick Red.—A selection from General Garfield. Fruits medium-sized, obovate, smooth; deep red. Very productive.

Onion White Globe (Vilmorin).—Bulbs medium size, of a true globular shape, remarkably firm and solid, with a very white silvery skin. Very handsome and distinct.

Potato Welford Park Kidney (Ross).—White kidney, fine handsome shape, clear skin. Excellent cropper.

Potato Beauty of Eydon (Hughes).—Large, oblong, fine clear skin. Very heavy cropper. Fine quality.

Potato Midsummer Kidney (Dean). — Large, long, clear skin. As early as the Ashleaf and with larger tubers. Fine quality.

Potato Snowdrop (Perkins).—Somewhat resembling Snowflake, but of firmer texture, and better colour and quality. An extraordinary cropper.

Potato Clarke's Maincrop (Clarke).—Type of Magnum Bonum. Early. Great cropper and fine quality.

Potato Desideratum (W. Smith).—Long kidney, skin of a dull fawn colour. Moderate cropper. Extra fine quality.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, SEPTEMBER 5, 1883.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 30 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rainfall.
Aug.	In.	In.	°	°	°	°	°	°	°		In.
30	29.74	−0.13	73.0	55.5	17.5	62.0	+ 2.0	55.3	79	W.	0.06
31	29.53	−0.35	62.0	55.6	6.4	57.5	− 2.3	51.4	82	W.	0.00
Sept. 1	29.23	−0.66	65.2	51.5	13.7	57.2	− 2.2	52.6	84	WSW. S.S.W.	0.22
2	28.74	−1.16	61.0	56.5	4.5	57.5	− 1.8	54.2	88	S.S.E. S.S.W.	0.12
3	29.33	−0.57	66.5	54.2	12.3	58.5	− 0.6	48.3	69	S.W.	0.20
4	29.60	−0.31	5.5	49.0	16.5	56.6	− 2.2	48.7	75	N.N.W.	0.00
5	29.74	−0.16	61.5	49.0	12.5	53.2	− 5.4	48.4	84	N.W.	0.42
Mean	29.42	−0.48	64.9	53.0	11.9	57.5	− 1.8	51.3	80	Various	1.02

Aug. 30.—Fine but dull morning; bright at intervals after noon. Slight rain at night.
— 31.—Dull morning; slight rain in the evening. Rain at night.
Sept. 1.—Fine and bright in morning; rain from 7 P.M. Bad night.
— 2.—Squally; gale of wind. Wild day. Occasional gleams of sun.
— 3.—Rough morning; sun shining occasionally. Strong wind all day.
— 4.—Fine bright morning; fine day and night. Strong wind.
— 5.—Very dull, wet and cold morning; fine bright afternoon and clear night.

LONDON: *Atmospheric Pressure.*—During the week ending September 1 the reading of the barometer at the level of the sea decreased from 30.18 inches at the beginning of the week to 29.84 inches by 9 A.M. on August 29, increased to 29.94 inches by the morning of the 30th, decreased to 29.88 inches by 3 P.M., and increased to 29.96 inches by midnight of the same day, and then decreased quickly, particularly on September 1 to 29.18 inches at the end of the week.

The mean reading for the week at the level of the sea was 29.87 inches, being 0.34 inch lower than last week, and 0.18 inch below the average of the week.

Temperature. — The highest temperature in the shade in the week was 77°, on the 28th; the highest reached on August 31 was 62°. The mean of the seven high day temperatures was 71°.

The lowest temperature in the week was 51°, on August 26; the lowest temperature on both the 28th and 29th of August was 59°. The mean of the seven low night temperatures was 55°.3.

The greatest range of temperature in one day was 25°.2, on August 26; the smallest was 6°.4, on August 31. The mean of the seven daily ranges was 15°.7.

The mean temperatures were—on August 26, 62°.7; on the 27th, 64°; on the 28th, 65°.5; on the 29th, 62°.9; on the 30th, 62°; on the 31st, 57°.5; and on September 1 was 57°.2; of these the first five were above their averages by 2°.3, 3°.7, 5°.3, 2°.8 and 2° respectively, and the last two were below by 2°.3 and 2°.2 respectively.

The mean temperature of the week was 61°.7, being 1°.7 above the average of the week, and 1°.4 lower than that of last week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 124°, on August 28. The mean of the seven readings was 101°.

The lowest readings of a thermometer with its bulb placed in contact with grass was 45°, on September 1. The mean of the seven readings was 49°.

Rain.—Fell on three days, the amount was 0°.4 inch.

ENGLAND: *Temperature.*—During the week ending September 1 the highest temperatures were 82° at Sunderland, 79°.9 at Cambridge, and 77° at Truro and Blackheath; the highest at Liverpool was 70°.2, at Plymouth was 70°.5, and at Bristol was 71°. The general mean was 74°.8.

The lowest temperatures in the week were 44° at Truro, 45° at Sunderland, and 46° at Sheffield; the lowest temperature at Brighton, Blackheath, and Preston was 51°. The general mean was 48°.4.

The greatest ranges of temperature in the week were 37° at Sunderland, 33° at Truro, and 32°.9 at Cambridge; the least ranges were 20°.2 at Liverpool, 20°.5 at Bristol, and 21° at Preston. The general mean was 20°.4.

The mean of the seven high day temperatures was highest at Cambridge, 73°; at Nottingham 71°.5, and at Blackheath 71°; and was lowest at Bristol 65°.4, at Liverpool 65°.5, and at Preston 66°.7. The general mean was 68°.8.

The mean of the seven low night temperatures were highest at Brighton, 56°.1, Blackheath 55°.3, and Bristol 55°.1; and were lowest at Wolverhampton, 51°, Nottingham 51°.8, and at Bolton 52°.1. The general mean was 53°.6.

The mean daily range of temperature was greatest at Cambridge, 20°.6, at Nottingham 19°.7, and at Wolverhampton 17°.4; and were least at Bristol, 10°.3, at Liverpool 10°.5, and at Preston 12°.3. The general mean was 15°.2.

The mean temperature was highest at Brighton, 61°.9, at Blackheath 61°.7, and at Plymouth 61°.1; and was lowest at Wolverhampton, 58°.2, at Bolton 58°.5, and at Liverpool 58°.7. The general mean was 59°.7.

Rain.—The largest falls were 0.71 inch at Truro, and 1 inch at Sunderland; the smallest falls were 0.08 inch at Leeds, and 0.09 inch at Preston. The mean fall was 0.5 inch.

SCOTLAND: *Temperature.*—During the week ending Sept. 1 the highest temperature was 72°.8, at Edinburgh; at Paisley the highest temperature in the week was 64°. The general mean was 69°.3.

The lowest temperature in the week was 40°, at Perth; at Greenock the lowest temperature in the week was 49°. The general mean was 45°.9.

The mean temperature was highest at Leith, 58°.2; and lowest at Perth, 56°.5 The general mean was 57°.2.

Rain. — The largest fall was 1.97 inch, at Greenock; and the smallest was 0.60 inch at Leith. The general mean fall was 1.09 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

CLEMATIS ROOT: *L.* The tubercles are filled with small worms similar to those which do so much mischief to Cucumbers and Melons. We have seen similar creatures in the roots of Stephanotis. You had better burn the plant and throw away the soil. If you break up the pot take care that the potsherds are not used for potting purposes.

ERRATA: CHRYSANTHEMUMS. — In the note at p. 278, six lines from the bottom of the first column, for the words "Two perfect flower-buds," read "Imperfect flower-buds;" and at the fifth line of the second column, on the same page, for the word "behind" read "blind."

GRAPES DECAYING: *Simon.* It appears to us that your Grapes are rotting through too much damp and too close and moist an atmosphere.

MELON ROOTS: *L.* The tubercles on the roots are swarming with minute worms. The disease, unfortunately, is well known, but its natural history—that is, how the creatures gain access, and how they develope—is not known. In all probability they are introduced with the soil. The only practical remedy is to destroy the plants by fire, and to turn out the soil, thoroughly cleanse the pit, and start afresh.

MODEL GARDEN: *J. H. T.* Undoubtedly there should be openings at all the places dotted on the plan, but the omission to leave such openings on your part is not, we think, a sufficient reason for disqualifying your design, supposing, as you say, that in other respects it was much superior to the other designs shown. We should not ourselves have disqualified it on the grounds stated.

MUSCAT GRAPES: *J. Day.* The berries of the Muscats crack in the way described through some irregular action on the part of the roots—probably through the the soil being too wet.

NAMES OF FRUIT: *W. Masson.* 1, Beurré d'Amanlis; 2, Beurré de Capiaumont; 3, probably small specimen of Duchesse d'Angoulême; 4, Beurré Diel; 5, Beurré Clairgeau; 6, Pêche.—*J. Day.* The small yellow Plum is believed to be Jefferson's, the other yellow Apricot Black Plum, Kirke's; Pear, Summer Bergamot.

NAMES OF PLANTS: *Thos. Kennedy & Co.* Pellionia Daveauana.—*W P.* 1, Alchemilla alpina; 2, Anthemis nobilis.—*F. J. T.* 1, Taxodium distichum certainly.—*Denton.* 1, Indigofera Gerrardiana; 2, Echinops sphærocephalus; 3, Centaurea montana; 4, Hieracium aurantiacum; 5, Veronica longifolia var. alba; 6, V. longifolia.—*C. B. Green.* Campanula fragilis.—*D. C.* Agrostis alba.—*J. S. B.* A white-flowered form of Stachys palustris.—*J. C.* 1, Epilobium angustifolium; 2, Lysimachia vulgaris; 3, Saponaria officinalis flore-pleno.—*P. C. C.*, 1, Soldago sp.; 2, Helenium autumnale; 3, Achillea ptarmica flore-pleno.—*A. H., Exeter.* Hibiscus Trionum, a weed in warm climates, not wild in Manitoba.—*T. Imrie & Sons.* Ulmus montana var. urticæfolia.—*W. J. C.* A species of Casuarina, probably C. quadrivalvis, commonly called the She Oak in Australia, but having really nothing whatever to do with the genus Quercus.—*T. S., Floore.* Arenaria gypsophiloides and Sedum nicaense—a very variable plant, of which there are many forms. The Apple is, we think, Margil.

PELARGONIUMS: *Mrs. J. E.* Please repeat the question, giving details as to your management.

RHODODENDRON: *B.* It is quite possible the Greeks knew the Pontic Rhododendron, but what was called under this name by them was probably the Oleander, also called "Neerion" and "Rhododaphne."

STACHYS: *F. B.* Technically a case of medium prolification. The flower is normal except as to the pistil, in place of which are two small leaves surrounding two flower-stalks, each bearing a single flower. Such cases are not uncommon, and they are explained theoretically on the assumption that at a particular stage of growth something happened to divert the orderly course of growth; but what that something was it is impossible to say.

*** All communications intended for publication should be addressed to the "*Editor*," and not to the Publisher or to any member of the staff personally. The Editor would also be obliged by such communications being *written on one side only of the paper* and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

INTELLIGENT READERS, PLEASE NOTE:—*Letters relating to* ADVERTISEMENTS, *or to the supply of the Paper, should be addressed to the Publisher, and* NOT *to the Editor.*

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CATALOGUES RECEIVED.

KEYNES & CO., Salisbury—Roses and Grape Vines.
JAMES CARTER & CO., High Holborn, W.C. — Winter and Spring Flower Roots, &c.
CLARK BROTHERS & CO., Carlisle — Spring Flower Roots.
W. DRUMMOND & SONS, Stirling—Catalogue of Bulbs.
LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), LIMITED, Garston, Liverpool—Dutch Bulbs, Vines, Roses, &c.
LOUIS VAN HOUTTE, Ghent, Belgium—Greenhouse and Hardy Plants.
R. B. LAIRD & SONS, 17, Frederick Street, Edinburgh —Dutch Flowering Bulbs.
JULES DE COCK, Ghent, Belgium—Trade List of Decorative Plants.
CONNON & REID, 8, Haddon Street, Aberdeen — Hyacinths, Tulips, &c.
STEPHEN BROWN, Weston-super-Mare — Bulbs and Flower Roots.
KERR & FOTHERINGHAM, Dumfries—Roses, Fruit and Forest Trees, Dutch Bulbs, &c.
J. C. SCHMIDT, Erfurt, Germany—Wholesale Catalogue of Dried Flowers, Bouquets, Wreaths, &c.
BARR & SON, 12, King Street, Covent Garden, W.C.—Bulbs and Plants for all Seasons.
ARTHUR JEFFKINS & CO., Westerham, Kent — Dutch and other Bulbs.
EMIL LIEBIG, Dresden — Azaleas, Camellias, Rhododendrons, &c.
WILLIAM CUTLER, Covered Market, Leeds — Dutch Flower Roots.
SAMSON & CO., Kilmarnock — Dutch Flower Roots, Trees, Shrubs, and Plants, &c.
R. CLEAVER, Bore Street, Lichfield—Dutch Bulbs.
DOBIE & MASON, 66, Deansgate, Manchester — Dutch and other Flower Roots.

COMMUNICATIONS RECEIVED.—W. P.—R. Y.—F. J. T.—H. Cannell & Sons.—J. B.—J. L.—J. C.—A. S.—D. T. F.—A. T.—F. G. S. (sorry we cannot assist you to the addresses required.—H. E.

Markets.

COVENT GARDEN, September 6.

[THE subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. ED.]

TRADE still continues dull, without any changes worth noticing. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	1 6- 2 6	Peaches, per doz.	2 0- 6 0
Figs, per dozen	1 0- 2 0	Pine-apples, Eng., lb.	2 0- 4 0
Grapes, per lb.	1 0- 2 0	— St. Mich., each	3 6-10 0
Lemons, per case	20 0-30 0	Plums, ½-sieve	7 0-10 0
Melons, each	1 0- 3 0		

VEGETABLES—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	2 0- 3 0	Lettuces, Cabbage, per dozen	1 0- ..
Beans, French, lb.	0 4- ..	— Cos, per dozen	1 6- ..
— Scarlet, per lb.	0 3- ..	Mint, green, bunch	0 6- ..
Beet, per doz.	1 0- ..	Mushrooms, p. baskt.	1 0- 2 0
Cabbages, per doz.	1 0- 2 0	Onions, per bunch	0 6- ..
Carrots, new, p. bun.	0 4- 0 6	— Spring, per bun.	0 6- ..
Cauliflowers, English, dozen	2 0- 3 0	Parsley, per bunch	0 4- ..
Celery, per bundle	1 6- ..	Peas, English, quart	1 0- ..
Cucumbers, each	0 4- 0 8	Radishes, per doz.	1 6- ..
Endive, French, per dozen	2 0- ..	Small salading, pun.	0 4- ..
Garlic, per lb.	1 0- ..	Spinach, per bushel	2 6- ..
Herbs, per bunch	0 2- 0 4	Tomatos, per lb.	0 6- 0 9
Horse Radish, bund.	3 0- 4 0	Turnips, new, bun.	0 4- ..
		Vegt. Marrows, each	0 2- 0 4

POTATOS.—Kent Kidneys, £4 to £5 per ton; do., Regents, £3 10s. to £5 per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen	12 0-24 0	Ferns, in variety, per dozen	4 0-18 0
Arbor-vitæ (golden), per dozen	6 0-18 0	Ficus elastica, each	1 6- 7 0
— (common), dozen	6 0-12 0	Foliage Plants, various, each	2 0-10 0
Asters, per doz.	4 0- 9 0	Fuchsias, per dozen	4 0- 9 0
Begonias, per doz.	6 0-12 0	Hydrangea, per. doz.	9 0-24 0
Bouvardia, doz.	12 0-18 0	Lilium longiflorum, per dozen	18 0-42 0
Caladiums, per doz.	6 0-24 0	Liliums, various, doz.	12 0-30 0
Calceolarias, dozen	4 0- 9 0	Marguerite Daisy, per dozen	12 0-24 0
Cockscombs, doz.	3 0- 6 0	Mignonette, doz.	4 0- 6 0
Coleus, doz.	2 0- 6 0	Myrtles, per doz.	6 0-12 0
Dracæna term. doz.	30 0-60 0	Palms in variety, each	2 6-21 0
—viridis, per doz.	12 0-24 0	Pelargoniums, scarlet, per dozen	2 0- 6 0
Erica, various, doz.	12 0-36 0	— decorative, doz.	6 0-12 0
Euonymus, various, per dozen	9 0-18 0		
Evergreens, in var., per dozen	6 0-24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0- 4 0	Marguerites, 12 bun.	6 0- 9 0
Asters, 12 bunches	2 0- 6 0	Mignonette, 12 bun.	2 0- 6 0
— French, per bun.	1 0- 3 0	Marigolds, 12 bun.	2 0- 4 0
Bouvardias, per bun.	1 0- 1 6	Myosotis, or Forget-me-not, p. 12 bun.	2 0- 6 0
Carnations, 12 blms.	1 0- 3 0	Pansies, 12 bunches	0 9- 1 6
— 12 bunches	3 0- 6 0	Pelargoniums, 12 spr.	0 6- 1 0
Cornflower, 12 bun.	1 6- 4 0	— zonal, 12 sprays	0 3- 0 6
Dahlias, 12 bun	3 0- 6 0	Picotees, 12 bun.	2 0- 6 0
Delphinium, p. bun.	0 6- 1 0	Primula, double, bun.	1 0- 1 6
Eucharis, per doz.	3 0- 6 0	Pyrethrum, 12 bun.	3 0- 6 0
Eschscholtzia, 12 bn.	2 0- 4 0	Roses (indoor), doz.	2 0- 6 0
Gardenias, 12 blms.	3 0- 6 0	— (outdoor), 12 bun.	3 0- 6 0
Gladioli, 12 spikes	1 0- 3 0	— coloured, doz.	3 0- 8 0
Heliotropes, 12 sp.	0 6- 1 0	Stephanotis, 12 spr.	2 6- 4 0
Lapageria, white, 12 blooms	3 0- 6 0	Sweet Peas, 12 bun.	2 0- 4 0
— red, 12 blooms	1 0- 3 0	Sweet Sultan, 12 bun.	4 0- 6 0
Liliums, 12 bun.	12 0-18 0	Tropæolum, 12 bun.	1 0- 2 0
Lavender, 12 bun.	6 0- 9 0	White Jasmine, bun.	0 6- 1 0

SEEDS.

LONDON: *Sept.* 5.—There was but a poor attendance on the seed market to-day, but the autumn trade has, without doubt, now commenced. The new Continental and American samples of Clover seed are observed with interest, but no operations are taking place. The new home-grown winter Tares continue to come to hand in excellent condition, and sell freely at rather less money. Rye firmly maintains the late advanee. Higher prices are asked for Rape, there being but a limited quantity of seed offering. There is a good inquiry for sowing Mustard. Bird seeds continue dull and neglected. *John Shaw & Sons, Seed Merchants,* 37, *Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday the very small supply of English Wheat encouraged holders to ask 1s. advance, but in the end prices were no better than on the previous Monday, and barely so good as on Friday, whilst foreign Wheats showed in many cases 6d. to 1s. reduction on the week. Flour, with a very slack demand, was 6d. cheaper on country marks. Barley, with a slow sale, was the turn lower for grinding sorts. Beans and Peas were firm. Flat Maize was 3d. to 6d. cheaper, round unaltered. Oats were quiet, at a reduction of 3d. on Russian and 6d. on Swedish descriptions.—On Wednesday the demand all round was slack. English Wheat was scarce, and held for late value, but the continued heavy arrivals of foreign tend to weaken quotations generally. Flour was dull. Barley, Beans, and Peas met a retail demand, and were without change in value. Maize was inactive. Holders of Oats were firm, but buyers operated very sparingly.

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Early White .. .. .. 3s. per dozen, post-free.
" " .. .. .. 22s. per 100, delivered free.
Finest named .. .. 6s. to 12s. per dozen, post-free.

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Double Roman .. .. .. 2s. per dozen, post-free.
Paper White .. .. .. 2s. per dozen, post-free.

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WORDSLEY, STOURBRIDGE.

DUTCH BULBS,

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36 HYACINTHS, mixed, in distinct colours.
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50 " double " "
30 NARCISSUS, POLYANTHUS, best mixed.
30 " Incomparable, yellow, double.
50 ANEMONES, double best mixed.
50 RANUNCULUS, double, best mixed.
400 CROCUS, in 4 distinct colours.
36 GLADIOLUS, best mixed.
50 SNOWDROPS, single.
} 782 Bulbs in all.

Half this quantity for 10s. 6d.

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DUTCH FLOWER ROOTS.

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The Quality of the Bulbs is unusually fine this year.

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HUGH LOW AND CO. have pleasure in informing their friends and the Public that their stock of WINTER and SPRING FLOWERING PLANTS at Clapton Nursery and Bush Hill Park Nursery, Enfield, is this season unusually extensive and fine in quality, and well worth the notice of intending purchasers, who are very cordially invited to an inspection of the plants, which comprise amongst other things:—

Many thousands of ERICA HYEMALIS, of various sizes.
Many thousands of ERICA MELANTHERA.
Many thousands of ERICA GRACILIS, of various sizes.
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Many thousands of HARD-WOODED ERICAS, in numerous fine varieties, a large number of which are extra sized.
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Many thousands of EPACRIS.
Many thousands of AZALEA INDICA in variety, of various sizes.
Many thousands of AZALEA INDICA, Fielder's white, narcissiflora, and other white-flowering varieties.
Many thousands of AZALEA AMŒNA, and amœna Caldwelli.
Many thousands of CAMELLIAS, with flower-buds, various sizes.
Many thousands of GREVILLEA ROBUSTA.
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Many thousands of BOUVARDIAS, Red, White, and Pink.
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JASMINUM GRANDIFLORUM, large winter flowering CATALONIAN JASMINE, can be offered by the 100.
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4*d.* per bushel; 100 for 25*s*; truck (loose, about 2 tons), 40*s*; 4-bushel bags, 4*d.* each.
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Manufactured by the

LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), LIMITED,
The Vineyard and Nurseries, Garston, near Liverpool,
and Sold by them and all Nurserymen and Seedsmen.

This is the Manure used to produce the splendid Grapes grown by Messrs. WM. THOMSON & SON, Cloveofords.

For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

HUGHES' FIR TREE OIL.—Packed for transit, free per parcels post, at the following low quotation, for stamps with order:—

½ pint, 1*s.* 8*d.*; 1 pint, 2*s.* 9*d.*;
1½ pint, 3*s.* 9*d*; 1 quart, 4*s.* 10*d.*

CONNON AND REID, Seedsmen and Florists, Aberdeen.

GARDEN REQUISITES.

PEAT, LOAM, SILVER SAND, PREPARED COMPOST, RAFFIA FIBRE, TOBACCO CLOTH, &c.

Quality **equal to any** in the Market.
(All Sacks included.)

PEAT, best brown fibrous .. .. .. 4*s.* 6*d.* per sack.
" best black fibrous .. .. .. 3*s.* 6*d.* "
" extra selected Orchid .. .. .. 5*s.* 0*d.* "
LOAM, best yellow fibrous .. .. } 1*s.* per bushel (sacks included).
PREPARED COMPOST, best .. }
LEAF MOULD .. .. .. }
PEAT MOULD .. .. .. }
SILVER SAND (coarse) . .. 1*s.* 3*d.* per bushel.
RAFFIA FIBRE, best only .. .. 10*d.* per lb.
TOBACCO CLOTH, finest imported .. 8*d.* per lb., 28 lb. 18*s.*
" PAPER, finest imported .. .. 10*d.* per lb., 28 lb 21*s.*
COCOA-NUT FIBRE REFUSE (see special advertisement).
Terms, strictly Cash with order.

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

Wasps, Flies, &c.

DAVIS'S WASP DESTROYER, unequalled for the destruction of these pests. Sixth Testimonial from Major Marjory, of Chartham Park:—August 9, 1883: "Which he has found effective."
1*s.* 6*d.* and 2*s.* 6*d.* per packet; post-free, 1*s* 9*d.* and 2*s* 10*d.*
London Wholesale Agents:—OSMAN AND CO.; CORRY, SOPER, FOWLER AND CO.; and HOOPER AND CO.
B. R. DAVIS, Yeovil Nurseries, Yeovil.

Important Discovery.

For Cleansing Plants from Aphides and all Parasites—To Prevent American Blight, and all kinds of Scale, &c., and for Washing all Hard-Wooded Plants, always use

HUDSON'S SOAP.

A ¼ lb. Packet to 3 Gallons of Water.
A strong solution thickened with clay makes an effective Winter Dressing.

Testimonial.

"Coton Hall Nursery, Shrewsbury, July 28, 1880.
"We find Hudson's Soap a very useful Winter Dressing for all kinds of Fruit Trees; both as a preventive and cure against American Blight and all kinds of Scales. We also use it for Camellias, Azaleas, Rhododendrons, and all kinds of Hard-wooded Plants. We have much pleasure in presenting you with this testimonial, and remain, yours truly,
(Signed) "JOHN JONES AND CO."

REMARKABLE DISAPPEARANCE!
of all DIRT from EVERYTHING
BY USING
HUDSON'S EXTRACT OF SOAP.

Certain Sudden DEATH

to all Grubs, Aphis, Lice, Red Spider, Thrips, Mealy Bug, Caterpillars, &c.

Perfectly Harmless } to the Hands and Skin, but will cure Ring-worm and all Diseases produced by Parasites.

FIR TREE OIL
(SOLUBLE) INSECTICIDE

A combination of Hydrocarbon Oils made Soluble in Water. **For destroying ALL INSECTS and PARASITES that infest Trees and Plants,** whether at the Roots or on the Foliage. It cures Mildew and Blight on Fruit or Foliage, and a weak solution Kills all Vegetable Grubs, Turnip Fly, &c. Cleans Grapes from Mildew or Mealy Bug without affecting the bloom; and, thickened with a little clay, makes a good winter dressing. Destroys Lice and Fleas on Animals. Sold by Seedsmen and Chemists, 1*s.* 6*d.*, 2*s.* 6*d.*, 4*s.* 6*d.* a bottle. Per gallon 12*s.* 6*d.*, or less in larger quantities. Each bottle bears the Inventor's Trade Mark (a Cat's Head) and full directions for use. *Manufactured by*

E. GRIFFITHS HUGHES, Manchester.
Wholesale from all the London Seed Merchants and Wholesale Druggists.

NEW YORK: RÖLKER AND SONS.

Amortiser.—Amortiser.—Amortiser.

To HOP and FRUIT GROWERS, FLORISTS, MARKET GARDENERS and OTHERS.

STEVENS AND CO.'S AMORTISER INSTANTLY DESTROYS Hop Flea, Green Fly, Caterpillar, and every kind of Blight. Fruit Growers, Florists, more especially Rose Growers, will find this preparation invaluable, as one application causes INSTANT DESTRUCTION of all INSECT PESTS. For Hothouse, Greenhouse, and other Plants it is equally valuable, and is guaranteed not to injure the most delicate bloom or foliage. We have a Special Preparation of the Amortiser for Watering the Ground which Instantly Destroys Slugs, Wireworms Caterpillars, Grubs, &c When ordering state which preparation is required. Sample Cans, 4½ gallons, 3*s.* 6*d.*, tin included. Special Quotations for Large Quantities.

Orders received at 67, High Street, Borough, London, S.E.

HORTICULTURE. — SILVER SAND, 6*s.* per ton; HEATH PEAT, 7*s.* per ton; FOREST PEAT, 8*s.* and 10*s.* per yard; FOREST LOAM, 10*s.* and 12*s.* per yard. On rail, loose, from 2 tons upwards. Sent to all parts at lowest rates.
W. SHORT, Horticultural Co., Midhurst, Sussex.—Est. 1862.

REIGATE SILVER SAND.—Coarse and fine, on rail at 7*s.* 6*d.* per ton—not less than 4-ton trucks Terms cash.—Apply to H. SIMS, The Priory, Reigate.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 20 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1*s.*, 3*s.*, & 10*s.* 6*d.*

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

GISHURSTINE, for dry feet and boot comfort, is much used by Gardeners, Farmers, Ladies, Sportsmen, and Shore-waders; is sold by Nurserymen and Oilmen, with testimonials and directions for use, in boxes, 6*d.* and 1*s.* each. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), London.

BAMBOO CANES, for Nurseries and Gardens. Hundreds of tons in stock from 1 to 4 inches in diameter, and up to 16 feet. The largest importer in England.
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INDIAN MUSLIN, for Garden Shading.—100 yards for 10*s.*, delivered at Burnley Station; or 85 yards for 10*s.*, delivered free per parcels post. Very useful pure Cotton for Curtains, Blinds, Draperies, &c.; cream colour. Postal Order to be sent with each Order. Send stamped envelope for Pattern.
J. KAY AND SONS, Burnley Wood Mills, Burnley.

PURE WOOD CHARCOAL

FOR
VINE BORDERS, FRUIT TREES, STRAWBERRIES, ROSES, FLOWER BEDS, POTTING PURPOSES,
AND GENERAL HORTICULTURAL PURPOSES.
HIRST, BROOKE, AND HIRST, Manufacturers, Leeds, Yorkshire.

RUSSIA MATS, Archangel, Taganrog, Petersburg, and Dunnage.
SACKS and SEED BAGS. ROPES, LINES and TWINES.
RAFFIA FIBRE.
TOBACCO PAPER, PEAT and SILVER SAND.
BEST COCOA-NUT FIBRE REFUSE, 1*s.* 3*d.* per sack (sacks included). Descriptive CATALOGUE on applicaton.
JAMES T. ANDERSON,
149, Commercial Street, London, E.

UNDER SPECIAL ROYAL PATRONAGE

DAY, SON & HEWITT,

Inventors and Sole Proprietors of the
"ORIGINAL"

STOCK-BREEDERS' MEDICINE CHESTS,

For all Disorders in Horses, Cattle, Calves, Sheep and Lambs,
And Inventors of the First Animal Medicines ever known as "Day's."

Price of Chest complete, including "Key to Farriery," £2 16*s.* 6*d.*, sent carriage paid throughout Great Britain.

CAUTION.—Beware of imitations, and see that the name, DAY, SON & HEWITT, is on all Bottles and Packets.

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22, DORSET ST., BAKER ST., LONDON;
AND WANTAGE, BERKS.

SPECIAL 21-OZ. SHEET BRITISH GLASS.

HORTICULTURAL SIZES.

20 Boxes, 20×12	10 Boxes, 20×13	10 Boxes, 20×14
10 " 20×15	10 " 20×16	20 " 20×18
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In 200 feet Boxes, at 2½*d.* per foot nett for not less than 1000 feet. BOXES FREE.

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GLASS, LEAD, OIL and COLOUR MERCHANTS,
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BELGIAN GLASS for GREENHOUSES, &c.

Can be obtained in all sizes and qualities of
BETHAM & SON,
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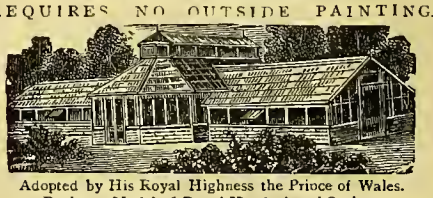
B. & Son have always a large stock in London of 20 in. by 12 in., 20 in. by 14 in., 20 in. by 16 in., 20 in. by 18 in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200-ft. and 300-ft. cases.

HELLIWELL'S PATENT SYSTEM OF GLAZING WITHOUT PUTTY
REQUIRES NO OUTSIDE PAINTING.



Adopted by His Royal Highness the Prince of Wales.
Banksian Medal of Royal Horticultural Society.
OLD ROOFS RE-GLAZED. OLD WOODWORK COVERED.
Plans and Estimates free of charge from
T. W. HELLIWELL,
Royal Horticultural Works, Brighouse, Yorkshire; and
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HORTICULTURAL BUILDERS,
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W. H. LASCELLES AND CO. will give Estimates for every description of HORTICULTURAL WORK, free of charge, and send competent assistants when necessary.

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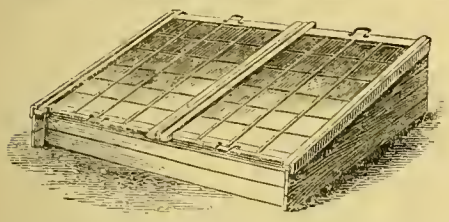
Illustrated Lists of Wooden Buildings, Greenhouses and Conservatories, and Concrete Slabs for walls, paths, and stages, sent post-free on application.



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R. HALLIDAY AND CO. desire to draw special attention to their Cucumber Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.

Prices, delivered to any station in England :—

		£	s.	d.
2-light frame, 8 feet by 6 feet	Packing Cases free	3	10	0
3-light frame, 12 feet by 6 feet		5	5	0
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The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.

R. HALLIDAY AND CO., Hothouse Builders and Engineers Royal Horticultural Works, Middleton, Manchester.

No. 74. Three-quarter SPAN-ROOF GARDEN FRAME.

CASH PRICES—Carriage Paid.

No. 2 size	8 ft. long	6 ft. wide	£4	15	0
No. 3 size	12 ft. long	6 ft. wide	6	10	0
No. 4 size	16 ft. long	6 ft. wide	8	5	0

These Frames are 13 inches high in front, 24 inches high at the back, and 32 inches at the ridge. Front or back lights turn over. Set-opes are provided for ventilating. All painted four coats of best oil colour, and the lights are glazed with best 21-oz. English glass.

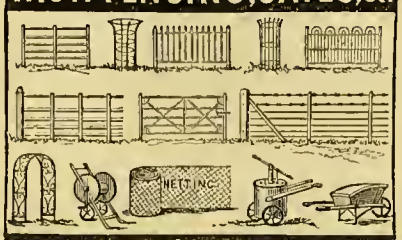
GREENHOUSES,
Suitable for Villas, Small Country Houses.
NEW CATALOGUE. NOW READY. FREE ON APPLICATION.

BOULTON & PAUL, NORWICH.

GLASSHOUSES & HEATING.
B. W. WARHURST
HIGHGATE ROAD, LONDON, N.W.

PRICES FREE

IRON FENCING, GATES, &c.



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LONDON OFFICES, 3, CROOKED LANE KING WILLIAM ST., E.C.

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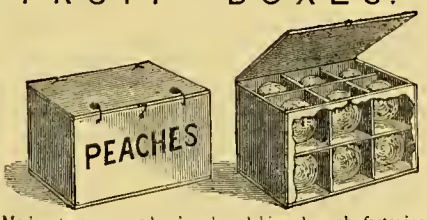

Made of stout wood planed and hinged, with fastenings and holes, through which a string can be passed and sealed on the top to prevent all tampering or pilfering. Movable wooden divisions keep each Peach or Bunch of Grapes in its place. Wrapped in wool or tissue paper the Peaches fit in firmly and never bruise.

Boxes for 12 Peaches, 1s. each, or 11s. 6d per doz
" 24 " 2s. " 23s. "
" for Grapes, 8 divisions, 10 in. × 4 in., × 4 in., **4s. each.**

THOS. CHRISTY & CO., 155, Fenchurch Street, E.C.
MANUFACTURERS OF HYDRO-INCUBATORS.

HOSE.
PATENT RED-RUBBER GARDEN HOSE.

Stands severe tests of Government Departments, thus proving superiority of quality. Lasts four times as long as ordinary Indiarubber Hose, Lighter in Weight, Greater in Strength, and Cheaper in the long run than any other Hose for Garden Use.

A correspondent writes :—"I have had a length of your Red-Rubber Hose in use nine years, and it is now as good as ever."

Sample and Price of
MERRYWEATHER & SONS,
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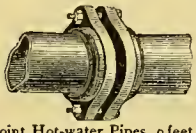
THOS. W. ROBINSON,
DENNIS PARK IRONWORKS, STOURBRIDGE.

The "Expansion Joint."



The Best and Quickest Made.

4-in. Expansion Joint Hot-water Pipes, 9 feet long, 4s. 3d. each.
4-in. Socket Hot-water Pipes, 9 feet long, 4s. 6d. each.
Price List on application.

WRIGHT'S ENDLESS FLAME-IMPACT HOT-WATER BOILERS.

We have much pleasure in stating that not one Tradesman has come forward with even a single objection to, or accusation against, our Boilers, after public and formal challenges during an entire month—February—to do so, and which we offered to place in the hands of a scientific committee for immediate decision, if they considered there was the slightest truth in any of them. In Challenges, per Registered-Letter Post, we also stated that, if not accepted, we would, of course, conclude that they found themselves in the wrong, and were unable to substantiate their objections to, or accusations against, our Boiler, or to produce a Boiler, or Boilers, superior to ours, or even equal to them. We also claimed that for—1st, Economy of Fuel; 2d, Power; 3d, Simplicity of Form; 4th, Cheapness; and many other points besides, our Boilers were unequalled, and we challenged them to a Trial before the same Committee if they considered them unwarranted. This has not been accepted, either; so that our Boiler has now been admitted, by the entire Trades, and Tradesmen, after full and formal challenges, to be the Best Boiler in the Market, in fact, the Champion Hot-water Boiler in the Trade.

Our New Price Lists, 1883, will be handed to all on application.

WRIGHT & CO.,
BOILER WORKS, AIRDRIE, near GLASGOW, N.B.
September 1, 1883.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, HORTICULTURAL BUILDINGS and HOT-WATER APPARATUS MANUFACTURERS.

Plans and Estimates free.

Oil Paint No Longer Necessary.
HILL AND SMITH'S BLACK VARNISH,
for Preserving Ironwork, Wood, or Stone.
(*Registered Trade Mark.*)

This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in Casks of about 30 gallons each, at 1s. 6d. per gallon at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"*Piercefield Park, June 21, 1876.*—Sirs,—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, WM. COX."

CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

Large illustrated CATALOGUE of Fencing Hurdles, Field and Entrance Gates, &c., sent free on application to

HILL AND SMITH, Brierley Hill Ironworks, Staffordshire; 118, Queen Victoria Street, London, E.C.; and 196, St. Vincent Street, Glasgow.

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WATERPROOF ROSE TREE
and all kinds of
DIRECTION LABELS.

FISHER, CLARK & CO.,
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Under the Patronage of the Queen.
J. SMITH'S IMPERISHABLE STRATFORD LABELS.

The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says :—"We must give these the palm before all other plant labels, as the very first in merit."

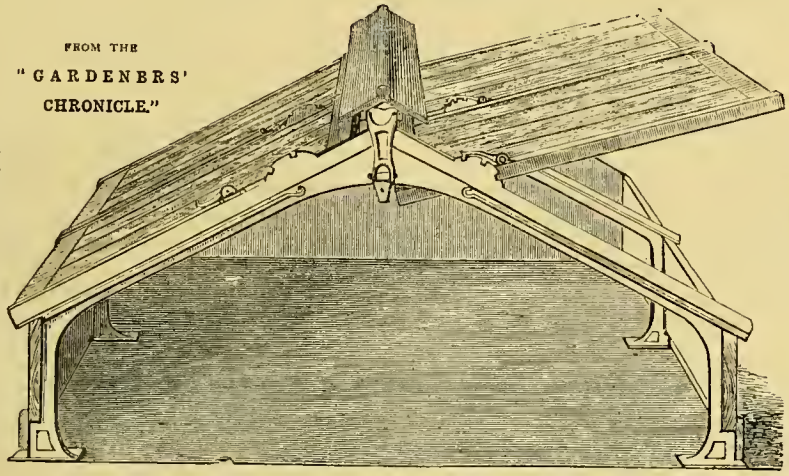
Samples and Price Lists free.
J. SMITH, The Royal Label Factory, Stratford-on-Avon.

GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of WATSON AND SCULL, 90, Lower Thames St., London, E.C.

FOSTER & PEARSON, BEESTON, NOTTS.

NEW IMPROVED FRAME,
AWARDED
Silver Medal by Royal Horticultural Society.
See "*Gardeners' Chronicle*," June 26.

FROM THE
"GARDENERS' CHRONICLE."



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Established 1841.

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8 "	..	.. 0 5 0		19 "	..	.. 0 10 6	
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26 words 1s. 6d., and 6d. for every additional line (about 9 words) or part of a line.

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BIRTHS, DEATHS and MARRIAGES, 5s. each insertion.

Advertisements for the current week MUST *reach the Office by Thursday noon.*

All Subscriptions payable in advance.

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FOREIGN (excepting India and China); including Postage, £1 6s. for 12 Months; India and China, £1 8s. 2d.

Post-office Orders to be made payable at DRURY LANE, W.C., to W. RICHARDS.

PUBLISHING OFFICE and OFFICE for ADVERTISEMENTS, 41, Wellington Street, Strand, London, W.C.

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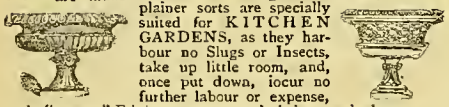
Rosher's Garden Edging Tiles.

THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

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Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by Post. The Trade supplied.

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WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.

F. ROSHER AND CO., Brick and Tile Merchants.

See Addresses above.

SILVER SAND, fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Stations. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries.

KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves.

A liberal Discount to the Trade.

HORTICULTURAL SHEET GLASS,

21 oz. Foreign, of the following sizes, in boxes of 100 and 200 feet, 3ds and 4ths qualities always kept in stock:—

14×12	20×12	20×14	20×16	20×18
16×12	16×14	20×15	22×16	22×18
18×12	18×14	18×16	24×16	24×18

Stock Lists and Prices on application.

All descriptions of British and Foreign Glass can be obtained from

GEORGE FARMILOE & SONS,

GLASS, LEAD, OIL and COLOUR MERCHANTS,

34, St. John's Street, West Smithfield, London, E.C.

MONEY LENT WITHOUT SURETIES by the NATIONAL DEPOSIT BANK.

16 and 17, Russell Street, Covent Garden, London.

Capital, £200,000.—Reserve Fund, £75,000.

ADVANCES MADE at a few hours' notice, from £10 to £5000, in town or country, to male or female, upon note of hand alone, shares, warrants, bonds, jewels, mortgage of furniture, stock, plant, crops, farming implements, steam launches, yachts, barges, boats, and all available securities, without removal. Also upon life policies and deeds from £5 per cent. from one month to 15 years. No sureties required.

Arrears of rent, executions, and debts paid.

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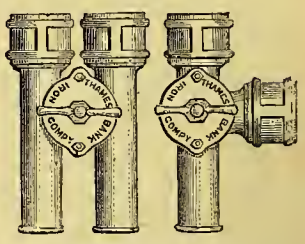

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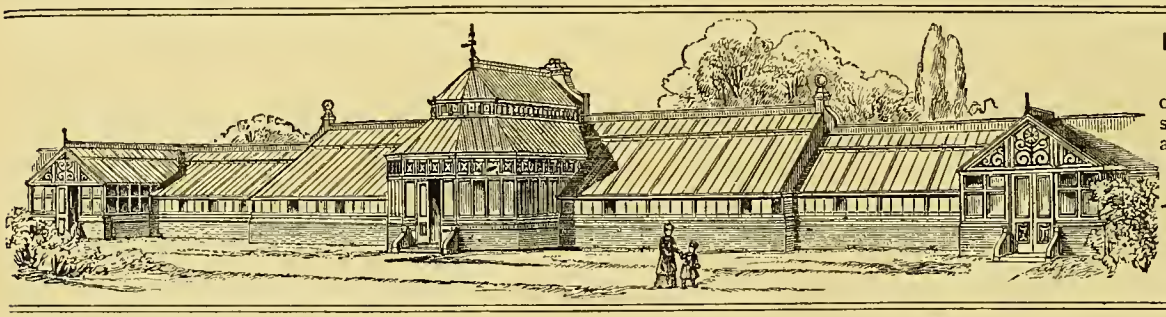

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£2 Reward.

STOLEN, from SANDY FLOWER SHOW, on the 31st ult., a Basket of Pods, and a Sample in the straw, of Mr. LAXTON'S NEW PEA "EVOLUTION;" also a Dozen PRIZE ONIONS. The above Reward will be Paid for such information as will lead to the Conviction of the Offenders, by T. LAXTON, Seed Grower, Bedford.

CINERARIAS.—Fine healthy transplanted Seedlings, from a grand strain of large and brilliantly coloured flowers, 1s. 6d. per dozen, post-free. Extra strong plants, 2s. 6d. per dozen, post-free. Beautifully Illustrated CATALOGUE of Dutch Flower Roots free on application. DANIELS BROS., Royal Norfolk Seed Establishment, Norwich

AMPELOPSIS VEITCHII, 15 to 18 inches, 50s. per 100. CLEMATIS JACKMANNI, strong, 60s. per 100; choice named sorts, strong, 70s. per 100. TEA ROSES, in 4½-inch pots, own selection, 60s. per 100. THOMAS HORSMAN, 102, Godwin Street, Bradford, Yorks.

KELWAY AND SON, Langport, Somerset, offer GLADIOLI SPIKES, DAHLIAS, single and double; PYRETHRUMS, single and double; PHLOXES and TEA ROSES; CALCEOLARIA and CINERARIA SEED. CATALOGUES gratis and post-free.

Hyacinths, Tulips, Narcissus, Lilies, &c.

BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland. Wholesale CATALOGUE now ready, and will be sent post-free on application.

Hyacinths, Tulips, Crocus, &c.

R. B. LAIRD AND SONS (Successors to the late Firm of DOWNIE & LAIRD) are now executing Orders for above, and will be glad to send Catalogues on application.
R. B. LAIRD AND SONS, 17, Frederick Street, Edinburgh.
*** *All Bulbs sent Free by Parcels Post.*

R. H. VERTEGANS' Descriptive Pocket CATALOGUE of Alpines and Hardy Perennials. Post-free on application.
Chad Valley Nurseries, Edgbaston, Birmingham.

Prize Cob Filbert Trees.

GENTLEMEN desirous of obtaining the true WEBB'S PRIZE COB FILBERT TREES, for delivery in October and November, should now send their orders to Mr. COOPER, F.R.H.S., Calcot Gardens, Reading, of whom alone the various sorts can be obtained.
Price LISTS on application.

To the Trade Only.

SPECIAL CASH OFFER of over 20,000 PALMS, including Kentias, Arecas, Seaforthias, Latanias, Geonomas, Corypha, Phœnix, Cocos Weddelliana, Caryctas, &c.; FERNS, in 48's and 60's; ARUM LILIES, for flowering this season; PANDANUS, CROTONS, FICUS, JASMINUM GRACILLIMUM (new), STEPHANOTIS, and various CLIMBING PLANTS, Tuberous and Foliage BEGONIAS, Tree CARNATIONS, and many other useful Plants. Price LISTS free on application. An inspection is invited.
W. M. CROWE, Boleyn Nursery, Upton, Essex.
The Nursery is about five minutes' walk from Upton Park Station (London, Tilbury, and Southend Railway), and ten minutes from Forest Gate Station (Great Eastern Railway).

BEAUTIFUL NEW EUCHARIS. EUCHARIS SANDERI.
Invaluable for Cut Flowers and General Decoration. 5s. each; taken by the dozen, 3s. 6d. each; by the 100, 2s. 6d. each.
Mr. WILLIAM BULL, Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

PANSIES. — Prize varieties as competed with at the leading Scotch Exhibitions, twelve pairs, cuttings, 3s. 6d., 4s. 6d., and 5s. 6d., warranted best sorts only. PENTSTEMONS, extra fine sorts, twelve pairs, cuttings, 2s. 6d. and 3s. 6d PANSIES, twelve seedling, large plants, in bloom, most beautiful, 2s. 6d. PANSY SEED, from my Prize Collection, 1s. and 2s. 6d. All post free.
M. CUTHBERTSON, Public Park Nursery, Rothesay, N.B.

BULBS.—Very long experience enables us to offer the best quality at a moderate price, as proved by hundreds of testimonials. Illustrated LIST, descriptive, select, and comprising important novelties, on application.
RICHARD SMITH AND CO., Seed Merchants and Nurserymen, Worcester.

TEA ROSES IN POTS.—Several thousands to offer, clean, healthy, and full of buds, including a fine lot of Maréchal Niel and Niphetos—the latter in several sizes. Prices on application.
F. STREET, Heatherside Nurseries, Golden Farmer, Farnborough Station.

SPIRÆA PALMATA, for Forcing.—The finest crowns grown are offered to the Trade at 10s., 15s., 20s., and 25s. per 100.
CHARLES NOBLE, Bagshot.

Lily of the Valley.

ELSTER AND KOLLMANN, Lübeck, near Hamburg, offer the above, 3-yr. old, extra strong Crowns, at 34s. per 1000. Three months terms, or terms for cash price, on application.

CREEPERS for WALLS, TRELLISES, &c., in great variety. See Descriptive LIST. Most of these plants being in pots, may be moved now.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ORCHIDS.—We invite intending Purchasers to pay us a visit and inspect our Houses.
The NEW PLANT AND BULB COMPANY, Colchester.
Send for our NEW LIST, No. 63.

Herbaceous and Alpine Plants.

PAULAND SON, The "Old Nurseries," Cheshunt. Priced Descriptive LIST on application.

Tea Roses—Tea Roses.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this year a splendid stock of Tea and other Roses in pots. Prices and full particulars on application to
The MANAGER, The Vineyard, Garston, Liverpool.

To Nurserymen, Private Growers, &c.

A. CATTANEO, COMMISSION SALESMAN, 44, Hart Sreet, and New Flower Market, Covent Garden, W.C., is open to RECEIVE CONSIGNMENTS of CHOICE CUT FLOWERS in any quantities. Terms on application.

MESSRS. SQUELCH AND BARNHAM, FRUIT and FLOWER SALESMEN, Covent Garden Market, W.C., are open to RECEIVE CONSIGNMENTS of choice FRUIT and FLOWERS. Baskets and Labels supplied. Terms and references on application.

WANTED, 1200 CUTTINGS of Henry Jacoby, and 600 of Commander-in-Chief GERANIUMS.
G. J. WARREN, The Gardens, Balcombe Place, Hayward's Heath.

WANTED, to be delivered on the evening of the 24th of September, at Bournemouth, 50 dozen Crimson and 50 dozen Cream Coloured ROSES; must be all sound. Also EUCHARIS, STEPHANOTIS and GARDENIAS. Apply at once,
ENOCH WHITE, F.R.H.S., Nurseryman, Bournemouth.

WANTED, 25,000 CUTTINGS of CARNATIONS, PICOTEES, yellow grounds, salmon-purple, rose, pure white and pink CLOVES. State price per 100 and 1000 for cash, or EXCHANGE CUTTINGS or PLANTS to same value of Mrs. Sinkins.
W. WEALE, Taplow, Bucks.

WANTED, PINES, PEACHES, NECTARINES, TOMATOS, CUCUMBERS, GRAPES, PEARS, PLUMS, &c. Also GARDENIAS, EUCHARIS, STEPHANOTIS, Maréchal Niel ROSES, &c.
WISE AND RIDES, Fruit & Flower Salesmen, Covent Garden.

To the Trade.

WANTED, Price per Ton of good MAIDEN LOAM and LEAF MOULD, on Rail.
W. H. PRATT, 32, Manley Terrace, Kennington Park, S.E.

WANTED, PEACH HOUSE or VINERY, Lean-to preferred; also OTHER HOUSES, LIGHTS, or SASHES. Must be in good preservation.
W. WEALE, Taplow, Bucks.

BULBS.—SPECIAL OFFER TO THE TRADE.—Large Purchasers should send for JAMES CARTER, DUNNETT, and BEALE'S special offer of White Roman HYACINTHS, Paper-white NARCISSUS, Double Roman NARCISSUS, yellow CROCUS, SNOWDROPS, SCILLA SIBIRICA.
237 and 238, High Holborn, London, W.C.

SPECIAL OFFER of FERNS and GREVILLEAS.—Lomaria gibba, Pteris cretica, tremula, cretica major, serrulata, argyrea; and Adiantum cuneatum; also Grevillea robusta. All in 48's; good market stuff, ready for immediate sale. 50s. per 100, package included. Special offer for larger quantities.
H. R. OUBRIDGE, Church Walk Nursery, Stoke Newington, London, N.

LARGE SPECIMEN CAMELLIAS for Sale, to make room. LIST on application to
E. COOLING, Derby.

Herbaceous and Alpine Plants.

PAUL AND SON, The "Old" Nurseries, Cheshunt.
Priced Descriptive LIST on application.

CALCEOLARIAS (Herbaceous). — Fine healthy transplanted Seedlings, from a splendid strain of beautifully spotted and tigred flowers, 1s. 6d. per dozen, post-free. Extra strong plants, 2s. 6d. per dozen, post-free.
DANIELS BROS., Town Close Nurseries, Norwich.

ROSES ON OWN ROOTS.—Best varieties, Red Gloire de Dijon, Baroness Rothschild, &c., from open ground. Strong plants, free by Parcels Post, four for 2s. 6d.
MAIRIS AND CO, Weston-in-Gordano, Bristol.

JULES DE COCK, Ornamental Plant Nursery, Ghent, Belgium.—Many thousand AZALEAS, INDICA, MOLLIS, and PONTICA; DEUTZIA, HELLEBORUS, SPIRÆAS, are disposable. CATALOGUE free on application.

Wholesale Bulb Catalogue.

WATKINS AND SIMPSON, WHOLESALE SEEDSMEN and BULB MERCHANTS, Exeter Street, Strand, W.C. Their Wholesale BULB CATALOGUE is now ready and may be had on application. Contains prices of Lily of the Valley crowns or clumps, American and African Tuberoses, Double and Single Snowdrops, Winter Aconites, Spiræa, many sorts of Narciss, Tulips, Lilies, Gladioli, and all the leading varieties of Dutch, English, French and Japanese Bulbs. Special quotations for large quantities.

EIGHTY THOUSAND CLEMATIS, in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants. Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

PRIMULAS, CINERARIAS, and CALCEOLARIAS.—Bull's choice strain of the above, in good transplanted Seedlings, at 8s. per 100, 70s. per 1000, package and carriage free for cash with orders. Good strong Maréchal Niel and other Tea ROSES, in 48-pots, at 60s. per 100.
T. FLETCHER AND SON, Florists, &c., Chesterfield.

CHOICE FLOWERS for WINTER. — TREE CARNATIONS, Gloire de Nancy, La Belle, A. Alegatière, and other fine kinds, strong plants, 40s. per 100. BOUVARDIAS, fine plants, with 15 to 30 shoots, best market sorts, including Alfred Neuner, 40s. per 100.
W. JACKSON, Blakedown, near Kidderminster.

ADIANTUM CUNEATUM.—Special offer of Maidenhair and other Ferns, in 48-size pots, splendid stuff, at 40s. per 100; in thumbs, ready for potting, 16s. per 100.
E. DENSON AND CO., Nurserymen, Brockley, S.E.

STRAWBERRIES—Next Summer, by planting now: capital roots, 4s. per 100; 6d. extra per 100 for delivery by parcels post. In a Few Months, by forcing: plants in pots, 16s. per 100. Only the best varieties are offered. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

STRAWBERRIES.—We are now prepared to supply strong healthy Plants, from ground and in pots, of all the most approved kinds. A select descriptive LIST post-free on application.
THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

Ten Thousand Strong and Very Healthy

STRAWBERRY RUNNERS—Sir Joseph Paxton and Dr. Hogg—for Sale. Price 2s. 6d. per 100. Apply to C. JOHNSON, Mead House, Red Hill.

LANE'S PRINCE ALBERT APPLE.—Come and see this Prince of Apples, now in full bearing, on large and small trees; and numerous other varieties.
H. LANE AND SON, Nurseries, Great Berkhamstead.

CABBAGE PLANTS for Present Planting.
500,000 CLARK'S EARLY NONPAREIL, 3s. per 1000.
50,000 IMPERIAL EARLY MORTON, 5s. per 1000.
A large quantity of other leading sorts to offer, cheap.
JOHN E. KNIGHT, Whitmore Reans Nurseries, Wolverhampton.

SALES BY AUCTION.

Dutch Bulbs.—Great Unreserved Sales,
Every MONDAY, THURSDAY, and SATURDAY.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every MONDAY, THURSDAY, and SATURDAY, at half-past 11 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other ROOTS from Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Lee, Kent, S.E.
GREAT ANNUAL TRADE SALE, to commence punctually at 11 o'Clock, in consequence of the unusually large number of 1100 lots.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. B. Maller to SELL by AUCTION, on the Premises, the Burot Ash Nursery, Lee, Kent, S.E., adjoining the Lee Railway Station, on TUESDAY, September 18, at 11 o'Clock to the minute, without reserve, 20,000 WINTER-BLOOMING HEATHS, beautifully grown and well set with flower-buds, including 10,000 ERICA HYEMALIS, 3000 gracilis, 2000 Wilmorea, 1000 caffra, and large quantities of melanthera, ventricosa, grandinosa, and other best varieties; also a quantity of Erica hyemalis, and other sorts, in large and small 60-pots for growing on; 7000 SOLANUM CAPSICASTRUM, well-berried; 2000 ADIANTUMS, cuneatum, gracillimum, and Farleyense, remarkably well-grown; 500 LOMARIA GIBBA, and other choice DECORATIVE FERNS, in 48 and 60-pots; a fine lot of GREVILLEA ROBUSTA, CYCLAMEN PERSICUM, AMPELOPSIS VEITCHII, 2000 GENISTAS, 6000 BOUVARDIAS, 1000 decorative PALMS, extra strong STEPHANOTIS, HOYAS, English-grown CAMELLIAS and AZALEAS, Maréchal Niel and other dwarf ROSES, double BOUVARDIAS President Garfield and Alfred Neuner, in 48 and 60-pots, and OTHER STOCK.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C., and 8, New Broad Street, E.C.

Lea Bridge Road Nurseries, Leyton, E.
UNRESERVED SALE.—EXPIRATION of LEASE.
GREAT ANNUAL TRADE SALE of WINTER-FLOWERING HEATHS and other PLANTS, by order of Mr. John Fraser.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, the Lea Bridge Nurseries, Leyton, E., on WEDNESDAY, September 19, at 11 o'Clock punctually (in consequence of there being upwards of 1100 lots), without reserve, many thousands of WINTER-BLOOMING and other HEATHS, remarkably well grown, and including hyemalis, gracilis, Wilmorea, regerminans, caffra, persoluta alba, and others; 1000 EPACRIS, of the choicest kinds; 2000 CYCLAMEN PERSICUM, 1000 GENISTA FRAGRANS, Tea-scented and Noisette ROSES, SOLANUM CAPSICASTRUM, in berry; several hundreds of well-grown CAMELLIAS, well set with bloom; 400 early-flowering and other CHRYSANTHEMUMS, 200 Maréchal Niel and other ROSES, from 7 to 10 feet; a large quantity of fine plants of AMPELOPSIS VEITCHII, STOVE and GREENHOUSE PLANTS, in variety, including Acacias, Ixoras, Dipladenias, Boronias, fine healthy young plants of Lapageria alba and rosea superba, and other stock.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C., and 8, New Broad Street, E.C.

Tottenham.
GREAT ANNUAL TRADE SALE; to commence punctually at 11 o'Clock, there being upwards of 1100 lots.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Brunswick Nursery, Tottenham (close to White Hart Lane Station), on THURSDAY, September 20, at 11 o'Clock precisely, by order of Mr. John Maller, without reserve, 20,000 winter blooming HEATHS, beautifully grown, and abundantly set with flower-buds, including Erica hyemalis, gracilis, caffra, Wilmorea, and other best kinds; 5000 remarkably well berried SOLANUM CAPSICASTRUM, unsurpassed in the Trade; 1000 ACACIAS, 1000 handsome PALMS, 1000 well furnished ADIANTUMS, 500 FICUS ELASTICA, 3000 TREE CARNATIONS, best varieties; 5000 BOUVARDIAS, 1000 CYCLAMEN, 1000 EUPHORBIA JACQUINIFLORA, 1000 AZALEAS, large plants of AZALEAS and CAMELLIAS, for cutting from, 4000 GENISTAS, 500 MYRTLES, 200 EPIPHYLLUMS, 500 GREVILLEA ROBUSTA, 1000 Double White PRIMULAS, including Gilbert's splendid new varieties; several thousands of small ERICAS, GENISTAS, &c., for growing on, and large quantities of DRACÆNAS, CROTONS, FERNS, BEGONIAS, GARDENIAS, AMPELOPSIS VEITCHII, CLEMATIS, &c., suitable for the Trade, and other extensive buyers.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B. The whole stock is in first-rate condition, the Ericas being especially well set for flowers.

Wood Green, N.
SECOND ANNUAL TRADE SALE of unusually well grown Stock.—Important to Nurserymen, Florists, and others requiring well furnished Plants for Immediate Decoration.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Lordship Nursery, Lordship Lane, Wood Green, N., near the Green Lanes and Wood Green Stations, on FRIDAY, September 21, at 12 o'Clock precisely, by order of Mr. J. W. Hurst, 15,000 DECORATIVE FOLIAGE PLANTS, in 48 and 32-pots, including 2000 Palms, consisting of Latania borbonica, Seaforthia elegans, Corypha australis, Phœnix reclinata, and others; 1600 Dracænas, including a splendid lot of the true rubra variety; 10,000 choice Ferns, including 1200 Lomaria gibba, 1500 Lastræa aristata variegata, 1000 Pteris serrulata, 750 Pteris (Dicksonia variety), 5000 Adiantum cuneatum—fine plants, principally in 48-pots, 300 Dicksonia antarctica, 600 Phlebodium aureum; large Ficus, Stephanotis, Camellias, Crotons, and other Stock, the whole of which is remarkably well grown, and an inspection is invited.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C., and 8, New Broad Street, E.C.

Lælia elegans.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY, September 28, a wonderful lot of LÆLIA ELEGANS, in masses of unprecedented size and condition. Fuller particulars will appear next week.

Friday Next.—Rare and Fine Orchids.
MASDEVALLIA CHESTERTONI.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, at half-past 12 o'Clock precisely, a fine lot of MASDEVALLIA CHESTERTONI, a new and extraordinary species of the chimæra section; also a superb lot of VANDA GIGANTEA, ODONTOGLOSSUM YELLEUM, a splendid lot of O. POLYXANTHUM, the very lovely MASDEVALLIA LUDIBUNDA, M. CHIMÆRA, the true species; ONCIDIUM AUROSUM, a grand lot of VANDA HOOKERI, CATTLEYAS, and ODONTOGLOSSUMS.

On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Foots' Cray, Kent.
By Order of the Executrix of the late Mr. R. Sim.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, the Sidcup Hill Nursery, Foots' Cray, 1 mile from Sidcup Station, on TUESDAY, September 25, at 12 o'Clock precisely, without reserve, the first portion of the renowned COLLECTION of FERNS, forming probably one of the finest assortments in the Trade, comprising 7000 Hardy British Ferns, 1000 Hardy Exotic Ferns, some fine specimen DICKSONIAS, CYATHEAS, CIBOTIUMS, &c.; FILMY FERNS in variety; 3000 Standard and Half-standard ROSES of all the best varieties in cultivation, with straight stems and well furnished heads, and OTHER STOCK.

May now be viewed. Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B. The Old Established NURSERY BUSINESS is for DISPOSAL, on easy terms, and the Auctioneers will be pleased to furnish particulars on application.

Harrow Road, W.
ANNUAL UNRESERVED SALE of WINTER and SPRING BLOOMING PLANTS, PALMS, FERNS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Woodroffe & Son to SELL by AUCTION, on the Premises, The Westbourne Nursery, Harrow Road, W., about five minutes' walk from Westbourne Park Station, on WEDNESDAY, September 26, at 12 o'Clock precisely, several thousands of STOVE and GREENHOUSE PLANTS, including 4000 Genistas, 1500 red and white Bouvardias, 2000 double Primulas, 500 Cyclamen persicum, 1000 Aloysias, 1000 Hydrangeas, 1000 early flowering Chrysanthemums, 1000 Poinsettias, Azaleas well set with bloom, Adiantum cuneatum and other Ferns, Palms, Ficus, Dracæna congesta, D. rubra, extra large Epiphyllums, Eucharis amazonica, extra strong, in 14-inch pans, and other Stock.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Eaton Nurseries, near Norwich.
GREAT UNRESERVED CLEARANCE SALE of beautifully grown NURSERY STOCK, by order of Messrs. Ewing & Co., who are giving up their Nurseries.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, the Old Established Nurseries at Eaton, near Norwich, on WEDNESDAY and THURSDAY, September 26 and 27, at 12 o'Clock precisely each day, the second portion of the VALUABLE NURSERY STOCK, comprising the plants in pots, consisting of about 10,000 Roses in pots of such sorts as Maréchal Niel, Niphetos, Gloire de Dijon, and other best varieties of Teas and Noisettes; 5000 Clematis in great variety, of the newest and best kinds; 5000 variegated and green-leaved Ivies; Ampelopsis Veitchii, and other hardy Climbers in pots in smooth variety; also about 5000 choice young Evergreens and Flowering Shrubs, many of them new and rare; and large quantities of Japanese Evergreens, Aucuba japonica, &c.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, London, E.C.

N.B.—A GREAT SALE of FRUIT and ORNAMENTAL TREES and SHRUBS to be held on NOVEMBER 6 and 9, particulars of which will appear in due course.

Lower Streatham, S.W.—Clearance Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Norbury Nurseries, Lower Streatham, S.W., on THURSDAY, September 27, at 12 o'Clock precisely, by order of Messrs. Peed & Sons, without reserve (in consequence of possession of the ground being immediately required, the premises being let to an incoming tenant), the entire collection of specimen exhibition STOVE and GREENHOUSE PLANTS, which have taken numerous prizes at all the principal metropolitan and other shows, including three matchless specimens of Anthurium Scherzerianum (Veitch's variety), Allamanda grandiflora, Aphelexis macrantha rosea (Chilman's variety), specimen and half-specimen Ericas, amongst which will be found fine plants of E. Massoni major, E. tubæformis, and others; magnificent examples of Azalea indica, &c.; together with an Exhibition Plant VAN, covered spring YAN, several 2 and 3-light BOXES, Glazed SASHES, MOWING MACHINES, ROLLER, and numerous effects.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, E.C., and 8, New Broad Street, E.C.

N.B.—The whole of the OUTDOOR NURSERY STOCK will be SOLD by AUCTION in OCTOBER NEXT, due notice of which will be given.

Richmond, S.W.—Expiration of Lease.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Herbst (who has received notice from the Crown Commissioners to give up the land) to SELL by AUCTION, on the Premises, The Nursery, Kew Road, Richmond, S.W., on FRIDAY, September 28, at 12 o'Clock precisely, the whole of the NURSERY STOCK growing upon that portion of the land, comprising finely furnished specimen Coniferæ for effective planting; Cupressus Lawsoni lutea in quantity; thousands of Lilacs for forcing; Hollies, thousands of small Coniferæ, Euonymus and Ivies for potting; Hardy Ferns, and a variety of Greenhouse Plants; 40 Double White Camellias from 5 to 7 feet, and other Stock.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C., and 8, New Broad Street, E.C.

The Nursery, Abbey Wood, Kent.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Havelock to SELL by AUCTION, on the Premises as above, on WEDNESDAY, October 3, a large assortment of well-grown NURSERY STOCK.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 8, New Broad Street, E.C., and 67 and 68, Cheapside, E.C.

Upper Tooting Park, Balham, S.W.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. C. Young (who is relinquishing the business owing to ill-health) to SELL by AUCTION, on the Premises, The Nursery, Upper Tooting Park, S.W., about ten minutes' walk from Balham Station, on TUESDAY, October 2, at 12 o'Clock precisely, without reserve, a large quantity of remarkably well grown NURSERY STOCK in excellent condition for removal, consisting of thousands of Ornamental Trees, Evergreens, and Coniferæ, Fruit Trees, and a variety of Stove and Greenhouse Plants, Palms, Ferns, Azaleas, Camellias and other stock. May now be viewed.

Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B.—The LEASE of the OLD ESTABLISHED NURSERY is for DISPOSAL on moderate terms. Particulars of the Auctioneers as above.

Richmond, S.W.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. G. & W. Steell to SELL by AUCTION, on the Premises, the Nursery, Richmond, S.W., on WEDNESDAY and THURSDAY, October 3 and 4, a large quantity of unusually well-grown NURSERY STOCK, in excellent condition for removal.

Full particulars will be duly advertised.

Catalogues (when ready) may be had of the Auctioneers.

Brixton, S.W.
TWO DAYS' SALE of WELL GROWN NURSERY STOCK, all recently transplanted, and in fine condition.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Nursery, Loughborough Park, Brixton, S.W., on FRIDAY and SATURDAY, October 5 and 6, at 12 o'Clock precisely each day, by order of Messrs. Ponsford & Son, a large quantity of well grown NURSERY STOCK, comprising 1500 Aucubas, 2500 Laurels of sorts, 1500 Cupressus, &c.; 2500 Box, 3000 oval and Box-leaf Privet, 5000 Variegated and Green Euonymus, 1500 Flowering Shrubs, 700 handsome Standard Planes, Limes, Poplars, and other Ornamental and Forest Trees; Hardy Climbers, 1500 Green and Variegated Ivies, 500 Ampelopsis Veitchii, Fruit Trees, 1000 fine Standard Mulberries; also a variety of Stove and Greenhouse Plants, 5000 Ferns, 2000 Azaleas, Camellias and Bouvardias, 1000 Summer and Autumn Flowering Chrysanthemums, and other Stock.

May now be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Weybridge, Surrey.
HIGHLY IMPORTANT CLEARANCE SALE of about 6 Acres of unusually well-grown NURSERY STOCK, without Reserve, the Land being required for Building Purposes. In Lots to suit the Trade and other extensive Buyers.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. H. Chapman to SELL by AUCTION, on the Premises, the Oatlands Park Nursery, Weybridge, Surrey, on TUESDAY, October 9, and following days, about 6 Acres of beautifully-grown NURSERY STOCK, including a fine assortment of young and thriving Coniferæ, varying in size from 1 to 5 feet; thousands of Hollies; 8000 Laurels, 9000 Portugal Laurels, 16,000 Pouticum and other Rhododendrons, 7000 Aucubas, and other Stock.

Full particulars of which will appear next week. Catalogues may be had, when ready, of the Auctioneers, 67 and 68, Cheapside, E.C.; and 8, New Broad Street, E.C.

Ealing, W.—Preliminary Notice.
GREAT UNRESERVED CLEARANCE SALE.
Important to Noblemen, Gentlemen, Nurserymen, and Others largely engaged in Planting.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Charles Lee & Son to SELL by AUCTION, on the Premises, The Ealing Nursery, Ealing, W., several Acres of exceptionally well-grown NURSERY STOCK, in young and thriving condition; Thousands of Fruit Trees, &c.

Catalogues will be published in due course, and may be had at the Auctioneers' Offices, as above.

Forthcoming Sales by
MESSRS. PROTHEROE AND MORRIS,
in addition to these—

TUESDAY, SEPTEMBER 25.—At the Swan Inn, Stratford, Sale of eighty-five plots of FREEHOLD BUILDING LAND, situate at Leytonstone.

TUESDAY, OCTOBER 2.—Sale of CARRIAGE HORSES, &c., at Mr. Wright's, The Forest, Snaresbrook.

WEDNESDAY, OCTOBER 10.—Sale of FREEHOLD PROPERTIES, situate at Stratford, at the Auction Mart, London, by order of the Executors of the late Sir Antonio Brady.

THURSDAY, OCTOBER 11.—Sale of ORCHIDS and GREENHOUSE PLANTS, at Mr. James' Nursery, Norwood.

TUESDAY, OCTOBER 16.—Sale of NURSERY STOCK, at Biggs' Nursery, Lewisham.

Auction and Estate Offices, 67 and 68, Cheapside, E.C., and 8, New Broad Street, E.C.

Dutch Flower Roots, every Monday, Wednesday and SATURDAY.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely, a large consignment of first-class DOUBLE and SINGLE HYACINTHS, in all colours; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, Early ROMAN HYACINTHS, and other BULBS, just received from well known farms in Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale, and Catalogues had.

Wednesday Next.
NEW AERIDES.

MR. J. C. STEVENS has received instructions from Mr. F. Sander, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, September 19, a fine specimen of a new AERIDES in flower. The plant was brought home about two years ago by the Collector, and is the only one received. The Collector found it in flower, and took special care of the plant. It has 8 or 9 growths, is entire, the broadest leaves are 2 inches across, the plant is in vigorous health. The flowers seem to partake of A. Leoni and odoratum, having the fine scent of the latter; they are 1½ inch long, and very nearly as broad, centre has a broad purple blotch, and the ends of sepals and petals are of the same colour. The spike is above 2 feet over, and has some thirty flowers.

On view morning of Sale, and Catalogues had.

Wednesday Next.
VALUABLE SEMI-ESTABLISHED and IMPORTED ORCHIDS.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, September 19, at half-past 12 o'Clock precisely, a fine lot of valuable Established, Semi-established, and Imported ORCHIDS.

On view morning of Sale, and Catalogues had.

Thursday Next.
PHALÆNOPSIS ROSEA.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, September 20, twenty fine plants of PHALÆNOPSIS ROSEA, some in flower, and others showing for bloom, all well-established in Teak-wood Baskets.

On view morning of Sale, and Catalogues had.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, September 20, at half-past 12 o'Clock precisely, the small but CHOICE COLLECTION of ESTABLISHED CATTLEYAS, &c., formed by Edward Salt, Esq., of Ferniehurst, Shipley, near Leeds, who is disposing of all his Orchids which require other than cool treatment. The Cattleyas, many of which have been bought in flower, comprise some almost matchless varieties. They include many specimen plants, have been grown with little or no shade, are in the most perfect condition, and well set with flower-sheaths. Three magnificent specimens of ANTHURIUM ANDREANUM will be included, one of which is believed to be the largest plant in the country if not in Europe, and very floriferous. The sale will include all the Cattleyas of the collection, none being reserved.

On view morning of Sale, and Catalogues had.

Blenheim Palace Gardens, Oxon.

In consequence of re-arrangements about being made in the above Gardens,

MESSRS. J. AND W. SCROGGS will SELL by AUCTION, on TUESDAY, September 18 (the same day as the Woodstock Agricultural Show), at 11 for 12 o'Clock, SELECTED PLANTS. The Catalogue will include drafts from the Stove and Intermediate Houses at Blenheim Gardens, and will comprise several large and well-grown specimens of Clerodendron Balfourianum, Allamanda Hendersoni, Anthurium crystallinum, Cycas revoluta, Medinilla magnifica, Stephanotis floribunda, Adiantum Farleyense, Croton Johannis, Davallia Mooreana, and Cissus discolor.

The plants will be on view the day previous to sale, by ticket only. Catalogues and orders to view may be had at the Estates Office, Blenheim Palace, of Mr. CLARK, Head Gardener, and of J. AND W. SCROGGS, Auctioneers, Kidlington, Oxon.

N.B. In consequence of the absence of the Family on September 18, notice is hereby given that the Palace and Gardens will be open to the Public for that day only.

Oxford.
To NURSERYMEN, FLORISTS, GARDENERS, CAPITALISTS, and OTHERS.

All that valuable piece of FREEHOLD NURSERY GROUND, situate in Marston Street, Cowley Road, together with a good DWELLING HOUSE thereon, containing two Sitting-rooms, Kitchen, and other Offices on the Ground Floor; two Bed-rooms and W.C. on the First Floor, and two Bed rooms on the Second Floor; also two Stables, Coach-house (with Loft over), five large GREENHOUSES (containing about 4000 square feet of Glass), fitted with Hot-water Apparatus; Brick-built Pits, Frames, conveniently arranged Potting Shed, and large Garden stocked with Fruit Trees in full bearing, the whole covering an area of about 1 Acre. Gas and Water laid on to the Premises.

MR. WALTER GRAY will SELL the above by AUCTION, at the Roebuck Hotel, Oxford, on WEDNESDAY, September 19, at 6 for 7 o'Clock in the evening.

This desirable Freehold Estate is admirably adapted for carrying on the business of a Florist, a good remunerative trade having been conducted on the Premises for a period of 25 years, and forms a rare opportunity for any one desirous of entering upon such an enterprise, or may be laid out in Building Lots, for the erection of small Villas, or good Cottages, for which it is well suited. The Property is subject to a small Tithe-Rent of about 6s. per annum, and the Land Tax has been redeemed.

The Purchaser will have the option of taking to the Stock-in-Trade at a valuation.

The Fruit Trees will be sold with the Land.

Tram Cars pass within half-a-minute's walk of the Nursery Gate, at the Cowley Road end of Marston Street, and there is also a carriage entrance from Iffley Road.

A Plan of the Land may be seen at the Offices of the Auctioneer. The site will be pointed out on application to Mr. Thomas Robinson, the occupier, and possession will be given upon completion of the purchase.

Should the Property not be Sold in One Lot it will be offered in Two Lots, as staked out and marked on the Plan.

Further particulars may be obtained of G. D. D. DUDLEY, Esq., Solicitor, Cornmarket Street; of Mr. T. F. HAWKINS, St. Giles' Street; or of the Auctioneer, 30, New Inn Hall Street, Oxford.

Manor Park, Little Ilford, Essex.
To NURSERYMEN, MARKET GARDENERS, BUILDERS and OTHERS.
VALUABLE FREEHOLD BUILDING or MARKET GARDEN LAND.

MR. W. H. COLLIER is instructed by the British Land Company (Limited) to OFFER by AUCTION, at the "Princess Alice," Romford Road (near Forest Gate Station), on MONDAY, September 24, at 6 for 7 o'Clock in the evening. Six Lots, of about 2 acres each, of valuable MARKET GARDEN LAND, having important building frontages of about 240 feet each to the main Ilford Road, opposite the "Rabbits' Tavern," and several Lots of eligible FREEHOLD BUILDING LAND, having frontages to the new road leading from the Ilford Road to Little Ilford, situate close to Manor Park Station, on the Great Eastern Railway, and near Wanstead Flats. The property will be sold free from Tithe and Land Tax. Nine-tenths of the purchase money may remain on mortgage or contract at 5 per cent. interest, to be paid in nine years by equal half-yearly instalments, but the whole or any part of the balance may be paid off at any time, without notice. Free Conveyance will be given on the Vendor's Title being accepted, without further investigation.

Particulars, Plans, and Conditions of Sale may be obtained about ten days before the Sale, at the "Rabbits' Inn," Ilford Road; of Messrs. R. & A. RUSSELL, Solicitors, 59, Coleman Street, London, E.C.; of the Auctioneer, at the Offices of the British Land Company (Limited), 25, Moorgate Street, E.C.; and at the place of Sale.

The Cottage, Topsham Road, Exeter.

IMPORTANT SALE of VALUABLE EXHIBITION STOVE and GREENHOUSE PLANTS, which have taken the leading Prizes in various parts of England.

MR. S. R. FORCE has received instructions from James Lawless, Esq., to SELL his valuable collection of EXHIBITION STOVE and GREENHOUSE PLANTS, by AUCTION, on THURSDAY, September 20, at 12 o'Clock—in consequence of the continued illness of his gardener, George Coles—comprising elegant Palms, Crotons, Ixoras, Allamandas, Dipladenias, Ericas, Clerodendrons, Stephanotis, Bougainvilleas, Anthuriums, Ferns, Alocasias, Nepenthes, Rondeletias, Gleichenias, &c.

On view WEDNESDAY, September 19, from 10 to 4 o'Clock, and on the morning of Sale, from 10 to 12 o'Clock, by Catalogues only, to be had of the Auctioneer, 15, Sidwell Street, Exeter.

Sander's Lane Nurseries, Woking.
Three miles from Woking Station, and 1 mile from Worplesdon, L. & S. W. Railway.
TWO DAYS' NURSERY SALE.

MR. H. W. COPUS has been honoured with instructions from Mrs. Chapman (who is giving up the Trade) and from Messrs. T. Holdforth & Sons, to SELL by AUCTION, on MONDAY and TUESDAY, September 24 and 25, a large assortment of EVERGREEN SHRUBS, 5000 Berberis Darwinii, 2000 Cotoneaster microphylla, Cedrus Deodara, 5 to 7 feet; 5000 Thuia Lobbii, 2000 Cupressus Lawsoniana, Colchica and common Laurel, Pinus austriaca, Retinospora plumosa argentea and aurea, Green and Variegated Hollies, Ribes sanguineum, American Arbor-vitæ, Abies Douglasii, Acer Negundo, 10,000 Dwarf ROSES, best named sorts; Oval-leaved PRIVET, 5000 LABURNUM, 2 to 8 feet; 2000 HONEYSUCKLES of sorts; 2000 ASH and OAK, transplanted; White and Yellow BROOM, POPLAR of sorts, LARCH and Scotch FIR, HYACINTHUS CANDICANS, VINCA ELEGANTISSIMA and MAJOR, VIRGINIAN CREEPER, Irish IVIES, ASPARAGUS, SEAKALE, and 5000 Standard and half-Standard ROSES, best leading sorts; together with FILBERTS, FRUIT TREES, &c.; useful HORSE, HARNESS, VAN and TILT; Two small Ricks of Meadow HAY, small GREENHOUSE, complete; WINNOWING MACHINE, CHAFF CUTTER, &c.

A Conveyance will meet trains arriving at Woking Station at 10.50 down, 10.41 up, Portsmouth line; 11.9 Southampton, to take up Purchasers.

Sale to commence at 12 o'Clock precisely each day.

Catalogues in due course (post-free) of the Auctioneer, 16, Friary Street, Guildford, and on the Premises.

To Capitalists.

WANTED, £300 to £500, by a Florist, to be Expended in the Erection of additional Houses, to meet a rapidly increasing business. £10 per cent. Interest will be paid and the Principal (which will be partly secured) repaid by instalments.

Apply, FLORIST, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Brighton—(No. 15 932.)

TO BE SOLD, the Goodwill of a thoroughly genuine SEED and FLORIST'S BUSINESS in one of the busiest thoroughfares of the Town. Immediate possession can be arranged.

Full particulars of Messrs. PROTHEROE AND MORRIS, Auctioneers, 8, New Broad Street, E.C. Personally inspected and recommended.

To Nurserymen and Florists.

AN OLD-ESTABLISHED COUNTRY BUSINESS, with good connection, to be DISPOSED OF, with IMMEDIATE POSSESSION. The Premises comprise a comfortable small Residence, with Shop and six well-stocked Stove and Greenhouses (*all freehold.*) Small Nursery Ground opposite, with two Span-roofed Houses, held at very low rental.

Terms of Entry:—Stock-in-Trade and Houses at valuation. Goodwill £100. Freehold may be purchased, half the money remain on mortgages at 5 per cent., if required.

Particulars of Messrs. CATLING AND MANN, Auctioneers, &c., Cambridge.

Seed Business, Liverpool.

TO BE SOLD, an old-established SEED TRADE (23 years), in one of the best and most central streets in the City (or a PARTNERSHIP can be arranged). Shop beautifully fitted up with modern Drawers, Glass Cases, and every convenience for the Trade. Rent low. The Store-rooms suitable for a Dwelling-house. Splendid opening for an energetic man, who understands the Trade, with limited capital. Trade—Farm, Vegetable, Flower, and Bird Seed, Dutch Flower Roots, Garden Tools, Garden Requisites, Everlasting Flowers and Wreaths. The Nursery, Flower, and Fruit Trades might be combined with great advantage. Stock and Fixtures, if taken at once, about £200, or valuation. Half payment can stand over.

Address, B. L. PIERPOINT, 50, Great Charlotte Street, Liverpool.

FOR SALE, Lease of an Old-established NURSERY and JOBBING BUSINESS, situate North of London. About 13,000 feet of Glass, well Heated with Hot Water. Stock at valuation or otherwise. Good 6-roomed House on Premises. Satisfactory reason given for selling.

For particulars apply, by letter only, to Mr. W. SHRIMPTON, Jeweller, &c., Hazelville Road, Upper Holloway, London, N.

KINGSWOOD NURSERY, Vulcan Road, Brockley, S.E.—The above, situated in a splendid locality, twenty minutes from London Bridge, is still FOR DISPOSAL. There is a considerable amount of Glass and Land, also a good Dwelling house. Well suited to a man who can devote the whole of his time, or to a City Seedsman, &c. The late proprietor gone abroad; the person who took it over (having other business) cannot devote sufficient time to it. Rent about £33. Incoming £155. Immediate possession.—Apply to H. H., 11, Harcourt Road, Brockley, S.E.

To Gardeners and Others.

TO LET, a small JOBBING GARDENING BUSINESS, together with a compact Lodging-house, in a fashionable suburb near town. A Lawn-tennis ground. Rent only £43. Income £150 to £200 clear, part or whole of furniture at a reduction.

For particulars apply to G. M. F., The Harrow, Wateringbury, Kent.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

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

Strawberries.

PAUL AND SON have now strong Plants, both in small pots and transplanted; Runners of all the best kinds of these fruits, now a specialty of the many. LIST on application.

The "Old Nurseries, Cheshunt.

DUTCH BULBS.

DIRECT FROM THE GROWERS.

ANT. ROOZEN AND SON, NURSERYMEN, Overveen, near Haarlem, Holland.

Before ordering Dutch Bulbs, read ANT. ROOZEN & SON'S CATALOGUE for 1883, which their Agents, Messrs. MERTENS AND CO., 5, Billiter Square, London, E.C., will forward Post-free on application.

HERBACEOUS and ALPINE PLANTS.

CATALOGUE, of fifty pages, containing full information as to colour, height, situation, time of flowering, &c., free on application.

A CAPITAL COLLECTION for Rocks, Stumps, and Borders, from 25s. per 100, or 4s. per dozen.

Most of the plants being in pots may be despatched at any time, or by Parcels Post when fit.

RICHARD SMITH & CO.,
NURSERYMEN AND SEED MERCHANTS,
WORCESTER.

TO THE TRADE.

FRUIT TREES, ROSES and VINES.

DWARF MAIDEN PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, APPLES, PEARS.

DWARF-TRAINED PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES.

STANDARD, HALF-STANDARD, and DWARF ROSES, also ROSES in pots.

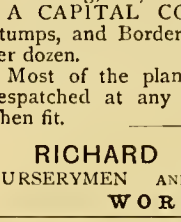
GRAPE VINES for Forcing and Planting.

DEUTZIA GRACILIS, fine, for Potting for Forcing.

HUGH LOW & CO. have to offer the above in quantity, clean and healthy, growing at Bush Hill Park Nursery, Enfield, ten minutes' walk from the Bush Hill Park Station, Great Eastern Railway. Inspection invited.

CLAPTON NURSERY, LONDON, E.

Old Established.



Dutch Flower Roots,
SUPERB QUALITY.
The Pick of Holland.
Prices very moderate.
Free Deliveries.
WRITE FOR CATALOGUE
(Illustrated).

Reliable always. *Address in full*—
F. & A. DICKSON & SONS,
The Queen's Seedsmen,
CHESTER.

THE HOME FOR FLOWERS

Is now, perhaps, more interesting, and more information to be gained by a visit than to any similar establishment in Europe. The whole family of DAHLIAS (2 Acres) is now a grand sight—Semi-doubles and the Singles in particular, and which comprises the entire collections of Messrs. Cullingford, Moore, Teesdale, and E. J. Lowe. Choicest Seedlings, some of which will be found to possess beauty and usefulness much beyond anything anticipated. We invite all to see and discuss their many points of excellence.

H. CANNELL & SONS,
SWANLEY, KENT.

CARNATION, "MARY MORRIS."
Plants ready for delivery in October.
First-class Certificate was awarded at Kensington, Aug. 22, 1882. A beautiful Rose-coloured Self, very highly scented, of great size, very full, and of perfect shape; does not burst the calyx, a very free bloomer and vigorous grower, and perfectly hardy. See *Gardeners' Chronicle*, August 4, 1883, page 146. Price and all particulars on application to
H. G. SMYTH, 21, Goldsmith Street, Drury Lane, W.C.

To all Lovers of Flowers.
VIOLETS — VIOLETS. — Now is the time to transplant these sweetest and most beautiful winter flowers. Large clumps full of flower-buds. Will flower until April next, in cold frames or sheltered situations. Marie Louise, Double Neapolitan, Victoria Regina, and ten other best varieties, single and double, 6*s.* per dozen, 40*s.* per 100. Sample dozen per parcels post, 6*s.* 6*d.*
FRED. PERKINS, Nurseryman, 37, Regent Street, Leamington.

HUGH LOW AND CO. have pleasure in informing their friends and the Public that their stock of WINTER and SPRING FLOWERING PLANTS at Clapton Nursery and Bush Hill Park Nursery, Enfield, is this season unusually extensive and fine in quality, and well worth the notice of intending purchasers, who are very cordially invited to an inspection of the plants, which comprise amongst other things:—
Many thousands of ERICA HYEMALIS, of various sizes.
Many thousands of ERICA MELANTHERA.
Many thousands of ERICA GRACILIS, of various sizes.
Many thousands of ERICA VENTRICOSA COCCINEA MINOR, and other choice varieties of ventricosa.
Many thousands of ERICAS of the best varieties, including candidissima, colorans, cerinthoides coronata, caffra, Cavendishi, barbata major, grandinosa, hyemalis superba, perspicua nana, perspicua erecta, persoluta alba, assurgens, mammosa, &c.
Many thousands of HARD-WOODED ERICAS, in numerous fine varieties, a large number of which are extra sized.
Many thousands of CYCLAMENS.
Many thousands of GARDENIAS, intermedia and radicans.
Many thousands of GENISTAS.
Many thousands of EPACRIS.
Many thousands of AZALEA INDICA in variety, of various sizes.
Many thousands of AZALEA INDICA, Fielder's White, narcissiflora, and other white-flowering varieties.
Many thousands of AZALEA AMŒNA, and amœna Caldwelli.
Many thousands of CAMELLIAS, with flower-buds, various sizes.
Many thousands of GREVILLEA ROBUSTA.
Many thousands of SOLANUMS, well berried.
Many thousands of BOUVARDIAS, Red, White, and Pink.
Many thousands of LATANIA BORBONICA, various sizes.
Many thousands of PTYCHOSPERMA ALEXANDRÆ.
Many thousands of CORYPHA AUSTRALIS.
Many thousands of DRACÆNAS, in variety.
Many thousands of EUCHARIS CANDIDA.
Many thousands of CLIMBERS, Stove and Greenhouse.
Many thousands of TREE CARNATIONS.
Many thousands of the best GREENHOUSE PLANTS, such as Aphelexis, Acacias in variey, Acacia armata, Boronias, Chorozemas, Correas, Daphnes, Eriostemons, Genetyllis, Grevilleas in variety, Leschenaultias, Tremandras, Pimeleas, double white Chinese Primulas, &c.
JASMINUM GRANDIFLORUM, large winter flowering CATALONIAN JASMINE, can be offered by the 100.
GREENHOUSE RHODODENDRONS in variety, including Princess Royal and Princess Alexandra, which can be offered by the 100.
Many thousands of PELARGONIUMS, choice Show, French and Decorative varieties in 48-pots; also small plants to pot on, by the 100 or 1000
Also on hand a very large stock of ORNAMENTAL FOLIAGE and DECORATIVE PLANTS, PALMS, ASPIDISTRA VARIEGATA, BEGONIAS, FICUS ELASTICA, ARALIA VEITCHII, and others, CROTONS, PANDANUS, &c. Suitable for Table Decoration.
OTAHEITE ORANGES, in fruit; LAURUSTINUS, on stems, fine white variety, full of buds.
AMPELOPSIS SEMPERVIRENS (Cissus striatus), new evergreen Virginian Creeper.
FERNS in immense numbers. Many of the leading kinds can be supplied by the hundred, such as Adiantum cuneatum, Adiantum decorum, Adiantum gracillimum, Lomaria gibba.
Clapton Nursery, London, E.

THE HOME FOR FLOWERS.

All fond of Flowers will find ours the MOST COMPLETE CATALOGUE of all floral requirements during the autumn and winter, which has been posted to our valued Customers, and we should also be pleased to send a copy to those whom we have not yet had the pleasure of doing business with. It will be found both useful and interesting, and supplying a want so much needed in every Garden. Our Stock is the finest we ever had, and comprises nearly everything for the supply and production of the Choicest Flowers in every private home all the year round, and supplied at the very lowest price consistent with quality and correctness, and packed to all parts of the world. New and old SOFT-WOODED PLANTS, ROSES, BULBS, HERBACEOUS PERENNIAL PLANTS, WINTER-BLOOMING PLANTS, DAHLIAS, CHRYSANTHEMUMS, CARNATIONS, and PICOTEES, with the best varieties of all sections of Popular Flowers, &c.

H. CANNELL & SONS,
SWANLEY, KENT.

TO THE TRADE ONLY.

SPECIAL CASH OFFER OF OVER
20,000 PALMS,
including Kentias, Arecas, Seaforthias, Latanias, Geonomas, Corypha, Phœnix, Cocos Weddelliana, Caryotas, &c.; FERNS, in 48's and 60's; ARUM LILIES, for flowering this season; PANDANUS, CROTONS, FICUS, JASMINUM GRACILLIMUM (new), STEPHANOTIS, and various CLIMBING PLANTS; Tuberous and Foliage BEGONIAS, Tree CARNATIONS, and many other useful plants.
Price Lists free on application.
AN INSPECTION IS INVITED.

W. M. CROWE,
BOLEYN NURSERY, UPTON, ESSEX.
The Nursery is about Five Minutes' Walk from Upton Park Station (London, Tilbury, and Southend Railway), and Ten Minutes' from Forest Gate Station (Great Eastern Railway).

BULBOUS FLOWER ROOTS
A VERY EXTENSIVE & VERY SUPERIOR STOCK
EMBRACING
HYACINTHS LILIES CROCUS TULIPS &C
IN MOST CASES
FREE BY POST OR RAIL
PRICE CATALOGUE POST FREE
JAMES DICKSON & SONS
"NEWTON" NURSERIES 108 EASTGATE ST. CHESTER

Hooper's—
The Covent Garden Seed Warehouse
Send Four Stamps for New Catalogue of BULBS, Richly illustrated in colours, correctly after Nature.
The Fourpence will be returned in the first purchase.

GARDEN REQUISITES.
COCOA-NUT FIBRE REFUSE.
4*d.* per bushel: 100 for 25*s.*; truck (loose, about 2 tons), 40*s.*; 4-bushel bags, 4*d.* each.
LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s*; sacks, 4*d.* each.
BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks 22*s.*; sacks, 4*d.* each.
COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* per half ton, 26*s* per ton; in 2 bushel bags, 4*d.* each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1*s.* per bushel.
SPHAGNUM MOSS, 8*s.* 6*d.* per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Free Price LIST.—H. G. SMYTH, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

GARDEN REQUISITES.
PEAT, LOAM, SILVER SAND,
COCOA-NUT FIBRE REFUSE, TOBACCO CLOTH, PAPER and ROPE, &c.
Superior quality, at exceptionally low prices.
PEAT, best Black Fibrous, from 4*s.* 6*d.* per sack.
PEAT, best Brown Fibrous, from 5*s.* per sack.
PEAT, specially selected for Orchids, from 6*s.* per sack.
LOAM, Yellow Fibrous, 1*s.* per bushel.
LEAF MOULD, best, 1*s.* per bushel.
PEAT MOULD, 1*s.* per bushel.
SILVER SAND, Coarse, 1*s.* 6*d.* per bushel.
RAFFIA FIBRE, best, 9*d.* per pound.
TOBACCO PAPER, CLOTH, and ROPE, from 6*d.* per pound.
COCOA-NUT FIBRE REFUSE, 1*s.* 3*d.* per bag; per truck load of about 2 tons, 30*s.*
SPHAGNUM MOSS, 4*s.* 6*d.* per bag.
VIRGIN CORK, 18*s.* per cwt.
The Trade supplied on Wholesale terms.
W. WEBBER, 34, Glengarry Road, East Dulwich, S.E.

COCOA NUT FIBRE REFUSE, newly made, as supplied to the Royal Horticultural Society and principal Nurserymen in England, in sacks at 1*s.* 3*d.* each, or 15 sacks, 18*s.*; 30 sacks, £1 5*s.*, sacks included. Truck-load, loose, 33*s.*; fifteen bags or more and truck-load free on to rail. Post-office order or cheque with all orders will oblige. Established 1872—J. STEVENS AND CO., "Greyhound" Yard, and 132, High Street, Battersea, S.W.

PEAT, for Rhododendrons, &c., of excellent quality, also the finest Yellow Fibrous LOAM, Light or Close, from rich forest pasture land, in trucks of 4 tons, 48*s.* each. Selected PEAT, 3*s.* per sack. SILVER SAND and LEAF MOULD, 8*d.* per bushel. Sacks, 6*d.* each. Remittance with order. B. LAMBERT, Ringwood.

WASPS.—"The box of 'Myocom Fly Gum' you sent me some three weeks since has exceeded my most sanguine expectations. Hundreds of wasps have been caught, and saved my crop of Grapes." *Extract from letter from* Mr. FREESTON, *Gardener at Brookfield House, Upper Tooting, dated September* 12, 1883, *addressed to*
THOS. CHRISTY AND CO., 155, Fenchurch Street, E.C., Sole Proprietors of Myocom Fly Gum. In Tins, 1*s.* each, by Post 1*s.* 2*d.* Of all Chemists.

A SPECIALITY.
BEESON'S ROSE, VINE, and PLANT MANURE,
To be had of all Nurserymen, Seedsmen, and Florists.
For all particulars please apply to
W. H. BEESON, Carbrook Bone Mills, SHEFFIELD.

SILVER MEDAL-1881. BRONZE MEDAL-1881.
To Her Most Gracious Majesty Queen Victoria. To His Royal Highness the Prince of Wales.
For Beautiful Flowers and Fruits
USE CHUBB, ROUND AND CO.'S PATENT
COCOA-NUT FIBRE REFUSE
By CHUBB'S PATENT PROCESS,
As supplied to all the Royal Gardens and Principal Nurseries of Europe.
GUARANTEED ABSOLUTELY PURE. FREE FROM ANY FOREIGN INTERMIXTURE. Manufactured on the premises from the famous "Laguna" Cocoa-Nut Husks, and can only be obtained from us direct. This article is not to be confused with so-called Cocoa-Nut Fibre Refuse, sold by dealers and others at ridiculously low prices, and dear in the end. Amongst numerous Testimonials and extracts from scientific writers, to be seen at our works, we hold the following:—From Mr. CHARLES PENNY, Head Gardener to H.R.H. the Prince of Wales: "The Gardens, Sandringham, February 28, 1883.—I must say your Cocoa-Nut Fibre Refuse is far superior to any I have ever tried; in fact, it is simply perfection; and the use of your Fibre for so many purposes in Horticulture is a thorough boon. Make what use you like of this letter." Useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bulbs, Mushrooms, Bedding-out Plants, &c.
DESTROYS ALL SLUGS AND INSECTS.
An elegant Bordering to Flower Beds. Combines warmth and cleanliness with valuable antiseptic and deodorising properties.
MOISTENS IN HEAT. HOLDS HEAT IN COLD WEATHER.
Terms, strictly cash with order. Prices as follows:—Sacks, 1*s.* 6*d.* each; 10 sacks, 13*s*; 15 sacks, 18*s.*; 20 sacks, 23*s.*; 30 sacks, 30*s.* (all sacks included). Truck-load, free on rail, £2. Limited quantities of P. M. SPECIAL QUALITY, Granulated, in sacks only, 2*s.* 6*d.* each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from the Manufacturers, CHUBB, ROUND & CO.,
Fibre Works, West Ferry Road, Millwall, London, E.

EUREKA!!! INSECTICIDE, prepared by WILLIAM SMITH, Chemist, Stockbridge, Edinburgh. The only Insecticide worth using. Once used always used.
DIRECTIONS.—For Syringing purposes, one part of the Insecticide to 100 parts of water. For Greenfly on Roses, &c., from 1 to 20, to 1 to 40 parts. For Thrip and Scale, 1 to 20 parts. For Bug, 1 to 15 parts.
N.B.—*Very tender plants should be well syringed after using the Insecticide.*
In Bottles, 1*s.*, 2*s.*, and 3*s.* 6*d.* each. 7*s.* 6*d.* per Gallon. Special quotations for large quantities.
Wholesale Agents—IRELAND AND THOMSON, 20, Waterloo Place, Edinburgh.

SOLUBLE FIR TREE OIL INSECTICIDE.
For destroying ALL INSECTS and PARASITES that infest Trees and Plants, whether at the Roots or on the Foliage. Kills all Vegetable Grubs, Turnip Fly, &c. Cures Mildew and Blight. Cleans Grapes from Mealy Bug, &c., and makes a good Winter Dressing. Of all Seedsmen and Chemists, 1*s.* 6*d.*, 2*s.* 6*d.*, 4*s.* 6*d.* a bottle. Per gallon 12*s.* 6*d.*, or less in larger quantities. Maker, E. GRIFFITHS HUGHES, Manchester. Wholesale from all the London Seed Merchants and Wholesale Druggists. New York: RÖLKER & SONS.

Amortiser.—Amortiser.—Amortiser.
To HOP and FRUIT GROWERS, FLORISTS, MARKET GARDENERS and OTHERS.
STEVENS AND CO.'S AMORTISER INSTANTLY DESTROYS Hop Flea, Greenfly, Caterpillar, and every kind of Blight. Fruit Growers, Florists, more especially Rose Growers, will find this preparation invaluable, as one application causes INSTANT DESTRUCTION of all INSECT PESTS. For Hothouse, Greenhouse, and other Plants it is equally valuable, and is guaranteed not to injure the most delicate bloom or foliage. We have a Special Preparation of the Amortiser for Watering the Ground which Instantly Destroys Slugs, Wireworms, Caterpillars, Grubs, &c. When ordering state which preparation is required. Sample Cans, 4½ gallons, 3*s.* 6*d.*, tin included. Special Quotations for Large Quantities.
Orders received at 67, High Street, Borough, London, S.E.

12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per Truck. Sample Bag, 5s; 5 Bags, 21s. 6d.; 10 Bags, 45s. Bags included. Fresh SPHAGNUM, 10s. 6d. per Bag. SILVER SAND, Coarse or Fine, 52s. per Truck of 4 tons. Red Sandstone ROCKWORK, £5 per Truck of 4 tons. GRAVEL, good colour, 25s. per Truck of 6 tons.
WALKER AND CO., Farnborough Station, Hants.

Thomson's Vine and Plant Manure.

Manufactured by the

LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), LIMITED,

The Vineyard and Nurseries, Garston, near Liverpool,

and Sold by them and all Nurserymen and Seedsmen.

This is the Manure used to produce the splendid Grapes grown by Messrs. WM. THOMSON & SON, Clovenfords.

For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

GARDEN REQUISITES.

PEAT, LOAM, SILVER SAND, PREPARED COMPOST, RAFFIA FIBRE, TOBACCO CLOTH, &c.

Quality **equal to any** in the Market.

(All Sacks included.)

PEAT, best brown fibrous	4s. 6d. per sack.
„ best black fibrous	3s. 6d. „
„ extra selected Orchid	5s. 0d. „
LOAM, best yellow fibrous	1s. per bushel (sacks included).
PREPARED COMPOST, best ..	
LEAF MOULD	
PEAT MOULD	
SILVER SAND (coarse)	1s. 3d. per bushel.
RAFFIA FIBRE, best only	10d. per lb.
TOBACCO CLOTH, finest imported ..	8d. per lb., 28 lb. 18s.
„ PAPER, finest imported	10d. per lb., 28 lb. 21s.
COCOA-NUT FIBRE REFUSE (see special advertisement).	

Terms, strictly Cash with order.

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

Important Discovery.

For Cleansing Plants from Aphides, and all Parasites. To prevent American Blight, all kinds of Scale, &c., and for Washing all Hard-wooded Plants, always use

HUDSON'S EXTRACT OF SOAP.

A ¼ lb. Packet to 3 Gallons of Water.
A strong solution thickened with clay makes an effective Winter Dressing.

Testimonials.

"Coton Hall Nursery, Shrewsbury, July 28, 1880.
"We find Hudson's Soap a very useful Winter Dressing for all kinds of Fruit Trees; both as a preventive and cure against American Blight and all kinds of Scales. We also use it for Camellias, Azaleas, Rhododendrons, and all kinds of Hard-wooded Plants. We have much pleasure in presenting you with this testimonial, and remain, yours truly,
(Signed) "JOHN JONES AND CO."

"201, Broad Street, Birmingham, August 15, 1883.
"DEAR SIR,—I have lately tried Hudson's Extract of Soap for the mildew on my Rose trees in the greenhouse, and I find that with one syringing it completely cures it instantly, I should say I tried it some time ago with the same result. Yours truly,
(Signed) "W. JAMES."

SOLD EVERYWHERE.

REMARKABLE DISAPPEARANCE!
of all DIRT from EVERYTHING
BY USING
HUDSON'S EXTRACT OF SOAP.

HUGHES' FIR TREE OIL.—Packed for transit, free per parcels post, at the following low quotation, for stamps with order:—

½ pint, 1s. 8d.; 1 pint, 2s. 9d.;
1½ pint, 3s. 9d.; 1 quart, 4s. 10d.

CONNON AND REID, Seedsmen and Florists, Aberdeen.

STANDEN'S CELEBRATED MANURE, in 2s. 6d. and 5s. 6d tins. A small lot would be sold, a job, to clear, to save removal Offers requested per dozen.
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To the Seed and Florist Trade.

CORRY, SOPER, FOWLER & CO.

(*LIMITED*),

Horticultural Sundries Merchants,

and Manufacturers of all kinds of

INSECTICIDES and MANURES, GRASS and DRIED FLOWER BOUQUETS, WREATHS and CROSSES,

in every Material and Pattern.

IMPORTERS OF

DRIED FLOWERS and GRASSES, VIRGIN CORK, RAFFIA MATS, &c.

Every Horticultural Requisite required for a shop kept in stock. Show Rooms now complete with every novelty for autumn use, and special attention given to any visiting customers.

CATALOGUES Free to the Trade on application.

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GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1s., 3s., & 10s. 6d.

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

GISHURSTINE, for dry feet and boot comfort, is much used by Gardeners, Farmers, Ladies, Sportsmen, and Shore-waders; is sold by Nurserymen and Oilmen, with testimonials and directions for use, in boxes, 6d. and 1s. each. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), London.

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FOR

VINE BORDERS, FRUIT TREES, STRAWBERRIES, ROSES, FLOWER BEDS, POTTING PURPOSES,

AND GENERAL HORTICULTURAL PURPOSES.

HIRST, BROOKE, AND HIRST, Manufacturers, Leeds, Yorkshire.

BAMBOO CANES, for Nurseries and Gardens. Hundreds of tons in stock, from 1 to 4 inches in diameter, and up to 16 feet. The largest importer in England.
P. B. HARKIN, Dutton Street, Liverpool.

CARSON'S PAINT.

Patronised by

HER MAJESTY,

HIS ROYAL HIGHNESS THE PRINCE OF WALES, 15,000 OF THE NOBILITY, GENTRY, AND CLERGY.

Is extensively used for all kinds of

OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames.

CAN BE LAID ON BY UNSKILLED LABOUR.

1 *Cwt., and Oil Mixture, Free to all Stations, Prices, Patterns, and Testimonials, Post-free.*

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

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Inventors and Sole Proprietors of the "ORIGINAL"

STOCK-BREEDERS' MEDICINE CHESTS,

For all Disorders in Horses, Cattle, Calves, Sheep and Lambs,

And Inventors of the First Animal Medicines ever known as "Day's."

Price of Chest complete, including "Key to Farriery," £2 16s. 6d., sent carriage paid throughout Great Britain.

CAUTION.—Beware of imitations, and see that the name, DAY, SON & HEWITT, is on all Bottles and Packets.

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22, DORSET ST., BAKER ST., LONDON;
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ARCHANGEL and PETERSBURG MAT MERCHANTS and IMPORTERS.—All the usual kinds at reduced rates. Sacks and Seed Bags, new and second-hand, of every description. Raffia Fibre, Netting and Tiffany, Tarpaulins, Rick-covers, Horse-cloths, Ropes, Lines, and Twines. Price LIST on application to J. BLACKBURN AND SONS, 4 and 5, Wormwood Street, London, E.C.

RUSSIA MATS, Archangel, Taganrog, Petersburg, and Dunnage. SACKS and SEED BAGS. ROPES, LINES and TWINES. RAFFIA FIBRE.
TOBACCO PAPER, PEAT and SILVER SAND.
BEST COCOA-NUT FIBRE REFUSE, 1s. 3d. per sack (sacks included). Descriptive CATALOGUE on applicaton.
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REIGATE SILVER SAND.—Coarse and fine, on rail at 7s. 6d. per ton—not less than 4-ton trucks. Terms cash.—Apply to H. SIMS, The Priory, Reigate.

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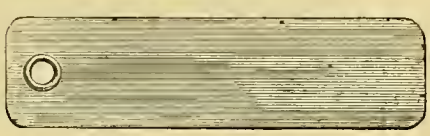

WATERPROOF ROSE TREE
and all kinds of
DIRECTION LABELS.

FISHER, CLARK & CO.,
BOSTON, LINCOLNSHIRE.

INDIAN MUSLIN, for Garden Shading.—100 yards for 10s., delivered at Burnley Station; or 85 yards for 10s., delivered free per parcels post. Very useful pure Cotton for Curtains, Blinds, Draperies, &c.; cream colour. Postal Order to be sent with each Order. Send stamped envelope for Pattern.
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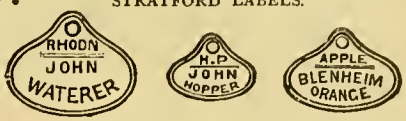

The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

Samples and Price Lists free.
J. SMITH, The Royal Label Factory, Stratford-on-Avon.

SPECIAL 21-oz. SHEET BRITISH GLASS.

HORTICULTURAL SIZES.

20 Boxes, 20×12	10 Boxes, 20×13	10 Boxes, 20×14
10 „ 20×15	10 „ 20×16	20 „ 20×18
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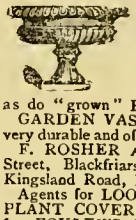
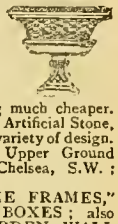
In 200 feet Boxes, at 2½d. per foot nett for not less than 1000 feet. BOXES FREE.

GEORGE FARMILOE & SONS,
GLASS, LEAD, OIL and COLOUR MERCHANTS,
34, St. John's Street, West Smithfield, London, E.C.

Rosher's Garden Edging Tiles.

THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.





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Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

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ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c, from 3s. per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles. of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.
F. ROSHER AND CO., Brick and Tile Merchants.
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SILVER SAND, fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Stations. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries.

KENT PEATS or LOAM supplied at lowest rates in any quantities.

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N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

TEN SILVER MEDALS
AWARDED TO

JOHN MATTHEWS, THE ROYAL POTTERY, WESTON-SUPER-MARE, Manufacturer of TERRA-COTTA VASES, FOUNTAINS, ITALIAN BASKETS, BORDER TILES, GARDEN POTS of superior quality, from 1 to 30 inches diameter, stand the frosts, and seldom turn green; ORCHID, FERN, SEED and STRIKING PANS, RHUBARB and SEAKALE POTS, &c. Price LIST post-free. Sheet of Designs, 6d. Book of Designs, 1s.

BELGIAN GLASS for GREENHOUSES, &c.

Can be obtained in all sizes and qualities of

BETHAM & SON,
9, LOWER THAMES STREET, LONDON, E.C.

B. & Son have always a large stock in London of 20 in. by 12 in, 20 in. by 14 in., 20 in. by 16 in., 20 in. by 18 in, in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200-ft. and 300-ft. cases.

HORTICULTURAL SHEET GLASS.

21 oz. Foreign, of the following sizes, in boxes of 100 and 200 feet, 3ds and 4ths qualities always kept in stock:—

14×12	20×12	20×14	20×16	20×18
16×12	16×14	20×15	22×16	22×18
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Stock Lists and Prices on application.

All descriptions of British and Foreign Glass can be obtained from

GEORGE FARMILOE & SONS,
GLASS, LEAD, OIL and COLOUR MERCHANTS,
34, St. John's Street, West Smithfield, London, E.C.

NOTICE TO THE TRADE.

MESSRS. GREGORY & EVANS

beg to inform their Customers and the Trade generally, that they have the largest stock of ERICA HYEMALIS, in fine condition, ever offered to the Trade. Other varieties in proportion.

Inspection Invited.

LONGLANDS NURSERY, SIDCUP, AND AT LEE, S.E.

ROSES IN POTS,

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

These World-famed ROSES cannot fail to give the greatest satisfaction.

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RICHARD SMITH & CO.,

WORCESTER.

NARCISSUS.

THOMAS S. WARE begs to announce that he has prepared a SPECIAL OFFER of Leading Varieties of the above, which may be had upon application.
Hale Farm Nurseries, Tottenham, London.

AMERICAN SEEDS.

2½*d.* Postage on a Letter of Inquiry will secure you by return Mail our PRICES—Wholesale or Retail.

SEEDS of MAIZE for Field or Garden, PEAS, BEANS, CUCUMBERS, PUMPKINS, SQUASH, CANTALOUPES, WATER MELONS, TOMATOS, OKRA or GUMBO, COTTON SEED, TOBACCO, OSAGE ORANGE or MACLURA, TREE SEEDS, AMERICAN GARDEN TOOLS, BOOKS, &c.

All offered by the *oldest and ever the most extensive* Seed Farmers in America.

Founded in 1784.

ADDRESS :—

LANDRETH & SONS,
PHILADELPHIA.

1883—A B C BULB GUIDE—1883.

THIS very complete CATALOGUE, which has been prepared with my customary care, is now ready, and includes, in addition to a most EXTENSIVE Selection of General MISCELLANEOUS BULBS, very extensive and complete collections of NARCISSUS, LILIUMS (perhaps the finest collection of these ever offered), GLADIOLUS, IRIS, HELLEBORUS, TRILLIUMS, PÆONIES, the leading and most distinct varieties of HYACINTHS, TULIPS, CROCUS, &c., and a List of CHOICE HARDY PERENNIALS adapted for Autumn Planting.

Copies had gratis and post-free upon application to

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

FERNS A SPECIALITY.

EXOTIC and BRITISH FERNS and SELAGINELLAS,

Suitable for STOVE and GREENHOUSE Cultivation, for OUTDOOR FERNERIES, and other purposes, in immense number and variety. Our ILLUSTRATED CATALOGUE (price 6*d.*) contains much useful information as well as "Hints on Fern Culture." SPECIAL LISTS, issued at intervals during the year, giving extremely low quotations, may be had FREE on application.

W. & J. BIRKENHEAD,
FERN NURSERY, SALE, MANCHESTER.

SPECIAL CHEAP OFFER of HARDY PERENNIALS, SUITABLE for PRESENT PLANTING,

CONSISTING of most Useful and Effective Varieties, principally strong plants from Ground.
CATALOGUES Gratis and Post-free upon application.
THOS. S. WARE, Hale Farm Nurseries, Tottenham, London.

DUTCH FLOWER ROOTS

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEY HAVE RECEIVED THEIR ANNUAL SUPPLY OF

HYACINTHS, NARCISSUS, TULIPS, and other BULBOUS ROOTS;

and are pleased to say that they are in fine condition.

BULB CATALOGUE FOR 1883

Has now been posted to all our Customers; to any one not having received the same, a duplicate copy will immediately be forwarded Post-free on application.

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

WEDNESDAY NEXT.

NEW AËRIDES.

MR. J. C. STEVENS has received instructions from Mr. F. SANDER to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, September 19, a fine Specimen of a

NEW AËRIDES IN FLOWER.

The plant was brought home about two years ago by the Collector, and is the only one received. The Collector found it in flower, and took special care of the plant. It has eight or nine growths, is entire. The broadest leaves are 2 inches across. The plant is in vigorous health. The flowers seem to partake of A. Leoni and odoratum, having the fine scent of the latter; they are 1½ inch long, and very nearly as broad, centre has a broad purple blotch, and the ends of sepals and petals are of the same colour. The spike is above 2 feet over and has some thirty flowers.

On view morning of Sale, and Catalogues had.

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

TO INTENDING PLANTERS.

Expiry of Lease.—Clearing Sale.

THE LAWSON SEED AND NURSERY CO. (LIMITED),

EDINBURGH,

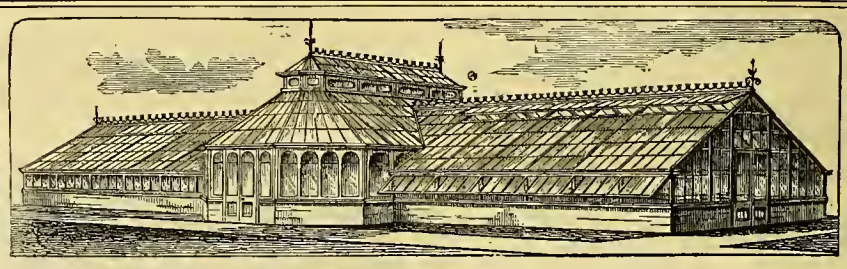
Have resolved to clear off the entire stock of SEEDLING and TRANSPLANTED FOREST TREES, FRUIT TREE STOCKS, ORNAMENTAL TREES for immediate effect, &c., contained in Windlestrawlee Nursery, Granton Road, as they do not intend to renew the lease, which expires next year; their other Nurseries, however, will be carried on as usual. All the stock not previously sold by private bargain, will be exposed by

PUBLIC AUCTION on the 10th and 11th of OCTOBER NEXT;

meanwhile special offers will be made upon application.

Particulars in future Advertisements, and Catalogue now in preparation.

Five 1st Prize Medals recently awarded in open competition.



Five 1st Prize Medals recently awarded in open competition.

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THE

Gardeners' Chronicle.

SATURDAY, SEPTEMBER 15, 1883.

FOREST ADMINISTRATION.

AN important report under the modest title of "Suggestions Regarding Forest Administration in the Madras Presidency," has lately been issued by the Madras Government. The report is lengthy and exhaustive, and is drawn up by Dr. Brandis in compliance with the request of the Government. If the interest attaching to this report were simply local—confined to one Presidency of India—it would be sufficient for us in this place merely to announce its publication. But in point of fact we have here a detailed account of the reasons for and the objects of forest conservancy, as well as a summary of the best methods of effecting those objects consistently with the general welfare of the population, the improvement of climate and soil, and the development of the resources of the country. We have, indeed, a treatise on forest conservancy from the pen of one who, from his ability and experience, is better able to produce such a work than any other authority. The book may, too, be looked on as a special legacy, for we are told that it was submitted on the eve of Dr. Brandis' retirement from a service which owes so much to his zeal and thoroughness. Of course a great deal of it is only applicable to India, and not suitable for the very different system of woodcraft pursued here. Nevertheless there is much, very much which may be profitably read by the forester at home, and although the details and mode of application may be different yet the general principles governing them are very generally identical in India or in Britain. On this account, then, we may, while passing over those portions which relate exclusively to India, call attention to other matters of universal interest.

The objects of forest conservancy are direct or indirect—direct as regards the permanent supply of timber for constructive purposes, railroads, or fuel. The object here is to produce on the smallest area, at the most remunerative rate, the largest amount of timber or other forest produce, and to ensure a regular continuous supply. The indirect objects comprise the effect of forests on climate and drainage, the protection they offer against erosion of the soil, the shelter they afford from wind, &c.

As to the amelioration of climate, Dr. Brandis is very decided in his opinion as to the impossibility of materially altering the climate by the creation of new forests or the improvement of old ones, for, says he, very truly, "the great features of climate depend upon cosmic causes, which are independent of local circumstances."

"It has been established by continued experiments made by L. Fautrat in the forests of Halatte and Ermenonville, in France, that a gauge placed above the crowns of the trees in a forest collects more rain than another placed in its vicinity at the same height from the ground but outside the forest. Large extents of forest, or large areas of irrigated land, may have some effect in increasing the rainfall at certain seasons, and there is no doubt that in the vicinity of dense forests, and on irrigated lands, the air near the ground is generally moister during the dry season and the dew heavier. Nor is there any doubt that forests, if well stocked, afford effective shelter against scorching winds, and that in the hot weather the shade and shelter afforded by trees is a great boon, and is beneficial alike to crops, to man and to cattle. . . ."

As to the effect of forests in protecting the soil, and regulating surface and subsoil drainage, Dr. Brandis points out that—

"It is different in regard to the influence of forests in other respects. They protect the soil on slopes and hills, and there is good ground for believing that they regulate the distribution of the rain-water which falls upon the ground and the surface and underground drainage. In this respect the action of forests is, we believe, most beneficial in a tropical climate. The action is this: 1st, the foliage breaks the force of the rain, which therefore falls upon the ground more gradually and gently; 2d, the loss by evaporation is less; 3d, decayed leaves, moss, twigs, and other matter on the ground in the forest act as a sponge and prevent the rapid down-flow of the water; 4th, the soil, which is permeated by the roots and is mixed with vegetable mould, is loose, and facilitates the percolation of the water, which comes out at a lower elevation in the shape of springs.

"A further and most important result is, that less soil is washed away from the hillsides, and that less sand and silt are carried down by the rivers. Regarding this point no doubt is possible." . . .

"Speaking broadly, the result as regards the supply of springs, streams and rivers is believed to be this, that springs are better supplied, and that streams and rivers are less subject to sudden floods, and have a more even and longer-continued flow of water if their catchment area is stocked with forest than if it is bare. The effect is the same upon tanks which are fed from springs and streams. But upon tanks with a small catchment area, which are fed only by the surface drainage coming direct from that area, the effect is different. Tanks of that description would store the largest proportion possible of the water coming from the catchment area if that area were smoothed and plastered over, and made impermeable to the rain which falls upon it. In such cases a hard-baked surface of the catchment area, without any vegetation, would be most effective."

These extracts will suffice to show the general nature of Dr. Brandis' views on the indirect effect of forests. We have no space to follow the author in the elaborate details and suggestions applicable to particular districts, and which are the outcome of his personal visits and examinations of the various forest districts of the vast Presidency of Madras, from the Nizam's dominions and Bombay in the north, to Cape Comorin in the south, but we may avail ourselves from time to time of extracts relating to the forests, climate, and vegetation of this region likely to be interesting to practical cultivators.

New Garden Plants.

CŒLOGYNE SALMONICOLOR, *n. sp.**

THIS is the next-door neighbour to Cœlogyne speciosa, Lindl., but is much smaller. The tetragonous pear-shaped bulbs have single cuneate oblong acuminate undulate leaves, which are green only at the base, elsewhere of a copper colour. Whether this is constant or only due to exceedingly light shading, I of course do not know. The peduncle at hand is one-flowered. Sepals oblong ligulate, blunt, acute, salmon coloured, keeled on the central line. Petals linear, salmon coloured. Lip trifid; side laciniæ semi-oblong acute, having a very small free place between them and the rhombic retuse mid-lacinia. There are two arched keels, retuse, not argute, with a series of tufts of short hairs on each side, and a rudiment of a third keel at the verybase between the two. The side laciniæ are somewhat tessellated by numerous light brown bars between the nerves, and the central area between the two keels is tinted and marbled with the same kind of brown. The ground colour is, however, salmon, yet rather light. The column has a toothletted androclinium. It is lightest salmon-coloured on the back, sulphur at the top and around the fovea, but striped with reddish-brown longitudinally on the white front under the fovea. It is of Sondaic origin, a discovery of Mr. Curtis', and an introduction of Messrs. James Veitch & Sons. *H. G. Rchb. f.*

* *Cœlogyne salmonicolor*, n. sp.—Filiferæ. Affinis Cœlogyni speciosæ, Lindl.; minor, pseudobulbis tetragono-pyriformibus monophyllis; folio cuneato oblongo acuto undulato; pedunculo (ad manus) unifloro; sepalis oblongo-ligulatis obtuse acutis supra medianam lineam carinatis; tepalis linearibus acutis; labello trifido, laciniis lateralibus semiovatis apice libero obtusangulis, interstitii cum lacinia mediana rhombea retusa angustis, carinis geminis flexis a basi in basin laciniæ anticæ, dorso retusis, planis, utrinque piliferis, carina brevissima in bas inter utramque; androclinii limbo lobuloso denticulato Ex ins. Sondaicis, introd. dom. Veitch Londinens. *H. G. Rchb. f.*

ONCIDIUM LITUM, *n. sp. vel hybr. nat.?* *

Much like Oncidium Forbesii, and comparable to it in the outline of the lip and the wings of the column, yet abundantly distinct by the very curious callus, not to speak of the novel colour. Sepals are not distinct. Petals rather large, well retuse emarginate, with the usual light yellow narrow border around the wide brown disc. The lip's basilar part is narrow, yellow, covered with small spots. The broad blade is yellow, with some scattered brown blotches, and the anterior part is totally brown, which looks very neat. The callus is quite peculiar, the central mass being one ligulate body with two blunt anterior lobes, covered with blunt papular masses, hence giving quite a distinct aspect from what is seen in Oncidium Forbesii. On each side there is a line of papulæ, nearly giving the outline of a human ear. The typical flowers of Oncidium Forbesii Borwickianum may be compared as to colour, yet their calli are totally distinct, and the colour also.

This remarkable plant was recognised by Mr. W. Bull in one of his recent Brazilian importations. Mr. T. Day is now the possessor of the typical specimen, and I have to thank this gentleman for a fine sketch of the whole plant, which has assisted me in the description, I having had but flowers sent.

The bulbs are remarkable in the affinity for their length and thinness—3–4 inches by $\frac{3}{4}$–$1\frac{1}{4}$ inch. Leaves 12 inches by $1\frac{1}{2}$ inch, cuneate ligulate acute. The inflorescence is a panicle, viz., a raceme with a single two-flowered branchlet. *H. G. Rchb. f.*

DENDROBIUM CILIATUM (*Par.*) BREVE, *n. var.*

I had this very long ago from Messrs. Veitch (No. 17 of their now 937 numbered "dubiaceæ." It was sent from Rangoon by Colonel Benson. There is no mark of distinction in the flowers, but very short thick stems, and an inflorescence at the top of the fresh leafy shoot.

Then Mr. Coles Harding sent one (!) flower in a dried state, and a good sketch representing a tuft of leafless, short, three to five jointed bulbs, one with an inflorescence at top (I believe, of course, a lateral one).

Finally Messrs. Veitch sent lately an inflorescence grown by Mr. J. W. Dunn. Later came a fine thick conical bulb having five joints, each part a little thinner in the middle, as had been very well represented by Mr. Coles Harding.

We have now so many experiences as to the dependence of stems (bulbs) on age, that I think it better to introduce the old novelty as a variety, since the flowers do not offer the least mark of distinction. *H. G. Rchb. f.*

DAHLIAS AT SOUTH KENSINGTON.

WHAT a marvellous feast of Dahlias was on Tuesday last presented to view to those visitors to the Royal Horticultural Society's Gardens who found their way into the conservatory. Almost every leading Dahlia grower in the South sent a contribution of flowers, and they were very numerous, but certainly not so refined as one saw them recently at the Crystal Palace—still in very good form; and a few flowers not seen prominently at the Palace were here in excellent character. Mr. C. Turner led the way with a collection of 250 blooms of show and fancy Dahlias, in about 100 varieties; and Messrs. Keynes & Co., Salisbury; Messrs. H. Cannell & Sons, Swanley; Messrs. Rawlings, Bros., Romford; Messrs. Paul & Sons, Cheshunt; Mr. T. S. Ware, Tottenham; Mr. H. Glasscock, Bishops Stortford; Mr. G. Harris, Orpington, followed the Slough lead. All the wealth of bloom from the various collections seemed to be here, and it was a fitting close to a season that has presented to view the Dahlia in a high stage of development.

A word of high praise is due to Mr. Turner for the admirable manner in which he set up his splendid contribution. It was a lesson to be learned and applied at future exhibitions of Dahlias. The show varieties formed a front line, and, as is usually the case, were on a gentle slope. Above these were boxes of beautiful bunches of single and pompon varieties; and as a most pleasing finish in the form of a background, some dwarf Palms. It was such a change from the dreary monotony of arrangement seen at Dahlia shows; the "lumpish and inelegant Dahlia" was for once invested with new conditions of attractiveness, and it was felt that the Gold Medal awarded to this fine collection was doubly won—for the quality of the flowers, and for the happy method of arranging the blooms.

SINGLE DAHLIAS.—The collection from Slough was both large and representative. A few varieties may be appropriately set down in this relation:—Crimson and scarlet: Beauty of Cambridge, Rob Roy, Fireball, Gracilis perfecta, Morning Star, Huntsman, Dash, Sunrise, and Punicea. Orange-scarlet: Gracilis elegans, and Firefly. Magenta and mauve: Beatrice, Nord, Duke of Teck, and Mauve Queen. Yellow: Royal Angus, Yellow Queen, Yellow Gem, Aurata, Lutea, and Gonziola. Orange-yellow, slightly tipped with red: Pink Helen McGregor. White: Marchioness of Westminster, and White Gem. Of the pompon varieties, the following are all medium-sized, and very attractive:—Little Princess, Adonis, Professor Bergeat, Isabel, Nymphe, Comtesse Von Sternberg, delicate, and very distinct; Gem, North Light, Nemesis, and Fair Helen; and Messrs. Cannell & Sons also had a rich collection of single Dahlias, old and new. A few star-shaped flowers found great favour with some; they are distinct types, but it is doubtful if they will become popular. To our mind the most attractive in this collection were D. Merckii, which is said to be a distinct species, and has white flowers; Little Nymphe, mauve; and Little Lily, pale mauve: these are pretty small-flowered forms with black centre, distinct in foliage, dwarf, and said by Mr. Cannell to be very free. We think these new types are likely to become very popular for cutting, especially as there seems a desire to return to small-flowered varieties. Mr. Cannell also had a double white variety named Camelliæflora, said to have been much grown many years ago. One of Mr. Cullingford's new seedling singles, Countess Doneraile, crimson, flaked with magenta, was quite novel. Messrs. Paul & Son's collection contained some splendid blooms of D. Juarezi. Mr. T. S. Ware, as might have been expected, had a very fine lot of single Dahlias, foremost among them being Zinnia, bright crimson; Mrs. Burbidge, rich dark purple, very fine; Pantaloon, white and crimson striped; Cypria, orange-crimson; Utility, deep reddish-orange; Union Jack, white and crimson; Buffalo, pale bright orange-buff; and Christine, mauve. These all have medium sized flowers; many of the large blossomed varieties were singularly handsome. First-class Certificates of Merit were awarded to the following single Dahlias:—Marchioness of Westminster, pure white, rather above medium size, excellent form and substance, from Mr. C. Turner; and Cetewayo, shining maroon, fine form, very attractive; and B. Barkway, orange-crimson flame in the centre of the petals, with side margins of deep orange-buff, very distinct—both from Mr. T. S. Ware.

NEW VARIETIES.—Of show Dahlias Mr. C. Turner received a First-class Certificate of Merit for Mrs. W. E. Gladstone (certificated at the Crystal Palace Dahlia show under the name of Mrs. Hurst), a charming delicate flower, soft pale pink on a white ground, the centre cream; very fine in all its parts. Mr. Turner also had Muriel, a large back-row yellow self, good in colour and very constant. Messrs. H. Cannell & Sons had Mrs. Cannell, a promising pure white self. Messrs. Rawlings Bros. had John Henshaw, a large bright crimson self, flushed with purple on the tips of the basal petals; good petal and outline. Mr. G. S. P. Harris had Ruby Gem, a ruby-crimson self; good petal, outline, and centre; and Baroness, deep yellow, small, and undeveloped. Messrs. Keynes & Co. had Statesman, deep crimson, but rough as shown, good centre and plenty of stuff; Lucy Berry, white, slightly tipped with deep purple, and much suffused with pale purple, good outline and petal; and Mrs. W. Haskins, a distinct buff self, the reverse lively pink, very pleasing, but inclined to be low in the centre; and the following fancy varieties:—H. Brown, bright pale purple heavily flaked with maroon; Arabella, golden-buff, striped with orange-red; and Goldfinch, appearing to be a sport from Gaiety, deep gold, flushed with pink, flaked with crimson, and slightly tipped with white.

* *Oncidium litum*, n. sp. (hybr. nat. ?)—Pseudobulbis ligulatis angustis; foliis cuneato lanceolatis acutis; panicula uniramulifera (in specimine misso); flore Oncidii Forbesii, Lindl.! calli systemate diverso, callo centrali omnino in unum corpus confluente apice bilobo papulis obtusis obsito, areolis papulosis intus interruptis extus labelli colore xanthino, parte antica brunnea. *H. G. Rchb. f.*

HYBRID RHODODENDRON.

The accompanying illustration (fig. 49) represents two flowers and a leaf of a hybrid Rhododendron raised in the nursery of Mr. Anthony Waterer, of Knap Hill. It forms a shrub now 4 feet in height, and, as we are informed, perfectly hardy. One of the parents is the Sikkim Himalayan R. Aucklandi, which it resembles in the shape and colour of the corolla, though smaller in size, and with a few faint pinkish spots upon the upper segment. We have not ourselves seen the growing plant, and can say nothing as to its free-flowering quality or the form of the truss. Perhaps Mr. Waterer will kindly give the desired information.

NOTES FROM A LANCASHIRE GARDEN.

Sept. 10.—Before the "great September gales," of which Longfellow speaks, have quite ruined our garden, I should like once more to make a record of our year's harvest of flower and fruit. But I feel that my Lancashire experiences are of slight interest when compared, or rather contrasted, with those which, beneath a brighter sky, and under more favourable auspices, your Buckinghamshire correspondent so gracefully records.

Here, everything is uphill with us, and our failures are more marked than our successes. The cruel winters we have had destroyed (as I have previously mentioned) all our best flowering shrubs. The beautiful Arbutus, which cheered the gloom of each November with its pink clusters of blossom, was utterly killed, and so was the great Buddleia, and the Escallonia by the library window, and the Desfontainea, and the Brooms (white, yellow, and buff), and all the double Gorse.

However, apart from these losses, we have had no reason to complain of our flowering shrubs this year. If the Kalmias did less well than usual, the Rhododendrons were beautiful, and one day, in a group of shrubs which I had somewhat overlooked, I discovered a double Rhododendron, which I had never seen before. I hoped at first that it was an unknown sport, but was disappointed to find that it is not uncommon, and is known in gardens as "fastuosum."

Within the walled garden we have been gay enough, but several of our best (intended) beds failed, and we had to replace the failures with other things. The Antirrhinums were caught and killed by an early frost; the bed of Ranunculus came to nothing; the Zinnias and Portulaccas and Salpiglossis were not good.

But what could be better than the bed of Agapanthus, with more than thirty spikes crowded with their umbels of China blue? or what more effective than the Canna indica bed, with its graceful spirals of unfolded leaf, its broad masses of opened foliage, its flame-tipped rods of bloom? By the way, I have noticed a curious thing about the leaves of some of the Cannas. Some grub or caterpillar has found out that they are good for food, and has perforated them at regular intervals—three rows in some instances—and so exactly as to form a sort of pattern on the leaf. No human skill could have done it more perfectly.

One bed, which I had never tried before, is of the new varieties of Marigold—the Marigold of the old English sort—probably the true Sunflower of the poets and of Shakespeare, who tells us—

> "Great princes' favourites their fair leaves spread
> But as the Marigold at the sun's eye."

It has been very effective, and in certain lights there is a depth and intensity in the flower of the Marigold which, I think, surpasses that of any other yellow flower known to me.

Our Asters and Stocks have been magnificent, and little side-beds of blue Cornflower and yellow Sweet Sultan have been extremely pretty. The best flowers still remaining in the mixed borders are Fuchsias, Phloxes, Tradescantias, and the white and pink Anemone. The Potentillas and many more are nearly over, but, as evening comes on, the large yellow and large white Œnothera light up the borders, and the odour of the night-scented Stock is heavy on the air.

I was rather pleased with a compliment which was paid to our garden the other day as "the most sweet-smelling of gardens," and what with the Mignonette bed as you enter, and the long row of Sweet Peas, and the Stocks, and the hedge of Sweet Brier, and the bank of Musk, the compliment was not quite undeserved. But the sweetest thing at present is the Magnolia between the vineries. We have already had three of the great creamy blossoms, and there are plenty more to come.

Our Roses have been singularly good this year (for us), and none so good as the pink Rosa rugosa, with its innumerable thorns; and the little Carolina Rose, with none. My white Moss Roses have done well, and the Souvenir de la Malmaison, till the wet weather came and damped off all the buds. The Gloire de Dijons are now in better flower than at the beginning of the summer.

One of my interests this summer has been trying whether the theory of the special love of bees for blue flowers holds true in my garden, and, to tell the truth, I can make nothing of it. We have a fair share of blue flowers through the summer—as many, I think, in proportion as of any other colour; there are Campanulas, Violas, Lobelias, Nemophila, Tradescantia, Agapanthus, Cornflowers, blue Sweet Peas, and one or two more, but I do not find that the bees are especially attracted by them. For instance, there were many bees in the Nemophila bed when it was in full blossom, but among the blue Nemophila insignis came up some plants of the white spotted variety, possibly one sixth of the whole, and the bees seemed to me to pay their visits with a very strict impartiality. One bee, which I noticed, certainly preferred the white variety, and passed over the numerous blue flowers till he found himself hovering over a white blossom. But if I were asked what part of the garden was most murmurous with bees, I should say a rather shady border where the Raspberries opened their unattractive white blossoms, and another sunnier bed where some tall white Spiræas were growing. Is it not possible that the secret really lies less in the colour than in the honey-bearing quality of the flower, and that it is a natural instinct rather than an æsthetic preference that guides the bee. Of course every garden will vary in respect to its attractive properties, and every variety of bee is not the same; some, no doubt, are more highly educated than others, and I see in a recent number of the *Gardeners' Chronicle* that one observer considers red or pink their favourite colour. In any case it is a little premature—is it not?—to assert that the form of blue flowers have become modified out of regard to the colour preferences of bees.

Fig. 49.—Hardy hybrid rhododendron.

*

But I must now pass from the garden to the orchard. A row of Lime trees runs along by the hedge, and here, when the Lilies are out, numbers of bees are busy, like Ariel—

"Under the blossom that bangs from the bough,"

though it has no charm of colour or of form to catch their sight—only the rich scent of its pendulous clusters.

Our Apples are a very fair crop—or, at least, were, till these strong winds shook them down in handfuls, and gave us many a battered windfall. The Pears are a sad failure; Jargonelles alone have done well, but they are very small—it would take three of them to make a single Jargonelle of last year. Many of my old orchard trees seem to be dying, and I must cut them down, and cut them up for firewood (it is said that no firewood equals logs from an Apple tree), and then plant new ones. But our climate gets worse and worse, and there are only a few varieties which are now likely to do well. Of other fruit, Strawberries and Gooseberries were excellent; of Cherries we had none except Morellos; our Peach-house was relatively a failure, and a number of my Muscat Grapes—for no special reason that I can discover—have shanked, but the Black Hamburghs have been good. We have had plenty of Melons and Tomatos (under glass, of course); and the Fig tree in the corner of the garden has behaved nobly—I have rarely seen finer Figs or more of them in this part of the world.

We have at present in the hall a fine plant of Vallota purpurea with several spikes of blossom; I hardly know a more beautiful red, but it is scentless, and cannot compare with the plants whose place it takes. There was Hedychium Gardnerianum with four large flower-shoots and the most delightful perfume; and there were Tuberoses, each bearing on its long green wand a scented tuft of snowy bloom.

And now, in concluding, may I ask one of your readers to help me to solve what is to me a puzzle? In one of Coleridge's poems he writes—

"'Tis said, in summer's evening hour
Flashes the golden-coloured flower
A fair electric flame."

What flower can be meant? I know that the Fraxinella is supposed to have some such property, but surely the Fraxinella is never "golden coloured." *H.* [Marigold. See also *Gard. Chron.* 1843, p. 691. Ed.]

HAMPTON COURT.

Hampton Court and its delightful gardens have long been one of the most popular places of resort for the holiday-taking Londoner, and hardly less for sightseers from the provinces and almost the world all over. More perhaps than any other similar gardens or public park do these fine grounds lend themselves to a modern flower garden display, and it is very difficult to find fault with the association of such modern ideas of garden decoration as are now in the ascendant, and the somewhat stiff heavy notions of past ages as seen in the summer time here. The wealth of fine trees that margin the flower gardens serves to tone the blaze of colour seen in some beds, presenting a striking contrast in coloration and in light and shade, to the distressing effect obtained by the combination of gigantic Sunflowers against a garish background of red brick. Really this last decorative effort is a shocking evidence of the depravity that may follow from a slavish effort to gratify a taste that is as coarse as it is fleeting. A few big Sunflowers here and there springing out of a bed of greenery, and backed by trees or dense shrubs, may not only be tolerated, but prove now and then pleasing; but nearly half-a-mile of these huge ungainly flowers, borne in many cases on gaunt lofty stems, with an immediate background of brick wall, is an effort so intensely æsthetic that its effects will not fail to satisfy for at least half a century.

Apart from this blot, however, the present year's decorative efforts are good, and give a wealth of beauty. No doubt the large carpet beds are the most favoured for close inspection, because they cannot be appreciated till the eye is quite near. On the other hand big masses of colour show up with marked effect when remote, and are a somewhat disappointing when quite near, but that is one of the inevitable concomitants of good bedding, and for that reason carpet beds, or those arrangements that can only be appreciated when near, should always be in the foreground and the big masses of colour should be remote. Of these latter, as usual, bedding Pelargoniums are most effective—crimson, scarlet, cerise, salmon, and pink in variety, but all nameless, though it is not difficult for the knowing ones to make out most of the kinds. The long beds which skirt the outer margin of the crescent-shaped lawn have the advantage of a background of lofty trees that serve to throw all the flowers in the beds forward to the Palace fronts, and thus the colours, looked at from a central position, are more effective and fuller of body than when seen from any other direction. Glimpses of these brilliant masses obtained here and there from through or beneath the aged but handsome Yews that adorn the lawn, may be likened to sunset effect when caught through banks of clouds or glades of woodland. We would not miss them at Hampton Court for the world, and Heaven grant that generations may pass ere any attempt be made to replace them with Carnations or similar hardy plants, the which, beautiful in their way, are not more fit to create a mass of colour than is a fat pig to run in the Derby. But there are Carnations at Hampton Court, and they seem to have done very well, but at present have not half a dozen blooms expanded on them. Here and there amidst other hardy plants of vigorous habits they are in keeping, because they give their month or so of quiet unpretentious bloom, and passing away are hardly missed. Even hardy perennials, though strong enough, do not seem happy, or else their season of bloom—far too short in hot weather—is over; indeed some effort of a temporary kind has been made to give colour and life to these mixed beds by planting out a lot of auratum Lilies, but the effect will be but transient.

Single Dahlias grow well, and cannot be said to bloom indifferently, but it would be absurd to say that they are effective. Perhaps the four sorts employed—white, flesh, red, and maroon, the latter being the much fancied Paragon—are not the best to create striking results; perhaps the plants are not sufficiently thick, but certainly the one thing wanting is floral effect. Curiously enough, in a big bed of these single Dahlias there is a small irregular dropped-in plant of a pompon kind the several flowers of capital form and in colour red, tipped white. How much this one plant made us sigh for a bed of these charming little double kinds. Such a bed would for effectiveness "knock the singles into a cocked hat" any day. The bed filled with the autumn blooming white Chrysanthemum Madame Degranges and the scarlet Cardinal Lobelia would prove very effective were the Chrysanthemums thicker and in bloom, but they are late this year. A few good blue Salvias mixed in with the Lobelias would be beautiful. There is a bed or two of scarlet Verbenas out of which grow strong well coloured plants of Veronica Andersoni variegata, but the carpet is neither low nor dense enough to create the desired effect. The dot plants want to stand out more distinctly on a well defined dense carpet of some contrasting colour, the same remark applies to the variegated Abutilon with which is mixed Verbena venosa. Fewer top plants and a fuller carpet indeed prove far more pleasing. Thus, a very nice effect is obtained from beds of apparently small plants of the silver variegated Maple, pegged down, forming a dense carpet out of which thinly spring strong well-coloured plants of Iresine Lindeni. These latter plants intermixed with Manglesii Pelargonium are not so effective, as the carpet plants are too gross in growth.

The real carpet or mosaic beds are as perfect as they can be, and admirers of this style of bedding will be amply repaid by a visit to Cardinal Wolsey's palace to see them. To us who are disposed to look upon them with the most charitable eye they seem too large, and, being totally unrelieved by top plants of any kind, much too flat. Still they are beautifully planted and kept, and by "the million" are much admired. Their tenants are rather few than many. Alternantheras in sorts and good colour, Echeveria secunda glauca and the pretty Peacocki, Mesembryanthemum cordifolium variegatum, the dense green Herniaria glabra, Golden Feather, Antennaria tomentosa, &c., make up the chief effects; and it is evident that whilst year after year these may change places a little in the designs they must remain monotonous and wanting in variety. It is worth while asking our flower gardeners whether some really novel features in bedding may not be looked for now. As garden visitors both at Hampton Court and elsewhere we have had such a dose of the stereotyped carpet bedding that we are almost tempted to paraphrase the famous rabbit quartet, and while expressing our gratitude exclaim We've had enough. None the less we have no desire to see a reversion to the hardy plants mixed bed. A little of that style of planting goes a long way. The capabilities of our best flower gardeners may well be applied to designing something in floral or foliage combination that shall at once be novel and effective. *X.*

FLOORE HOUSE, WEEDON.

This, the seat of E. G. Loder, Esq., is pleasantly situated about 8 miles from Northampton, and within easy distance of Weedon Station, on the London and North-Western line. Though of modern formation these gardens have become famous for the rich collection of hardy flowers so enthusiastically cultivated, particularly for the unique collection of hardy Cacti, which we shall notice more in detail presently. There is an air of naturalness about the whole place which strikes you, and yet, after all, you are surrounded with many strange and frequently peculiar features, *e. g.*, when looking across the meadows the graceful strutting of the emu meets your gaze, and these recall to your memory many strange anecdotes read and heard concerning these remarkable creatures. They have bred pretty freely at Floore, and yonder, perched upon a specially constructed rockery, is a ram from Northern Africa, whose ancestors are blest with a wondrous history. There he stands for hours, looking in the same direction and motionless, with the exception of chewing the cud, but we heard strange stories about his behaviour at times. The arrangements of the whole place are happy, everything approaching system is objected to, and the result is a most charming place. The bedding system is quite at a discount here, for not one bed is planted in the orthodox way. Subtropical gardening is very happily encouraged—not by grouping a series of subjects, natives of widely different parts of the globe, thickly together, but by grouping single specimens in such positions as to ensure the best effect. On the lawn are good specimens of curious Palms, Phormium tenax variegatum, Musas, &c., and all over the place are grand specimens of Musa Ensete, planted in positions where a good background of shrubs or trees exists, and passing round the walk leading to the church the effect is particularly attractive, indeed, quite a tropical aspect is presented—not, as I have previously said, by planting large groups of exotics, but by the judicious arrangement of good specimens amongst the shrubs and borders. In the woodlands surrounding the house, a large number of Tree Ferns are arranged, Cyatheas, Dicksonias, and Cibotiums, with Musas and Palms, the trees affording the necessary shade and protection to the Ferns, and it is surprising how fresh and beautiful they looked: a few broken fronds and leaves were dangling about, but these are scrupulously preserved as materially assisting to give a natural effect, and the idea is not very wide of the mark although it may not be quite in harmony with a gardener's idea of tidiness. In these few remarks we have only roughly glanced at the outlines of this portion of the garden, and with limited space can do no more as the chief centre of interest to myself are the hardy plants.

Proceeding from Weedon Station through the grass land, at the foot of a small plantation is the bog garden which was at one time the spot where the entire collection existed. Several plants of interest were noticeable here. Stokesia cyanea, just coming into flower: a huge mass of it, quite hardy, has stood here for years, with the thermometer below zero, and yet the same plant is treated as half-hardy even in the South, and indeed will not stand unprotected as far as my experience teaches. The Bog Bean (Menyanthes trifoliata) thrives in the wildest luxuriance, having gained a strong foothold of the whole beds. A variety of Lobelia fulgens, which I took for Queen Victoria, was also growing very freely in large clumps, and had evidently occupied the same position for some time. This plant may be more perennial in character if treated in the bog garden. A grand mass of Saxifraga peltata gave testimony as to its value as a decorative plant, the huge umbrella-like leaves being 4 feet or more high. Telekia cordifolia was very showy, with large capitula of brightest yellow with narrow ray-florets and large cordate leaves, very effective in a mass as seen here. Among Bog Ferns here established conspicuously were Osmunda gracilis producing dense masses of fronds larger than I had previously seen them; the beautiful Onoclea sensibilis was quite at home, and like the Bog Bean associated with nearly all the other subjects, and the barren fronds were simply astounding—almost making one fancy that they were not those of the Onoclea at all.

Passing on from the bog garden towards the house, escorted through the meadow by Mr. Shortt, who has charge of these gardens, I was met by two or three

of the emus, and my curiosity was excited as to what they required. Did they recognise a stranger? Undoubtedly; but they were quite satisfied when Mr. Shortt's pockets were relieved of their contents. The long border is so called not without reason, for it is hard upon 400 feet long, with a variously curved outline, and contains a marvellous host of shrubs, perennials and annuals, all assisting to make the border what it is—a source of interest nearly every month of the year, especially so during the summer months. The number of plants here accommodated is legion, and the variety is very great. Nether rake, nor hoe, nor spade is ever introduced to this border, it is always hand-weeded, and mulched with rotten manure every autumn. It is utterly impossible to mention even a tithe of the plants in flower within the space at our disposal, but a few of the more conspicuous are noted. Aquilegia californica, with long narrow scarlet and yellow flowers on stems 3—4 feet high, was very charming, and in these days of mongrel Columbines it was quite a treat to see the typical form. A. cœrulea (true) was most abundant in all parts of the border, although but few were flowering so late in the season, but the effect must be something charming when the whole are in bloom. This is one of the special favourites at Floore, the majority of the plants being raised from seeds collected by Mr. Loder in the Rocky Mountains. There is also a plant of the lovely A. cœrulea alba, which is extremely rare. Achillea filipendula is very showy, with broad, flat corymbs of bright yellow flowers and light green, graceful foliage—one of the best of the Yarrows. Bocconia japonica, with its panicles of deep cream coloured flowers and glaucous foliage, is very showy in its proper place. Statice latifolia, with immense branching heads of lavender-blue flowers, was very showy; and several other species were also in flower. The grand Polemonium Richardsoni was flowering nicely for the third time this season, and a grand thing it is—undoubtedly the finest of all for the border. The double scarlet Lychnis in a large mass was very brilliant, and growing very freely. Galtonia candicans in masses with its towering spikes of white pendulous flowers rising out of the surrounding greenery, was just in its proper place. Large plants of Arnebia echioides in full flower fully testified as to its value for border decoration, if such were needed. Platycodon grandiflorus, with its large deep blue Clematis-like flowers, was very effective, and so were the different kinds of Acanthus in flower; these are very striking plants when in leafage only, but the spikes of flowers materially help to make them even more noticeable Campanula Hendersoni was flowering very freely; a large plant of it was very showy, and it has flowered for a very long time. Astrantia major, with nearly white heads of flowers in branched stems is very pretty. Agapanthus umbellatus, strongly in flower, having stood out for a few years without any other protection than the mulching of manure—what a grand old plant it is! Gypsophila paniculata was one of the showiest plants in the border, in the form of broad spreading masses of small white flowers, having a very light and elegant appearance. Epilobium Fleischeri is perhaps the dwarfest of the "Willow herbs," extremely free-flowering, bright pink flowers, quite as large as those of E. Dodonaei; it is a very desirable plant. Sidalcea candida, with its pure white Malva-like flowers, is very showy. Gaillardias, Phloxes, Campanulas, and a host of annuals, and others, made the border very gay. And here I must leave it, unless we stay at the very end and peep in a small frame to find a charming colony of the rare little hardy Echinocactus Simpsoni—all healthy-looking—little fat spiny bodies, surrounded with other lesser but obese plants. Such a little picture is rarely met with. And now, here we are at the fascinating Rock Garden—but where are the rocks? Ah, herein lies a tale, which shall be made known—they are all, or nearly so, beneath the surface, carefully and scientifically arranged to suit the various subjects planted thereon, and the whole is covered with a coating of the same soil, with the exception of a few large boulders projecting here and there—I think not more than three or four of them. And first of all let us walk towards them, and see what a happy family of Cacti are nestling beneath the shade and shelter of the friendly rock! "Yes, there they are," says Mr. Shortt; "and there they have stood without any other protection when the thermometer registered 9° below zero, and they were frozen as hard as bricks!" Really, such is the statement of fact, and still how healthy and happy they look—numerous species of Echinocactus, Echinocereus, and Opuntia, and some of them are really beautiful. I cannot give a detailed list of them, although such would be worth recording; I have no doubt Mr. Shortt would furnish the readers of the *Gardeners' Chronicle* with such a list. But what a home they have—the overhanging rock protects them from all falling moisture in the form of rain and snow, and they enjoy thorough drainage at the root, consequently they are not subject to the ills which mainly destroy succulent plants. Scrambling over and draping these exposed boulders are many rare and beautiful alpines, and especially noticeable at the side was the charming Androsace lanuginosa, with its silky silvery foliage and circular umbels of delicate pink flowers—exactly the position for it, and it is thriving admirably.

The rock garden is beautifully arranged and rather extensive, the central portion is irregularly excavated, sloping towards the level on either side; the central path has a very tortuous course, and numerous winding side paths lead you among the colonies of alpines, for it must be recorded that solitary plants are by no means common at Floore—large patches of each kind exist in very many instances, indeed this system of planting is carried out whenever practicable; thus you see broad masses of Gentians, Primulas, Pinguiculas, Stonecrops, House Leeks, &c., far too numerous to give in detail. At the end of one side of the rockery is a gently sloping green bank, which is intended to represent—and an excellent representation it is—the "South Downs," and it goes by that designation. It is carpeted with Veronica repens, and an excellent sward it makes—deep green, very close growing, and rising from the surface are several pretty little Ferns and the withering stems of a large collection of hardy Orchids, native and other kinds. This must be an extremely interesting spot during the flowering period of these most fascinating little subjects. The soil of which the miniature "South Downs" is made is very chalky, so the requirements of a large number of our terrestrial orchids are met, and, judging from the appearance of the decaying stems, they fully appreciate the position they occupy.

Among the multitudes of alpines now in flower, I made notes upon the following. Armeria cephalotes in broad masses and variety was extremely showy, especially the soft pink-flowered varieties. Cyananthus lobatus, with its pale green trailing shoots terminated with rich blue and white funnel-shaped flowers, was very attractive; this very hardy alpine is not half so widely known as it should be. Onosma tauricum full of bright yellow tubular flowers. Æthionema grandiflorum, crowded with pink racemes of flowers, is a very charming alpine, requiring a well-drained spot. Coronilla iberica is the best species under cultivation, producing deep green foliage and racemes of bright yellow flowers in great profusion all the summer. Veronica corymbosa, very rare and pretty, about 6 or 8 inches high, with the flowering shoots very freely forked at the extremities and crowded with deep blue-purple flowers, one of the prettiest alpines, extremely scarce; if you order it, a corymbose Veronica may be received, but not the plant here referred to. A colony of the Grass of Parnassus—Parnassia palustris—was one of the most pleasing features on the rockery, crowded with its beautiful white flowers, 9 inches or more high, and so healthy looking. Campanula Raineri is quite at home; a nice patch of it was in flower, showing at a glance its distinction from C. turbinata. Pratia angulata, covered with its charming little pure white flowers, set like stars upon the deep coloured dwarf creeping shoots; this stands unprotected at Floore. Pinguicula grandiflora, flowering freely and very abundantly: just fancy this gem dotted here and there just wherever it fancies to grow, with its spreading rosettes of pale green leaves and bright blue flowers! The pretty Himalayan Saxifraga diversifolia, with branching stems carrying bright yellow flowers—recently well represented by an illustration in the *Gardeners' Chronicle*. Arenaria gypsophiloides is one of the prettiest species I ever saw; it has long narrow glaucous grass-like foliage and dense tufts, and branching flower-stems of white flowers about a foot high, bearing more than a slight resemblance to the flowers of Gypsophila. The pretty little New Zealand Daisy, Bellium rotundifolium cœrulescens, was full of its pale blue Daisies, a favourite plant of mine, and I was pleased to recognise it. But I must forbear, and make a few remarks upon the little "wall garden" in the front of the house; here are a lot of gems evidently at home in the chinks of the masonry. Asplenium Ceterach, Trichomanes, septentrionale and germanicum, thriving well, indeed I never saw the former more happily established; and here are tufts of Ramondia pyrenaica, at the foot and at various levels in the wall: how well it looks, flowers and seeds; this is a special favourite at Floore, thriving better than I ever saw it before. Several Saxifrages were doing well; S. longifolia was especially very fine, the large flat rosettes lying close to the wall—and how pretty they looked; S. Burseriana was also establishing itself with many others. This wall will eventually be a most interesting spot, and it is a great pity many such walls are not planted with these and similar plants.

The collection of hardy Ferns is very large and rich, including a large number of varietal forms of our native species, such as Athyrium filix-fœmina, Scolopendrium vulgare, &c., many of which are extremely beautiful, but I may particularly mention the occurrence of the rarer species of indigenous and hardy exotic Ferns. Thus the rock Spleenwort (Asplenium fontanum) rested happily upon a rocky ledge, the specimen being nearly a foot across, and with unusually large fronds; how seldom one meets with such a plant of this gem, but here it has stood without any protection. Lomaria chilensis also exists in the form of most healthy specimens, and it is rapidly increasing. Polystichum acrostichoides has gained quite a foothold, and is very abundant. Struthiopteris japonica, with immense fronds, is truly wonderful; while Adiantum pedatum is magnificent, large masses, several feet through, with very large fronds exist, which rival in contour and gracefulness many occupants of our stove ferneries. Asplenium goringianum pictum is growing freely, as well as Aspidium vestitum var. venustum, a very lovely Fern. Lastrea recurva, a rather scarce native Fern, is very plentiful, producing large fronds. The Holly Fern, Aspidium lonchitis, is quite at home, as there are fronds 20 inches or more long and proportionately wide, an unusual development under cultivation. The Welsh Polypody, P. cambricum, is very fine, large tufts of its bright green tufted fronds being very pleasing.

Glancing into the frames and borders near the glass-houses many choice odds-and-ends were noticeable—the very rare little Asplenium Selosii, and the equally scarce Myosotidium nobile, looking very healthy. Gilia aggregata, with tubular flowers, so well noticed in the *Gardeners' Chronicle*, p. 275. Hard by this was a charming tuft of Sempervivum Moggridgei at the very base of the greenhouse wall; and what a little picture it is, crowded with the cobweby rosettes: a rare species is this. The Cacti in a frame are really well worth going a long way to see. What they are when in flower can only be appreciated when seen.

One might fill a volume with notes made at Floore; but enough has been said to give the readers of the *Gardeners' Chronicle* an idea of the extent and character of the collection so enthusiastically maintained, for Mr. Loder spares no means which tend to give additional interest to the collection. He is not only a most indefatigable cultivator, but a large collector, as the contents of a series of frames can testify, they being filled with a host of alpines taken from the Austrian and Swiss mountains this season, so it is difficult to surmise even what the future of Floore will be in this respect. *Visitor.*

NOTES ON IRISES.

(*Continued from p.* 232.)

4. On Some Hybrid Irises.—I find that many have a great objection to the raising of hybrids. From a gardening point of view this is of course wholly unreasonable, seeing how every year sees the birth of hybrids more beautiful and more manageable than their parents; and even from a botanical point of view the hybridist, it appears to me, deserves praise and not blame. I will say nothing of the evidence, gradually growing stronger, that some of the wild forms of plants regarded by many as species are natural hybrids, and that the distinction between a veritable species and a hybrid is illusory. I simply ask, What is the object of all our investigations into the distinctive characters of plants, into their geographical distribution, and into the proper way of classifying them, except to understand the nature of plants, to find out how they came about, and what is the meaning of all their diverse features? If this be so, then every hybridisation must be most valuable, as being a direct experimental thrust into the hidden nature of

the two parents. Every feature of a hybrid must have previously existed latent and potential, even if not visible, in one or other of the parents; and, indeed, every hybridisation may be looked upon as a trial to see of what stuff the parents are made. Of course, for this very reason, new hybrids are apt to throw into confusion old classifications, and to upset many a neat *clavis;* but surely this is a matter over which we should not sorrow but rejoice exceedingly, seeing that we are thereby saved, as it were prematurely, from a serious error. Finding pleasure in my Irises, not only for their beauty, but also for the lessons which they teach, I have not hesitated for some few years past to make numerous attempts at hybridisation, and am already beginning to reach results which may perhaps be interesting not only to myself but even to my readers.

Let me first say a word about the natural seeding of Irises. The bare plot of ground which my sarcastic friends call my garden lies on the summit of a chalk hill, not in the soft southern part of England, but in the raw Eastern Counties—a hill, inconspicuous in itself, but appearing something because it rises straight from the flat plains of Cambridgeshire. Here without soil, with a rainfall about the smallest in England, buffeted by winds from every quarter, I make an heroic attempt to grow my plants; and they are nourished chiefly with my tears. One advantage only I have, that I gather nearly all the sunlight which falls in our dull clime. I mention these things because they have probably something to do with the fact that such plants as do not succumb to my adverse conditions, but reward my pains by living to flower, on the whole seed very freely. I have already found, more than once, that plants which with Mr. Thompson at Ipswich seed with difficulty bear me abundant crops. I am, therefore, amid all my disadvantages, in favourable circumstances for the seeding of Irises.

In the matter of seeding, not only with me but elsewhere, a great contrast may be observed between the beardless (Apogon) and bearded (Pogoniris) forms. With some few exceptions all the former seed freely, I mean without any artificial fertilisation; all the latter, with some few exceptions, seed scantily. At first sight there seems to be a final cause for this. The bearded Irises are in nearly all cases provided with a thick fleshy rhizome, which may be knocked about, cut to pieces, transferred from place to place, dried up, and, in fine, may suffer all manner of indignities without losing its life. Thus the chances of prolonging the individual life are much greater, and hence the necessity of reproducing itself by seed much less than with the beardless Irises, whose fibrous roots are in the majority of cases devoid of a distinct fleshy rhizome, and thus far more liable to destruction. But this view is negatived by the facts that the bulbous Irises (Xiphion)—(for a bulb is as good a protection as, or even a better one than a rhizome)—seed quite freely in most cases, and that the Onocyclus group (I. susiana, &c.), which are rhizomatous, and indeed most markedly so, seed quite freely, as far as my small experience goes, if placed under favourable circumstances. Moreover, it seems strange that the bearded Irises should be the ones which do not seed, seeing that in them the arrangements for insect fertilisation, such as the complex beard, &c., are much more elaborate, and the flowers are, as a rule, more handsome and conspicuous than is the case with the beardless Irises. And there is no evidence that, either in my region or in the rest of England, insects suitable for fertilising the bearded Irises are much less common than those suited for fertilising the beardless ones. I am inclined to think that the actual reason why the beardless Irises seed so freely is because, in some way or other, and for some reason or other, they have learnt the practice of self-fertilisation. I say learnt, because the arrangement of anther and stigma is in them, as in all Irises, opposed to self-fertilisation, and we are, therefore, led to believe that the Iris in its beginning was a plant which did not fertilise itself; on the other hand, it is quite open for us to suppose that the power has been preserved rather than acquired. At all events, I think I have evidence, though not yet sufficiently exact and extensive to be insisted upon, that these beardless Irises can fertilise themselves, even each stigma with its own underlying pollen; and it is perhaps worthy of remark that in many forms, such as I. spuria, I. longipetala, &c., the anther is frequently so long as to project beyond and above the stigmatic surface, and thus the pollen from the top part of the anther readily falls on its own stigma. The bearded Irises, on the other hand, as far as my observations will allow me to judge, are not capable of self-fertilisation; when they go to seed it is because the stigma has received the pollen of another flower. This is all very tedious, I hear some one say; and yet every one, I venture to think, loving at first a group of plants for their beauty only, will sooner or later find himself entangled and interested in questions of this kind. Besides, such matters are not without practical importance; for instance, in attempting to hybridise the beardless Irises much more careful precautions have to be taken than is necessary with the bearded forms.

It is with certain hybrids of the bearded group that I wish to deal now. As I said above, these, at least the native wild forms, very rarely seed naturally. But there are exceptions. Thus, among the dwarf forms, while the true I. pumila rarely goes to seed, I. chamæiris, and the allied I. italica, I. olbiensis, &c., seed freely. With the taller common garden forms seeding is much less common. I. pallida is the one perhaps most prone to seed, and next come some forms of variegata. I. germanica often produces pods, but rarely affords ripe, well-formed seeds. I have occasionally had a pod from I flavescens, but I have never seen I. florentina so much as even begin to swell its pods. And the results of artificial fertilisation either with proper or with foreign pollen follow in much the same order. I have found no great difficulty in getting large, turgid pods, well filled with good seed, from I. pallida and I. variegata; with I. germanica the ovary swells and becomes a pod, but rarely gives sound seed; and the same with I. flavescens; while every one of the many attempts I have made to fertilise I. florentina have resulted in complete failure.

These facts make me feel inclined to believe that the going to seed or not going to seed is determined much more by the inherent intrinsic capacities of the plants than by the mere fact whether or no pollen has been brought, by insects or otherwise, upon the stigma. That the form of the Iris flower is adapted to insect fertilisation cannot be denied. Indeed, Sprengel states that he was originally led to his views of insect fertilisation by observations on the Spanish Iris (I. xiphium). This is a beardless form; but the beard seems only an additional contrivance to insect fertilisation. On the one hand it is a more conspicuous signal than the coloured blotch on the beardless Iris; on the other it seems to be of mechanical use, for, as I have actually observed, a bee tries to walk over the beard into the funnel of the flower, and in so doing repeatedly brushes the stigma with its back. Admirably adapted as the flower seems, however, yet the occurrence of fertilisation does not seem to be in any direct relation to insect visits. I have not been able to make as yet any close or careful observations, but as far as I have hitherto seen I. germanica or florentina is as much visited by bees (or other insects) as pallida and variegata, and such of these creatures as are about in the spring seem as fond of visiting I. pumila, which rarely goes to seed, as the other dwarf Irises which seed freely. Nor does the quantity of pollen afforded by the anthers appear to be a very important factor; for several Irises which have abundant pollen do not seed freely, while on the other hand I have repeatedly seen scanty pollen distinctly efficacious.

As is well known, there are many tall bearded Irises cultivated in our gardens which do not occur anywhere in a wild state. Some of them, such as I. aphylla, or I. plicata, I. Swerti, I. neglecta, are of very old standing, and have been admitted by Mr. Baker as species. Besides these there are an immense number of forms, generally spoken of in the nurserymen's catalogues as varieties of I. germanica. I have no doubt at all that I. plicata, or aphylla, and I. Swerti are derivatives from I. pallida; and moreover, I am inclined to think that they are hybrids and not simply intrinsic varieties. I. neglecta, for reasons which I will state presently, I believe to be a hybrid. The nurserymen's varieties of I. germanica are derivatives from I. pallida, I. squalens, I. variegata, I. sambucina, I. lurida, and I. flavescens; and my friend Mr. Peter Barr, in his catalogue, makes a very praiseworthy attempt to classify them as varieties of these several species. I believe that all these garden forms also are in ultimate origin hybrids, though the products of the first hybridisation probably varied largely afterwards; and into the large number of forms so far known to me the blood of I. germanica proper, and of I. florentina enters to a very slight degree if at all.

I have spoken of these supposed hybrids as subsequently varying, that is, giving seedling varieties, because in the genus Iris, as so often in other plants, the hybrids, so far from being sterile, appear to seed even more freely than their parents. So much has this now become impressed on my mind, that in the case of any bearded Iris of unknown origin, the fact of its seeding freely would be to me an indication of its being a hybrid. Under the name of I. pumila affinis I received some time ago from my friend Mr. Max Leichtlin a handsome dwarf Iris, which he found in the Botanic Gardens at Vienna, and the origin of which was unknown. He supposed it to be a hybrid, and I am inclined to think that he is right, and that its parents are I. pumila and some such form as I. italica. This plant seeds with even troublesome profusion. Messrs. Haage & Schmidt distribute a somewhat dwarf Iris which they speak of as a hybrid between I. pumila and I. olbiensis. I am inclined to regard this also as a hybrid, though I very much doubt the particular parentage given; it, too, seeds most profusely. Similarly I. neglecta and many of the tall garden Irises spoken of above seed on the whole more freely than any native tall kinds, except perhaps I. pallida. *M. Foster, Shelford, Aug.*, 1883.

(*To be continued.*)

EPPING FOREST.

ON entering the Forest from the Chingford railway station the prospect for the botanist is anything but an encouraging one, for with the treading of the thousands of people that visit it and the grazing of cattle, there is not even the variety of vegetation to be met with in an ordinary cultivated field. Passing the Royal Forest Hotel, however, on the left, one begins to meet with low tangled bushes and scrub, which prove to be a prevailing feature in many of the opener parts. This consists in great part of Prunus spinosa, Rubus discolor, Rosa arvensis, Cornus sanguinea, and many similar subjects which are the common occupants of the wastes and thickets in many of the southern counties of the island. These thorny bushes act as a conservative force against the depredations of grazing animals, and afford protection for such things as Silaus pratensis, Pimpinella saxifraga, Caucalis anthriscus, Betonica officinalis, and Agrimonia Eupatoria, which, if not all ornamental plants, are at least interesting as showing the character of the vegetation under the existing circumstances. If left in an unmolested state there is no doubt the aspect would be entirely changed in the course of a few years.

The twining stems of Tamus communis are now heavily laden with fruit in a green state, presently to become red as it matures. Ononis spinosa, with flowers in varying shades of purple and violet, fading almost to white, occupies broad isolated patches in the open, demonstrating that when once established it becomes a spreading colony able to take care of itself. Bidens tripartita, growing by the margins of streams, is possibly the least ornamental or attractive of British Composites, while Rumex sanguineus becomes showy from the deep red tubercle on the fruit. Pedicularis sylvatica still persists in sending up a few of its beautiful red flowers; and P. palustris, although not in flower, is noticeable for its pretty tufts of finely divided leaves. Pulicaria dysenterica, designated by some authorities Inula, is by no means a despicable plant for the herbaceous border where the soil is sufficiently moist to favour its proper development.

Although all these plants are tolerably common, or familiar to those acquainted with British botany, yet the considerable variety of soil, and its condition as to moisture throughout the 12 or 13 miles over which the forest extends in length, presents a diversified flora adapted to all these varying conditions for which their natures are suited. In dry bushy places, where the intervening vegetation is generally low, the bright-eyed Euphrasia officinalis studs the grass in a charming manner. So variable is this plant in size and shape of the leaves that some authors describe many of the forms as distinct species. Typha latifolia, growing in springy and boggy places, is a bold and distinct looking plant, that should occupy a place on the margin of every pond, where the black cylindrical flower-spikes are productive of fine effect.

Towards High Beech the interesting but by no means decorative plant, Verbena officinalis, makes its appearance. Although formerly used in medicine, besides being an object of superstitious regard, it is by the moderns almost suffered to pass unnoticed. In the same neighbourhood Peplis portula and Ana-

gallis tenella carpet the ground in moist places in a loose and straggling manner. The former is noticeable for its small and extremely fugacious petals, making it difficult to obtain characters to determine its generic position, while the latter is well known for its conspicuous and truly ornamental flowers. It seems to be a more widely distributed plant than it generally gets credit for. The small Furze, Ulex nanus, now in full bloom, grows plentifully in the immediate vicinity of the common one. Stray specimens of Erythræa centaurium are to be met with. This seems a plant that varies considerably, according to position and circumstances, being dwarf and stout in exposed places, while here, under the direct action of shade, it is comparatively slender, and attains a height of 18 inches, with broad cymose umbels of flowers. Genista anglica occurs abundantly in many heathy and bushy places, and having finished its season's growth, presents an entirely different appearance from that in spring, when its spiny branches are leafless, or nearly so. On the slopes of the forest towards Loughton it is accompanied by G. tinctoria, which latter, however, is a much less common plant. Both are now in fruit. The ground here is beautifully carpeted underneath the pollarded trees with the common Heath (Calluna vulgaris) interspersed in a pleasant manner with many of the above mentioned plants and great quantities of Melampyrum pratense, with its curious pale yellow flowers. Sison amomum, affecting the hedge banks, is a rather uncommon Umbellifer, noticeable for its nauseous smell, small white flowers, and its slender, profusely branching habit. *V.*

POTATO DISEASES.

Peziza postuma, Berk. and Wils.—In describing the common Potato disease in 1846 the Rev. Mr. Berkeley called attention to a "sclerotium" found in the Potato stalks. After detailing the effects of the Peronospora on the various parts of the haulm, he observes:—"The stem now rapidly putrefies, the cuticle and its subjacent tissue become pulpy, and separate when touched from the woody parts beneath. The whole soon dries up, and in many instances exhibits in the centre the black, irregular fungoid masses which are known under the name of Sclerotium varium, and which are believed to be the mycelium of certain moulds in a high state of condensation." The point in this description to which I would direct attention is that which implies that the stem was in a putrefying state before the sclerotium began to make its appearance.

In the *Gardeners' Chronicle* of Aug. 28, 1880, p. 264, Mr. Worthington G. Smith describes "a new form of disease in Potatos." Mr. Ambrose Balfe, Secretary to the Royal Horticultural Society of Ireland, had sent him diseased Potato haulms from the West of Ireland, and these Mr. Smith figures and explains in a way to which almost nothing can be added. The reader is referred to this paper and its illustrations. The haulms were infested with Sclerotium varium.

In *Nature* of July 19, 1883, appeared a note (p. 281) from data supplied by *Naturen* detailing the ravages of "a hitherto unknown form of the Potato disease, which had been making slow but steady progress near Stavanger during the last ten or twelve years." Herr Anda had discovered in the Potato stalks fungoid growths of the size of a small Bean. It is stated that "while the fungus is rapidly increasing at the expense of the plant, the interior of the stem is first reduced to a pulpy condition, and next shrivelled and hollowed out, until nothing remains but a mere outer shell, which breaks down on being touched."

In *Nature* of July 26, 1883, Mr. W. G. Smith pointed out that the disease described by Herr Anda is the same that he had described in the *Gardeners' Chronicle*. Herr Anda had seen the sclerotia germinate as "small stalked fruits filled with minute spores," and Mr. Smith regrets that he had not got the fungus identified.

On April 7 I beat out about a quarter of a pound of S. varium from dry Potato stalks. They varied in size from the dot of an "i" to half an inch in length. On April 18 I put a number of them to germinate on wet cloth in a broken jar under an inverted flower-pot. By May 24 a few of them had thrown out one or more short stalks.

Another set laid on wet cloth on May 29 showed a similar amount of germination by June 12. On June 21 one stalk of the sclerotia first laid down had developed a little cup at the apex, about a tenth of an inch in diameter, and the same in depth. I did not venture to dissect it in case no more should appear; but I saw that it was probably a Peziza. A good few more soon began to develope small cups.

On July 30, in the place where the Potato stalks had lain in the garden all the winter, and in which I knew that many sclerotia were mixed with the soil, now bearing Potatos, I found a little Peziza growing in great numbers amongst the Potato stalks. On digging some specimens up they were found to be attached to sclerotia, some of which were still inside of bits of old Potato stalks. No doubt, therefore, remained that this new Peziza was the perfect fruit of Sclerotium varium. I announced the fact in *Nature* (Aug. 9, 1883) in connection with the correspondence in that journal. On the following week, however, Professor Blytt, referring to Mr. W. G. Smith's communication, states that he had sent specimens of this sclerotium to Professor De Bary, who had informed him that he had cultivated the sclerotia with success, and had found that they belonged to Peziza sclerotiorum (Lib.)

I had sent specimens of the naturally grown Peziza to Mr. Berkeley, who named it Peziza postuma, and kindly wrote the annexed diagnosis:—"Sclerotigera, stipite erecto vel tortuoso pallido, cupula cyathiformi expansa ochracea."

In the illustration (fig. 50) A represents artificial germination, in which the stalks grow straight; B, C, and D are specimens naturally grown in earth, the stalks being rendered tortuous by obstructions in the soil. The stalks are sometimes four or more inches in

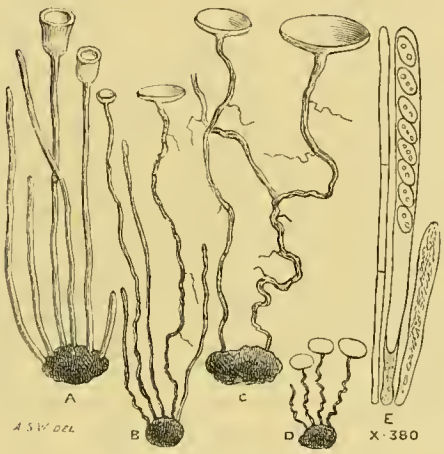

Fig. 50.—Peziza postuma, Berk. and Wils.

A, Artificial cultivation of Sclerotium varium, n. s.; B, C, D, Natural growth of Sclerotium varium in the soil, n. s.; E, Asci, sporidia, paraphyses, × 380.

length, corresponding with the depth of the sclerotium; the cup being developed close to the surface of various diameters up to about half an inch. The ascus contains eight sporidia of an ovoid form, and showing two or more granules. The asci average about .15 mm. in length, the sporidia measuring .01 by .005 mm. The sporidia are disseminated, as I have observed a good many times, like a puff of smoke, and thus get scattered over all parts of the Potato stalk.

Now, if a part of the life of this Peziza is truly parasitic and destructive of the life of the host plant, it assumes a high economic importance; while if no part is parasitic, the importance is very much diminished. In Claviceps purpurea, that part of the life of the fungus which is passed in producing the ergot or sclerotium, is truly parasitic. The sporidia alight upon some part of the living grass flower, and in the production of the sclerotium the organs of fructification in the host are destroyed. And if it shall be found to be the case that the sporidia of this Peziza begin to produce sclerotia in the living tissue of the Potato stalk, the Potato plant has a real enemy to contend with. It is stated by Herr Anda (*Nature*, July 19, 1883) that "the end of July or beginning of August is the time when the ravages of the fungus are most conspicuous, and at those periods whole fields of Potato plants are often rapidly reduced to the condition of withered straw." It is evidently implied here that the fungus is truly parasitic, and destroys the Potato. So far as the production of S. varium on and in Potato stalks has appeared here, that production has rather seemed to follow the decay of the stalks consequent on the common disease, than to initiate decay itself; but further and more minute observation seems necessary to determine this most important point. If the sclerotia are truly parasitic, we have an easy means of the cure of this disease in the burning of the haulms, where alone the reproductive bodies hybernate. *A. Stephen Wilson, North Kinmundy, Aberdeen.*

COLONIAL NOTES.

Cape Town Botanic Gardens.—This establishment might be of the greatest service to the colony by the introduction of useful and ornamental plants, and by carrying out preliminary experiments such as private individuals have, as a rule, neither time, means, inclination, nor capacity to undertake. It might very materially add to the knowledge of the flora of South Africa and of its resources, and whatever benefits it received from the home country it might readily reciprocate. From the report before us we learn that the garden is thoroughly crippled in its means of doing good, not only by the beggarly sum allotted to it from the Government, but even more by the radically vicious system of being made dependent for its income, to a large extent, on the sale of plants to local plant buyers. Quantities of plants of no special botanical or economic value have to be raised for commercial purposes, and thus the garden is made, without adequate provision of capital or business connection, to enter the lists against local nurserymen, who may on their part well complain that their legitimate business, for which they have, or are supposed to have, special facilities, is interfered with. By this absurd system both parties are prevented from doing the work for which each is respectively fitted, while the proper work of the Botanic Garden is proportionately neglected. With reference to the Orchids it is pointed out that a supply of European peat is necessary, and "it becomes a question whether the Government could not permit an importation of this material, the Phylloxera proclamation notwithstanding. The possibility of introducing the dreaded Vine pest in peat fibre from Dartmoor is as remote as its introduction in cocoa-nut fibre from Ceylon. It is surely one of the curiosities of legislation that this substance is excluded, while packing straw from the neighbourhood of the infested French vineyards enters unquestioned."

As to this point, the only good that we see is that by prohibiting the importation of peat, the gardeners at the Cape will be obliged to look at home for a substitute, natural or artificial, and we are loth to believe that such substitute may not be found. The Director, Mr. Macowan, speaks in warm terms of the ability and tact of the head gardener, Mr. H. Chalwin, and his assistants; but "the garden must make money the first consideration, must sell anything that bears a price, condescend to the arts of advertising, tout here and there for custom, and jostle competing tradesmen out of that they live by. Sales diminish as one clever gardener after another quits the employ and starts a business for himself. To these rivals accrue many advantages denied to the garden. They can cultivate from a purely commercial point of view, and have no public pleasaunce to keep in scrupulous trimness by daily unproductive labour."

In the case of all such gardens the questions arise, are they wanted or are they not? If they are—and their existence shows that they are—then for what purposes are they required? If for what we may term the proper uses of a botanic garden, the furtherance of botanical science and its applications to practical utility, and especially the development of the resources of the colony, then, undoubtedly, the Colonial Governments should afford adequate means for their support, and take reasonable care to see that the money is properly spent. If, in addition to these, the primary objects of a botanic garden, it be desired also to make it into a pleasure ground, there can be no objection so long as the requisite means—in this case much larger—are forthcoming. We are aware that some are of opinion that no attempt should be made to mix up in one establishment science and practical botany with ornamental gardening and the maintenance of a pleasure ground. This is not entirely our view. We think that if proper precautions be taken to prevent the interference of idlers, free access on the part of the public is desirable in the interest of the director and of the garden. The public sees what is being done, learns to sympathise with and appreciate the labours of the authorities, and has the satisfaction of

seeing what is "being done with its money," or, if dissatisfied, it has the means of bringing pressure to bear to rectify what may be amiss. If the public is satisfied with the efforts made for its pleasure, it will not grudge the outlay made on other departments, the immediate objects of which it cannot perhaps appreciate, and the beneficial results of which must necessarily be looked for in the future rather than in the present.

NATAL.—The report of the Botanic Gardens for the year 1882-83 is before us, from which it appears that, after a chequered history, an attempt has been made to place the gardens on a better footing. Government aid has been furnished, and public subscriptions and donations received. The gardens consist of 50 acres, near Durban. The observatory has been established in the gardens, and of horticultural works a conservatory, fernery, curator's office, and gardener's house have been built. The main objects are "not only to afford a place of resort to the burgesses of Durban and visitors to the town, but also to make the gardens a nursery for the propagation of plants, shrubs, and trees throughout the colony, and to secure the introduction, in constant and continuous supply, of foreign specimens upon the principle of exchange." The ground is laid out in blocks, a register being kept of the plants in each block, as well as an alphabetical list of the plants with numbers and letters indicating their position in the blocks. Mr. J. Medley Wood is the curator.

A useful addition to the report is the abstract of meteorological observations for the year, from which we learn that the lowest reading of the thermometer in the shade was 47°, in July; the highest 95°, in October. The lowest temperature on the grass was 38°, in June and in July; the highest on the grass 60°, in January. The mean temperature in the shade for the year was 68°·8; the total rainfall 36·1 inches, the wettest months being January, April, May, October, and December. In June scarcely any rain fell, and no large amount in the other months.

FORESTRY.

THE INTERNATIONAL FORESTRY EXHIBITION.—We learn that the Queen has graciously accorded her Royal patronage to the International Forestry Exhibition to be held in Edinburgh next year. From the prospectus, which has just been printed, it appears that the exhibition will be organised under nine classes. In Class I., "Practical Forestry," will be exhibited implements, tools, &c., used in forestry, draining and enclosing; models of foresters' huts, charcoal kilns, and timber slips; plans of river embankments, rafts, and appliances for floating timber; models of machinery for transporting timber and transplanting trees; sawmills, woodworking; and pulp machinery of every description, and fencing materials. Class II., "Forest Produce," will embrace collections of timber specimens and ornamental woods, woods used for ordnance, for railway purposes, and for pavements, cooperage, wood carving, and turnery; basket and wicker work, fancy woodwork, wood engraving, tanning and dyeing substances, barks, including cork, fibres and fibrous substances, materials for paper manufacture, gums, resins, wood-oils, and varnishes, &c. Under Class III., "Scientific Forestry," will be ranked botanical specimens of forest flora, microscopic sections of woods, fungi, and lichens injurious to trees, forest fauna injurious to woods, useful and noxious insects, preservative processes applied to timber, geological specimens and diagrams illustrating the different formations adapted to the growth of trees, fossil plants, and trees found in bogs. Class IV., "Ornamental Forestry," will consist of growing specimens of rare and ornamental trees and naturalised species, in tubs or otherwise; rustic work, arbours, seats, bridges, &c. To Class V., "Illustrative Forestry," will be relegated paintings, photographs, and drawings of remarkable and historical trees, foliage and scenery, illustrations showing the effects of blight, accident, or any abnormal condition, and sketches of work and operations in the forests. In Class VI., "Forest Literature and History," will be found reports of forest schools, forest periodicals and other publications, treatises on measuring and valuing woods, forest floras of different countries, treatises on fixation of dunes and on ancient and extinct forests, working plans of forests and plantations on estates, valuations, surveys, &c.; maps and charts illustrative of the geographical distributions of forest trees and their altitude. Under Class VII. will come essays and reports on specific subjects, for which premiums are offered; under Class VIII. loan collections, and under Class IX. miscellaneous exhibits.

Orchid Notes and Gleanings.

ORCHIDS AT WALTON GRANGE, STONE.—Amongst those who in recent years have been engaged in the fascinating pursuit of Orchid growing must be included Mr. Thompson, who is now in possession of an extensive and extremely well managed collection, especially of the cooler kinds, of which Odontoglossums and Masdevallias may be taken as the representatives, in the rarest and best varieties of which the collection abounds, filling several houses of considerable size. The principal house, some 75 feet in length, with an east aspect, has a wide stage in front, containing some thousands of plants, amongst which Odontoglossums are the chief feature; here there is a double row, running the entire length, of specimens, mostly O. crispum, which it would not be easy to surpass, taking size, condition, and variety into account; many of them are plants obtained from the early importations collected by Chesterton, they are in excellent order, with big bulbs and the healthiest of foliage, and from the fact that many of these plants have from four to seven or eight breaks each, some idea may be formed of the sight they will afford in the principal blooming season. Even at the present time there are hundreds of spikes coming on or in flower, amongst which were some beautiful forms. With these are quantities of smaller plants in equally good condition. In an adjoining house were some large healthy examples of O. vexillarium, including a good many of the autumn flowering variety; here also was the pretty Dendrobium Jamesianum. Of Epidendrum vitellinum a fine highly coloured form was in flower. Dendrobium Falconeri thrives freely here amongst the Odontoglossums, Masdevallias, and Epidendrums. In another house were several plants of the scarce Lycaste Skinneri alba, and a large stock of Lælia anceps, with which was a fine piece of L. anceps Dawsoni. L. autumnalis is well represented, including the beautiful variety L. autumnalis rubellum (Backhouse's variety). Another house is devoted to the warmer section, such as Cypripediums, Dendrobiums, and the like. Amongst these the Dendrobiums particularly seem at home—D. Wardianum, D. crassinode, and the beautiful D. superbiens: the latter has three or four bulbs 2 feet long. Of the new and distinct species there are several plants growing away nicely, also a nice selection of Cattleyas. A considerable number of Masdevallias are dispersed amongst the Odontoglossums in flower already noticed, in this way both these beautiful and distinct looking flowers are seen to advantage, the intensely high colours of the Masdevallias enhancing the purity of those of the Odontoglossums. In addition to these there is a small house filled with Masdevallias, including the best kinds, many of which are represented by large plants, such as the Bull's blood variety of M. Harryana, that has some fifty bulbs, which, with the big healthy leaves, are a foot long. In a lofty span-roofed house, with a wall on one side running to the eave of the roof, evidently intended for a conservatory, and high enough for a two-storey dwelling, are a quantity of Phalænopsis thriving in the best possible manner. I mention the form of house, for it is just the sort of structure which might be looked upon as a first-rate killing place for these or any other plants requiring plenty of light; the body of the structure is filled with Palms and similar things, and the Phalænopsis are hung up over them close to the roof, where they are near the light. This, and the fact that so situated they are under the influence of a continual movement in the atmosphere, with a lower temperature during the season of rest than is existent in low, confined houses, is no doubt the secret of their well-doing. There are quantities of the different forms of P. grandiflora, P. amabilis, P. Schilleriana, P. rosea, and others, without a trace of spot or disease of any kind, each succeeding year's leaves getting double the size of those that have been made the season previous; beyond this the substance in the leaves is such as insures their ability to last, upon which so much depends the increase in size and health of the plants. Here, at all events, is a lesson in Orchid growing, showing what may be done under the difficulties of an unsuitable house when there is the requisite foresight to place the plants in the best position for their well-being—a course that is by no means so generally followed as it might be with plants of all kinds grown under glass, as well as Orchids. *T. B.*

PHAIUS (§ THUNIA) ALBUS VAR. FLAVOTINCTUS, *N. E. B.*—This is a slight variety, differing from the type, in having the middle area of the front part of the lip of a light yellow, and only the tips of the veins on the borders of the lips purple. The pollinia are eight in number as in the type, or (as Professor Reichenbach objects to call them eight) four bipartite pollinia, which comes to the same thing. The specimen was communicated by Mr. Reginald Young, of Liverpool. *N. E. Brown.*

Mr. HOLLINGTON'S ORCHIDS.—The collection at Forty Hill, Enfield, is accommodated in a snug nest of houses sheltered by trees and situated in a retired part of the extensive and pretty natural garden, through which the New River flows. Every Orchid collection contains special things specially well done, and those which occupy the place of honour in Mr. A. J. Hollington's establishment are the Phalænopsis, the Odontoglossums, and the Lælia autumnalis; and as these are in the grandest health it will be well to note how they are managed. The Phalænopsis are in rude health; they occupy a span-roofed house 18 feet by 35 feet, which from its position near to the trees and within 3 feet, of a high wall is necessarily sheltered and shady; but this natural shade is not relied upon, for the house is also furnished with roller blinds, as shade is thought here to be an important matter in the culture of the Phalænopsis. The heating is provided for by hot-water pipes, as well as by a very large iron tank, which occupies the whole of the space under the staging on the right-hand side of the house. The heated water in this tank, by giving off moisture in proportion as its temperature is increased or decreased, always keeps up an even temperature in the house, in which the heat and moisture are balanced. The great bulk of heated water in the tank also serves as a safeguard against sudden falls in the temperature consequent on the unavoidable changes in the strength of the fire—a matter which is of great importance in the culture of Phalænopsids. While in many collections good results are being shown by giving these plants a spell in the cool house in summer, those at Forty Hill are grown on the old lines—never less than 65° Fahr. in winter, and from 70° to 85° in summer; and so treated they seem to grow amazingly, each leaf being larger than the preceding so far: the blooming also is very satisfactory, some fine spikes of Schilleriana, Stuartiana, Sanderiana, &c., having passed off, and are now succeeded by hundreds of magnificent blooms of P. amabilis and P. grandiflora. The specimens on the stages are grown in the tall, upright cylinders which seem now to be considered the correct thing for these plants, and those suspended are in the ordinary baskets. Perhaps the most important matter affecting the plants in this house is that day and night, summer and winter, there is air on, as two wire-covered traps, 2 feet by 1 foot, in the back wall, are always open. No danger arises from this even in hard frost, however, as the air passes into the house through the narrow space between the hot-water tank and the wall, and so the cold air is tempered immediately. Many an Orchid grower would be proud to see his Phalænopsis doing so well as the plants are here. Lælia autumnalis and its variety atrorubens are grown in great quantity, and are in fine order in an airy span-roofed house. They are now sending up spikes, many of them as stout as an ordinary lead-pencil. The secret of growing these is to put them in baskets, and suspend them close to the glass, and never to let them shrivel for want of water. In baskets in anything like a good house they take care of themselves, whereas in pots the house in which they are grown must be very suitable, and even then they are a good deal of trouble. The same applies to all the short-bulbed Lælias. The Odontoglossums are grown cool, and are contained in two very large houses and one smaller one. The first is filled with thousands of proved varieties of O. Alexandræ and O. Pescatorei, and representatives of all the leading kinds; the second is a large, very flat-roofed span, in which the small plants and importations are kept; and the third contains varieties on trial. They are all in remarkably good health, the large masses of Oncidium macranthum, which are throwing up spikes at the end of the large cold house, and the large plants of Epidendrum vitellinum in flower, being particularly fine. Lycaste Skinneri, which occupies the greater part of a large house, is doing well; the plants are grown moist, and in the same temperature as that in which Mr. Lee succeeds in getting such grand blooms, viz., about 5° warmer than the Odontoglossum-house. Smaller houses are also devoted to Odontoglossum vexillarium, O. citrosmum, Cœlogynes, Dendrobes, &c., most of which are either good or improving; and the plans for the future comfort of his Orchids and the improvement of the garden will keep their owner busy for a long time.

Plants and their Culture.

Stoves.—It will not be advisable to continue the use of blinds as a shading medium during bright sunshine after this date. Benefit will rather be derived from exposure than otherwise as having a tendency to harden the foliage and ripen the growths of the season. Where the blinds are annually taken off the roof in the autumn and stored away for the winter, the first drying day should be taken advantage of to secure them in a favourable condition. If whiting or other material has been used in lieu of blinds, this should be washed off as soon as possible, not leaving it to chance removal by heavy rains. Where there is any accumulation of dirt or vegetable matter on the glass of the interior of the house the time will be well spent on a wet day in removing the same and in the washing of pots and otherwise cleansing the house before the plants that are at present in other houses are again brought back into the stove for safety during the winter months. Whilst this work is about look over the hot-water piping, and if any joints are faulty or show a tendency for leaking, have them seen to at once whilst the fires can with safety be left out for a night or two without much harm being done. It is far better to have such jobs seen to early, than to defer them till extra pressure is put upon the piping to maintain the required temperature, resulting oftentimes in a breakdown at a critical time.

Continue to close the stove early in the afternoon, so as to shut in as much sun-heat as possible to economise the firing; at the same time give a good damping down and freely syringe the foliage section, Crotons in particular. Those plants in bloom that have a tendency to lose their blossoms prematurely through damp should not be syringed overhead indiscriminately. Vincas in particular are very liable to damp off, one decaying flower oftentimes spoiling two or three buds; these plants should be looked over every day for the removal of faded blooms. Dipladenias and Rondeletias, with the Ixoras, will also need attention in the same manner, though not quite so often. Do not yet withhold water from any Allamandas, Clerodendrons, or Bougainvilleas that bid fair to give a continuance of bloom during the next three or four weeks; the yield they will give in flower will well repay the keeping of them in a growing state. Some of the stock of Eucharis should be induced to throw up a crop of spikes now; these will come in useful after the first frosts destroy the greater part of the outdoor supply. We have them now in various stages, from the developed spike down to those just pushing through the soil, with others not yet showing bloom. Gardenias that have been kept in a cooler house for a time will, if placed in a brisk heat, put forth some blooms that can be turned to a good account when choice flowers are rather scarce. The second crop of bloom on Tabernæmontana coronaria flore-pleno will be useful now for cut purposes, and if a little extra heat be given it the flowers will open all the better for this assistance.

Give all due attention to the stock of winter blooming plants that will succeed the beforementioned subjects, most of which will be all the better if kept in an intermediate temperature with a drier atmosphere for a few weeks longer. Then when taken into more heat a greater impetus will be given them in the production of bloom. Do not let Poinsettias or Euphorbias fall often below 55° or they will suffer at the root with a consequent loss of foliage. We have a stock of Begonia Knowsleyana raised from seed sown last spring that bids fair to be most useful; they are now opening their flowers, the plants are stocky, of short growth yet vigorous, and promise an abundant bloom. This method seems preferable to propagation from cuttings, the plants being more branching in habit. B. insignis could no doubt be managed well under the same treatment. Centropogon Lucianus can be well grown in company with the Begonias in a dry airy pit. Thyrsacanthus rutilans from cuttings this season must be well established by this time to obtain successful results, they will do with the Begonias for the present. The Plumbagos for the winter had better be in the stove proper by this time, the same with Aphelandra aurantiaca Roezlii, keeping this latter plant near the glass. Some of the stock of Scutellarias might be introduced into a little more heat, their showy heads of bloom will be handy for cut purposes. Amaryllis aulica where showing bloom may also be kept a bit warmer; do not let any moisture lodge in the crown of the plant to injure the coming spike. Urceolina pendula will soon be showing bloom if they have while dormant been kept in the background, bring them forward now into as much light as possible.

Greenhouse.—With the rainfall that we are now having it will be necessary to bring those Cape and New Holland plants under cover that have been re-potted this summer; if allowed to become sodden irremediable injury will be done them. Unless the rainfall continues heavy the other portion of the stock can remain out for another week or ten days. By that time the entire collection should be safely housed against any inclemency of the weather. Opportunity should be taken beforehand to have the greenhouse clean and sweet, so that everything may be in order. The end of the month will do for the housing of Camellias and Cytisus.

Forcing Plants.—Any contemplated addition to the stock of these from amongst the hardy flowering shrubs had better be seen to as soon as possible. Such as Rhododendrons and hardy Azaleas will be all the better if taken up and potted early. When this is done the pots should be plunged in leaves or ashes just over the rim of the pots, as a security against frost. Tea Roses in pots that have been in the open during the summer should be put under cover now, to obtain some useful buds when the last of the outdoor Roses are cut off. *James Hudson, Gunnersbury House Gardens, Sept.* 11.

The Kitchen Garden.

The proper time is at hand to make the main plantation of Cabbage; first dress the ground liberally with manure, as this plant is a gross feeder, and the quicker it is grown the better it will be. Dig deeply and break the soil well as it is turned over, and at once proceed to make the plantation. We never plant large kinds, so that we find 18 inches apart from plant to plant sufficient; and if the soil is stiff a good dressing of anything which will tend to lighten the land is beneficial. The ground chosen for the plantation should have a full exposure to the sun, and be free from trees, which are so injurious to this and nearly every other crop in the kitchen garden. Where a bed of Brown Cos, or any hardy sort of Lettuce was sown in July, according to former directions, a good breadth can be planted some 6 inches apart on any sheltered place; they will come in for salad this autumn before the Endive, or to mix with it in the salad bowl. The temperature has suddenly fallen, and one must look around for protection to tender things. The first to require it will be French Beans, which should have the lights put on the late crop at once, and shut up early every afternoon to conserve heat for the coming night; also make another sowing of some early kind to come into use in November. The winter Spinach will now require thinning, and the hoe passed through it to keep down weeds. Keep up a supply of Mustard and Cress; it will be better to sow it in boxes after this, in case of early frosts. Any leaves which are trimmed off the Parsley bed should be saved and dried in the kitchen fire-screen, it will be sure to be wanted during winter; and the same applies to Sage, which is most useful in a dry state for flavouring. Tomatos after this will need all the encouragement possible by removing superfluous leaves, and the temperature must be kept up in the pit or house wherein they are grown. The late Potatos in many places will now be ripe and ought to be dug, sorting them as fit for table and those for seed. Pitting them in somewhat small lots is generally considered a good plan, provided the pit is made on the top of the ground and, if possible, in poor or sandy soil, putting in a drain-pipe or two for ventilation. Remove decayed leaves from any growing crop, and keep the hoe going, hand-weeding where it is not possible to do so; and let everything be kept neat and tidy. If this is done there will be no want of interest in the kitchen garden, besides it is most necessary to get the weeds under before showery autumn weather sets in. *J. Rust, Eridge Castle, Sussex.*

Melons and Cucumbers.

Melons.—The weather which we are now experiencing is not favourable to the production of highly flavoured fruit, more especially in the case of Melons in pits and frames not heated by hot-water pipes. With the end of the present month the Melon season in the generality of places will be drawing to a close, as after that date, as a rule, Melons are not of much account, being rather watery and wanting in flavour; but much depends on the nature of the weather and other circumstances during the month of October. In the meantime, those plants which are now swelling their fruit will need pushing on with dispatch; the shoots should be kept well thinned, the laterals be stopped, the fruits fully exposed to the influence of the sun, and a minimum temgerature of 70° maintained. Where the fruits are ripening, leave a chink of air on day and night. *H. W. Ward.*

Cucumbers.—Plants in full bearing will now be considerably benefited by having a top-dressing of three parts of light loam and one of well decomposed manure; after which, if dry at the roots, they should be watered with clear tepid water, as it will not be advisable to give liquid manure until the roots have pushed well into the new soil. Let the stopping, thinning, and arranging of the shoots be duly attended to. A nice growing temperature of from 70° to 80° during the day, with fire-heat, should be maintained, and from 75° to 85° with sun-heat, shutting up early, say at from 2 to 3 o'clock, according to the condition of the weather, and running up to 90°, with plenty of atmospheric moisture. Night temperature 65° to 70°. Ventilate freely on all favourable occasions to give solidity to the young growths. Plants growing in frames will require to have the linings made up weekly or fortnightly according to the state of the weather and the fermenting material at the time the work is being done. Young plants which have some time since been shifted into their fruiting pots and boxes will now be the better for having some suitable soil added to the hillocks in sufficient quantity to cover the young roots as they push through the soil. *H. W. Ward, Longford Castle Gardens, Sept.* 11.

Peaches and Nectarines.

Early houses with fixed roofs will require frequent attention as regards watering, but those from which the sashes have been removed will have been thoroughly soaked by the heavy rains we had on the 1st and 2d inst., and again yesterday, the 10th, when nearly 3 inches fell altogether, and this will, no doubt, keep them right at the roots for some time to come, unless we get very bright weather, when it is astonishing how quickly borders that are thoroughly well drained become dry. The amount of water they will take and enjoy is enormous. Carry out directions given in my last Calendar for the succession-houses, which need now be syringed but once daily, and any trees that are not ripening their wood satisfactorily may be assisted with a little fire-heat. A little heat may also be applied to late houses; it will assist the trees in ripening their wood, and also improve the quality of the fruit. We have a nice crop this year on what few trees we have outside; they are now ripening, but Barrington and Walburton Admirable in the latest house will not be ripe for two or three weeks. *J. Wallis, Keele Gardens, Sept.* 11.

Orchis Stabiana alba.—We cultivate a small number of this beautiful and precious variety of the rare Orchis Stabiana, which grows only near the buried Stabia, or rather in its surrounding forests. Orchis Stabiana, Ten., is a southern, very pretty and distinct form of O. mascula, Lin., of dwarf and compact habit, and bright flowers. The vigorous leaves are olive-coloured, with a rosy hue, resembling some Asiatic Goodyera. The above white variety is extremely pretty. Its leaves are as described above. The flowers are very large and pure white, and they certainly surpass every European Orchid in beauty and pure white colour. This Orchid requires a good deal of moisture during the growing period. Growing in the region of the Olive, it wants a damp soil covered with sphagnum; also during the resting period the soil should never be quite dry. The spikes begin to come forth in September, and flowering commences in March. We equally cultivate a magnificent form of the well-known Orchis maculata, L., with snow-white flowers. *Dammann & Co., Portici.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Sept. 17	Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
TUESDAY,	Sept. 18	Annual Sale of Winter Flowering Heaths, at Burnt Ash Nursery, Lee, by Protheroe & Morris.
WEDNESDAY,	Sept. 19	Thame Horticultural Show. Annual Sale of Winter Flowering Heaths, at Fraser's Nursery, Leyton, by Protheroe & Morris.
THURSDAY,	Sept. 20	Annual Sale of Winter Flowering Heaths, at J. Mallers, Tottenham, by Protheroe & Morris Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
FRIDAY,	Sept. 21	Trade Sale of Decorative Plants, at Hurst's Nursery, Wood Green, by Protheroe & Morris. Sale of Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	Sept. 22	Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.

EVERY now and then we receive from our correspondents Vine leaves presenting on the under surface isolated patches of felted, brown or cream-coloured hairs. Although by no means uncommon in our vineries, we are not aware that they produce serious mischief; but as we have had them sent to us under the impression that they were the work of the Phylloxera, it may be well to reassure those of our readers whose Vines show these peculiar patches. In Germany, in Switzerland, in Italy, and in France, we have seen the same disease, and have sometimes had it pointed out to us as the work of the Phylloxera. The Vine-louse, however, is innocent in this case, and so far as we know never produces anything at all like the peculiar isolated masses of brown felt of which we have now to speak. The masses in question have long been recognised as morbid developments from the skin of the leaf, or from the subjacent tissue, and have been classed under the general term Erineum. This Erineum was supposed to be of a fungous nature, and although no spores or reproductive bodies had ever been detected, their absence, in the face of the protean habits of fungi, did not shake the notion of the fungous nature of these outgrowths. Still there was no proof of it, and slowly the idea gained ground that these productions were the work of a minute mite—to use a justifiable pleonasm

From a short paper of M. PLANCHON's in the *Vigne Americaine*, and in which he has traced in outline the history of the disease and summarised the researches of his predecessors, we take the following particulars as to this Arachnoid. The outgrowths in question are, as before said, the result of the attacks of an acarus or mite. This mite exists under four forms—1, that of a worm-like larva with two pairs of legs only. The creature in this stage of its development is hidden away among the felted hairs, and reproduces itself by means of so-called eggs, which partake more of the nature of buds than of eggs proper, inasmuch as they are formed independently of sexual co-operation. In the second stage the creature has six legs, and is contained within the dry skin of the larva in its previous stage. The creature undergoes a sort of moulting process, only it does not discard the old skin but is wrapped up within it, and with this investment it passes the winter amid the felted hairs of the leaf. From this old skin the mite emerges in spring a changed creature; its sluggishness is replaced by activity, its six feet are increased to eight, and from a neutral condition as regards sex it now assumes its full development. In this state the acari are found in the cracks of the bark, and from thence gain the young leaves, which they pierce for the purpose of depositing their eggs. As a consequence of the irritation caused by these punctures the Erineum is developed which serves to shelter the eggs. These eggs in due time give origin to the worm-like larva, such as that we mentioned above as the first stage of the development of the creature. As a remedy M. PLANCHON recommends, among other things, the introduction of a flock of sheep into the vineyards after the Grapes are picked, so that the sheep may fall upon the Vine leaves, mites and all. Such treatment is hardly suitable to an English vinery, even were it desirable! All that seems necessary in our case is to pick off the affected leaves and burn them. Although in this country the Erineum of the Vine is not a matter of much consequence there is no telling how soon it may be so. The sudden intensification of the powers for mischief of both insects and fungi are unhappily only too well known, and therefore it may not be out of place to suggest the complete destruction of the affected leaves while the customary dressing of the stems of the Vine and even the removal of the loose outer bark is a matter of precaution fully justified under the circumstances. We have only to add that the name of this enemy is Phytoptus vitis, or, as some prefer to write it, Phytocoptes vitis.

WE are pleased to be able to announce to our readers, that at the meeting of the Fruit Committee held on Tuesday last it was definitely arranged to hold a GRAND EXHIBITION OF APPLES at Chiswick, from October 4 to 18. It was so generally felt that advantage should be taken of the abundant crop of Apples, to bring together in some convenient place a complete collection of all the varieties grown, with a view to correcting their nomenclature, ascertaining their synonyms, and deciding upon their relative merits, that we hail with pleasure the prompt action taken by the committee in the matter.

No better place could be found than the large vinery in which the exhibition is to be held, and as the committee resolved that an effort should be made to procure a representation of all the fruit growing districts of the country, we anticipate with lively satisfaction such a display as for its extent and usefulness has not before been seen in this country. The exhibition is fixed to be opened on Wednesday, October 4, and to be closed on October 18, and a committee formed, consisting of Mr. JOHN LEE, Dr. HOGG, Mr. LEWIS KILLICK, Mr. ROBERTS, Gunnersbury; and Mr. WOODBRIDGE, Syon House; with Mr. BARRON as Secretary, to make the necessary arrangements, particulars of which will shortly be made public.

All communications should be addressed to Mr. BARRON, the Royal Horticultural Society's Garden, Chiswick, W.

—— THE SEVEN SISTERS AT KEW.—The variety of interest at Kew forms one of its chief charms, and, we may add, of its surprises, for the level of the ground is as flat as that of the traditional pancake. Fine trees, notably Turkey Oaks, abound, and the illustration we now give (fig. 51) shows a group of Elms probably originally forming part of an avenue, and to which, from their number, the epithet of the "Seven Sisters" has been given. The building in the background is one of those pictural red brick mansions, of Jacobean architecture, which assort so well with fine trees and foliage, and which rise from the broad expanse of green turf like gems from their setting. Kew Palace was in the last century the favourite residence of royalty. Queen CHARLOTTE took much interest in the collections at Kew, then under the charge of the elder AITON, who dedicated to HER MAJESTY the genus Strelitzia—a regal dedication, truly. At the present time a wide lawn stretches in front of the palace, and it is separated from the Botanic Garden by a deep ha-ha. A sundial on this lawn marks the spot where a famous astronomer (Dr. BRADLEY) carried on his researches in 1725, the dial itself having been placed there as a commemorative stone by order of WILLIAM THE FOURTH. Our illustration is taken from a sketch by Mr. FITCH.

—— THE INTERNATIONAL HORTICULTURAL EXHIBITION, which it was proposed should be held next year at South Kensington, has been definitely postponed to 1885.

—— THE BULB CROP OF 1883.—Probably finer or better matured Hyacinths have not been seen for years than those which have come to hand from Holland and elsewhere during the past month. The bulbs are solid and heavy, and when these qualities are present it is always an indication that the bulbs are good. There was during the last spring one period of great anxiety on the part of the cultivators, when the Hyacinth plants were attacked by frost; happily dry mild weather followed, which somewhat neutralised the effects of the frost. Had wet cold weather supervened the effects would have been disastrous. Polyanthus Narcissi are very good, and the imported bulbs of the double white pheasant-eyed and Jonquils are most satisfactory. Tulips are very good; and the same can be said of the Crocuses generally, though they suffered from frost more than any other of the spring bulbs. Scillas, Snowdrops, Anemones, Ranunculus, &c., are fully up to the mark, and there is every prospect of a fine bloom next spring. But here the ability of the cultivator steps in, and according as it is good or bad, so is the ultimate result affected.

—— MUNTHAM COURT GARDENS.—The Marchioness of BATH having kindly given her consent, the gardens at Muntham Court, Worthing, were on the 5th inst. thrown open to the public at an admission fee of 1*s*. in aid of the Augmentation Fund of the Gardeners' Royal Benevolent Institution. Unfortunately the weather was most unpropitious, and as Muntham Court is some 6 miles from Worthing, and that is the nearerest railway station, the *fête* suffered in proportion; only from 150 to 200 persons attended. The pleasure grounds and gardens were in excellent order, reflecting great credit on the gardener, Mr. P. CONWAY, whose exertions in the matter of the *fête* deserved a greater success than was vouchsafed to him.

—— SHIRLEY HIBBERD.—"An Old Rosarian" writes:—"In your very acceptable sketch of the labours of our friend and fellow-labourer mention is made of his Rose-growing. In the year 1859 I saw at Stoke Newington one of the plots devoted to own-root Roses. It contained, measured and counted, groups of all the best varieties in cultivation. Mr. HIBBERD assured me that he could secure any Rose on its own roots by cuttings, or eyes, and most of them by both methods. A few, like Madame Vidot, were a trifle troublesome. I think, whenever the work in the garden of 'S. H.' is referred to, it should be borne in mind that a quarter of a century ago he determined, in the interest of amateurs of Roses, the immense value of own-root plants. Writers of the present day appear unanimous in repeating the story, and taking credit to themselves for another man's work."

—— COVENT GARDEN CRICKETERS.—At the Oval on the 6th inst. a cricket match was played between representatives of the Covent Garden Flower and Fruit Markets (twelve a side), in which the former showed considerably the best play. The players on the Flower Market side were Messrs. F. C. Buck, W. Cale, W. Denman, H. Webster, H. R. Buck, F. Pearson, W. Lewington, J. Pounce, J. Caulfield, W. Skilling, W. Buck, and G. Coleman, and the sum total of their first innings was 224 runs. The pomological gentlemen had not time to play their innings out, stumps being drawn when Messrs. W. Poupart, W. Barnes, E. Baker, M. Poupart, — Bunce, J. Poupart, and W. Martin, had made seventy-five runs between them. Mr. W. Denman, on the part of the florists, and Mr. W. Barnes on the fruitists side, were the most successful batsmen of the day.

—— VANDA SUAVIS VAR. SCHRŒDERIANA.—If the present year is productive of no other novelty likely to make a sensation in the orchidic world, to its credit will be placed the exhibition for the first time of the most remarkable addition to the genus Vanda that has been introduced for some years. This is a variety of V. suavis which was brought to the meeting of the Floral Committee on Tuesday last from The Dell, Egham, by Baron SCHRŒDER's gardener, Mr. BALLANTINE, and which may be described in a few words as having pure and unmarked lemon-yellow coloured sepals and petals, and a pure white labellum and column. Needless to say it took the fancy of the Orchid growers present to a man, and under the varietal name of Schrœderiana was unanimously awarded a First-class Certificate. We believe the Baron had the good fortune to secure the plant from one of the Messrs. VEITCH's importations.

FIG. 51.—KEW PALACE AND THE "SEVEN SISTERS." (SEE P. 336.)

—— AVENUE TREE.—If there were only enough of it what a grand tree for avenue planting or for town streets would be Acer Volxemii. It is of robust habit and rapid growth. The foliage is like that of the Plane, but larger and more umbrageous, and moreover it is hardier. The leaves are somewhat silvery on the under surface. Our experience of it is in truth very limited, but its hardihood, rapid growth, and stately appearance induces us very strongly to recommend it for trial in all cases for which the Plane is now used. The tree was introduced by M. VAN VOLXEM, and described and figured in our columns in 1877, vol. vii., p. 73, and later on by Mr. NICHOLSON.

—— AGRICULTURAL EDUCATION. — The new session of the Institute of Agriculture will open on October 1, when Mr. BERNARD DYER, F.C.S., F.I.C., will begin a course of lectures on "Chemistry in Relation to the Soil," at the Museum of Geology in Jermyn Street, the theatre of this Institution, and also those of the Natural History and South Kensington Museums, having been placed at the disposal of the Institute of Agriculture by the Lords of the Committee of Council on Education. Other courses will be delivered during the session on agricultural geology, vegetable and animal physiology, the breeding, management, and diseases of farm stock; the special management and diseases of crops, farm insects, seeds, implements and machinery; poultry, dairy, and bee management; and other subjects of agricultural interest. Among the lecturers are Messrs. BETTANY, BUCKMAN, TANNER, TUSON, and WORTLEY-AXE, Miss ORMEROD, and Messrs. WORTHINGTON SMITH, W. TOPLEY, H. WOODS, J. ALGERNON CLARKE, F. CHESHIRE, R. HOLLAND, GILBERT MURRAY, W. HOUSMAN, W. WORBY BEAUMONT, and W. R. BOUSFIELD. The session will terminate in May. Particulars may be obtained from Professor TANNER (the Hon. Secretary), Institute of Agriculture, South Kensington. Mr. BERNARD DYER's annual course of weekly evening lectures on the "Principles of Agriculture," at the City of London College, White Street, Moorfields, will begin on Tuesday, October 2.

—— MIMULUS.—The manner in which the flowers of Mimulus unfold seems worthy a note, since it is liable to mislead the casual observer. The leaves of this plant are, it may be stated, opposite and decussate. From the axils of the uppermost leaves spring the flower-stalks, which have, of course, the same arrangement as the leaves. But when the flowers are expanded it may be seen that of each pair one is considerably further advanced in development than the other. Thus, supposing the flowers to be fore and aft as regards the axis, their relative development may be illustrated thus:— $\overset{o}{\underset{O}{\times}}$; where × shows the position of the stem, and the large and small letters the position of the larger or smaller flower respectively. The succeeding pair is right and left in reference to the central stem, thus:—O × o. In consequence of this unequal development of flowers of the same generation it would seem, at first sight, as though the inflorescence were really sympodic—*i.e.*, that of a pair of flowers, the larger terminated the axis of one generation, while the smaller one was produced subsequently, forming a second generation. If, however, the flowers be examined in their very earliest condition, when they consist merely of sub-globose tubercles in the axils of the leaves, then the members of each pair will be found equal in size, and simultaneous as regards their development. As soon as all the sepals are marked out in the usual successive order, a change in the rate of growth may be observed, and one begins to grow faster than its twin brother.

—— DISEASE IN PLUM TREES, &c.—One of the most puzzling diseases in plants is the silvery appearance assumed here and there by plants belonging to the Plum division of Roseworts. It occurs not unfrequently in the Apricot, but not exactly in the same form as in the Portugal Laurel and Plum. In the Apricot the cuticle peels off from the subjacent tissue, but in the other cases this is not so. There is nothing about the tissues to account for the peculiar appearance, but there is no doubt it is a sign of some fatal condition of the plants or branches in which it occurs. I have this year two trees which illustrate the matter, though but slightly. They are so strongly affected that any one walking through the garden could not fail, at the distance of many yards, to notice the difference between these and healthy trees in the same row, for they are white as Olive trees. Both, indeed, are in a dying condition; the one from overcropping in former years, and a violent attack of aphis; the other from a warty growth at the base, which seems to have diverted the course of sap. I have never seen so aggravated a case before. *M. J. B.*

—— ANEMONE JAPONICA.—Among the many objects of floral interest at the Royal Nursery, Slough, the beds of Anemone japonica and its varieties take a high position. They are just now in the full flush of their autumn beauty. There is A. japonica, with its cerise-crimson but somewhat loose flowers; yet the colour is so good that it cannot be dispensed with. Then there is A. japonica hybrida, with its well-formed pale rose flowers, the finely shaped smooth blossoms being very attractive, and, it is scarcely necessary to say, produced with great freedom. This is an excellent companion to the kind, viz., the white variety. A. japonica alba—or, as it is more generally termed, Honorine Jobert— is now very generally grown because it flowers so freely, and it is an excellent subject to cut from. These Anemones deserve a place in every garden, for they have a nice compact erect habit of growth; they flower with marvellous freedom, and they come into bloom at a period of the year when many things are going out of flower. But to do these most useful subjects full justice they should be grown in good soil, as the flowers are produced in finer form when there is something at the roots that can sustain the energies of the plants.

—— PROTOMYCES MACROSPORUS has this year been very abundant—at least, that form of it which occurs on Ægopodium. It is more fully developed on the stem than on the leaves. On the former—and, indeed, on the latter—after a time the pustules become rusty, and sometimes fall out bodily, acting, no doubt, as a nest of resting-spores for the following year. It is always more or less accompanied by Peronospora nivea, of which it is doubtless a form of fructification, as figured by HALLIER and DE BARY. I have in vain hunted this year for the form originally recorded by UNGER, but the examination of numerous plants of Heracleum has been without result, which I regret the more as the details appear so different. The spores, indeed, with age acquire the same rusty tint, but are perfectly globose, and not irregular, as figured by UNGER. While speaking of Peronospora it may not be amiss to state that during the late fine weather the Potato-mould spread with great rapidity, though its course was very slow in the previous damp weather. Early Potatos have become much diseased after they were taken up, apparently in the most perfect condition, which is always more or less puzzling, though unhappily too common. *M. J. B.*

—— HARDY HEATHS.—In the Preston Park there is a good-sized bed wholly filled with hardy Heaths; they occupy the space so fully as to completely hide the ground. The sorts have been well chosen and carefully planted in a way to give some relief to the surface by the difference in height of the various kinds. From early spring some or other of the sorts are in bloom; and even when no flowers are present a group of these Heaths, where a sufficient number of kinds are associated, is at all times effective.

—— OLD PLANTS OF SCARLET PELARGONIUMS.—Much too hot in colour as scarlet Pelargoniums are for the æsthetic notions of the day, still, when people plant them, the object is to get flowers, and the more the better is usually the idea, especially when the plants are used for filling large vases that stand on grass, at considerable distances apart, or with a background of shrubs or other greenery. The value of old plants, such as have done duty in this way for a number of years, is well known to most people who have this kind of work to carry out, but was never better exemplified than in a number of large vases about the terrace walk in Miller Park, Preston; with enough foliage to cover every bit of stem the flowers literally touch each other, forming a mass of brilliant colour that livens up the masses of shrubs and the greenest of green turf that surrounds them. They are usually grown in large pots that are plunged in the vases, and each autumn, when the flowering wanes, they are taken in and fairly treated through the winter, giving some fresh soil in place of such of the old as is removed in the spring. Some of the plants are seven or eight years old, and bloom in a way that young ones could not be induced to.

—— POTATOS. — As may be anticipated, in a crop so healthy and so abundant as is the present year's Potato crop, there is to be found not merely unusual size, but, because of the drought which has prevailed in many localities, and occasional heat generally, various other characteristics in the tubers that are not always so noticeable. Thus, many large tubers are found to be much ruptured, or split, or otherwise to have been so ruptured in the growth as to be promotive of singular ugliness. This unusual feature has been, and no doubt correctly, attributed to the sudden expansion of the tubers caused by great heat, following upon thunder showers, or other inducements to rapid growth. The rush of tuber forming sap would seem to have been so great as to have been far beyond the capacity of the tubers to absorb and utilise naturally, and hence the crackings and burstings of the surface of the shell of the tubers under a pressure or force that could not be withstood. No doubt that great nuisance in Grape culture—cracking—may be attributed to similar causes. Scab and a rough corduroy skin are very prominent features in many otherwise very handsome tubers, and these defects are very much found where the drought has been specially felt. The scab is common enough in most seasons, but is very common in dry ones. The only practical suggestion as to its cause seems to be that the earth-worms gnaw or excoriate the skins during drought in search of moisture. Although there is farther the possibility that drought and heat may generate in the tubers the formation of volatile gases, the which escaping from them in the form of tiny bladders beneath the skin, burst the outer covering whilst it is yet tender, and thus leave a small perforation that increases in size with the growth of the tuber. The roughness of skin is probably due to the direct action of external heat on the soil.

—— FORE COURTS.—It is often difficult to get anything to grow in the gritty, dusty fore courts of the houses in suburban neighbourhoods where, perhaps, almost everything is unfavourable to plant growth. In a densely peopled, most unwholesome and squalid-looking part of London we recently saw three such courts in juxtaposition, all of which at any rate were more attractive than the bare earth and refuse thrown on it. The first was covered over its whole surface merely with Knot-grass, Polygonum aviculare — a troublesome weed, but which here formed, with a little care on the part of the inmates of the house, a pleasing green carpet. The next was well-nigh covered with Virginian Creeper, allowed to overgrow the whole surface of the enclosure; while the third, more ambitious, had a broad band of variegated Colt's-foot all round, and a bed of Iris in the centre.

—— TUBEROUS BEGONIAS.—While the storm which raged on the 1st and 2d inst. wrought so much mischief in gardens, and so much despoiled the blossoms of bedding plants in general and zonal Pelargoniums in particular, it is a remarkable fact, deserving of record in favour of the tuberous-rooted Begonia, that neither its foliage nor flowers seem to have suffered the slightest injury. The large collection of plants grown out-of-doors in Messrs. JOHN LAING & Co.'s nursery at Forest Hill passed through the gales practically unscathed, only some three or four blooms out of the immense collection being blown off. There is now a fine head of bloom on the plants at Forest Hill, illustrating the fact that the tuberous Begonia is not now "the coming flower;" it has come, and is already an important consideration in the floricultural world. The cool weather of the last fortnight has greatly assisted the plants in developing their free autumn flowering characteristics. Mr. LAING has now got a race of scarlets and crimsons so stiff and erect growing, with the flowers borne well above the foliage and the face of the flower upwards, that will run the scarlet Pelargonium very hard shortly for the pride of place in bedding-out arrangements.

—— FANCY PANSIES IN THE MASS.—Mr. ECKFORD has a marvellous display of these in the kitchen garden at Boreatton Park. A broad walk runs right across the walled-in kitchen garden, and on either side is a border 4 to 5 feet in width and of considerable length. These two borders are filled with selected fancy Pansies, a good portion with plants selected last year for their obvious fine qualities, divided in the autumn and planted out in early spring; the remainder seedlings of the present year.

It is long since that we saw such a blaze of Pansy blooms, the plants doing so well, the flowers so large, and so richly coloured. Starting with a few of the best named varieties in cultivation Mr. ECKFORD has seeded and selected with judgment and determination, and the result is a progeny of the highest merit. Early in August these borders were literally sheeted with bloom. One could have gone through the seedlings of the present year and selected a dozen or twenty varieties, all well worthy of distinctive names. Dr. SANKEY, whose old love for florists' flowers knows no diminution, takes a deep interest in these Pansies, and is justly proud of them. There is something in the soil and climate of Boreatton that appears to suit the fancy Pansy exactly. They grow luxuriantly, throw many and very large blossoms, and colour with a richness unknown to us in the South.

—— SUMMER-FLOWERING CHRYSANTHEMUMS.—Visitors to the recent Dahlia exhibition at the Crystal Palace could not fail to have been struck with a group of summer or early-flowering Chrysanthemums shown by Mr. N. DAVIS, of the Chrysanthemum Nursery, Warner Road, Camberwell. Foremost among them was a large specimen, admirably bloomed, of Madame C. Desgrange, a large-flowering Japanese variety, flowers white, tipped with yellow, equal to Elaine, and which makes an excellent pot plant; La Petite Marie, a remarkably dwarf-growing Japanese variety, with pure white flowers, similar to those of Mdlle. Marthe, an excellent variety for market purposes; Madame Jolivart, very dwarf and profuse, flowers white, sometimes tinted, very pretty and useful; Toulousaine, bright brick-red, a pompon variety, a good grower, very free, and an excellent pot plant; Nanum, creamy-white, very early; Curiosity, blush, dwarf, remarkably free, an excellent pot plant; Frederick Pete, rich crimson, edged with gold, fine and distinct; and the following Japanese varieties, also in excellent bloom —Isidore Feral, delicate lilac-rose, the centre golden, of the Fulgore type, very early; M. Pynaert van Geert, bright red, edged and tipped dark yellow, long twisted petals; and Simon Delaux, crimson-red shaded with chamois, a very fine variety. All the foregoing, with Little Bob, crimson-brown, dwarf, very early; and St. Mary, pure white, would, we think, make an excellent group for market purposes. The healthy tone of foliage on the plants shown by Mr. DAVIS were particularly noticeable. It results from the use of soot as a top-dressing. It has an extraordinary effect on the foliage of the Chrysanthemum when laid on the surface of the soil and washed in at the time of watering.

—— TEMPERATURE ACCORDING TO ELEVATION. In a paper lately contributed to the Royal Society, Mr. G. J. SYMONS alludes briefly to the observations made upon this subject from the time of JAMES SIX, in 1783, to that of Mr. G. DINES, in 1878. SIX, who was the inventor of the first registering thermometer, carried out his observations at the top and at the bottom of the "Bell Harry" Tower of Canterbury Cathedral. Other observations were, no doubt, made in the nursery ground now occupied by Messrs. KINMONT & KIDD, part of which was, we believe, at that time in the possession of Mr. SIX. At any rate it is within our own recollection that one of the original "SIX'S" thermometers was in use in the nursery in question, up to, say, twenty-five or thirty years ago, and it had special value in the eyes of its then possessor from its association with SIX. This, however, has only remote connection with Mr. SYMON'S paper. The general result of the observations which have been hitherto made shows that, during the daytime at least, the range of temperature—in other words the amount of variation—is materially less at the higher elevations. In order more fully to investigate this question—one of great importance as regards the cultivation of plants and the health of individuals—observations are now taken in the churchyard at Boston, Lincolnshire, at the summit of the tower, 260 feet from the ground, and on the roof of the belfry, 170 feet above the soil. By means of one of Sir W. SIEMENS' electric thermometers, the temperature at the top of the tower can be ascertained without the necessity of mounting to the summit. We cannot here enter into details; it must suffice to say "that the mean maximum temperature at 4 feet exceeds that at 170 feet by 1°.9. The mean minimum temperature, however, at 4 feet falls below that at 170 feet in almost every month, the mean difference being 0°.4, so that the range is 2°.3 less on the belfry than at 4 feet above the ground. The temperatures at 9 A.M. show that, on the average, the air at 4 feet is 1°.3 warmer than at 170 feet. The monthly means of the dry bulb thermometer at 4 feet, and of the electric thermometer at 260 feet, as calculated from observations taken every two hours from 9 A.M. to 9 P.M., from April to December, show that, in the daytime, the mean temperature is considerably warmer below than at the top of the tower. In fine bright weather the temperature at 4 feet during the day is much higher than on the top of the tower. In foggy weather the temperature at the top of the tower is, however, always higher than at 4 feet, the upper part of the tower being generally free from fog. In cloudy or wet weather the temperature is uniformly higher at the lower elevation. At present comparatively few observations have been taken at night, but Mr. SYMONS gives the record taken on some few nights at hourly intervals. When the nights were fine and clear the temperature was higher at the top of the tower; the presence of fog had the same effect, while cloudy skies, rain, and wind prevent radiation, and thus on the days and nights of their occurrence the temperature is always highest near the ground. "It seems, then," concludes Mr. SYMONS, "that the difference between the temperature at 4 feet and at 260 feet is chiefly regulated by the amount of cloud, and by the relation of the temperature of the surface of the ground to that of the general body of air passing over it. If so it will follow that the mean difference between the temperature at the two heights can only be determined by very numerous observations, or by careful considerations of the conditions of weather and of soil temperature under which each individual set of observations is made. As regards humidity the difference at 4 and at 170 feet respectively does not seem to be large, a slight excess (2 per cent.) being noted at the higher elevation.

—— ROADSIDE PLANTING.—We borrow from our excellent Belgian contemporary, the *Revue de l'Horticulture Belge*, the following statistics relating to the planting of trees by the roadside along the Government roads (*routes nationales*) of France. The total length of these roads is 37,500 kilometres (about 23,324 miles). Of these, 14,500 kilometres are already planted, and 9000 others are in course of being planted. There remain 14,000 kilometres which for various reasons are not capable of being planted. The number of trees already planted amounts to 2,678,603. The trees employed are chiefly the following:—Elms, Poplars, Acacias (Robinia), Planes, Ashes, Sycamores, and Limes. In special cases Walnuts, Sweet Chestnuts, Apples, Mulberries, Cherries, Pears, Service (*Cormier*).

—— TETRANEMA MEXICANUM.—This is an old occupant of our stoves, and notwithstanding that encouragement should be given to the introduction of new plants, there are many old ones of real merit that are apt to be neglected or destroyed to clear the way for new comers. The present plant is an instance; and if it never enjoyed an extensive popularity, nor is likely to do so, comparatively speaking, its neatness of habit and profuse blooming properties ought to obtain it a place in every establishment for the sake of that variety which always gives interest to a collection. The dark green leaves scarcely rise above the soil in which it grows, allowing the peduncles, which do not exceed the height of 3 or 4 inches, to show off their umbels of pale purple flowers to advantage. These flowers resemble in every respect those of a miniature Pentstemon, and only differ in having four stamens instead of five, as the generic name implies. A large pan of it in the stove at Kew is an attractive object in the miscellaneous collection. The plant was figured as long ago as 1843 in the *Botanical Register*, t. 52.

—— TROPÆOLUM TRICOLORUM.—Directions for growing and flowering this fine ornamental species are often given, and indeed it is a wonder that so charming and attractive a plant is so little grown. Last season Mr. SAMUEL BARLOW, of Stakehill House, flowered two very fine specimens that were objects of great beauty in his warm greenhouse for a long time. The bulbs were very fine, and they were potted in the usual way in good-sized pots, and trained over balloon-shaped trellises. But how best to preserve the bulbs before ripening off and the time for potting is a process not so generally understood. A short time ago, when looking through the Portland Nurseries of Messrs. SUTTON & SONS, we saw under one of the plant stages some shallow boxes of soil, and on this soil a layer of bulbs of Tropæolum tricolorum, not in any way buried in the soil, but simply resting on the top of it. The effect is that the bulbs are kept fresh and plump, and they do not put forth any roots. They make growths in the usual way, but if these are rubbed off they soon break forth into a fresh growth. When any bulbs are sent away in an order, the shoots are removed, but when potted a good growth results. We were informed that when the bulbs are treated in this way blindness or a failure to grow are unknown, and the rubbing off of the shoots in no way affects the robustness of the after-growth.

—— MRS. CUTLER.—The many personal friends of the Secretary of the Gardeners' Royal Benevolent Institution will regret to hear that on the 6th, at the house of a friend, Mrs. CUTLER had the great misfortune to fall down a flight of stairs, breaking her left arm, seriously injuring her about the head, and internally. The latest information we have is to the effect that she is progressing favourably.

—— MUSHROOMS IN THE GREEN PARK.—Mr. WEBBER sends us a handful of the true Mushroom, collected on the turf of the Green Park—a good specimen of the *rus in urbe*.

—— TIGRIDIA PAVONIA VAR. ALBA.—From Messrs. E. G. HENDERSON & SON we have received a beautiful variety of the gorgeous T. pavonia, in which the brilliant scarlet of the upper part of the perianth segments is replaced by white, the base of the segments being spotted with brown on a yellow ground, much as in the type. It is described in the *Revue Horticole* for 1882, p. 427, as T. grandiflora var. alba, but the name T. grandiflora is a synonym of T. pavonia, to which latter name it must give place. This new white variety will make a very handsome contrast with the typical scarlet T. pavonia, and the yellow variety conchiflora, especially if grown intermingled in clumps.

—— CHRYSANTHEMUM SHOWS.—We understand that the Reading Horticultural Society proposes to hold a Chrysanthemum show on November 22.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Sept. 10, issued by the Meteorological Office, London:—The weather, with the exception of a few bright intervals, has been cloudy, cold, and showery. The temperature has been below the mean in all districts, the deficit varying from 1° or 2° in Scotland and the north-east of England, and 3° in Ireland and the south-west of England, to 4° in north-western, southern, and central England, and to 5° in "England, E." The maxima were recorded in most places on the 9th, and ranged from 63° in "Ireland, N.," to 70° over the midland, southern, and south-western parts of England. The minima, which were generally registered during the nights of the 9th—10th over Great Britain (only a few hours after the maxima), and on various dates in Ireland, ranged from 40° in the north-east and north-west of England and in "Ireland, S.," to 36° in "Ireland, N.," and over the south-western, south-eastern, and central English counties. The rainfall has been a little less than the mean in Ireland and Scotland, and about equal to it in "England, N.E.," and "England, N.W.," but rather more elsewhere. Bright sunshine has been more prevalent than during last week, the percentages of possible duration varying from 30 in "England, S.," to 42 in "England, N.E." and "England, S.W." Depressions observed:—Barometric pressure over our islands and their neighbourhood has fluctuated considerably. Some large and rather deep depressions have been shown to the northward of Scotland, while over the United Kingdom several small subsidiary disturbances, moving eastwards, have appeared; moderate or fresh south-easterly to south-westerly breezes have consequently prevailed on our coasts as the various depressions advanced, and westerly to north-westerly winds in their rear as they travelled away.

—— GARDENING APPOINTMENTS.—Mr. J. W. SILVER, as Gardener at Brynkinalt, Chirk, Denbighshire, in succession to Mr. CLARKE.—Mr. H. GARNETT, late Foreman at Nastell Priory Gardens, as Gardener to J. C. BRYCE, Esq., Bystock, Exmouth, Devon.

PLANT NOTES FROM KEW.

MUCUNA IMBRICATA.—In the Palm-house at Kew year after year this Pea-flowered climber produces its pendulous bunches of deep purple almost black flowers, and hanging at the height they do amongst the leafy shoots towards the top of the plant, bear considerable resemblance to clusters of Grapes. Besides being ornamental, it is also interesting as belonging to a genus the members of which are more or less noted for the stinging properties of the hairs on their seed-pods. Two or more of them produce the substance known as cow-itch, used medicinally as a vermifuge. All are climbers of easy cultivation, with yellow, purple, or pink flowers, and mostly requiring stove temperature. Few of them are more ornamental than this one, and those possessing a large stove with plenty of head-room would do well to give it a trial. It is described in some books as Carpopogon imbricatus.

TEUCRIUM HYRCANICUM.—That few species of this genus are seen in cultivation, notwithstanding the great number known, is a certain sign that popularity is awanting on some score. Those generally grown are low, spreading, herbaceous or subshrubby plants of more or less interest for rockwork, but not otherwise very showy or important. The species under notice, however, a specimen of which is to be seen on the new rockery at Kew, is an exceptional instance, being an erect and neat-habited herb, averaging about 15 inches high, with the stem and branches terminating in a dense cylindrical spike of purple flowers. For the larger pockets of a rockery, or the second line of a herbaceous border, it is a subject that hardy plant lovers could scarcely fail to appreciate, and which will keep up a succession of bloom during the late summer and early autumn months. There is a figure of it in the *Botanical Magazine*, t. 2013.

ASTILBE RUBRA.—This is the tallest and probably the least graceful species of the genus, seeing that the stout shortly branched panicle assumes an upright position, and loses the effect that the slender drooping spray-like branches of A. rivularis have. This, however, is more than compensated for by the pinkish-purple flowers, a colour which is quite unique in the genus as far as cultivated plants are concerned, and indeed by no means of frequent occurrence in the order, where white for the most part predominates. Like the others it delights in plenty of moisture, without which growth would be stunted, and the results very unsatisfactory indeed. Where the soil is heavy and inclined to clay a mixture of peat will help to keep it open and retain the moisture. Flowering specimens of Astilbe rubra, which formed part of the valuable collection of the late Mr. Joad, of Wimbledon, are to be seen on the new rockery at Kew.

MONOCHORIA CYANEA.—In company with not a few rare and beautiful aquatics this fine Pontederaceous plant is flowering in the Water-Lily House at Kew. Unlike some of its allies it demands but little space, [and this, together with another Australian plant, the fine Ottelia [noted by Mr. Watson a few weeks ago, and the handsome South American Arrowhead, Sagittaria montevidensis, could be grown in any warm house in pots submerged in vessels of water. Monochoria cyanea is, so far as is known, peculiar to Australia; there are but few species in the genus, all of them being confined to the Old World. It has radical stalked dark green leaves and scapes, bearing loose spikes of showy bright blue flowers with yellow stamens.

CORONILLA EMEROIDES is an eastern European and Oriental representative of the better known C. emerus, the Scorpion Senna of gardens. The latter makes a pretty bush 4 or 5 feet in height, and produces a profusion of its bright yellow flowers—which in size, form, and arrangement a good deal resemble those of the common Bird's-foot Trefoil, Lotus corniculatus—from May or June until the appearance of frost. The slender-jointed pod has been compared to a scorpion's tail. This species seems considerably less known than its merits deserve; it bears cutting well, grows freely, and makes neat-habited bushes. For small shrubberies it would be sure to prove a favourite; we remember well the effect produced by a clump of it on the side of a hill overlooking the golden vale of Tipperary. C. emeroides has somewhat smaller, more elegant pinnate leaves, but otherwise is much like C. emerus; it is perhaps not so hardy, but as a wall plant it is well worth growing. A specimen at Kew is now in fine flower, and is quite the most conspicuous object on the wall against which it is planted.

IXORA DUFFI.—This is one of the most handsome species of a remarkably showy, and from a garden decorative standpoint, valuable genus. It is named in compliment to its discoverer, Mr. Duff, foreman in the Botanic Gardens at Sydney. A single truss of the fine deep red flowers will measure about 9 inches through, and the large foliage is a beautiful deep green. Mr. Baines, an undoubted authority, speaks highly of I. Duffi, indeed Ixoras altogether seem to be great favourites of his, for he says:—"If asked to point to a genus of plants inhabiting our stoves that combine the showiest of flowers with the finest evergreen foliage I should have no hesitation in naming Ixoras." I. Duffi is now flowering in the Victoria-house at Kew.

WEEDS.

MR. CHEESEMAN has contributed a paper to the Auckland Institute on the naturalised plants of the Auckland district of New Zealand, from which we extract the following passages as likely to be interesting to our readers. As many as 387 species are recorded, most of them being of European extraction. Australia, though so near, has only furnished ten.

"With respect to the habit and duration of the species, only 31 are trees or shrubs, the remaining 356 being herbaceous. Of this latter number 176 are annual, 28 biennial, and 152 perennial. The large proportion of annual species is noteworthy, as in the indigenous flora nearly all the herbaceous plants are of perennial growth.

"If it is endeavoured to divide the species into groups according to the nature of their habitats, it will be found that nearly two-thirds fall, in about equal numbers, into three classes; first, weeds of cultivated lands and gardens; second, inhabitants of meadows or fields; third, plants of roadsides or waste places. Of the remaining third a considerable proportion are escapes from gardens, or other plants whose position it is difficult to define at present, and which occupy very various stations—littoral, paludal, sylvestral, &c.

"Finally, we find that the species belong to 233 genera, arranged in 60 orders. The orders best represented are—Gramineæ, with 60 species; Compositæ, 51; Leguminosæ, 35; Cruciferæ, 20; Caryophylleæ, 15; Rosaceæ, 14. Of the genera no less than 182 are without indigenous representatives in this country, and 16 of the orders are in the same position. The large number of genera into which the species are distributed shows that our naturalised flora is of a very diversified character; and the fact that most of the genera have no indigenous species, proves that naturalised plants, to succeed in any country, need not have any close affinity with the pre-existing inhabitants."

In endeavouring to ascertain why the native flora succumbs in this manner to the invader, Mr. Cheeseman remarks:—

"When Cook landed here the whole country was covered with a dense native vegetation, hardly interfered with by man. The cultivations of the Maories were small in area, and as they rarely tilled the same plot of ground for many years in succession, preferring to abandon it when the soil showed signs of exhaustion, and to make new clearings elsewhere, there was little chance of the establishment and gradual development of a race of indigenous weeds. In fact, it can be roundly said that the New Zealand flora contained no such class. At that time there were no herbivorous animals of any kind, either wild or domesticated, to graze upon the vegetation, or to interfere with it in any way. Thus, no check existed to the growth of many species which can now hardly live in a district where our introduced cattle are abundant. And the repeated burning off, year after year, of large tracts of open country, was then a circumstance almost unknown. The Maori rarely wantonly destroyed the vegetation, and if he used fire in making his new clearings generally took precautions that it should not spread further than was absolutely required. It is hardly necessary to dwell longer on this point, for all must admit that the advent of European settlers and the colonisation of the country have brought into operation a set of conditions injurious to both the indigenous fauna and flora. The chief of these conditions may be conveniently grouped under three heads—first, the actual destruction of the vegetation by the settlers to make room for their cultivations, or in the construction of roads, or in the cutting down of forests for timber, &c.; second, the introduction of sheep, cattle, and horses, and their spread over the greater part of the country; third, the practice, now very generally followed, of burning off the vegetation in the open districts at regular intervals.

"If the above facts are duly considered there will not be so much cause for wonder in the introduction and rapid spread of so many foreign plants. For instance, it might be expected that the weeds of our corn-fields and pastures—which now form such an important and conspicuous element in the naturalised flora—would be almost wholly composed of introductions from abroad. The native flora possessed few plants suitable for the places they have taken, and these few could hardly compete with a chance of success against species that have from time immemorial occupied the cultivations of man, and whose best adapted varieties have been rigorously selected. The introduced weeds flourish and multiply because they have an environment suited to them, and to which they have been modified; the native ones fail because the conditions have become altogether different to those they had been accustomed to.

"Similarly it was to be expected that foreign plants would in some degree displace the indigenous ones in districts grazed over over but not actually cultivated. Many native species will not bear repeated cropping, and soon decrease in numbers when cattle or sheep are brought in. Their places will, therefore, be taken by plants that are indifferent to this, or escape by reason of being unpalatable. It hardly needs pointing out that many of our introduced species are in this category. The common Thistle, for instance, is protected by its prickly leaves; the Docks and Buttercups, and many labiate plants, are rejected by stock, save when food is scarce, on account of their unpleasant taste; whilst most grasses and some leguminous plants may be eaten down repeatedly without suffering much permanent injury. It is obvious that these species would have a good chance of spreading if introduced into a district where sheep and cattle are numerous."

But inasmuch as a similar extension of weeds takes place in localities where cultivation is not practised, and where cattle do not exist, we have another proof of the fact alluded to by Darwin, and by Dean Herbert long before him, that the wild plants of any district are not necessarily those best suited for it.

"In most cases it is impossible to assign any obvious reason for the fact that these intruders should be able to thrust on one side the native vegetation; but it is significant that all, or nearly all, are common and widely distributed in their native countries; in short, are predominant species; and that they have followed almost everywhere the footsteps of man, being as extensively naturalised in many other countries as in New Zealand. We may therefore suppose that, by long-continued competition with other species, in different localities and in different climates, they have gained a vigour of constitution and the faculty of adapting themselves to a great variety of conditions which enable them to readily overcome plants that have not been so advantageously modified.

"This supposition will also throw some light on the curious fact, that the vast majority of our plants are of northern origin. It is now generally admitted by geologists that the present continents are of immense antiquity, and that there has been no great alteration in the relative proportions of land and water during vast geological epochs. Mr. Darwin therefore argues that as the northern hemisphere has probably always possessed the most extensive continuous land area, so the wonderfully aggressive and colonising power of its plants at the present time is due to development where the competition of species has been the most severe and long-continued, owing to the presence of facilities for natural migration. The plants of the comparatively isolated countries of the southern hemisphere have not been subjected to the same degree of competition, and consequently could not be so advantageously modified."

"I can certainly find little evidence in support of the opinion that a considerable proportion of the native flora will become extinct. Even in isolated localities of limited area, like Madeira and St. Helena, where there is little variety of climate and physical conditions, and where the native plants have been subjected to far more disadvantageous influences, and to a keener competition with introduced forms, than in New Zealand, the process of naturalisation has not gone so far as to stamp out the whole of the indigenous vegetation, although great and remarkable changes have been effected, and many species have become extinct. I fail to see why it is assumed that a greater effect will be produced in New Zealand, with its diversified physical features and many varieties of soil, situation, and climate. Surely its far-stretching coast-line, bold cliffs, and extensive sand-dunes, its swamps and moorlands, its lofty mountains and wide-spreading forests, will afford numerous places of refuge for its plants until sufficient time has been allowed for the gradual development of varieties better suited to the changed conditions. No doubt some few species will become extinct, but these will be mostly plants whose distribution was local and confined even when Europeans first arrived here; and probably all will be species that have for some time been slowly tending towards extinction, and whose final exit has thus only been has-

tened. I cannot call to mind a single case of a plant known to be widely distributed when settlement commenced that is at present in any danger of extinction. Species have been banished from cultivated districts, of course, but they are still abundant in other situations, and probably there will always be a sufficient area of unoccupied and uncultivated lands to afford them a secure home.

"Speaking generally, I am inclined to believe that the struggle between the naturalised and the native floras will result in a limitation of the range of the native species rather than in their actual extermination. We must be prepared to see many plants once common become comparatively rare, and possibly a limited number—I should not estimate it at more than a score or two—may altogether disappear, to be only known to us in the future by the dried specimens preserved in our museums."

FRUIT NOTES.

Peach-Growing at The Larches, Preston.—Amongst the most successful instances of Peach-growing may be named that which has for some years been going on at this place. Two good-sized lean-to houses are devoted to the cultivation of this fruit. In one, the front trellis reaches up about two-thirds the length of the roof, the back wall being some 15 feet high, this admits of the trees on it getting plenty of light. Originally the other house was occupied by pyramidal-shaped trees that filled the whole space except the path running next the back wall which was also planted; the weight of fruit these pyramidal trees used annually to bear we have never seen equalled, but, as unavoidable with this form of tree, a good deal of the fruit did not colour so well as where trellis-training in the usual way is followed, consequently the pyramids were removed, and trellis-trained trees put in their place. The course followed is to crop moderately until the space allotted to each tree is nearly filled, after which highly stimulating treatment is followed. Each autumn, early in October, 6 inches of the top of the border is removed; this requires a good deal of care to avoid breaking the roots. The work is begun at one end of the house, loosening up the soil with forks, and working it out from amongst the roots by hand; it is replaced by good turfy loam, chopped up fine, with some rotten dung added; when this is laid on a good soaking of water is given, the roots, even in the winter time, being kept moister than many growers look on as needful. In spring, as soon as the fruit begins to swell, by which time the roots are in full run amongst the new soil, strong manure-water made from night soil is given once a fortnight, before the stoning begins; it is then discontinued until the second swelling commences, when two or three more applications are given; on each occasion immediately washing it well down with drenchings of clean water, by which means it is found that the offensive smell that would otherwise follow is all but avoided. The manure-water is withheld long enough before the fruit begins to ripen not to affect the flavour. The extraordinary weight of fine fruit these trees bear year after year, under this system of encouraging the roots to the top, and putting within their reach an unstinted supply of nutriment in a form the easiest of absorption just at the time when it is most wanted, proves the soundness of Mr. Newton's practice. On removing ever so little of the soil at the top of the borders in these houses the roots are to be seen in a dense mass, like those of an Ash or a Willow, when they reach anything they particularly like. Sufficient consideration is not always given to the fact that things like the Peach, which, in addition to the task of supporting a fruit crop that draws heavily on the energies of the plant, naturally make a deal of wood and leaves, require a proportionate amount of sustenance without which the maximum of fruit production is not possible. The old, well proved, highly flavoured varieties, such as Noblesse, Barrington, Bellegarde, and Royal George, are preferred to most of the newer kinds that have appeared in recent years.

Peach Lady Palmerston.—When at Stoke Court Gardens, near Slough, the other day, Mr. Mayer, the able gardener, showed me several fruits of this Peach, newly gathered from the latest fruiting tree in a late Peach-house, and both in appearance and richness of flavour it commended itself as a fine variety. Mr. Mayer speaks of it in high terms as a cropper, and good at all points. The fruits are very rounded, of fine size, exceedingly weighty and handsome, and of a rich yellowish hue. It is well worthy the attention of all who do not know this variety. *A. D.*

SERAPIAS CORDIGERA.

Those who are happy enough to know the Riviera will recognise this as an Orchid not unfrequently met with in that favoured district. The specimen, however, which furnished our illustration (fig. 52) came from no more remote locality than York, where the care bestowed on it by Messrs. Backhouse compensated for the widely different and much more favourable climatic influences to which it is subjected at home. It is a terrestrial Orchid, with deep purplish-brown flowers. For the rest the illustration tells its own tale. Our lamented friend, the late J. T. Moggridge, figured the plant in his *Contributions to the Flora of Mentone*, and noted the curious arrangements in the flower to secure cross-fertilisation, such arrangements consisting briefly in the alteration in the position, or rather complete reversal, of the pollen-masses after extraction from the anther—an alteration adapting the pollen-masses to fall upon the stigma of another flower when transferred thither by an insect. The forms of Serapias are not in all cases easy to discriminate, and after what Moggridge tells us this is not to be wondered at, for he says that he found the yellow pollen of S. lingua on the stigma of S. cordigera. That hybrid forms should arise to the perplexity of botanists is thus easily understood.

Fig. 52.—Serapias cordigera.

PLANTS IN FLOWER.

Gentiana calycosa.—This Gentian is rare in cultivation. It is a native of the Western States of North America; and, out of a dozen plants imported, only four have managed to pass the ordeal happily; but this is very fair, and the pleasure of seeing one in flower recoups one fairly well for the loss of the others. There is nothing very showy—but what of that? Some of us like Gentians, simply because they are such. The leaves are in rosettes, 2—3 inches long, ovate-oblong, obtuse, or sub-spathulate. Flower-stems axillary, about 9 inches high, clothed with opposite, oblong, obtuse leaves, about 1 inch long. Flowers solitary (in my specimen), about 1½ inch long, sepals large and foliaceous, 6—9 lines long, elliptical, corolla campanulate, five-lobed, the sinuses deeply cut and fringed, pale blue, with fine broad dorsal bands of a deep purple-brown colour, corresponding to the five corolla lobes, which gives the flowers a quaint and very distinct appearance, quite unlike any other Gentian I know. The plant referred to is planted in a cool and semi-shady place on the rockery in ordinary soil, but I quite think it will get on better in the peat bed, where a large number of the Gentians make very fine growth. *T.*

Veronica longifolia subsessilis.—This is a charming Speedwell, although I cannot report such growth as the Rev. Wolley Dod does in his well-bodied soil, yet it flowers very freely, the main spikes, perhaps, branching more in light soil than heavy. I have some of its pyramidal spikes 18 inches long, upon plants struck two years since, and plants of that age are undoubtedly in their zenith. A good batch of cuttings should be struck annually. A good plan to get plenty of cuttings is to stop one or two of the leading shoots early in the season, when they will branch freely; and if these shoots are taken off early there is then a good chance of getting another batch of excellent young cuttings before the season is over. *T.*

Hypericum reptans.—In the new rockery at Kew this charming little St. John's Wort, planted between limestone blocks, adorns a ledge with its slender wiry stems, clothed with small Thyme-like leaves, and, for the size of the plant, large golden-yellow flowers. It is a shrubby species, with diffuse rooting branches and solitary terminal flowers. A native of temperate Sikkim, where it occurs at elevations of from 9000—11,000 feet above sea-level.

Cassia marilandica.—The wild Senna of the Northern United States is well worth growing in collections of choice hardy herbaceous perennials. In favourable situations it grows from 3 to 4 feet in height; at Kew, however, this season it has only attained about half that height. The pretty pinnate leaves and axillary racemes of bright yellow flowers—to which a somewhat curious appearance is given by the dark coloured anthers—render this one of the most desirable plants for the front of the shrubbery border. Martyn, in his *Historia Plantarum Rariorum*, says that this species was first introduced to this country by Collinson in 1723.

Dabeocia polifolia.—The St. Dabeoc's Heath and its varieties—the pure white, and the form with white and purple flowers—make a handsome show for a considerable time, if planted in a damp peat bed. We recently saw a large mass of it which seemed to be in great favour with both the common hive bee and humble bees. Hundreds of individuals, which must have come from a long distance, were busy at Kew, but as far as our observation extended, not a single one attempted to obtain the nectar through the mouth of the drooping urceolate corollas; all simply alighted on the flowers and pierced the base of the thin corolla.

The Apiary.

THE Government of India has published a collection of papers on bee-keeping in India, comprising the replies of the local authorities in various districts to inquiries circulated on the subject of bee-culture in India. The general results are—(1), that several varieties of honey-bees are found in every province of India where there is sufficient forest or jungle, and that the honey of some of the varieties is good, and in considerable demand; (2), that efforts have been successfully made in the hills by Europeans to domesticate Indian bees, but that bee-culture is only practised by natives in the very rudest way; (3), that it is very doubtful whether the bee could be domesticated in the plains, owing to the dearth of flowers during the three or four months preceding the rains; (4), that in Southern India persons have given up all attempts to domesticate the most common variety of bee found there, on account of its intractable nature. The industry is unlikely ever to be one of great importance in India; it can only be followed in the hills, where flowers abound the greater part of the year, or in forests where food is equally plentiful. In the populous country of the plains bee-keeping as a general industry seems impracticable. Such are the conclusions deduced from the numerous official documents received; but it is to be hoped that Mr. John Douglas, at whose instance these inquiries were made, will not be discouraged, but pursue his useful object; for, if only in the hills, great good might be done by developing bee-culture. Nothing is said in the papers before us about the introduction of European bees.

The Herbaceous Border.

PERENNIAL ASTERS. — From this time until November the perennial Asters, commonly called by the general name of Michaelmas Daisies, will be amongst the most conspicuous flowers of mixed herbaceous borders. Whilst the names of these continue in the sad confusion in which they have hitherto been both in nurseries and in private gardens it is almost useless to write about them by name, as a full and accurate description of each kind would be necessary to indicate the plant intended. What gardeners want, however, is not so much a synopsis of the genus, which contains perhaps 150 species, many of them worthless as garden flowers, as a carefully selected list of distinct forms, giving their characters sufficiently for identification. As I have been collecting Asters for some years, and now have seventy or eighty kinds in cultivation, I had hoped to be able this year to describe thirty of the best varieties; but I am still prevented by difficulties in naming. Not having the advantage of living near Kew, where all the Asters are now carefully and correctly named, I am obliged to verify names slowly two or three at a time. If there were anything like consistency in the trade names for Asters correctness of naming would be of less consequence to gardeners; but at present I believe that no two nurseries in the kingdom could be found to contain ten Asters to which the same name was given in both nurseries. Perennial Asters vary in height from 7 feet to 6 inches; in the size of their flowers from 2 inches in diameter to less than half an inch; in colour from every shade of pink and purple to white; so that there is plenty of variety from which to select. Besides this, some individual species present great varieties in height and colour and form, including both valuable and worthless garden plants. As an instance of this I have lately had three flowers returned to me from Kew as "Aster punctatus," one of which is from a plant which never exceeds 1 foot in height, and flowers at the end of July; a second grows 6 feet high, and flowers in September, and is much brighter in colour; the third is intermediate in stature, and is generally known as Galatella hyssopifolia. Some of the best of my Asters were not obtained from nurserymen, but from amateurs who had accidentally met with them in cottage gardens. It is my wish, however, to make all the best forms generally known, and to distribute them by their true names amongst nurserymen as well as amongst my friends. I should take it as a great favour if any reader of this who has any very ornamental Asters not generally known would let me see a flower of it. *C. Wolley Dod, Edge Hall, Malpas, Cheshire, Sept.* 8.

Home Correspondence.

The Hybrid Raspberry.—I am pleased to have drawn such an interesting communication from Mr. Hemsley, at p. 276, and I also thank Dr. Focke for his communication on the same subject, but owing to the care I took in the fertilisation of the Raspberry with the pollen from the Strawberry I am obliged to adhere to the statement I first made to you regarding the cross. In the first place every care was taken that the Raspberry should not fertilise itself, and when this was effectually done care was taken to prevent any insect getting to the flowers. The flowers were irregularly set, as only about a fifth of the pips were set. When the seed was ripe it was sown at once and covered with a bell-glass: about a dozen plants came up. Three of the dwarfest and mostly like the Strawberry were saved. I maintain if the plants are Rubus Idæus var. Leesii science has produced what Nature had done long before. The plants all flowered profusely, but all failed to set a fruit. This is proof that I am right about the cross, as Dr. Focke states that Rubus Idæus var. Leesii does bear fruit occasionally. The leaves and stem sent to me in a dry state by Dr. Focke, bore little resemblance to my robust seedlings as they were seen growing here. Rubus Idæus cannot be found anywhere in this neighbourhood, so that it would be impossible for a cross to be effected in that way. Mr. Baston, the famed Dahlia grower, is the only good local botanist in this part of Yorkshire that I know who has ever seen the plant growing. He speaks of Rubus Idæus as a dwarf and puny plant in growth, and unlike my robust plants. Its whereabouts he has lost sight of, but I understood him to say it was in the Vale of Marsham. Perhaps Mr. James Carter, or some of the family, who were all born botanists, can tell us if it is growing in that fertile vale of British plants. While I was in the gardens of the Royal Horticultural Society, now many years ago, I competed for Dr. Lindley's prize for the greatest collection of British plants that could be got together in forty-eight hours. I had the honour of winning that prize, and in my collection I had many rare British plants. Rubus Idæus was one of them, and I well remember Dr. Lindley was very curious to find out where I got the plant from, and not at all pleased because I could not name the spot where it grew. My belief was that I found it on Ham Common, in Surrey, or Wormwood Scrubs. However, I feel certain myself about the cross. I have offered to supply Dr. Focke with a plant of each of the three, or I will send them to Kew, where they may be grown and examined in all their stages of growth. I would also send a plant of my seedling hybrid Currant, as a great curiosity, if nothing more. *William Culverwell, Thorpe Perrow.* [We trust Mr. Culverwell will continue his observations and experiments. If he has succeeded once, he can do so again. ED.]

New Melons.—I think with Mr. W. Culverwell that the High Cross Hybrid Melon is the best variety grown. I planted a house last February of all the new kinds, and I cut good fruit off the High Cross Hybrid fourteen days earlier than any of the other kinds. I have now a house of Melons planted nine weeks ago, and the High Cross Hybrid is quite three weeks earlier than the others. I find it a good setter and a hardy kind, and I think it the very best sort, taking all points, that I have ever grown, and I intend to grow no other next season. *Wm. Smythe, The Gardens, Basing Park, Alton, Hants, Sept.* 6.

Mignonette.—One of the finest strains of any red-flowered Mignonette I have seen anywhere in the open ground is now growing at Woodside, Farnham Royal, the stock of it, Mr. James informed me, having been obtained from some market grower famous for his pot plants. It is a true pyramid kind, the spikes broad and dense, and the pollen cases of a deep red colour, whilst the habit of the plant is robust and compact. Equally true, though to my taste not so striking, is a big patch of Miles' Hybrid Spiral; no doubt a capital Mignonette, but for outdoor massing of white kinds I prefer a good strain of the Giant White, which is, I think, the best of all Mignonettes. *A. D.*

Jasione montana.—Referring to a note on p. 306, I may say that there are few native plants which have not been tried in Edge Garden, and this annual Sheep's-bit has received its share of attention; but in this damp soil I have found it become poor in colour, and too loose in growth to possess much merit as a garden flower. At Munstead and other Surrey gardens it has been grown more successfully in a dry and sunny position; but those who have seen the plant only in the Home Counties can have little idea of its vigour and beauty in North Wales, where it is common on the coast. It is particularly conspicuous in a cutting on the north side of the railway running under Penmaenmawr, where the bank, which from its rocky surface escapes the desecration of the scythe, is bright with Sheep's-bit every July. In Anglesey it is finer still, and about Holyhead the size and colour of the flowers and the stout compact growth of the plant made me think I had come upon a new species. However this is by no means the only wild plant of that neighbourhood which misleads by the abnormal proportion of flower to leaf and stalk which it developes; though seeds gathered there and grown at home soon undeceive the gardener by returning to the common type, and show that the difference is due to soil and climate and not to specific variation. *C. Wolley Dod, Edge Hall, Malpas, Cheshire, September* 10.

Latest of All Pea. — This remarkably prolific Marrow Pea has, I believe, been put into commerce under this name by Messrs. Sutton & Sons, of Reading, but I saw it in several stages of growth recently at Stoke Court, where it was raised or selected by Mr. Mayer from Maclean's Premier. There were breadths just being finished off, others in full bearing, and just about to turn in, and, lastly, a sowing that was 18 inches in height and about to bloom. This latter one would give large gatherings as long as the weather would permit. I could but remark the entire absence of mildew on the plants, and the fresh, green appearance of all the growing breadths. The Pea reaches a height of about 3½ feet, crops heavily, producing rich green well filled pods not unlike those of Veitch's Perfection, but longer. So much is the Pea appreciated at Stoke Court that hardly any other is grown. It is a long bearer, and in that sense repays the cost of sticks much better than do many other kinds. Mr. James had this same Pea in his garden at Farnham Royal, where, too, it was doing first-rate and cropping heavily. *A. D.*

The Fruit Crop in Yorkshire.—With the exception of bush fruit and Strawberries the crops of the other common fruits are almost a failure. Apples here are a moderate crop, but the fruit is small and of indifferent quality. The Apple crops in the neighbourhood are in general light and the fruit small. Stone fruits are exceedingly scarce. Here Peaches are a good crop and ripening nicely. Both Plums and Apricots are very scarce here and in the neighbourhood. In some villages, where cottagers usually make something of their Apricots and Plums, scarcely a hamperful could be collected. Pears are a very poor crop. Of Hessel and other common kinds there are tolerably fair crops, but the fruit is miserably small. Here there is a sprinkling of fruit on many of these trees. On some trees there are a good many fruit, and on others few or none. Among the standard trees two Williams' Bon Chrétien have a fine crop, but the fruit is small. There is also a fine crop on a standard Dunmore. There is one bit of comfort for the growers—the trees promise well for another season. *M. Saul, Stourton Castle, Yorkshire.*

Annual Chrysanthemums.—The award made by the Floral Committee of the Royal Horticultural Society, a short time since, of a First-class Certificate of Merit to some blossoms of Chrysanthemum coronarium, double yellow, under the name of the double yellow Marguerite, served to illustrate, to my mind, the fact that this and the double white form of C. coronatum are comparatively unknown, though they are in the front rank of the hardy annuals. Some nine or ten years ago, I used to send up to the meetings of the Society from Bedfont bunches of charming double forms of the white and yellow varieties of C. coronarium that had been selected by my brother, as perfect in form and doubleness as the most symmetrical of pompon Chrysanthemums, and little or no notice was taken of them. But that was before Marguerites became fashionable, and now anything old that can bear that name appended to it, or is new, is certain to receive attention. I send you with this some flowers of the double white and double yellow varieties of C. coronarium gathered a few days ago at Messrs. Sutton & Sons' Seed Farm at Reading, which have not improved by keeping; but which will, I think, convince you that they are identical with the so-called double white and double yellow Marguerites which have been exhibited of late. I may state that it is characteristic of the flowers to open as perfectly double and symmetrical rosettes, and then to become semi-double, showing the eye or centre as they age. They are easily raised from seed, and in good ground grow to a height of 3 feet or so; and I can commend them to gardeners for cutting from as one of the most useful things they can now cultivate. The fact is, that when seedsmen are applied to for yellow and white annual Chrysanthemums they almost invariably send the forms of C. tricolor. These are of dwarfer growth, larger foliage, and throw flowers of much greater size, some of the varieties being very handsomely marked, but all are more or less changeable in character. These are properly varieties of C. carinatum, and commencing with what is known as tricolor, we get large bold yellow, crimson, and white flowers of a very showy character. Burbidgei is crimson and white, also very striking; and there are scarlet and purple forms also; W. E. Gladstone, Lord Beaconsfield and Sultan represent some newer selections, but, as before stated,

all the varieties are apt to run out into other forms. Then there are two double types known as Dunnetts' double white, and Dunnett's double golden, represented by large double flowers that are certainly more durable, but not so striking; and I am of opinion that they fall far below the varieties of C. coronarium, either for cutting or decorative purposes. It is these forms of Dunnett's Chrysanthemum that are generally supplied when seed of double annual Chrysanthemum is applied for. It may be truly said of all the annual Chrysanthemums, that they are very attractive, and also that they are not nearly so much cultivated as they deserve. One greatly admires them when they are seen in large breadths, as at the Dedham and St. Osyth seed-grounds of Messrs. Carter & Co. But they make charming patches of blossoms in the garden, they are bright, cheerful, and very free of bloom, easy and rapid in growth, and if kept cut, flowering for a considerable time during the summer. They should have good ground, and like many other subjects, the plants, by their floriferousness and durability will repay attention. *R. D.*

—— A few plants of the annual double yellow Chrysanthemum of the coronaria section show what splendid things they are to furnish cut flowers. No doubt as a rule these things are sown far too thickly, and hence are short-lived. My plants have ample space, and one is some 4 feet in height and 3 feet through, and blooming marvellously. Such a thing as an annual for the supply of really charming rich garden flowers on long stalks I have never before seen. A dozen or two of these in any large garden would prove invaluable. The earlier flowers open large and single; but the later ones, when they become more abundant, are semi-double, and fairly good double, and really beautiful. I purpose trying to strike some of this to see whether it will not do well in pots as a winter plant. The double white form is, too, very strong growing and free, but it is not so pure; indeed about the base of each petal there is a marked flush of creamy-yellow that much detracts from the quality of the flower. The more double they are the more pleasing are they. This, too, would, I think, make a good winter plant, as under glass the colour would be much more pure and pleasing. In both cases, I think, the propagated plants would produce flowers more nearly double than are those from seedling plants. In any case I strongly advise all gardeners who have to cut flowers largely, to get some of the double yellow kind, and sow next spring in the open air, as it is very hardy. *Z.*

Mixed Bedding.—This system of planting out is rapidly rising in favour, and with the outside public is becoming popular every year, so that those who have not hitherto practised it, but who are desirous of marching and keeping pace with the times, would do well to turn their attention to it. There is nothing which may be designated "difficult of accomplishment" about it, and it cannot, as some would say of carpet bedding, be regarded as a test of one's knowledge of the elementary books of Euclid; this much, however, we may say, viz, that by its adoption a display of flowers for a greater length of time may be had than by any other system of bedding-out in vogue at the present day, be it winter, spring, sub-tropical, or carpet bedding, and this alone may be regarded as a great advantage and a good recommendation. In the gardens at Wilton House, Salisbury, where mixed bedding is done extensively and with great spirit, we recently saw a border, which, at the time of our visit, had an extremely picturesque and pleasing appearance, a few words concerning which may not be uninteresting to some of your readers. Speaking first of its dimensions I should say, judging from memory, that it is about 150 yards long and 9 or 10 feet wide. On one side it is bounded by a broad gravel path and the kitchen garden, and on the other by a rich grassy slope, which runs down to the water's edge of a beautiful, clear, rippling stream, wherein the wily trout may be seen darting hither and thither amongst the numerous aquatic plants. The border is planted so as to present two fronts, so to speak, one of which faces the stream and the pleasure grounds, and the other the kitchen garden. Along the centre there are single Dahlias and other tall growing plants, then comes a host of other plants arranged and planted so as to form a pleasing combination and a harmonious whole; due regard being paid to the blending of colours, height of plants, and distance from each other. Here we have Gladioli of various colours, and at regular intervals Anemones japonica alba and Honorine Jobert. Further on and we come to such plants as Chrysanthemum fruticosum, C. Burbidgei, Phlox Drummondi, and Salpiglossis in great variety, the flowers of which are marked and pencilled with every conceivable shade of colour. There are also other annuals which may be placed in the same category as the above, as well as a multiplicity of dwarfer growing plants too numerous for special comment. To be brief, we would state that no written description could do justice to such a border as the one under notice. All the plants above mentioned are easily grown and reared; they have also the additional merit of not being costly, and are within the reach of all possessed of moderate means. Mixed borders, in which herbaceous and bulbous rooted plants in addition to ordinary summer bedding plants are used, may be made attractive and interesting for nine months out of the twelve. Early in the year Ficaria verna, Snowdrop, Crocus, and Scillas will be in flower; these, in their turn, being followed by Narcissus, Jonquils, Polyanthus, Violas, Wallflowers, &c., which again would be succeeded by half-hardy plants, such as Pelargoniums, Ageratums, Heliotrope, and Verbenas, together with annuals and summer flowering herbaceous plants; in the autumn Chrysanthemums, Phloxes, and Michaelmas Daisies will enliven the prospect till a far advanced period of the year. It would be difficult to say how long the present "fashion" of mixed bedding will last; it seems, however, to have all the appearance of being long-lived. *J. H.*

Single Dahlias.—Having read the remarks at p. 268 respecting the awards made by the Floral Committee to some small single Dahlias, may I ask is there any reason why there should not be a section for pompon singles? I enclose you one bloom of a variety certificated last year which measures 4½ inches from tip to tip, and which much resembles a medium-sized tea-saucer, and many of them nearly as round. They are exceedingly showy, and when used for church, hall, and fireplace decoration are quite in their proper places; but for choice bouquets, buttonholes, breast-sprays, table, mantelpiece, glasses, &c., these large varieties will share the same fate as the heavy and lumpy doubles. I should be glad of your opinion of the six accompanying varieties, with raisers names affixed. Those four gentlemen—Messrs. Cullingford, Moore, Lowe, and Teesdale—have been working most assiduously to make the single Dahlia more popular, and I am pleased that the members of the Floral Committee have begun to appreciate their efforts in giving us these smaller flowers; and as more varieties are raised somewhat resembling the Eucharis, &c., so will they be used for a higher and choicer class of decoration. I think you will agree that such pretty little flowers, now sent, which are the several years' work of the gentlemen above-mentioned, must be of more value than what we have hitherto been accustomed to see; and it is a remarkable coincidence that these four gentlemen, who live so far apart, should, almost unknown to each other, have decided that this was the ideal form they wished to attain—a form which the ladies can use to better advantage in beautifying our homes. But why the writer should deride such efforts, and why this feeling of moving out of the old course, from large and rounded, flabby varieties, to small pretty blooms and neat Fern-like growth (some of which in good ground attain only the height of 18 inches), should call forth such remarks, and the same reluctance to appreciate, I am wholly at a loss to understand. A similar feeling existed when we re-introduced the single Dahlia in the face of the large, round, heavy show kinds, which are of no earthly use for decoration unless they are provided with strong stands, and set up as we see them at exhibitions—then their symmetrical shapes are wonderful, and hardly approached by those of any other flower. *H. Cannell, Jun.*

—— The dry weather has had great effect on these, as they have dropped their flowers wholesale, which rapid shedding of petals has been brought about by two causes, the one from an insufficiency of moisture at the root, and the other quick fertilisation through so much pollen ripening, which the numerous insects that visit the blossoms soon disperse and scatter over the stigmas. Bumble bees are particularly fond of these single Dahlias, and it is very rare that they can be seen without one or more of these busy workers engaged on the centre of each bloom, where they appear to gather both honey and pollen, as their legs are generally laden with the latter when they take themselves off to their nest. As cruel frost will soon be here, and Dahlias are the first plants to feel its icy hand, it is high time to look carefully over them to see what are worth keeping among seedlings, which vary much, and are sure to show many that are inferior in form and colour, and quite useless to save. Those, in my opinion, which should be made choice of, are such as have nice compact stout flowers, of medium size, and clear, distinct colours. These are not only the most serviceable in borders, where they endure wind and weather better than the larger, but they are also of more value for cutting, as they look so much lighter in vases, where they can be easily arranged and made to produce a charming effect. Since writing the above I have had the pleasure of seeing the stands of single Dahlias at the Bury show, and could not help noticing how immeasurably superior those looked which had the flowers standing up with some of their own foliage to back them, which is a far better way of exhibiting them than that of laying them flat on the green board or rounded pieces of paper, and it is to be hoped that when schedules are drawn up for next season the prizes will be offered for them in spikes of a foot or so long to be shown either in stands or single vessels of water. So arranged they would show their true character, and be far more instructive, as any one would be able to see at a glance their fitness for the embellishment of vases or borders, and could judge fairly of the habit of the plants from which the cut bloom was taken, which cannot now be done, from the single flowers lying pancake fashion, and with their lines of beauty pressed together and lost. *J. Sheppard.*

Gaillardia Lorenziana.—I am both pleased and disappointed with this novelty. I am the first because some of the forms, the amaranth and claret especially, are charming; and the second because some others are poor and worthless, whilst the strain is so far from being true that not a few plants of the grandiflora type appear. These latter, however, are first-rate things in their way to produce flowers for cutting, whilst the best forms of Lorenziana, resembling as they do heads of dark-coloured Bouvardias, though the florets are perhaps more evenly and perfectly set. Seed of Gaillardias should be sown in a frame or in pans, and the young plants dibbled out thinly during May. No matter what kind, all will well repay cultivation and furnish an abundance of beautiful flowers for cutting. *A. D.*

Alpine Strawberries.—Last year I wrote you a short paragraph respecting a seedling alpine Strawberry which had come up the previous year in a vase, and that its runner hung down, flowered, and was making an interesting and ornamental adornment. I now beg to send you a small seedling, which came up last year, but rather later in the season, and which, as you will see by its deep coloured fruit, and that the runner also is heavy, that the plant may be made ornamental; besides, the present specimen being grown in soil in a vase, and therefore lighter in texture, is better flavoured than when grown on the surface of the garden. As you will see, some of its earliest Strawberries have been plucked by young folks, who must have been tempted it is supposed. These earlier berries were the largest. *W. A. Wooler, Sadberge Hall, Darlington.*

The Hardiness of Mandevilla suaveolens (pp. 275, 308).—In reply to your correspondent's inquiry respecting this lovely creeper, it may interest your readers to know that there is a very fine specimen of it at present growing in the Channel Islands. The specimen was raised from seed in 1876, and now covers a wall of south-east aspect 10 feet high and 30 feet long. It blooms abundantly from the middle of June to the middle of August, and is now bearing clusters of large seed-pods, measuring 18 inches in length. This plant has its roots in ordinary garden vegetable mould with good drainage, and has never received artificial protection. *Steephill, Jersey.*

Sabbatia campestris (p. 298).—This beautiful plant was first introduced into English gardens by the late Mr. James Carter, of Holborn, in the year 1851. It was received from a collector in Texas. Mr. Thompson may have re-introduced it. *Samuel Ainsworth.*

National Chrysanthemum Society.—All true florists have, I believe, been pleased to see the great and gratifying success that has attended the efforts of the newly formed National Dahlia Society, as proved by their recent show at the Crystal Palace. This seems to be the age of specialities: we have our national organisations for Roses, Tulips, Carnations, Potatos, and now Dahlias; and I should like to know how it is that a national society has not been started in the interest of that queen of winter flowers, the Chrysanthemum, which gladdens our hearts with its beauty at a season when other flowers are scarce, and which will grow in situations where others would perish. There is perhaps no flower that has more local societies formed for promoting its culture, and yet, as far as I know, they are all without a recognised head and centre. How is this? There is, we know, plenty of enthusiasm amongst the great numbers of men who grow it; I would therefore suggest that some steps be taken towards placing the "Autumn Queen" on a footing with her worthy compeers of other seasons. Support pecuniarily and otherwise is sure to be forthcoming, if only some of our influential and well-known horticulturists would take the initiative. The way is easy, success is sure, and might be accomplished in several ways; either let a new society be formed, or, still better, let one of our many local or suburban societies take the matter up and form a nucleus for a national. I for one am fully prepared to support any such movement as far as I can; and as I have the honour to be one of the exhibition committee of the oldest Chrysanthemum society (the Borough of Hackney), I have had some opportunity of forming an opinion on the matter in question. I should be glad if some of our great growers of the flower will favour us with their views, and also the executives of the existing local societies. In order for the movement to be a success it must be taken up with spirit and unanimity. *H. F.*

Reports of Societies.

Royal Horticultural: *Sept.* 11.

FLORAL COMMITTEE.—Present: G. F. Wilson, Esq., F.R.S., in the chair; Messrs. J. McIntosh, J. Wills, W. Bealby, Shirley Hibberd, J. Hudson, H. Ballantine, J. Dominy, W. B. Kellock, J. Cutbush, H. Turner, H. Cannell, and J. Fraser. An overpowering feature at this meeting was a grand display of Dahlias, made up of large contributions from the nurseries of Mr. Turner, Messrs. H. Cannell & Sons, Messrs. Paul & Son, Cheshunt, Mr. Ware, Messrs. Keynes, and others, and of which some notes will be found in another column. Next to the Dahlias perhaps the greatest amount of interest was centred in Baron Schrœder's new Vanda, a variety of V. suavis, with the sepals and petals pure lemon-yellow, and the lip and column pure white. Mr. B. S. Williams sent an interesting group of Nepenthes, species and hybrids, of which N. intermedia and N. Excelsior bore the largest pitchers—the latter, in the way of N. Rafflesiana, being a very fine thing. Mr. Williams had also the pretty Amaryllis Mrs. Garfield in bloom, and Galeandra Baueri, a rarely seen Orchid. Amongst other things shown by Mr. Ware besides Dahlias, were some cut blooms of a pretty, semi-double white, blush-tinted Rose called the Persian White, concerning which the committee requested further information. Messrs. James Veitch & Sons exhibited Selaginella canaliculata, one of Mr. Maries' introductions from India, a stiff, erect growing plant of the S. cæsia arborea type; Rhododendron Brilliant, one of the fine new hybrids, having a fine truss of well formed, lustrous crimson-scarlet blossoms; and Begonia Novelty ×, a hybrid between B. lineata and B. Davisii, the last-named being the seed parent. Like its parents, it is a pigmy in stature, the leaves deep bronze-green, with silvery variegation, and the small flowers of a soft shade of rose. Mr. W. White, gr. to C. Dorman, Esq., Lawrie Park, Sydenham, showed a plant with one flower of Anguloa eburnea, large, waxy-white, and possessing a very peculiar odour which we cannot describe. Miltonia bicolor, a species with pure white flowers, marked only by a bold purple blotch on the lip, came from Mr. Southgate's collection at Streatham. Mons. Lemoine, of Nancy, was the exhibitor of two varieties of Pentstemon, Cerise Queen, pure cerise with clear white throat, and Purple Queen, purple, with the throat pencilled. Messrs. Hooper & Co. contributed a nice collection of Tydæas, &c.

The awards made were:—

First-class Certificates.

To Mr. Ballantine, gr. to Baron Schrœder, for Vanda suavis var. Schrœderiana.

To Mr. Turner, for show Dahlia Mrs. W. E. Gladstone.

To Messrs. Veitch & Sons, for Rhododendron Brilliant.

To Messrs. Veitch & Sons, for Begonia Novelty ×.

To Messrs. Veitch & Sons, for Selaginella canaliculata.

To M. Lemoine, for Pentstemons Purple Queen and Cerise Queen.

To Mr. W. White, gr. to C. Dorman, Esq., for Anguloa eburnea.

To Mr. Salter, gr. to J. Southgate, Esq., for Miltonia bicolor.

To Mr. Edwards, for Begonia (double white) The Queen.

To Mr. T. S. Ware, for single Dahlias Cetewayo, B. Barkaway, and Dr. Moffatt.

Medals.

Gold Medal to Mr. Turner, for a collection of Dahlias.

Silver-gilt Medals to Messrs. Cannell & Sons, Messrs. Paul & Son, and Mr. T. S. Ware, for collections of Dahlias.

Silver Banksian Medal to Messrs. Keynes & Co., for a collection of Dahlias.

FRUIT COMMITTEE.—Present: John Lee, Esq., in the chair; Messrs. P. Crowley, G. Goldsmith, J. Burnett, J. Willard, G. Paul, L. A. Killick, J. Smith, R. D. Blackmore, H. Webb, J. E. Lane, J. Roberts, W. Paul, and Dr. Hogg. Cultural Commendations were awarded at this meeting to Mr. Miles, gr. to Lord Carington, for two handsome Queen Pines weighing respectively 6 lb. 6 oz., and 6 lb. 2 oz.; to Mr. King, Rousham, near Aylesbury, for fine examples of a good strain of White Spanish Onion, shown under the name of Rousham Park Hero; to Mr. Robert Holland, gr., Stanmore Hall, for three well finished bunches of Black Alicante Grapes; and to Mr. Freeman, gr., Beechwood Park, for a large Melon named the Kaiser, which weighed 15 lb. 5 oz. Messrs. Lane & Son exhibited a collection of about twenty varieties of early dessert and culinary Apples, and a collection of Cob nuts and Filberts; and from Messrs. Veitch & Sons came a collection of Tomatos cut from plants growing against a west wall.

Bath Horticultural: *Sept.* 5 *ana* 6.—This Society, which was established in 1855, is consequently by no means in its infancy; and it is gratifying to see that with increasing years there is an extension in the programme, which the committee so successfully carry out. There are now four exhibitions—a spring one in May, a Rose show in July, a general exhibition of plants, cut flowers, and fruit in September, and another in November for Chrysanthemums, cut flowers, and fruit. On the present occasion plants were well shown—Fuchsias in particular were present in such condition and numbers as are rarely met with. Noted as the Bath shows have long been for the exceptionally fine condition in which these plants are brought out, it is doubtful if they have ever equalled those staged at the recent exhibition—immense plants, with plenty of healthy foliage, bearing a profusion of flowers, and present in such quantities as to make a most effective feature. Flowering stove and greenhouse plants were also well represented, as likewise were the fine-leaved section; the soft-wooded division, comprising zonal Pelargoniums, tuberous Begonias, Gloxinias, and the like, were also well shown.

In the principal class for nine stove and greenhouse plants Mr. Cypher, Cheltenham, here, as so often in other places, took the lead with a fine group, in which were large and finely flowered examples of Erica verticillata, E. Austiniana, Ixora regina, and Dipladenia amabilis. The 2d prize was taken by Mr. Long, gr. to C. Gardiner, Esq., who also staged a well managed lot of plants, the best of which were Anthurium Scherzerianum, Ixora Williamsi, and Allamanda Hendersoni. Mr. Mould, who was 3d, had, amongst others, the white Ixora, I. Colei, Erica Austiniana, and a large pot of Vallota purpurea, profusely bloomed. With six stove and greenhouse plants Mr. Mould, gr. to E. E. Bryant. Esq., was 1st, staging in a nice half-dozen Erica Ewerianna superba, Allamanda Hendersoni, and A. nobilis, fresh and well flowered; 2d, Mr. Tucker, gr. to Major W. P. Clarke, in whose group was Bougainvillea glabra, with the flowers finely coloured; and 3d, Mr. Jones, gr. to General Doherty. For three stove and greenhouse plants, Mr. Hawkins, gr. to T. Jolly, Esq., was 1st, with medium-sized examples, the best of which was the pretty yellow Cassia corymbosa, beautifully flowered; Mr. Cole, gr. to R. B. Cator, Esq., came in 2d, showing a finely bloomed pot of Vallota purpurea, and the brilliant coloured Amaryllis Ackermanni pulcherrima. For a single specimen stove plant Mr. Cypher was 1st, with Ixora Duffii, bearing eight enormous heads of its crimson flowers, from 10 to 11 inches through (in the way Mr. Cypher brings out this plant it is a very fine thing); 2d, Mr. Long, with a good plant of I. Williamsi. For a single specimen greenhouse plant Mr. Long was 1st, staging the white variety of Lapageria; 2d, Mr. Cypher.

There was a large number of fine-leaved plants staged, of the usual character, Mr. Cypher taking the lead in the class for sixteen, having, amongst others, fine plants of Kentia Forsteriana and K. Canterburyana—independent of the Kentias ranking amongst the handsomest of dwarf Palms, they only require cool greenhouse treatment, which is a great advantage; 2d, Mr. Mould; 3d, Mr. J. F. Mould, nurseryman. For ten fine-foliage plants Mr. Shadwell, gr. to T. Chandler, Esq., was 1st, with a medium-sized group; 2d, Mr. Bloodworth; 3d, Mr. Turner. With a single specimen ornamental plant, Mr. Cypher won a 1st prize, showing Cordyline indivisa.

Fuchsias, as we have already said, were in unusual force, and in the class for nine varieties Mr. Tucker took the 1st prize with finely flowered examples from 9 to 10 feet high, the best of which were Charming, Queen Victoria, Bountiful, Elegant, Arabella, and Doll's Favourite; Mr. Lye, gr. to the Hon. Mrs. Hay, was 2d, with plants as well flowered, and only a little smaller than the 1st prize lot; if a fault could be found with these two collections it was the severe formality of their training, each plant being as erect and even as the steeple of a church. Mr. Wilcox, gr. to Miss Barrow, was placed 3d, with a beautiful group, large, and well-flowered, not so tall, and exhibiting more freedom in their training; the best of these were Charming, Doll's Favourite, and Marchioness of Bath. With six Fuchsias Mr. Fletcher, gr. to C. H. Gabriel, Esq., secured 1st honours, for beautifully flowered good plants; Mr. Snell, gr. to Mrs. Counsell, was a good 2d; and Mr. W. C. Drummond, who was close up to the leaders, 3d. For four Fuchsias Mr. Riddick, gr. to Mrs. Pinder, was 1st, putting up a well-managed lot; Mr. Baily, gr. to Mrs. Phayre, being a good 2d; and Mr. Willcox 3d.

In the class for twenty Ferns or Lycopodiums Mr. Tucker was 1st, staging a nicely grown group of moderate-sized plants; Mr. Coke, gr. to A. P. Stancomb, Esq., was 2d; and Mr. Drummond 3d—both having fresh-looking collections. For twelve Ferns or Lycopodiums Mr. Smart, gr. to H. Brooke, Esq., was 1st; and Mr. Truckle, gr. to T. Carr, Esq., 2d.

With six Orchids Mr. Cypher came in 1st, in his half dozen being Saccolabium Blumei, Cattleya Eldorado, Dendrobium formosum, and Odontoglossum Roezlii; 2d, Mr. Drummond. With Heaths likewise Mr. Cypher took 1st honours, having in a well-flowered group the highly coloured E. tubæformis and E. MacNabiana; 2d, Mr. Hart, gr. to Mrs. General Studd. For three Heaths Mr. Long was 1st, and for a specimen Mr. Cypher, with Erica Marnockiana, one of the best of autumn-flowering varieties.

Zonal Pelargoniums were very well shown, moderate in size, but profusely bloomed. With six Mr. Tucker was 1st, and Mr. Jones 2d; and with four zonals Mr. Snell and Mr. Smart secured the awards.

Here as at most other exhibitions Gloxinias were shown in better condition than they used generally to be seen in, and Mr. H. C. Mayell and Mr. Willis were the leading exhibitors. Achimenes were also well flowered, and with six Mr. Tucker took the lead; Mr. Jones being 2d. Tuberous Begonias were not so large as are now usually met with, but they were nicely flowered. With six Mr. Hooper took the lead, Mr. H. C. Mayell being 2d. Six Coleus.—1st, Mr. Jones; 2d, Mr. Smart.

Of cut flowers there were enough to have in themselves made an attractive show, the competitors in most of the classes being more than usually numerous, and in many cases running each other very close. Gladiolus in stands of thirty-six spikes were well shown by Mr. S. Brown, who was 1st, Mr. Hooper being 2d. Show Dahlias were contributed by Messrs. Keynes, who took the 1st prize for twenty-four in their best style. In the class for fancies Messrs. Keynes also took the lead. Single Dahlias were in great force, and, shown as they were here—in large boxes, holding most of the distinct colours, ten or twelve of each put loosely together with buds—they had a telling effect. The 1st prize went to Messrs. Cooling & Son, and the 2d to Mr. Humphries. Of Asters, German and French, there were as many shown in excellent condition as would usually be found at a dozen ordinary shows. With twenty-four German varieties Mr. Hooper secured 1st honours, staging very large perfect flowers; 2d, Mr. Nation. For twenty-four French varieties Messrs. Cooling were 1st with a stand of beautiful blooms.

Of Peaches, Nectarines, Melons, Figs, Plums, and also Apples there was a good display, and likewise some nicely finished Grapes, but there was a falling off in some of the classes; for instance, there was no exhibitor in that for twelve dishes of fruit. With eight bunches of Grapes, four varieties, Mr. Nash, gr. to the Duke of Beaufort, was 1st, with a nice stand; and Mr. Hazard, gr. to J. Chaffin, Esq., who was 2d, had also a pretty lot of bunches; 3d, Mr. Jones. For three bunches of Black Hamburgh Grapes, Mr. Rye, gr. to J. Derham, Esq., came in 1st; and Mr. Bannister, gr. to H. St. Vincent Ames, Esq., 2d. With two bunches of Black Hamburghs, Mr. Loosemore, gr. to W. Cooper, Esq., was 1st; and Mr. W. F. Wait was 2d. Two bunches of Muscats.—1st, Mr. Loosemore; 2d, Mr. W. F. Wait. Two bunches, any other white Grapes.—1st, Mr. Loosemore, with Foster's Seedling; 2d, Mr. Rye, with Buckland Sweetwater. Two bunches, any other black Grapes.—1st, Mr. Nash, with fine Black Alicante; 2d, Mr. Cole, gr. to Mrs. Smith. For a green-fleshed Melon, Mr. Iggulden, gr. to the Earl of Cork, took the 1st prize with Masterpiece. Of Peaches, Mr. W. Shaw and Mr. Nash were the successful exhibitors; and of Nectarines, Mr. Rye and Mr. R. V. Leach.

Brighton and Sussex Horticultural: *Sept.* 5 *and* 6.—The great gathering of the season in this well-known pleasure resort took place as usual in the Royal Pavilion and grounds. The fruits, cut flowers, and the table decorations—bouquets, wreaths, and flower sprays—were arranged in the saloons facing the garden, the plants in pots being arranged in a large marquee on the lawn. In this latter the space was most ample for promenading between the exhibits, which were of sufficient size, especially in the centre, to obviate any approach to meagreness. In the class for twelve plants, six Ferns and six fine-foliage plants, open, Mr. C. Rann, gr. to J. Warren, Esq., Handcross Park, the only exhibitor, won the Ashbury Cup, with fine examples of Gleichenia rupestris, gigantea rupestris, and Mendelli; Cyathea Smithii, Dicksonia squarrosa., Davallia Mooreana, a beautiful Croton Hendersoni, C. undulatus, C. Andreanus, Latania borbonica, Areca sapida, and a very good Cycas revoluta. In the competition for a group of Ferns arranged effectively Mr. Miles, nurseryman, West Brighton, was 1st, with his plants arranged in a large bed having an elevated background with a recess—the whole tastefully put together, and containing considerable variety of kinds. The 2d was taken by Mr. Vincent, gr. to Mr. Hart, Keymer, with a somewhat similarly arranged group, but instead of a recessed background he had a more purely pyramidal arrangement.

The groups of miscellaneous plants, either in bloom or not, were prettily made of choice flowers in season and foliage plants of the ordinary kinds, Mr. Miles being 1st, his group having a lightly arranged background of Palms, Anthurium crystallinum mixed with the striped Maize, the undergrowth of the whole group consisting of Adiantum, intermixed with which were small Palms, Lilies, Lobelia cardinalis, Tuberoses, Ericas, Bouvardias, and the whole margined with Panicum variegatum, little Crotons, and Dracæna indivisa. Mr. Vincent was 2d with a good lot of similar plants, in which the arrangement was rather more stiffly carried out. He had nice specimens of Vallota purpurea, Achimenes of sorts, A. coccinea being very telling, Gloxinias and Caladiums.

The 1st prize for eight stove and greenhouse plants was won by Mr. E. Meachen, gr. to C. Armstrong, Esq., Withdeane. In this collection the Rondeletia speciosa, Pimelea decussata, Allamanda Hendersoni, and a small Stephanotis grandiflora were finely flowered. Of Fuchsias in groups there were several lots, containing plants of all the leading sorts; 1st, Mr. Fluck, gr. to J. C. Smith, Esq., Richmond Villa; 2d, Mr. Meachen; 3d, Mr. Head, florist, West Brighton. Zonal Pelargoniums were shown in considerable numbers, but the lots being widely distinguished by size and culture the judges had here no very difficult task before them. The 1st prize was taken by Mr. Gilbert, nurseryman, Hastings, whose President Thiers, a salmon; Mrs. Davidson, a brilliant scarlet; and Zuleika were very fine in colour and truss. 2d, Mr. Meachen; 3d, Mr. Townshend, gr. to Captain Thompson, Withdeane. For scarlet Pelargoniums Mr. Gilbert was again 1st, Mr. Townshend 2d, Mr. Meachen 3d. The double-flowered zonal Pelargoniums were well done, the prizes going to Mr. W. Balchin, nurseryman, Brighton; Mr. Gilbert, and to Mr. Hugget, gr. to Dr. Jeffrey, Hastings, in the order

in which their names stand. Coleuses were shown in considerable numbers, aod consisted of the kinds usually seen, Mr. Martin, gr. to J. G. Langham, Esq., Eastbourne, being 1st. In the class for Begonias the metropolitan exhibitors were greatly missed, the sorts shown not being conspicuous by their large size or their newness, representing in most of them old types of bloom. Mr. Margetts was 1st, having amongst his Madame Thibaut, Madame Cornesse, and Franklin.

In the open classes for cut flowers Dahlias took the premier place. Messrs. Keynes & Co. were 1st, with a very fine stand of forty-eight, out of which it would be almost invidious to select any in particular, although Clara, Mrs. Stancombe, Prince Bismarck, and Triumphant found many admirers. Mr. W. Seale, Vine Nursery, Sevenoaks, was 2d, Messrs. Cheal & Sons being 3d. In the class for twenty-four dissimilar blooms Messrs. Keynes & Co. were again in the 1st place, and Mr. Seale 2d. Striking in these lots were Mandarin, Chorister, Professor Fawcett, Gaiety, Flora Wyatt, John Forbes, Peacock, and Queen Mab. Messrs. Cheal took the 1st prize for twenty-four varieties of single Dahlias, many of them being singularly striking in colour, and the form usually regular and smooth. But amongst all the flowers of Dahlias staged none created the interest shown in a large stand of the brilliant scarlet D. Juarezi, about which crowds stood all the afternoon. Messrs. Cheal had also a white Cactus-flowered Dahlia, almost similar in form to the above. In the class for twenty-four Messrs. Keynes were awarded an extra prize for a stand containing some excellent seedlings, viz., Lilac Queen, Acquisition, Red Gauntlet, and The Pet. The competition in the Rose classes was poor, owing, in the first place, to the lateness of the season, and then to the violent storm of rain and wind which they had recently to endure. Mr. Woollard, Cooksbridge, took the 1st prize, Mr. Balchin the 2d prize, for twenty-four varieties; and in that for twelve varieties, in trusses of three, Mr. Seale was awarded the 1st prize, and Mr. Mawley, of Addiscombe, the 3d prize. Asters of all kinds were shown in abundance, as were cut blooms in the open classes. Mr. Balchin secured the 1st prize for a beautiful stand, in which were Stanhopea oculata, Statice imbricata, Eucharis amazonica, Allamanda Hendersoni, Tuberose, very fine Franciscea Hopeana, Dipladenia boliviensis. Mr. Archer, gr. to Mr. Gibson, Saffron Walden, the 2d prize; Mr. Gilbert, the 3d prize. These stands, containing the choicest of stove and greenhouse flowers, were greatly and deservedly admired.

In table decorations there were many competitors, and as the competition was open to all England the contest was keen, but the devices were generally of one character—that is, long tubular vases standing on a large base. There seems to have sprung up a more elegant mode of arranging these than was formerly seen. Often the materials were of a very common, easily-obtained kind, which was the case in the winning stand here. The 1st prize was taken by Mrs. Bishop, of Duppa's Lane, Croydon. This vase was mainly made up of Corn-flowers of light shades. Adiantum gracillimum, pendents of Lapageria alba, flowers of grasses, Lonicera reticulata aureo-variegata, Caladium Wightii, and single-flowered Begonia. Miss Chilmaid took the 2d prize, and Miss Smith the 3d. This latter lady won with a rather heavy mass of mixed flowers in a silver vase of great height. There were many sprays and button-hole bouquets shown, some of which exhibited great skill and correct taste in manipulating the flowers and foliage used. For a very choice wreath of blooms of Stephanotis, Eucharis, White Aster, Tuberose, Bouvardia, and Maidenhair Fern, Mr. Chard, florist, of Clapham Common, took the 1st prize; Mr. Redman, of Brighton, the 2d, with nearly similar materials; and Mr. Miles the 3d prize. Mr. Chard was also awarded a prize for a ball-room bouquet of much elegance. Several competitions took place for tables for dessert, in which fruit and flowers composed the decorative parts; but in all of these the space left for the guest seemed less thought of than how much could be put on the cloth. There was not enough of what is familiarly called elbow room.

In the open classes for fruit Mr. Moorhouse took 1st for a medium-sized, well-ripened Pine-apple, Charlotte Rothschild. Black Hamburgh Grapes were exhibited in excellent condition by the m jority of the competitors, and entries were rather numerous. For three bunches.—1st, Mr. Jordan, gr. to Birket Foster, Esq., Witley; 2d, Mr. Moorhouse; 3d, Mr. G. J. Warren, gr. to Mrs. Hankey, Balcombe Place. In the class for three bunches, Muscats, which, by the way, were all remarkably fine, Mr. Herridge was awarded the 1st prize; 2d, Mr. Johnstone, gr., Bayham Abbey; 3d, Mr. Chatfield. Messrs. Webster & Co. and Mr. Moorhouse also staged some very superior samples. Black Hamburgh Grapes, six bunches.—Mr. Moorhouse was awarded 1st prize for bunches beautifully shouldered and finished in every point; 2d, Mr. Knight, Adelaide Lodge, Keymer; 3d, Mr. Hart. In the competition for six bunches of White Muscat Grapes, Mr. Johnstone was far away the 1st; Mr. Herridge, Belmont, taking the 2d; and the 3d prize being taken by Mr. Chatfield, gr. to F. Holman, Esq., East Hoathly. The other fruits shown, consisting chiefly of the products of local growers, were very superior, especially the Peaches, Plums, Figs, Williams' Bon Chrétien Pears, and culinary Apples; dessert Apples being few, and not particularly noticeable. The Figs, especially a large dish of Brown Turkey, were as good as could be wished.

The local exhibitors competed for the prizes for a miscellaneous group of plants in or out of bloom, Mr. Turner, gr. to Major Way, Wick Hall, being 1st, and Mr. E. Meachen 2d. For four stove and greenhouse plants Mr. Meachen was 1st: in this lot was a beautifully flowered Erica Irbyana; the 2d prize was awarded to Mr. Rann; 3d, Mr. Townsend. Mr. Fluck showed four good Fuchsias, obtaining the 1st prize.

Zonal Pelargoniums were shown by Mr. Meachen, Mr. Hugget, and Mr. Townsend. Messrs. Laing & Co., Stansted Park Nursery, showed a collection of cut blooms of their newest single and double Begonias, which were much admired by the visitors. A. Slaughter, Esq., the Rev. R. C. Hales, and Mr. H. Vincent staged some Roses, which were perhaps as good as it was possible to have them; but they were but little noticed amongst the autumn attractions around them. Messrs. Fowler, Hobden, and Marchant were awarded prizes for German quilled Asters, and Messrs. Fowler, Vincent, and Hobden for tasselled Asters. Mr. Ford, gr. to W. E. Hubbard, Esq., Leonardslee, was awarded the 1st prize for twenty-four bunches of cut flowers.

In the fruit classes the county gardeners put up capital dishes of hardy fruits, and all well known kinds were exhibited in good condition, Tomatos, Grapes, and Apples being exceptionally good. Messrs. Cheal and Mr. Balchin staged large collections of Apples and Pears, the former showing a good specimen of fruit and foliage of the cut-leaved Blackberry, a vast quantity of which, it is said, is disposed of yearly. Gladioli were staged by Mr. Balchin and Mr. Rann, and prizes were awarded in the sequence the names stand in. Wild flowers were well shown, named correctly by Mr. Dixon, gr. to Sir S. Wilson, who was awarded 1st prize; Mr. Budd 2d, and Mr. Hills, Steyning, 3d.

We cannot praise the arrangements made for the convenience of reporters. It may be that their presence was not required, but, if so, the fact should have been stated.

Dundee Horticultural: *Aug.* 23.—The annual exhibition of this popular Society was opened by the Right Hon. the Earl of Strathmore. It was kept open for three days, and crowds of visitors attended. The exhibits in the various classes numbered 120 more than last year, and the receipts at the gates considerably exceeded those of former years if we except the International Show. Next year the Society has a reserve or guarantee fund to meet the expenses of another International Exhibition amounting to £1000. The display of plants in pots was not so extensive nor so fine as we have seen in former years, though the local nurserymen did their best. Messrs. John Stuart & Sons, Nurserymen, Broughty Ferry, gained the 1st prize for a table 18 feet by 8 feet, of stove or greenhouse plants, arranged for effect. On this table we noticed Areca lutescens, a Palm with long feathery leaves Pandanus Veitchii, Dracæna Baptistei, and among Heaths fine healthy plants of MacNabiana, Aitoni, turgida, &c. Messrs. W. P. Laird & Sinclair's table contained many fine plants, prominent among which were fine healthy examples of Cocos Weddelliana, Pandanus variegatus, Adiantum cuneatum, &c. Messrs. Laird & Sinclair also carried off the 1st prize for twelve table plants, all of which were specially suitable for table or house decoration. Messrs. D. & W. Croll were 2d, with a nice selection, which we thought were arranged too flat and monotonous to meet the prevailing taste of the day. For twelve table plants this firm was 3d—James Cocker, of Aberdeen, claiming 2d place. The Messrs. Croll's table, however, contained many good things, such as fine Adiantum gracillimum and cuneatum, an Alocasia metallica, some fine double Chinese Primroses, &c. The Messrs. Croll were also 1st for twelve Gladioli, Messrs. Laird & Sinclair being 2d. Upwards of 200 specimens of hybrid perpetual and Tea Roses were shown by Messrs. Croll. For twelve Pelargoniums in flower Messrs. Croll were 1st, and Messrs. Laird & Sinclair 2d, with well bloomed specimens of Dazzle, Puritani, &c. Messrs. Cocker showed three stands of Roses, for which they obtained extra prizes, and they were also 1st for the best twenty-four varieties. Mr. Thos. Smith, of Stranraer, was 2d, and Messrs. Croll 3d. In the gardeners' class Mr. W. Allison, gr. to J. F. Low, Esq., Seaview, Monifieth, occupied this year, as last, the 1st place for nine stove and greenhouse plants. His collection included a fairly bloomed Allamanda Hendersoni, some 5 feet by 3 feet; a grand Statice profusa, a fine Ixora coccinea, and a Cocos Weddelliana. For six exotic Ferns Mr. Allison was also 1st, with specimens of Davallia Mooreana, 6 feet by 3 feet; Gymnogrammas peruviana, argyrophylla, and chrysophylla, and Gleichenias Mendelli and dicarpa. The 2d prize lot, sent by Mr. Geo. Milne, of The Grange, contained fine plants of Adiantum Williamsi and Todea africana. For six exotic Ferns in 6-inch pots Mr. Allison was again to the front, Mr. G. Milne 2d, and Mr. Howie a good 3d. For the best three Crotons Mr. Allison was again 1st, with C. interruptus, 10 feet high; C. Queen Victoria, and C. Andreanus. He was also 1st for three Dracænas, the beautiful Goldieana and Mooreana being most conspicuous; and for six fine-foliage plants this most successful exhibitor carried away 1st prize for fine plants of Crotons, New Zealand variegated Flax, Cycas revoluta, &c. Messrs. R. B. Laird & Sons, of Edinburgh, took the 1st prize for twenty-four double Dahlias, among which were splendid blooms of Walter N. Williams, Lord Chelmsford, Sunbeam, Charles Leicester, &c.; Mr. Campbell, nurseryman, Blantyre, was 2d.

The cut flowers were numerous, and the display good. Alpines were numerously represented. Mr. D. P. Scott gained the 1st prize for thirty, with a collection which contained many interesting species of great rarity; Mr. T. H. Miln was 2d, with a collection of rare and interesting species. Succulents were well represented. There were two tables, 9 feet by 4 feet, for effect, the 1st arranged by Mr. Alex. Brown, and the 2d by Mr. McArthur, gr. to John Laing, Esq., Kinbrae, Newport; both were much admired. Bouquets and epergnes were numerous. Mr. Allison took the 1st prize with two chaste hand-bouquets, principally composed of Eucharis amazonica, Stephanotis floribunda, and a white Bouvardia, intermixed with Adiantum gracillimum. The 1st prize for the best bride's bouquet was gained by Messrs. W. P. Laird & Sinclair, which lady visitors admired as the most chaste and beautiful example of the class. Three miniature flower gardens were exhibited, but if we exclude the 1st prize, gained by Mr. Geo. Smith, of Invergowrie, the others showed little merit.

The display of various kinds of fruit was extensive, but we have seen much finer quality shown in years past. For the best eight varieties of fruit (Pine-apples excluded), Mr. D. Dickson, gr., Mount Melville, took the 1st prize, with some fine Royal George Peaches, Balgowan Nectarines, and White Ischia Figs; Mr. Brown, of Abercairney, came in 2d. For the best collection grown in the open air, Mr. Brown came in 1st, with fine Green Gage Plums, Black Tartarian Cherries, Breda Apricots, and a good-looking Strawberry; Mr. Williamson, of Tarvit, was a good 2d. The other outdoor fruits were good, although the season has not been favourable all over. The 1st prize for the best four bunches of Grapes was gained by Mr. Dickson, with Muscat Hamburgh, Black Hamburgh, Bowood Muscat, and finely-swelled Madresfield Court. The 2d prize went to Mr. Reid, gr. to Provost Munroe for good bunches of Barbarossa, Mrs. Pince's Black Muscat, and Muscat of Alexandria. For the best bunch of Hamburgh, Mr. Dickson was 1st, but in this class we saw nothing worthy of special remark. There were 114 bunches of Grapes shown. Melons were represented by some thirty specimens. Mr Fairgrieve, gr. to the Dowager-Duchess of Athole exhibited ten varieties of seedling Melons, several of them fine-looking fruit.

Vegetables were in excellent condition, and there was a large and varied collection and competition. Altogether the exhibition has been the most successful of any ever held by this Society, excepting, as we have said, the International. *W. S. W.*

The International Potato Exhibition, Crystal Palace: *Sept.* 13 *and* 14.—The ninth annual International Potato Show, which opened on Thursday, must indeed be regarded as being the grandest yet seen, not only in point of numbers—the entries exceeding those of any previous year fully 30 per cent.—but also in the matter of beauty and quality, which were perfect. Some few new exhibitors put up big, coarse tubers, but the average quality and size were all that could be desired. As usual, the trade growers made a big display, indeed some outdid all their former efforts; and, thanks to a good season, there is hardly a Potato in commerce that was not well represented. Of these Messrs. Sutton & Sons, of Reading, filled an immense length of table with 160 kinds, having specially fine lots of their First and Best, Reading Russet, Fiftyfold, Early Regent, Prizetaker, and Reading Hero, with all their other fine kinds well shown. Messrs. James Carter & Co., High Holborn, also had a large collection, including fine heaps of Schoolmaster, White Elephant, Myatt's Ashleaf, Magnum Bonum, and Beauty of Hebron. The collection comprised 110 kinds, all of great excellence. Messrs. Charles Lee & Sons, of Hammersmith, staged some eighty dishes of fine samples, inclusive of Queen of the Valley, Pride of America, King of Potatos, Vicar of Laleham, International, Adirondack, and their Early Hammersmith Kidney. Messrs. Harrison & Sons, of Leicester, had some seventy dishes, having fine Bresee's Prolific, American Giant, King Offa, Pride of Ontario, Cosmopolitan, and Mona's Pride. Mr. C. Fidler, of Reading, had a large collection, mostly of very big tubers, White Elephant, Magnum Bonum, and Vicar of Laleham being exceptionally so. Messrs. Daniels Brothers, of Norwich, put up some forty dishes, inclusive of a grand lot of their famous White Elephant; and Messrs. Hooper & Co., Covent Garden, staged twenty-four kinds in baskets, of large sorts, chiefly Americans. From the Royal Horticultural Society's Gardens, Chiswick, came some twenty-four dishes of seedling varieties that have been grown there during the summer with excellent results. Mr. R. Dean, Ealing, staged a dish of his new white kidney, Recorder, a grand sample; and Messrs. Hurst & Sons of their splendid strain of white Spanish Onion called the Rousham Park Hero. The awards were as follows:—

Class A. Twenty-four Dishes, nine tubers, each distinct—the six prizes making a total of 28 guineas, given by Aldermen De Keyser and Hadley, Jas. McIntosh Esq, and others—comprised seventeen collections.—The premier prize of the show this year fell to Mr. H. E. Gribble, of Maidenhead, whose collection was remarkably clean and even. He had of white kinds—International, Magnum Bonum, Woodstock Kidney, Cosmopolitan, King of Potatos, Porter's Excelsior, Reading Hero, Bedfont Prolific, First and Best, and Schoolmaster; and of coloured kinds—American Purple, Mr. Bresee, Reading Russet, Heather Belle, Extra Early Vermont, Prizetaker, Vicar of Laleham, Matchless, Adirondack, and Beauty of Hebron, Mr. J. Hughes, Eydon Hall, Byfield, Northampton, was 2d, having in his lot superb samples of Edgcote Seedling, Lady Truscott, Sutton's Favourite, International, Snowdrop, Advance, Reading Russet, Vicar of Laleham, Mr. Bresee, Prizetaker, Adirondack, Queen of the Valley, and Red Fluke. Mr. W. Kerr, of Dumfries, was 3d, with a singularly bright even lot, including Manhattan, Fifties, Annie, Grampian, Radstock Beauty, Adirondack, International, Blanchard, Vicar of Laleham, and Reading Russet. Mr. W. Robins, gr. to E. D. Lee, Esq., Aylesbury, was 4th, with a beautiful lot; Mr. W. Ellington, Mildenhall, 5th; and Mr. T. Pickworth, Loughborough, 6th.

Class B. Eighteen Dishes (open only to Gardeners)—all the five prizes, amounting to 18 guineas, presented by Messrs. Sutton & Sons, Reading, and comprising twenty collections.—Throwing his strength into this class, Mr. Hughes was in splendid form with the lot

placed 1st, having fine samples of Woodstock Kidney, Snowdrop, Jackson's Kidney, Myatt's Ashleaf, Edgcote Seedling, Lady Truscott, White Emperor, Porter's Excelsior, and Fillbasket, of white kinds; and Adirondack, Vicar of Laleham, Reading Russet, Mr. Bresee, Radstock Beauty, Queen of the Valley, Beauty of Hebron, Red Fluke, and Prizetaker, of coloured kinds. Mr. W. Clark, Woodstock, came 2d, having some beautiful samples of Woodstock Kidney, Edgcote Seedling, Model, Bedfont Prolific, Vicar of Laleham, Triumph, Early Border, Blanchard, Manhattan, and Farren's Kidney. Mr. E. S. Wills, Edgcote Gardens, Banbury, was 3d, with a very bright lot, having singularly nice Mr. Bresee, American Purple, Queen of the Valley, Reading Russet, coloured and Edgcote Seedling, Woodstock Kidney, International, and King's Noble, white. Mr. W. Robins was a good 4th, and Mr. G. Akhurst, gr. to the Rev. J. W. Bramah, Faversham, 5th.

CLASS C. TWELVE VARIETIES—the five prizes, amounting to 15 guineas, presented by Mr. Alderman Cotton, M.P., Messrs. Daniels Brothers, Norwich, and other gentlemen: including nineteen collections.—Here an old exhibitor, Mr. J. Millen, Hamstead Park, Newbury, was 1st, with superb samples of Porter's Excelsior, Woodstock Kidney, Pride of America, Magnum Bonum, Myatt's Prolific, and Reading Hero, white kinds; and Vicar of Laleham, Radstock Beauty, Red Fluke, Reading Russet, Triumph, and Superior, coloured kinds; Mr. Hughes was 2d, having fine samples; Mr. Pickworth 3d, Mr. Ellington 4th, and Mr. Kerr 5th—all veteran exhibitors.

CLASS D. NINE VARIETIES—the five prizes, amounting to £12 15s., presented by Mr. C. Fidler, Potato merchant, Reading: comprising twenty-six collections.—This was a splendid class, and to get in at all was highly meritorious. Mr. Tom Tooley, Newlands, Banbury, was a good 1st, with very fine and handsome Queen of the Valley, Reading Russet, Mr. Bresee, American Purple, Prizetaker, Woodstock Kidney, International, Radstock Beauty, and Schoolmaster. Mr. R. Dean came 2d, having capital Magnum Bonum, International, Woodstock Kidney, Premier, Vicar of Laleham, Mr. Bresee, Reading Russet, Adirondack, and Schoolmaster. Mr. W. Kerr was 3d, with beautiful dishes; Mr. Stanton, Towcester, 4th; and Mr. Pickworth 5th.

CLASS E. SIX VARIETIES—the five prizes, amounting to £9 10s., presented by Messrs. Webb & Sons, Wordsley; Messrs. Barr & Son, Covent Garden; Mr. W. Earley, Ilford, &c.: having twenty-nine collections.—Here Mr. Tom Tooley was again 1st, with beautiful samples of Mr. Bresee, Reading Russet, Radstock Beauty, Porter's Excelsior, Schoolmaster, and Woodstock Kidney; Mr. W. Kerr coming 2d, with not less beautiful dishes of Adirondack, Vicar of Laleham, White Elephant, International, Snowflake, and Schoolmaster; Mr. H. E. Gribble was 3d, with Reading Russet, Vicar of Laleham, Queen of the Valley, Rector of Woodstock, Schoolmaster, and Lapstone; Mr. W. Finlay, Wroxton Abbey, Banbury, 4th; Mr. R. Dean, Ealing, 5th; and Mr. E. S. Wills, Edgcote Gardens, Banbury, had an extra award.

CLASS F. FOUR KINDS, six tubers of each to be the largest and yet handsome—all the prizes, amounting to £5, given by Messrs. Harrison & Son, Leicester—twenty-one lots. Here beauty, as far as it could be regarded, outweighed mere size, though many were of enormous dimensions. Mr. J. Hughes was 1st, with International and Sutton's Favourite, white kinds; and Mr. Bresee and Queen of the Valley, coloured kinds. Mr. W. Ellington was 2d, with Lord Beaconsfield, a huge flat white kidney; Magnum Bonum, International, and Queen of the Valley. Mr. Bloxham, Brickhill Manor, 3d; and Mr. E. Gribble 4th. The weights of the various dishes were not given, though many tubers must have weighed 2 lb. each.

CLASS G., THREE DISHES of white round kinds—the prizes, £5, presented by Messrs. James Wright, F. P. Alliston, and Martin Cornell—included seventeen lots.—Here Mr. R. Dean was a good 1st with Early Border, First and Best, and Schoolmaster. Mr. W. Kerr was 2d with Bedfont Prolific, Schoolmaster, and Mammoth Pearl. Mr. R. West, gr. to J. R. Wigram, Esq., Salisbury, was 3d, with Bedfont Prolific, Schoolmaster, and Porter's Excelsior. Mr. T. Pickworth, Loughborough, 4th, and an extra prize was awarded to Mr. G. Allen, Rainbury Manor, Wilts.

CLASS H., THREE DISHES of coloured round kinds—the prizes, £5, presented by Mr. R. Dean, Ealing; Mr. H. M. Pollett, Bickley; and Mr. Shirley Hibberd—was made up of twenty-five lots.—In this class Mr. R. Dean was again a good 1st with beautiful Reading Russet, Radstock Beauty, and Vicar of Laleham; 2d, Mr. C. Ross, Welford Park, Newbery, with Vicar of Laleham, Reading Russet, and Red Emperor; 3d, Mr. G. Akhurst, with his Adirondack and good Vicar of Laleham, and Beauty of Kent; Mr. Bloxham 4th, with beautiful samples.

CLASS I., THREE DISHES of white kidney varieties—the competition for the prizes, £5, presented by Messrs. Alfred Lyon, Tottenham, and P. McKinlay, Penge, comprised eighteen lots.—In this class Mr. Pickworth was well in with Lapstone, Woodstock Kidney, and International; Mr. W. Kerr coming 2d with clean, bright samples of Myatt's Ashleaf, Snowflake, and International. Mr. R. Dean was 3d with Cosmopolitan, Woodstock Kidney, and International; and Mr. Bloxham came 4th.

CLASS J., THREE DISHES of coloured kidney varieties—or the prizes, £5, presented by Mr. John K. King, Coggeshall—twenty lots were included.—Mr. Dean was here again 1st, with pretty Bountiful, Mr. Bresee, and Prizetaker; 2d, Mr. Kerr, with Sir Garnet Wolseley (a handsome red kidney), Defiance, and Wonderful Red; Mr. Gribble was 3d, with Defiance, Mr. Bresee, and Prizetaker; and Mr. Ross came 4th.

CLASS K., FOR EIGHT NAMED VARIETIES put into commerce by Messrs. Sutton & Sons, eighteen tubers each (open to gardeners only)—all the prizes, amounting to 12 guineas, presented by that firm—the kinds to be Magnum Bonum, First and Best, Reading Russet, Early Border, Prizetaker, Reading Hero, Early Regent, and Fillbasket.—There were only six collections. Here, as the kinds were specified, it needs only to give the awards, the samples being fairly good. 1st, Mr. C. Ross; 2d, Mr. J. Allen; 3d, Mr. J. Matthews, Woodstock Park, Sittingbourne; and 4th, Mr. C. Osman, Sutton, Surrey.

CLASS L., FOR EIGHTEEN TUBERS of any English raised white round kind—the prizes given by Messrs. Sutton & Sons—was represented by twenty-one dishes.—This class was chiefly filled by Schoolmaster, which took the 1st prize for Mr. Kerr; Mr. McKinlay coming 2d, with very handsome White Emperor; and Mr. Charles Turner, Slough, was 3d, with Schoolmaster again.

CLASS M., FOR EIGHTEEN TUBERS of any English raised coloured round kinds—prizes offered by the same firm—included seventeen dishes.—A fine lot of Reading Russet came 1st, shown by Mr. Creed, Faversham; the same kind, shown by Mr. McKinlay, being 2d; and Redskin Flourball, shown by Mr. Prangnell, Banstead, 3d.

CLASS N., FOR EIGHTEEN TUBERS of any similarly raised white kidney—prizes also by Messrs. Sutton & Sons—brought nineteen dishes.—There was a beautiful lot of tubers in this class, Mr. Pearson, Chilwell, Notts, taking 1st place with Sanday's Seedling, a very handsome sample; Mr. B. West, Nuneham, Oxon, coming 2d, with Magnum Bonum; and Mr. Kerr 3d, with beautiful International.

CLASS O., FOR EIGHTEEN TUBERS of any English-raised coloured kidney—prizes as before—brought only eight kinds. Here a handsome dish of Defiance, shown by Mr. W. Kerr, came 1st; Mr. Follows, Kidderminster, 2d, with Prizetaker; and Mr. Pickworth 3d, with the same variety.

CLASS P., FOR BEST DISH OF NINE TUBERS of any white new kind put into commerce only in the season of 1883—the prizes presented by Mr. C. Fidler, Reading—comprised nineteen dishes.—Lady Truscott, one of Mr. Fenn's fine white kinds, and sent out by Messrs. Sutton & Sons, took both 1st and 2d prizes in this class. Mr. McKinlay having the 1st, and Mr. J. Allen 2d; whilst with Alderman, a fine flat, white kind, Mr. R. Dean was 3d. Standwell and Pride of the Market were also well shown.

CLASS Q., FOR BEST DISH OF NINE TUBERS of any coloured variety, conditions as before—the prizes presented by Mr. C. Turner, Slough—brought only seven kinds, and was a poor class, the 1st prize being taken by The Belle, a round variety, much like Queen of the Valley, shown by Mr. Hills, the Gardens, Durwards, Essex; Mr. Kerr's Sir Garnet Wolseley coming 2d; and Mr. J. Butt, of Wisbeach, 3d, with Red Lion.

SEEDLING VARIETIES NOT IN COMMERCE, all of which must have been grown at Chiswick for trial and comparison during the past summer.—In each of these four classes a prize of 1 guinea was offered for the best kinds by Messrs. Hooper & Co., Covent Garden.

CLASS S SEEDLING WHITE KIDNEY, one dish, was represented by 17 kinds.—Here the prize of 1 guinea was awarded to Welford Park Seedling, a very handsome kind, shown by Mr. C. Ross, but no parentage was given; it also had a Certificate of Merit, as also had Midsummer Kidney, a first early white kind, of great size, shown by Mr. R. Dean, from Success × Woodstock Kidney; and also to Mr. Hughes, for Hughes' Prolific and Beauty of Eydon, seedlings from Beauty of Hebron × Myatt's Ashleaf.

Class T. SEEDLING COLOURED KIDNEY, one dish, seven kinds.—The prize in this class was taken by Edgcote Purple, a fine and singularly handsome sample, shown by Mr. Wills, Banbury, which also has a Certificate. No parentage was given in this case, but it is very distinct. A Certificate was also awarded to Cardinal, a handsome broad red kidney, shown by Mr. Dean, from Early Rose × Bountiful, a grand cropper, and of splendid quality.

CLASS U. SEEDLING WHITE ROUND, one dish, brought only five kinds.—Prime Minister, a splendid large flat round, from Magnum Bonum × Woodstock Kidney, shown by Mr. Dean, which was awarded the prize, and in this class the only Certificate.

CLASS V. SEEDLING COLOURED ROUND, one dish, included seven kinds.—Here Mr. Dean again took the prize and the only Certificate with The Dean, a seedling from the Vicar of Laleham × Woodstock Kidney, a handsome deep purple round, and of the finest quality.

About 1 o'clock Mr. Alderman and Sheriff De Keyser, as representing the Lord Mayor, who was unavoidably absent, arrived at the Palace, in company with Mr. Alderman Hadley, the Under Sheriffs, Mr. M'George, the Chairman of the Palace Company, with several ladies and City officials in full costume, and made a circuit of the tables, inspecting all the collections with great interest. The Sheriff then, in a few appropriate remarks to the assembled visitors, declared the show open. From thence the party proceeded to the banquet hall, where a splendid luncheon was served to about eighty persons, including not a few of the fair sex. Alderman De Keyser presided, the Vice Chairs being filled by Messrs. McKinlay and Shirley Hibberd. The usual loyal toasts were given from the chair, as was also that of "Success to the International Potato Exhibition," and which was well responded to by Mr. R. Dean. The toast of "The Judges" was acknowledged by Messrs. Hibberd and Woodbridge. The exhibitors were also duly honoured.

Scottish Horticultural Association. — The ordinary monthly meeting of this Association was held in 5, St. Andrew Square, Edinburgh, on the 4th inst., Mr. Jas. Grieve, Pilrig Park Nursery, in the chair. Mr. W. E. Dixon, Inverleith Nursery, read a paper on "Ancient Trees;" and the Secretary read another paper on "Oranges and their Culture," sent by Mr. J. Muir, gr., Margam Park, South Wales, and votes of thanks were accorded to both writers. Mr. M. Chapman, Easter Duddingstone Lodge, exhibited flowers of Montbretia Pottsi, Delphinium cardinale, and white Scabiosa. Mr. T. S. Ware, London, exhibited a collection of hardy herbaceous flowers. Messrs. T. Methven & Sons exhibited a collection of single Dahlia flowers, and two pots of Pelargoniums in full flower. Mr. I. Anderson-Henry, of Hay Lodge, exhibited a new hybrid Campanula. Mr. J. Addison, Kirkliston, exhibited Tradescantia atropurpurea, Statice latifolia, &c.

Frimley, Yorktown, Camberley, and Sandhurst Horticultural: *Sept. 5 and 6.*—This Society has for its aim the encouragement of horticulture in the above parishes, the headquarters being at Sandhurst, and the management is to a great extent in the hands of officers and gentlemen connected with the Royal Military College. Many of the officers, non-commissioned officers, &c., are exhibitors, and also the residents, who come under the denominations of amateurs and cottagers. No better site for the show could have been selected than the grounds of the Government House, and these are immediately adjacent to the extensive grounds within which stands the Military College. The Society is well supported; there are local secretaries in each of the different parishes, and a good exhibition results, which is continued for two days, and attracts a great share of public attention.

One great point of interest was a tent the centre staging of which was quite filled by productions sent by Messrs. Sutton & Sons, of Reading. This was one of the most unique and interesting exhibitions of the kind we had ever seen. There were examples of hardy cut flowers of many descriptions shown in bunches, interspersed with stands of Stocks, Asters, &c., in bunches of one variety. One part was a panel of charming Gloxinias in pots, as fresh and fine as in June. There were examples of Gladioli, Indian Pinks, Scabious, Chrysanthemum coronarium in variety, C. tricolor in variety, and the useful white C. inodorum, Sweet Peas in variety, single Dahlias, Marigolds, Heliotrope, Tigridias, Phlox Drummondi, Galtonia candicans, Sunflowers, Gaillardias, &c. These were mainly what might be termed common flowers, but they were of the highest quality, admirably arranged; and so full of interest was the collection that one could spend a considerable time over it, finding great instruction. It was undoubtedly the feature of the show, and we need scarcely state this unique collection was not for competition.

A few good plants were staged, the best collection of eight coming from Mr. W. Townsend, gr. to W. J. Farrer, Esq., Sandhurst. These—all capitally grown specimens—included Allamanda Hendersoni, Croton majesticus, C. interruptus, Clerodendron Balfourianum, Cissus discolor, Dracæna splendida, Abutilon vexillarium variegatum, and Alocasia macrorhiza variegata; 2d, Mr. C. Elliott, gr. to Mrs. Fry, Yorktown, who had nice specimens of Sanchezia nobilis variegata, Begonia metallica, Hibiscus Cooperi, &c. Mr. R. Rasell, gr. to Mrs. Dumbleton, Sandhurst, had the best eight stove and greenhouse Ferns, having good examples of Adiantum concinnum, A. cuneatum, Lomaria gibba, Gymnogramma calomelanos, Pteris umbrosa, and Hypolepis distans.

Coleus made a very pleasing feature, Mr. Elliott being 1st, size having weight with the judges; but Mr. H. Beames, gr. to E. Hyde, Esq., York Town, who was 2d, had some small but very pretty specimens of a highly meritorious character. The best specimen plant was a charming Cissus discolor, from Mr. Townsend; Mr. Elliott coming 2d, with a fine specimen of the crested Microlepia hirta. Major Bunbury, who was a large and successful exhibitor in many classes, had the best Fuchsias, staging nicely grown and flowered bushes. Mr. Townsend had the best six zonal Pelargoniums; Major Bunbury being 2d; but the latter had a capital group of eight tuberous rooted Begonias of a highly creditable character; and Major Bunbury had far away the best arranged group of plants, covering a space of 100 feet; this was illustrative of excellent taste in grouping, and, arranged by the gallant Major himself, taught a valuable lesson to the gardeners of the neighbourhood. There were also smaller groups of plants, and also certain specified plants, shown by amateurs and cottagers, but they did not call for special remark.

Table decorations were a pretty feature, each exhibitor filling a table covered with a white cloth, and the execution of all showed a cultivated taste. Mrs. Brunton, of the Royal Military College, was 1st, and Mrs. Pileau 2d; Mrs. Osborn, Sandhurst, 3d; and an extra prize was awarded to Mrs. Craigie. The best collection of wild flowers came from Major Bunbury, and they were admirably arranged on a rustic stand; Miss M. Catchpole, Yorktown, being 2d, with a similar arrangement. Major Bunbury had the best centre-piece—an exquisite piece of work; and his 1st prize basket of flowers justly merited the same praise. Bouquets, button-holes, and sprays for ladies were all very good, and the competition in all cases keen.

Cut flowers were represented by Dahlias, Roses, Asters, stove and greenhouse plants, &c., and made an attractive display. The box of cut flowers shown by Mr. Townsend contained such good things as Bougainvillea glabra, Stephanotis floribunda, Allamanda Schottii, Clerodendron Balfourianum, capital varieties of single Dahlias, &c., but badly set up; Major Bunbury was 2d, with bunches of hardy flowers generally, but nicely set up.

Fruit was somewhat sparingly represented. Mr. Townsend had the best three bunches of Grapes, staging good

Black Hamburgh and Foster's Seedling; Mr. Elliott being 2d, with Black Hamburgh. Peaches, Nectarines, Apples, Pears, and Plums were also fairly well shown.

Vegetables were finely shown throughout, and in the cottagers' class for ten varieties there was an excellent competition. The main interest centred in the special prizes offered by Messrs. Sutton & Sons for a collection of four varieties of vegetables. In this class twelve collections were shown, all very good. Messrs. Sale & Son, seed growers, Wokingham, offered special prizes for six varieties, some excellent produce being shown; and Messrs. Daniells Brothers' special prizes for White Elephant Potatos brought a good competition also.

Royal Horticultural of Ireland: *Sept.* 6.—The autumn show of the above Society was held in Dublin, and the Council were fortunate in being permitted to hold the exhibition in the beautiful grounds of E. Cecil Guinness, Esq., at Stephen's Green, which that gentleman kindly placed at their disposal. From a horticultural point of view the exhibition was very successful, being one of the best ever held by the Society; but owing to a dog show being held in the Phœnix Park the same day, and on account of the threatening character of the weather the attendance was not so large as was expected. Their Excellencies the Lord-Lieutenant and Countess Spencer honoured the show by their presence. Prizes were offered for Orchids, Ferns, Palms, foliage and flowering plants, Begonias, Pelargoniums, &c., also for the usual cut flowers in season. Good prizes were also offered for fruit. Orchids, which came first in the schedule, were the least satisfactory. Of course we do not expect them to be so good in September as they are in June; but no one came forward to claim the prizes offered for six, and the 1st prize for a single specimen had to be withheld at the discretion of the judges, the 2d prize going to a poor plant of Cypripedium insigne, and the 3d to a poor little Oncidium with reddish-brown flowers—a botanical curiosity. There were some really well grown specimens of exotic Ferns—not so large as they are seen in London, but good exhibition specimens nevertheless. L. G. Watson, Esq., Newstead, Blackrock (Mr. Flynn, gr.), had the best specimens. They comprised a Todea superba nearly 5 feet across, Gleichenias semi-vestita and Mendelli, Davallia Mooreana, and Adiantum Farleyense. The best British Ferns were sent from the splendid collection of Phineas Riall, Esq., Old Conna Hill, Bray (Mr. Hunt, gr.). Lastrea filix-mas cristata, crispa, and cristata angustata, were rather too many forms of one species in a collection of six, but they were well grown. Mr. Riall was also successful in gaining the 1st prize for six excellent pans of Lycopodium.

Tuberous rooted Begonias from the Rev. F. Tymons, Cloghran, Drumcondra (Mr. M'Keoh, gr.), were well grown and flowered, and formed quite a feature neatly placed as a group amongst the Ferns. Madame Delaville, a rosy beauty, and Gloire de Nancy, fine double scarlet, were the best of them. Coleus, with their richly coloured foliage, were plentiful and good. Madame Delusel, reddish-maroon and gold margined leaves; Rubicon, and Mrs. George Simpson were the most striking. Henry M. Lomas, Esq., Homestead, Dundrum (Mr. Toole, gr.), had the best six plants. The 1st prize for a specimen flowering plant was awarded to W. J. Perry, Esq., Ardlin, Blackrock (Mr. Tobin, gr.); it was a handsome specimen, too, Lilium auratum with ten spikes.

The Society offered a cup and other prizes for twelve flowering and foliage plants: the best specimens were sent from the gardens of W. Jameson, Esq., Montrose, Donnybrook (Mr. Ladley, gr.); the best flowering plant was a good specimen of Erythrina Crista-galli with ten spikes; there were also good examples of Cycas revoluta and Alocasia macrorhiza variegata. The best Palms, large specimens, were from the Right Hon. the Chief Secretary's Lodge, Phœnix Park (Mr. Smith, gr.); as also were the best Palms. The largest and most handsome foliage plants were from L. G. Watson, Esq., and comprised Anthurium crystallinum and regina, with fine Crotons; the same gentleman was awarded 1st prize for a new plant, Adiantum lunulatum.

Cut flowers were very numerous and very good. Silver cups were offered for Dahlias and Gladioli. The principal exhibitors were F. W. Leyland, Esq. (who had fine Dahlias, and won the cup for thirty-six); Rev. F. Tymons, Right Hon. the Earl of Portarlington, Samuel H. Bolton, Esq., Colonel Nugent, Captain Riall, and Lawrence M. Cormick, all of whom exhibited well in the cut flower classes and were awarded 1st prizes. The cup for thirty-six spikes of Gladioli was won by James F. Lombard, Esq., Upper Rathmines (Mr. Tobin, gr.), but he was very closely pressed for 1st place by Rev. F. Tymons. Mr. R. Hartland, Lough Nurseries, Cork, was the only trade exhibitor, and gained prizes for Dahlias and Roses.

The fruit and vegetables were very good and formed a principal feature in the exhibition. The Grapes were very fine indeed, and especially those sent by Lady Emily Howard Bury, Charleville Forest, Tullamore (Mr. Roberts, gr.) Mr. Roberts won the Veitch Memorial Medal and a prize of £5 offered by the Veitch Memorial trustees, for the best three bunches of Grapes, with excellent Muscat Hamburghs, weighing in the aggregate 14½ lb. Ion Frant Hamilton, Esq., M.P., also offered a special prize for six bunches of Grapes, which likewise fell to Mr. Roberts: he had Black Prince, Muscat of Alexandria, Madresfield Court, Buckland Sweetwater, Alicante, and Foster's Seedling. Muscats from the same exhibitor, well-finished and weighing 9 lb. the three bunches, gained the prize in that class. Fine well-finished Golden Champion, large in bunch and berry, won the 1st prize for Mr. Roberts in the any variety class. John Pollock, Esq., Lismany, Ballinasloe (Mr. Smith, gr.), was awarded the 1st prize for excellent Black Hamburghs.

Peaches were very fine, the variety Princess of Wales, that won the 1st prize for W. J. Perry, Esq., were of large size and well ripened. Nectarines of the Downton variety from Powerscourt (Mr. M'Culloch, gr.), were the best. Kitchen Apples were mostly of the variety Ecklinville, while the Irish Peach, as it ought to be, was prominent in the dessert classes. Plums, Melons, Pears, and Currants were all good; and the best vegetables were from the gardens of the Earl of Wicklow, Shelton Abbey, Arklow (Mr. Tyler, gr.), and Mrs. Millener, Cherbury, Booterstown (Mr. Phelan, gr.). The vegetables were exhibited in collections of twelve and six varieties.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, SEPTEMBER 12, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Sept.	In.	In.	°	°	°	°	°	°	°		In.
6	29.77	−0.14	56.2	43.9	12.3	50.6	− 8.2	46.1	85	W.S.W.	0.00
7	2[illegible].74	−0.17	61.0	48.0	13.0	54.4	− 4.0	48.6	81	W.S.W.	0.00
8	29.80	−0.11	64.2	51.0	13.2	56.2	− 2.1	48.4	75	W. N.W.	0.10
9	29.92	+0.02	71.0	44.1	26.9	56.2	− 1.9	47.8	74	E.: S.E.	0.00
10	29.78	−0.12	64.0	52.0	12.0	57.8	− 0.2	51.4	79	S.E.	0.00
11	29.80	−0.01	59.0	54.5	4.5	55.7	− 2.1	54.6	95	N.W.	1.34
12	30.02	+0.13	70.0	54.2	15.8	59.8	+ 2.2	56.7	90	N.W.	0.28
Mean	29.85	−0.05	63.6	49.7	14.0	55.8	− 2.3	50.5	83	Variable	1.72

Sept. 6.—Fine, but very cold day, with occasional gleams of sunshine. Fine clear night.
— 7.—Generally overcast sky, but fine day and night.
— 8.—Rain in the morning, afterwards fine. Fine clear night.
— 9.—Very fine day throughout, nearly cloudless sky till near midnight.
— 10.—Overcast all day, occasional gleams of light, then rain from 6 P.M.
— 11.—Very heavy rain early in the morning; dull, with occasional rain after noon, and heavy rain at night.
— 12.—Dull cloudy morning, with rain; cleared up at 10 A.M. Fine mild day afterwards, and fine clear night.

LONDON: *Atmospheric Pressure.*—During the week ending September 8 the reading of the barometer at the level of the sea decreased from 29.18 inches at the beginning of the week to 28.80 inches by 4 P.M. on the 2d (a point lower than any since October 24, 1882); it increased to 29.83 inches by midnight of the 4th, decreased to 29.80 inches by 9 A.M. on the 5th, increased to 30.07 inches by midnight of the same day, decreased to 29.89 inches by the afternoon of the 6th, and increased to 29.94 inches by midnight of the same day, decreased to 29.90 by 3 P.M. on the 7th, and was 30.13 inches (the highest point reached in the week) at midnight on the 8th.

The mean reading for the week at the level of the sea was 29.71 inches, being 0.16 inch lower than last week, and 0.37 inch below the average for the week.

Temperature.—The highest temperature in the shade in the week was 66°.5, on the 3d; the highest reached, on the 6th, was 56°.2. The mean of the seven high day temperatures was 62°.3, being 8°.7 lower than last week.

The lowest temperature in the week was 43,°9, on the 6th; the lowest temperature on the 2d was 56°.5. The mean of the seven low night temperatures was 50°.2, being 5°.1 lower than last week.

The greatest range of temperature in one day was 16°.5, on the 4th; and the smallest was 4°.5, on the 2d. The mean of the seven daily ranges was 12°.1.

The mean temperatures were—September 2, 57°.5; on the 3d, 58°.5; on the 4th, 56°.6; on the 5th, 53°.2; on the 6th, 50°.6; on the 7th, 54°.4; and on the 8th, 56°.2; and these were all below the average by 1°.8, 0°.6, 2°.2, 5°.4 8°.2, 4°, and 2°.1 respectively.

The mean temperature of the week was 55°.3, being 3° 5 below the average for the week, and 6°.4 lower than last week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 122°, on the 4th and 5th. The mean of the seven readings was 102°.

The lowest readings of a thermometer with its bulb on short grass was 38°, on the 6th. The mean of the seven readings was 43°.

Rain.—Rain fell on four days to the depth of 0°.84 inch.

ENGLAND: *Temperature.*—During the week ending September 8 the highest temperatures were 67° at Brighton and Bristol, and 66°.9 at Cambridge; the highest at Bolton was 60°.1, at Wolverhampton was 61°.8, and 63°.9 at Bradford. The general mean was 64°.5, being 10°.3 lower than in the preceding week.

The lowest temperatures in the week were 40°.1 at Wolverhampton, 40°.2 at Cambridge, and 41°.6 at Bolton; the lowest, at Plymouth, Brighton, and Bristol, was 47°. The general mean was 43°.9, and all these low temperatures took place on the morning of Thursday, September 6.

The greatest ranges of temperature in the week were 26°.7 at Cambridge, 26° at Hull, and 24°.1 at Nottingham; the smallest ranges were 13°.7 at Liverpool, 17° at Preston, and 17°.3 at Plymouth. The general mean was 20°.6.

The mean of the seven high day temperatures was highest at Cambridge, 65°.3, at Brighton 64°, and at Hull 63°.3; and were lowest at Bolton, 57°.9, at Liverpool 58°.4, and at Wolverhampton 59°.7. The general mean was 61°.6, being 7°.2 lower than it was last week.

The mean of the seven low night temperatures were highest at Truro, 52°.6, at Plymouth 51°.2, and at Brighton 50°.9; and were lowest at Hull, 46°.4, at Wolverhampton 47°, and at Bolton 47°.4. The general mean was 49°.8.

The mean daily range of temperature was greatest at Hull, 16°.9, at Cambridge 16°.3, and at Nottingham 14°.1; and were least at Liverpool, 8°, at Bradford 9°.3, and at Preston 9°.5. The general mean was 11°.8.

The mean temperature was highest at Truro, 56°, at Brighton 55°.9, and at Cambridge 55°.7; and was lowest at Bolton, 51°.1, at Wolverhampton 51°.8, and at Liverpool 52°.9. The general mean was 54°.2, being 5°.5 lower than last week.

Rain.—Rain fell on every day in the week at northern stations, and on four or five at southern stations. The largest falls were 1.74 inch at Preston, 1.69 at Plymouth, and 1.61 inch at Bolton. The mean fall was 0.97 inch.

SCOTLAND: *Temperature.*—During the week ending Sept. 8 the highest temperature was 66°.3, at Dundee; at Glasgow the highest in the week was 61°.8. The general mean was 64°.3.

The lowest temperature in the week was 42°, at Perth; at Paisley the lowest in the week was 45°. The general mean was 43°.5.

The mean temperature was highest at Leith, 55°; and lowest at Aberdeen, 53°. The general mean was 54°.5, being 2°.7 lower than last week.

Rain.—The largest fall was 1.82 inch, at Aberdeen; and the smallest was 0.12 inch at Leith. The mean fall was 0.73 inch.

JAMES GLAISHER, F.R.S.

Obituary.

THE news of the death, on the 7th inst., of the Rev. H. HARPUR CREWE, of Drayton Beauchamp, if it produce no feeling of surprise to those who have known of his long sufferings, will none the less be received with deep regret. Like many others, Mr. Crewe's first hobby, so far as natural history goes, was entomology; but it is as a keen-sighted collector and cultivator of hardy plants that he will be best known to our readers. Mr. Harpur Crewe was a member of the Council of the Royal Horticultural Society, and acted for a time as Chairman of the Floral Committee.

—— We have also to announce the death, on the 7th inst., of Mr. GEORGE BERRY, Forester to the Marquis of Bath, at Longleat, Warminster. Mr. Berry, who was much respected in and out of his profession, and who did much at Longleat to make wild gardening popular, about three weeks ago fell while coming out of his bedroom and broke his leg. Until the evening of the 6th inst. he appeared to be progressing favourably, but a change set in, and he expired as above stated early the next morning.

Enquiries.

He that questioneth much shall learn much.—BACON.

HEATING STOVE.—Will some of your subscribers give me their opinion, from experience, as to which is the best kind of greenhouse stove, for use in the building itself, to which is attached a brick chimney, the stove to cost about £1, and to burn cinders or coke? I should also like to know the cost per 24 hours of fuel, and the amount of heat generated by it. Also the name and address of makers. *R. C. T.*

EUCHARIS BULBS.—*H. A. G.* asks if the same bulb can be made to flower more than once in a season? Can any of our correspondents settle the point from actual knowledge?

Answers to Correspondents.

BOUVARDIA SPORT: *Heath & Son.* It is the same as General Garfield, a rose-coloured sport from Alfred Neuner.

CLOVE CARNATION: *W. C.* Your seedling, named Little Towler, from Susan Askey crossed with a pink Carnation, is much the same in colour as Mr. Smyth's Mary Morris, but is otherwise not comparable with that variety, having the same habit of curling in the petals when cut which is the one weak place in Susan Askey's character.

FRENCH MARIGOLDS: *Stuart & Mein.* Your strain of striped French Marigolds is one of the best, the blooms being very neat in outline, and the markings very correct.

FRUIT SHOWS: *J. S.* The Hereford Fruit Show takes place on October 24 and 25. There will not be a large international fruit show in London this year, but an Apple show will be held at Chiswick from the 4th to the 18th of October.

FRUIT TREES FOR A SUBURBAN GARDEN: *J. B., Brixton.*—*Apples:* King of the Pippins and Cox's Orange Pippin, for dessert; and Lord Suffield and Ecklinville Seedling, for cooking. *Plums:* Belle de Septembre, Denyer's Victoria, Green Gage, and Coe's Golden Drop. *Pears:* Williams' Bon Chrétien, Louise Bonne of Jersey, Doyenné du Comice, and Marie Louise; and either Catillac or Verulam for stewing.

GUANO: *A Young Gardener.* If the guano is of good quality, 1 oz. to a gallon of water is quite strong enough. When added to water stir the liquor up well overnight, and apply the next day when settled.

INSECTS: *R. Young.* One of the hawk moths—we will tell you which next week.

MARKET GARDEN GROUND: *F. H.* We should consider £4 per acre a fair yearly rental for such land as you describe.

NAMES OF FRUITS: *T. Buckerfield. Pears:* 1, not recognised; 2, Beurré d'Aremberg, probably; 3 and 4, Beurré d'Amanlis; 5, Glou Morçeau.

NAMES OF PLANTS: *F. Lenz.* Ferns cannot be properly named without fructification, and as most of yours are very immature the names are to be taken with a reservation. 1, Hypolepis tenuifolia probably; 2, Blechnum brasiliense, S.; 3. Nephrodium molle; 4, Pteris longifolia; 5, Pteris arguta; 6, Athyrium Filix-fœmina, H.; 7, Adiantum—not recognisable; 8, Adiantum Capillus-veneris, HH.; 9, Adiantum formosum; 10, Adiantum tenerum, S.; 11, Woodwardia radicans; 12, Pteris serrulata cristata; 13, Phlebodium aureum, S.; 14, Polystichum angulare proliferum, H.; 15, Asplenium Adiantum-nigrum, H.; 16, Asplenium bulbiferum, variety; 17, Asplenium bulbiferum probably, but young. Those marked H. are hardy; HH., half hardy; S., stove; the rest require a greenhouse.—*F. D. S.* Nos. 1, 2, and 3 are varieties of Coleus, which we cannot attempt to name, even if fresh; 4, Hypolepis tenuifolia; 5, an Adiantum—too immature; 6, Onychium japonicum.—*W. Priest.* Rodriguezia secunda.—*Spes Flora.* 1, Daphne laureola; 2, Spiræa Douglasi; 3, Hypericum Androsæmum; 4, Thuia (Retinospora) pisifera nana; 5, Eupatorium cannabinum; 6, Juniperus chinensis.—*A. Sparey.* 1, Potentilla atrosanguinea; 2, Geranium pratense; Potentilla—specimen insufficient; 4, Tradescantia virginica; 5, Geranium Vlassovianum; 6, Scabiosa atropurpurea.—*Enquirer.* Dabeocia polifolia.—*W. B. S.* We cannot name it from such fragments.—*Reginald Young.* Saccolabium Blumei and Phaius (Thunia) albus var. flavotinctus. See description on p. 334).—*T. S. P.* Please send a better specimen with lower stem leaves on it.—*Charles Pocock.* Ligustrum sinense.—*F. G. Henderson & Son.* Tigridia pavonia var. alba.—*J. Cornelius.* The Abies appears to be A. commutata, Parlat., which is probably a form of A. Engelmanni.—*Ignoramus.* Cestrum aurantiacum.—*Camjee.* We cannot name the Cedar without better materials. It may be C. atlantica.—*S. F. & Co.* Limnanthes Douglasii.

NYMAN'S "CONSPECTUS FLORÆ EUROPÆÆ:" *E.H.M.S.* This is an augmented and revised edition of the *Sylloge Floræ Europææ.* There is no general descriptive flora of Europe.

PANSY: *J. McD. & S.* We cannot judge Pansies by single dried flowers.

POTATOS: *A Constant Reader* cannot have been a very attentive reader, or he would have seen that for many years the word has been spelt in these columns without the "e," in accordance with high authority, and in conformity with other cases of the same kind.

TODEA SUPERBA: *J. v. U.* This is an evergreen species, and should not be shown in a class for herbaceous Ferns.

WILD ASTER: *T.* The Asters are very numerous in America, and we cannot tell which is the particular one alluded to.

*** All communications intended for publication should be addressed to the "*Editor,*" and not to the Publisher or to any member of the staff personally. The Editor would also be obliged by such communications being *written on one side only of the paper* and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

INTELLIGENT READERS, PLEASE NOTE:—*Letters relating to* ADVERTISEMENTS, *or to the supply of the Paper, should be addressed to the Publisher, and* NOT *to the Editor.*

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CATALOGUES RECEIVED.

WILLIAM BULL, 536, King's Road, Chelsea, S.W.—Bulbs and Tuberous Rooted Plants.

CHARLES TURNER, Slough—Choice Bulbous Roots.

G. COOLING & SON, Broad Street, Bath—Bulbs and Spring Flowering Plants.

PETER JAMES PERRY, Banbury—Dutch and other Bulbs.

JOHN JEFFERIES & SONS, Cirencester—Bulbs and Hardy Plants.

HENDERSON & SONS, Den Nursery, Brechin—Flower Roots.

HOGG & WOOD, Coldstream, N.B.—Select Dutch Flower Roots.

W. P. LAIRD & SINCLAIR, Dundee—Dutch Flower Roots.

JAMES CUTHBERT, 12, Clayton Square, Liverpool—Dutch Flower Bulbs.

W. H. ROGERS, 132, High Street Southampton—Dutch Flower Roots.

E. G. HENDERSON & SON, Maida Vale, W.—Dutch Bulbs and other Bulbous Flower Roots.

JOHN WATERER & SONS, Bagshot, Surrey—Rhododendrons and other Hardy Plants.

GOLDSMITH & CO., 118, York Road, S.E.—Dutch and other Bulbs.

HOOPER & CO., Central Avenue, Covent Garden—Dutch and other Bulbs, &c.

DANIELLS BROTHERS, Norwich—Illustrated Catalogue of Dutch Flower Roots.

COMMUNICATIONS RECEIVED.—R. Gibbs (many thanks).—Dr. Benoet.—A. F.—J. J. W.—Bulbophile.—W. S.—C. & R.—C. Y. M.—F. C. Lehmann.—H. H.—E. C. C. D.—W. T. I—R. H. V.—N. E. Br.—C. M. O.—Constaot Reader (we do not know)—R. B. L.—S. & S.—G. S. B.—P. G.—W. K. R.—T. W.—W. H. S.—J. W.—K. B. (next week).—J. D.—M. D.—J. V. W.—The Mayor of Nice.—Chev. de Monteiro.—The Secretary International Forestry Exhibition—W. T. T. D—M F.—E. V. B.—S. H.—H. L. C.—Baltet Frères.—F. v. M, Melbourne.

Markets.

COVENT GARDEN, September 13.

[THE subjoined reports are furnished to us regularly every Thursday, by the kindoess of several of the priocipal salesmen, who revise the list weekly, aod are responsible for the quotatioos. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. ED.]

OUR market has settled down into a very quiet state, the supply of all goods, with the exception of Damsons, being fully equal to the demand, and prices unaltered. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen ..	12 0–24 0	Ferns, in variety, per dozen ..	4 0–18 0
Arbor-vitæ (goldeo), per dozen ..	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each ..	2 0–10 0
Asters, per doz. ..	4 0– 9 0	Fuchsias, per dozeo	4 0– 9 0
Begonias, per doz. ..	6 0–12 0	Hydrangea, per. doz.	9 0–24 0
Bouvardia, doz. ..	12 0–18 0	Lilium longiflorum, per dozen..	18 0–42 0
Caladiums, per doz.	6 0–24 0	Liliums, various, doz.	12 0–30 0
Calceolarias, dozen...	4 0– 9 0	Marguerite Daisy, per dozen ..	12 0–24 0
Cockscombs, doz. ..	3 0– 6 0	Mignonnette, doz. ..	4 0– 6 0
Coleus, doz. ..	2 0– 6 0	Myrtles, per doz. ..	6 0–12 0
Dracæna term. doz.	30 0–60 0	Palms in variety, each	2 6–21 0
—viridis, per doz...	12 0–24 0	Pelargoniums, scarlet, per dozen ..	2 0– 6 0
Erica, various, doz.	12 0–36 0	— decorative, doz.	6 0–12 0
Euonymus, various, per dozen ..	9 0–18 0		
Evergreens, in var., per dozen ..	6 0–24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Marguerites, 12 bun.	6 0– 9 0
Asters, 12 bunches..	2 0– 6 0	Mignonette, 12 bun.	2 0– 6 0
— French, per bun.	1 0– 3 0	Marigolds, 12 bun...	2 0– 4 0
Bouvardias, per bun.	1 0– 1 6	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 0
Carnations, 12 blms.	1 0– 3 0	Pansies, 12 bunches	0 9– 1 6
— 12 bunches ..	3 0– 6 0	Pelargoniums, 12 spr.	0 6– 1 0
Cornflower, 12 bun..	1 6– 4 0	— zonal, 12 sprays	0 3– 0 6
Dahlias, 12 bun ..	3 0– 6 0	Picotees, 12 bun. ..	2 0– 6 0
Delphinium, p. bun.	0 6– 1 0	Primula, double, bun.	1 0– 1 6
Eucharis, per doz. ..	3 0– 6 0	Pyrethrum, 12 bun..	3 0– 6 0
Eschscholtzia, 12 bn.	2 0– 4 0	Roses (indoor), doz.	2 0– 6 0
Gardenias, 12 blms..	3 0– 6 0	— (outdoor), 12 bun.	3 0– 6 0
Gladioli, 12 spikes..	1 0– 3 0	— coloured, doz. ..	3 0– 8 0
Heliotropes, 12 sp. ..	0 6– 1 0	Stephanotis, 12 spr.	2 6– 4 0
Lapageria, white, 12 blooms ..	3 0– 6 0	Sweet Peas, 12 bun.	2 0– 4 0
— red, 12 blooms..	1 0– 3 0	Sweet Sultao, 12 bun.	4 0– 6 0
Liliums, 12 bun. ..	12 0–18 0	Tropæolum, 12 bun.	1 0– 2 0
Lavender, 12 bun. ..	6 0– 9 0	White Jasmine, bun.	0 6– 1 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 6– 2 6	Melons, each ..	1 0– 3 0
Cobs, per 100 lb. ..	100 0– ..	Peaches, per doz. ..	1 6– 4 0
Figs, per doozen ..	1 0– ..	Pine-apples, Eng., lb.	2 0– 4 0
Grapes, per lb. ..	1 0– 2 0	— St. Mich., each	3 6–10 0
Lemons, per case ..	20 0–30 0	Plums, ½-sieve ..	7 0–10 0

VEGETABLES—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz. ..	2 0– 3 0	Lettuces, Cabbage, per dozeo ..	1 0– ..
Beans, French, lb..	0 4– ..	— Cos, per dozen..	1 6– ..
— Scarlet, per lb...	0 3– ..	Mint, greeo, bunch..	0 6– ..
Beet, per doz. ..	1 0– ..	Mushrooms, p. baskt.	1 0– 2 0
Cabbages, per doz...	1 0– 2 0	Onions, per bunch ..	0 6– ..
Carrots, new, p. bun.	0 4– 0 6	— Spring, per bun.	0 6– ..
Cauliflowers, English, dozen ..	2 0– 3 0	Parsley, per bunch..	0 4– ..
Celery, per bundle ..	1 6– ..	Peas, English, quart	1 0– ..
Cucumbers, each ..	0 4– 0 8	Radishes, per doz. ..	1 6– ..
Endive, Freoch, per dozea ..	2 0– ..	Small salading, puo.	0 4– ..
Garlic, per lb. ..	1 0– ..	Spinach, per bushel	2 6– ..
Herbs, per bunch ..	0 2– 0 4	Tomatos, per lb. ..	0 6– 0 9
Horse Radish, bund.	3 0– 4 0	Turnips, new, bun.	0 4– ..
		Vegt. Marrows, each	0 2– 0 4

POTATOS.—Kent Kidneys, £4 to £5 per too; do., Regents, £3 10*s.* to £5 per ton.

SEEDS.

LONDON: *Sept.* 12.—Messrs. John Shaw & Sons, of 37, Mark Lane, report that the seed market to-day was poorly attended, and the business passing limited. There is a better sale for Trifolium, owing to supplies being less freely offered. Mustard and Rape seed are unchanged. Winter Tares continue in fair request at a trifle less money; the condition continues excellent. Full rates are obtained for seed Rye. Some fine samples are now coming forward of new English blue boiling Peas. Linseed dull.

CORN.

At Mark Lane on Monday the trade all round was very quiet, though English Wheat, from light supply and relative cheapness, ruled firm at quite the previous Monday's rates; foreign, from the further large arrivals, was difficult to place at previous rates, but sales were not forced at any appreciable decline. Flour was a slack trade at late values. Some samples of the new English malting Barley were shown, but business was not sufficient to test quotations. Foreign grinding Barley was steady in value. Beans and Peas were firm, the latter rather dearer. Oats were slightly firmer than on Friday last.—On Wednesday the supply of English Wheat was small, and prices firm, but foreign Wheat met very little inquiry, and remained nominally unaltered. Flour was dull at late rates. Barley, Beans, and Peas were not in large supply, and ruled fully steady. The market for Oats was firm, but Maize was dull on lower quotations from New York.—Average prices of corn for the week ending September 8:—Wheat, 41*s.* 8*d.*; Barley, 32*s.* 10*d.*; Oats, 20*s.* 11*d.* For the corresponding period last year:—Wheat, 45*s.* 9*d.*; Barley, 36*s.*; Oats, 22*s.* 9*d.*

CATTLE.

At Copenhagen Fields on Monday trade in beasts was slow, the Deptford Market competing effectively. The general top quotations could not be placed over 6*s.* Danish and Swedish realised 4*s.* 6*d.* to 4*s.* 10*d.*; Danish, 4*s.* 8*d.* to 5*s.* 2*d.*; and Canadians, 5*s.* 2*d.* to 5*s.* 4*d.* Sheep supplies were rather heavier than on Monday se'nnight. Danish realised 5*s.* 6*d.* to 6*s.* 4*d.*, and Canadian, 6*s.* Foreign calves, though good in quality, sold badly and decidedly lower. Quotations:—Beasts, 4*s.* 4*d.* to 5*s.* 4*d.*, and 5*s.* 6*d.* to 6*s.*; calves, 5*s.* to 6*s.* 4*d.*; sheep, 5*s.* 8*d.* to 6*s.* 2*d.* and 6*s.* 6*d.* to 7*s.*—On Thursday there was no feature in the cattle trade. A quiet business was passing in all kinds of stock. Both beasts and sheep were quoted as on Monday; calves and pigs unaltered.

HAY.

Tuesday's Whitechapel Market report states that there were good supplies, but trade was dull on account of the wet morning. Quotations:—Prime old Clover, 100*s.* to 120*s.*; inferior, 60*s.* to 75*s.*; prime second cut, 90*s.* to 108*s.*; best meadow hay, 80*s.* to 88*s.*; inferior, 40*s.* to 65*s.*; and straw, 29*s.* to 37*s.* per load.—On Thursday there was a moderate supply, and trade was slow, except for straw, which was rather dearer.—Cumberland Market quotations:—Superior meadow hay, 80*s.* to 92*s.*; inferior, 63*s.* to 75*s.*; superior Clover, 110*s.* to 120*s.*; inferior, 75*s.* to 96*s.*; and straw, 34*s.* to 40*s.* per load.

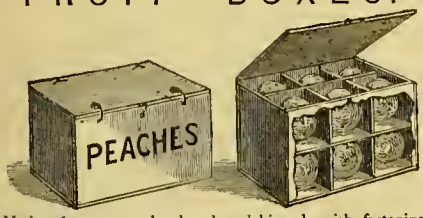
POTATOS.

The Borough and Spitalfields markets reports state that there have been fair supplies, but demand only moderate, at the following figures:—Magnum Bonums, 90*s.* to 100*s.*; Kent Regents, 80*s.* to 100*s.*; Essex Regents, 80*s.* to 90*s.*; and Roses, 60*s.* to 70*s.* per ton.—The imports into London last week comprised 400 bags, and 3 packages from Hamburgh, and 5 barrels from New York.

Government Stock.—The closing prices of Consols on Monday were 100¼ to 100⅜ for delivery, and 100 7/16 to 100½ for the account. Tuesday's figures were as on the previous day for delivery, and 100⅜ to 100½ for the account. The final quotations on Wednesday were 100⅜ to 100½ for both delivery and the account; and those on Thursday were 100½ for delivery and 100⅜ for the account.

GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of WATSON AND SCULL, 90, Lower Thames St., London, E.C.

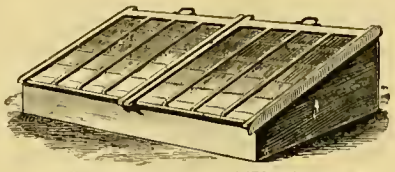
FRUIT BOXES.



Made of stout wood, planed and hinged, with fastenings and holes, through which a string can be passed and sealed on the top to prevent all tampering or pilfering. Movable wooden divisions keep each Peach or Bunch of Grapes in its place. Wrapped in wool or tissue paper the Peaches fit in firmly and never bruise.

Boxes for 12 Peaches, 1s. each, or 11s. 6d. per doz.
" 24 " 2s. " 23s. "
" for Grapes, 8 divisions, 10 in. × 4 in. × 4 in., 4s. each.

THOS. CHRISTY & CO, 155, Fenchurch Street, E.C.
MANUFACTURERS OF HYDRO-INCUBATORS.



No. 75. MELON or CUCUMBER FRAMES.
CASH PRICES—Carriage Paid.

No. 1	8 ft. long	6 ft. wide	£3	7 6
No. 2	12 ft. long	6 ft. wide	4	17 6
No. 3	16 ft. long	6 ft. wide	6	7 6

These Frames are 13 inches deep in front, and 24 inches deep at the back; the lights are 2 inches thick, with a strong iron strengthening rod, and one handle to each light. All painted four coats of best oil colour, the lights being glazed with best 21-oz. English glass.

BOILERS,

For heating all kinds of Horticultural Buildings.
NEW CATALOGUE NOW READY. FREE ON APPLICATION.

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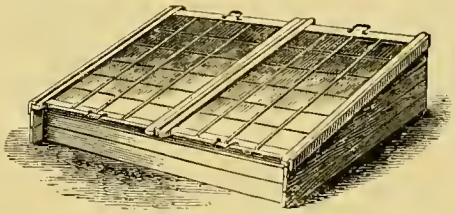


Cucumber Frames.

R. HALLIDAY AND CO. desire to draw special attention to their Cucumber Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.

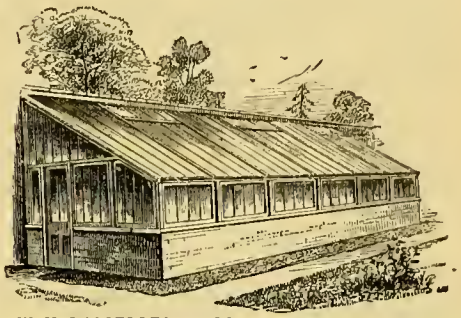
Prices, delivered to any station in England :—

		£	s.	d.
2-light frame, 8 feet by 6 feet	Packing Cases free	3	10	0
3-light frame, 12 feet by 6 feet		5	5	0
6-light frame, 24 feet by 6 feet		10	0	0

The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.

R. HALLIDAY AND CO., Hothouse Builders and Engineers, Royal Horticultural Works, Middleton, Manchester.

W. H. LASCELLES & CO.,
HORTICULTURAL BUILDERS,
121, BUNHILL ROW, LONDON, E.C.

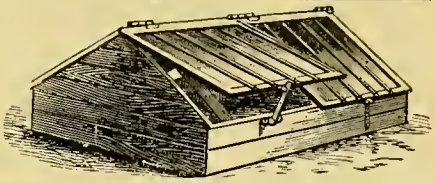


W. H. LASCELLES AND CO. will give Estimates for every description of HORTICULTURAL WORK, free of charge, and send competent assistants when necessary.

LASCELLES' NEW ROCKWORK material in various colours.

Samples can be seen, and prices obtained at 121, Bunhill Row, and 35, Poultry, Cheapside, E.C.

Illustrated Lists of Wooden Buildings, Greenhouses and Conservatories, and Concrete Slabs for walls, paths, and stages, sent post-free on application.



PORTABLE PLANT FRAMES.

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

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

The glass is nailed and puttied in.

R. HALLIDAY & CO.,
Hothouse Builders and Engineers,
ROYAL HORTICULTURAL WORKS, MIDDLETON, MANCHESTER.

JOHN WARNER & SONS,

By Special Appointment. **Hydraulic and Sanitary Engineers, Bell and Brass Founders, Braziers, and Coppersmiths.** By Special Appointment.

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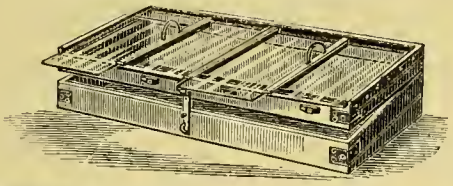

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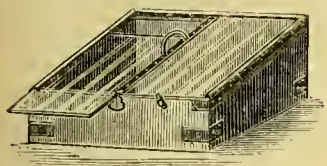
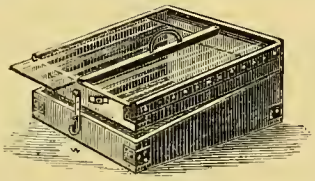
GILBERT'S
Patent Handlights and Improved Registered and Patent Handlights and Respirators.





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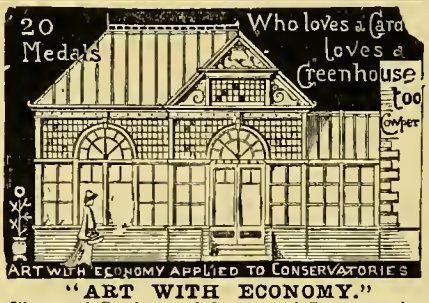

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Builders of Conservatories and all descriptions of Hothouses and Roofs, in Iron and Wood, or a combination of both, on their Patent System, without Putty, or, with Putty, in the ordinary way, if preferred.

CORRUGATED IRON STRUCTURES for all purposes.
Plans and Estimates submitted free of cost.
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7	,,	..	.. 0	4	6	18	,,	..	.. 0	10	0
8	,,	..	.. 0	5	0	19	,,	..	.. 0	10	6
9	,,	..	.. 0	5	6	20	,,	..	.. 0	11	0
10	,,	..	.. 0	6	0	21	,,	..	.. 0	11	6
11	,,	..	.. 0	6	6	22	,,	..	.. 0	12	0
12	,,	..	.. 0	7	0	23	,,	..	.. 0	12	6
13	,,	..	.. 0	7	6	24	,,	..	.. 0	13	0
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THE UNITED KINGDOM: 12 Months, £1 3*s*. 10*d*.; 6 Months, 11*s*. 11*d*.; 3 Months, 6*s*.

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HILL AND SMITH'S BLACK VARNISH, for Preserving Ironwork, Wood, or Stone.

(*Registered Trade Mark.*

This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the Advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in Casks of about 30 gallons each, at 1*s*. 6*d*. per gallon at the Manufactory, or 1*s*. 8*d*. per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"*Piercefield Park, June* 21, 1876.—Sirs.—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, WM. COX."

CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

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Stands severe tests of Government Departments, thus proving superiority of quality. Lasts four times as long as ordinary Indiarubber Hose, Lighter in Weight, Greater in Strength, and Cheaper in the long run than any other Hose for Garden Use.

A correspondent writes:—"I have had a length of your Red-Rubber Hose in use nine years, and it is now as good as ever."

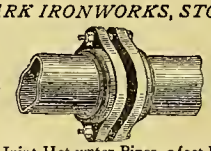
Sample and Price of

MERRYWEATHER & SONS, 63, Long Acre, W.C.; and Greenwich Road, London, S.E.

THOS. W. ROBINSON,

DENNIS PARK IRONWORKS, STOURBRIDGE.

The "Expansion Joint."



The Best and Quickest Made.

4-in. Expansion Joint Hot-water Pipes, 9 feet long, 4*s*. 3*d*. each.
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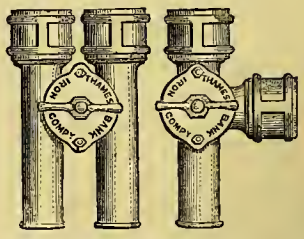

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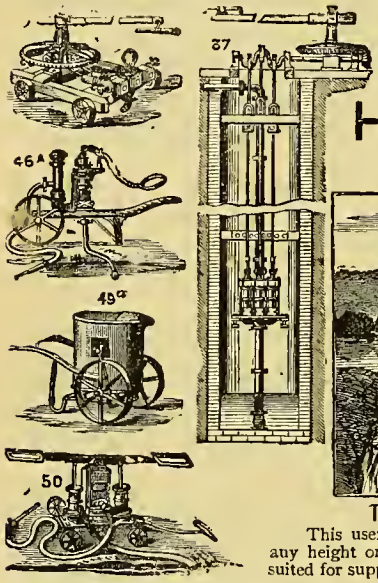

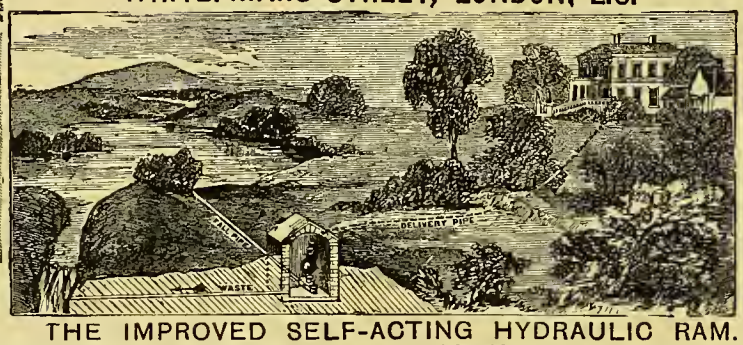

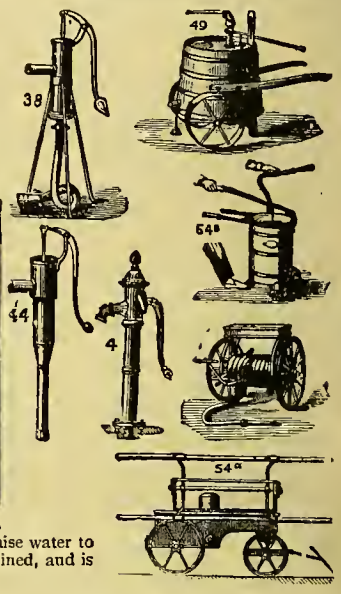

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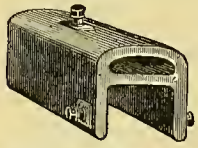

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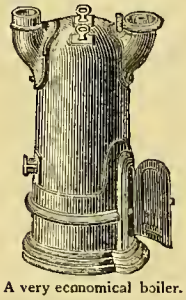

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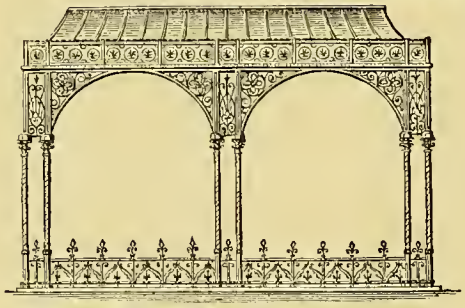

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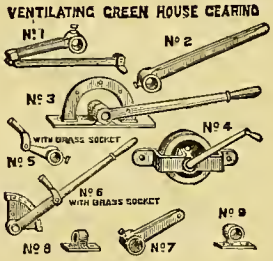

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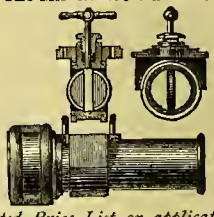

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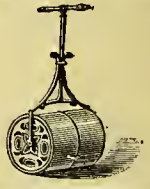

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THE

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MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely, a large consignment of first-class DOUBLE and SINGLE HYACINTHS, in all colours; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, Early ROMAN HYACINTHS, and other BULBS, just received from well known farms in Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6472.)
MASDEVALLIA SCHLIMI.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on THURSDAY NEXT, September 27, at half-past 12 o'Clock precisely, a very superb importation of MASDEVALLIA SCHLIMI. Every plant alive will be offered, and those received are in simply grand order. It is the most extraordinary Masdevallia we have yet introduced. Collector states that the plants are perfectly covered with flowers, and the plant will flower all the year round. As many as seven flowers are produced on the spikes, which stand well above the handsome foliage; all open at one and the same time, thus forming a perfect bouquet. The plant is figured in the *Gardeners' Chronicle*, April 28, and full material will be on view. We tried to introduce it two years ago, but failed. Last year, out of 2000 plants four only came alive; this year we have been more successful. A First-class Certificate was awarded by the Royal Horticultural Society on April 10 last.

On view morning of Sale, and Catalogues had.

Sarracenias.—New Varieties.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 4, a Grand Collection of New Hybrid SARRACENIAS, raised by the most successful grower in the country, O. O. Wrigley, Esq., of Bury, consisting of many very distinct varieties, not yet in commerce, and in splendid condition, being the finest lot ever brought to auction, and sold by order of Mr. G. Toll, who has purchased the entire stock from the raiser.

On view morning of Sale, and Catalogues had.

Stove and Greenhouse Plants, the Property of a NOBLEMAN.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 11, a small COLLECTION of STOVE and GREENHOUSE PLANTS, including a few specimen Azaleas, Dracænas, Pandanus, Euphorbias, Adiantums, Ficus elastica, &c., all clean and well-grown, the property of a Nobleman.

On view morning of Sale, and Catalogues had.

Highly Important Sale of Specimen Camellias, AZALEAS, PALMS, &c.

MR. J. C. STEVENS has been favoured with instructions from Hermann Rucker, Esq., to offer for SALE by AUCTION, without reserve, on the Premises, East Hill, Wandsworth, on TUESDAY, October 16, and following days, at half-past 12 o'Clock precisely, the entire COLLECTION of PLANTS formed by the late Sigismund Rucker, Esq. The collection is general, and comprises about 200 of the finest Camellias in the country, all beautifully set with bloom; about 200 Azaleas, fine Palms, Tree and other Ferns; a fine collection of Nerines, large Myrtles in tubs, Stove Plants, and a few good ORCHIDS; also GARDEN SEATS and CHAIRS, VASES, and PEDESTALS, CHINA POTS and STANDS, SLATE TUBS, BELL GLASSES, GARDEN TOOLS, &c.

On view the day prior and mornings of Sale, and Catalogues had on the Premises, and of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, W.C.

Dutch Bulbs.—Great Unreserved Sales,
Every MONDAY, THURSDAY, and SATURDAY.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every MONDAY, THURSDAY, and SATURDAY, at half-past 11 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other ROOTS from Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Roman Hyacinths.

MESSRS. PROTHEROE AND MORRIS will include in their BULB SALE on MONDAY NEXT, 3000 White, Blue, and Double Rose ROMAN HYACINTHS, and 1000 Paper-White NARCISSUS.

Foots' Cray, Kent.
By Order of the Executrix of the late Mr. R. Sim.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, the Sidcup Hill Nursery, Foots' Cray, 1 mile from Sidcup Station, on TUESDAY, September 25, at 12 o'Clock precisely, without reserve, the first portion of the renowned COLLECTION of FERNS, forming probably one of the finest assortments in the Trade, comprising 7000 Hardy British Ferns, 1000 Hardy Exotic Ferns, some fine specimen DICKSONIAS, CYATHEAS, CIBOTIUMS, &c.; FILMY FERNS in variety; 3000 Standard and Half-standard ROSES of all the best varieties in cultivation, with straight stems and well furnished heads, and OTHER STOCK. May now be viewed. Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B. The Old Established NURSERY BUSINESS is for DISPOSAL, on easy terms, and the Auctioneers will be pleased to furnish particulars on application.

Harrow Road, W.
ANNUAL UNRESERVED SALE of WINTER and SPRING BLOOMING PLANTS, PALMS, FERNS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Woodroffe & Son to SELL by AUCTION, on the Premises, The Westbourne Nursery, Harrow Road, W., about five minutes' walk from Westbourne Park Station, on WEDNESDAY, September 26, at 12 o'Clock precisely, several thousands of STOVE and GREENHOUSE PLANTS, including 4000 Genistas, 1500 red and white Bouvardias, 2000 double Primulas, 500 Cyclamen persicum, 1000 Aloysias, 1000 Hydrangeas, 1000 early flowering Chrysanthemums, 1000 Poinsettias, Azaleas well set with bloom, Adiantum cuneatum and other Ferns, Palms, Ficus, Dracæna congesta, D. rubra, extra large Epiphyllums, Eucharis amazonica, extra strong, in 14-inch pans, and other Stock.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Eaton Nurseries, near Norwich.
GREAT UNRESERVED CLEARANCE SALE of beautifully grown NURSERY STOCK, by order of Messrs. Ewing & Co., who are giving up their Nurseries.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, the Old Established Nurseries at Eaton, near Norwich, on WEDNESDAY and THURSDAY, September 26 and 27, at 12 o'Clock precisely each day, the second portion of the VALUABLE NURSERY STOCK, comprising the plants in pots, consisting of about 10,000 Roses in pots of such sorts as Maréchal Niel, Niphetos, Gloire de Dijon, and other best varieties of Teas and Noisettes; 5000 Clematis in great variety, of the newest and best kinds; 5000 variegated and green-leaved Ivies; Ampelopsis Veitchii, and other hardy Climbers in pots in superb variety; also about 5000 choice young Evergreens and Flowering Shrubs, many of them new and rare; and large quantities of Japanese Evergreens, Aucuba japonica, &c.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, London, E.C.

N.B.—A GREAT SALE of FRUIT and ORNAMENTAL TREES and SHRUBS to be held on NOVEMBER 6 and 9, particulars of which will appear in due course.

Lower Streatham, S.W.
CLEARANCE SALE.—To commence punctually at 11 o'Clock, in consequence of the unusually large number of Lots of Specimen Plants.
HIGHLY IMPORTANT SALE of exceptionally well grown EXHIBITION SPECIMEN PLANTS, which have taken numerous Prizes at the principal and other Metropolitan Shows.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Norbury Nurseries, Lower Streatham, S.W., on THURSDAY NEXT, September 27, at 11 o'Clock precisely, by order of Messrs. Peed & Sons (in consequence of possession of the ground being immediately required, the premises having been let to an incoming tenant), the entire collection of SPECIMEN STOVE, and GREENHOUSE PLANTS, including the following:—

Three matchless specimens of Anthurium Scherzerianum (Veitch's variety),	Azaleas, trained globe-shaped, magnificent examples.
Allamanda grandiflora.	Ericas, specimens and half-specimens, including E. Massoni major, E. tubæformis, and all the best varieties in cultivation.
Camellias of sorts.	
Aphelexis macrantha rosea (Chilman's variety).	

Also an Exhibition Plant VAN, covered spring VAN, several 2 and 3-light BOXES, Glazed SASHES, MOWING MACHINES, ROLLER, 16,000 BRICKS, and numerous effects.

May now be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B.—The whole of the OUTDOOR STOCK will be SOLD by AUCTION in OCTOBER NEXT, due notice of which will be given.

Richmond, S.W.—Expiration of Lease.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Herbst (who has received notice from the Crown Commissioners to give up the land) to SELL by AUCTION, on the Premises, The Nursery, Kew Road, Richmond, S.W., on FRIDAY, September 28, at 12 o'Clock precisely, the whole of the NURSERY STOCK growing upon that portion of the land, comprising finely furnished specimen Coniferæ for effective planting; Cupressus Lawsoni lutea in quantity; thousands of Lilacs for forcing; Hollies, thousands of small Coniferæ, Euonymus and Ivies for potting; Hardy Ferns, and a variety of Greenhouse Plants; 40 Double White Camellias from 5 to 7 feet, and other Stock.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Upper Tooting Park, Balham, S.W.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. C. Young (who is relinquishing the business owing to ill-health) to SELL by AUCTION, on the Premises, The Nursery, Upper Tooting Park, S.W., about ten minutes' walk from Balham Station, on TUESDAY, October 2, at 12 o'Clock precisely, without reserve, a large quantity of remarkably well grown NURSERY STOCK in excellent condition for removal, consisting of thousands of Ornamental Trees, Evergreens, and Coniferæ, Fruit Trees, and a variety of Stove and Greenhouse Plants, Palms, Ferns, Azaleas, Camellias, and other stock. May now be viewed.

Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B.—The LEASE of the OLD ESTABLISHED NURSERY is for DISPOSAL on moderate terms. Particulars of the Auctioneers as above.

Abbey Wood, Kent.—Clearance Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Abbey Wood Nursery and the Orchard Nursery, Lessness Heath, within a few minutes' walk of the Abbey Wood Station, on WEDNESDAY, October 3, at 12 o'Clock precisely, by order of Mr. Henry and Mrs. Havelock, a large quantity of well-grown NURSERY STOCK, including a variety of specimen Coniferæ, 500 finely furnished Cupressus Lawsoniana, 5 to 9 feet; handsome specimen Variegated and Green Hollies, of sorts, &c.; the whole in fine condition for removal.

May now be viewed. Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Richmond, S.W.—Without Reserve.
IMPORTANT SALE of beautifully grown TREES and SHRUBS.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. G. & W. Steell to SELL by AUCTION, on the Premises, The Gas Field Nursery, Sandy Lane, and the Sheen Common Nursery, Richmond, Surrey, S.W., about seven minutes' walk from the Richmond Railway Stations, on WEDNESDAY and THURSDAY, October 3 and 4, at 12 o'Clock precisely each day (in order to make room for other stock), an immense quantity of NURSERY STOCK, the whole of which is in good condition for removal, having been transplanted within the last two years. It comprises large numbers of specimen CONIFERÆ and EVERGREENS, such as Standard and Pyramid Portugal LAURELS, 3 to 5 feet; Hybrid and Standard RHODODENDRONS, 3 to 7 feet; THUIAS and CUPRESSUS in large quantities, CEDRUS ATLANTICA, and others. Standard and other specimen Variegated and Green HOLLIES, fine plants; FLOWERING SHRUBS in great variety, ORNAMENTAL and FOREST TREES, 1100 Standard and Dwarf ROSES, thousands of small SHRUBS for potting, &c.

May now be viewed. Catalogues may be had of Messrs. G. AND W. STEELL, The Nursery, Kew Road, Richmond, S.W.; and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Brixton, S.W.
TWO DAYS' SALE of WELL GROWN NURSERY STOCK, all recently transplanted, and in fine condition.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Nursery, Loughborough Park, Brixton, S.W., on FRIDAY and SATURDAY, October 5 and 6, at 12 o'Clock precisely each day, by order of Messrs. Ponsford & Son, a large quantity of well grown NURSERY STOCK, comprising 1500 Aucubas, 2500 Laurels of sorts, 1500 Cupressus, &c.; 2500 Box, 3000 oval and Box-leaved Privet, 5000 Variegated and Green Euonymus, 1500 Flowering Shrubs, 700 handsome Standard Planes, Limes, Poplars, and other Ornamental and Forest Trees; Hardy Climbers, 1500 Green and Variegated Ivies, 500 Ampelopsis Veitchii, Fruit Trees, 1000 fine Standard Mulberries; also a variety of Stove and Greenhouse Plants, 5000 Ferns, 2000 Azaleas, Camellias and Bouvardias, 1000 Summer and Autumn Flowering Chrysanthemums, and other Stock.

May now be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Weybridge.
About a mile from Weybridge or Walton Stations.
GREAT UNRESERVED CLEARANCE SALE of well-grown NURSERY STOCK, the Land being required for Building Purposes.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Oatlands Park Nursery, Weybridge, Surrey, on TUESDAY and WEDNESDAY, October 9 and 10, at 12 o'Clock precisely each day, by order of Mr. Henry Chapman, about 6 Acres of unusually well-grown NURSERY STOCK, lotted to suit the Trade and other large Buyers, including 9000 Portugal Laurels, 1 to 5 feet; 8300 Laurels, 4 inches to 3 feet; 1100 Green Hollies; 2000 Weymouth Pines, 1 to 7 feet; 1500 English Yews, 1 to 4 feet; large quantities of Cupressus, Thuias, and Thuiopsis of sorts; thousands of small Coniferæ for growing-on, comprising 6000 Retinosporas of sorts, 4000 green and variegated Euonymus, 7000 seedling Hollies, 2-yr. transplanted; 15,000 Spruce Firs, 6 inches to 3 feet; 5000 Privet, 6 inches to 4 feet; 3000 Limes, 3 to 10 feet; an assortment of specimen Coniferæ and Evergreen Shrubs in the borders; 1400 Forest Trees of sorts; and large quantities of other Stock, too numerous to mention. Also a variety of GREENHOUSE PLANTS, including 400 Maidenhair Ferns in 48-pots, and 50 specimen Azalea indica, 1½ to 3 feet.

The Stock may now be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B.—Goods may be transmitted from Weybridge station to all parts. Purchasers may arrange with Mr. Chapman to have their lots taken up and conveyed to the station at the cost of labour and time incurred.

Lewisham, S.E.
GREAT ANNUAL TRADE SALE of FERNS and WINTER-FLOWERING PLANTS, in large quantities, to suit extensive buyers.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Biggs to SELL by AUCTION, on the Premises, The Nursery, Lewisham, S.E., on TUESDAY, October 16, at 12 o'Clock precisely, 50,000 Maidenhair FERNS, 2000 ditto in 32 and 48-pots, many thousands of PTERIS ARGYREA, LOMARIAS, CAMELLIAS and AZALEAS in bud, BOUVARDIAS, HEATHS, EUCHARIS AMAZONICA and CANDIDA, PALMS, Winter-flowering CARNATIONS, PRIMULAS, DRACÆNAS, 1000 specimen CHRYSANTHEMUMS, and other Stock.

May be viewed. Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Manor Park, Little Ilford, Essex.
To NURSERYMEN, MARKET GARDENERS, BUILDERS and OTHERS.
VALUABLE FREEHOLD BUILDING or MARKET GARDEN LAND.

MR. W. H. COLLIER is instructed by the British Land Company (Limited) to OFFER by AUCTION, at the "Princess Alice," Romford Road (near Forest Gate Station), on MONDAY, September 24, at 6 for 7 o'Clock in the evening, Six Lots, of about 2 acres each, of valuable MARKET GARDEN LAND, having important building frontages of about 240 feet each to the main Ilford Road, opposite the "Rabbits' Tavern," and several Lots of eligible FREEHOLD BUILDING LAND, having frontages to the new road leading from the Ilford Road to Little Ilford, situate close to Manor Park Station, on the Great Eastern Railway, and near Wanstead Flats. The property will be sold free from Tithe and Land Tax. Nine-tenths of the purchase money may remain on mortgage or contract at 5 per cent. interest, to be paid in nine years by equal half-yearly instalments, but the whole or any part of the balance may be paid off at any time, without notice. Free Conveyance will be given on the Vendor's Title being accepted, without further investigation.

Particulars, Plans, and Conditions of Sale may be obtained about ten days before the Sale, at the "Rabbits' Inn," Ilford Road; of Messrs. R. & A. RUSSELL, Solicitors, 59, Coleman Street, London, E.C.; of the Auctioneer, at the Offices of the British Land Company (Limited), 25, Moorgate Street, E.C.; and at the place of Sale.

Sander's Lane Nurseries, Woking.
Three miles from Woking Station, and 1 mile from Worplesdon, L. & S. W. Railway.
TWO DAYS' NURSERY SALE.

MR. H. W. COPUS has been honoured with instructions from Mrs. Chapman (who is giving up the Trade) and from Messrs. T. Holdforth & Sons, to SELL by AUCTION, on MONDAY and TUESDAY, September 24 and 25, a large assortment of EVERGREEN SHRUBS, 5000 Berberis Darwinii, 2000 Cotoneaster microphylla, Cedrus Deodara, 5 to 7 feet; 5000 Thuia Lobbii, 2000 Cupressus Lawsoniana, Colchic and common Laurel, Pinus austriaca, Retinospora plumosa argentea and aurea, Green and Variegated Hollies, Ribes sanguineum, American Arbor-vitæ, Abies Douglasii, Acer Negundo, 10,000 Dwarf ROSES, best named sorts; Oval-leaved PRIVET, 5000 LABURNUM, 2 to 8 feet; 2000 HONEYSUCKLES of sorts; 2000 ASH and OAK, transplanted; White and Yellow BROOM, POPLAR of sorts, LARCH and Scotch FIR, HYACINTHUS CANDICANS, VINCA ELEGANTISSIMA and MAJOR, VIRGINIAN CREEPER, Irish IVIES, ASPARAGUS, SEAKALE, and 5000 Standard and half-Standard ROSES, best leading sorts; together with FILBERTS, FRUIT TREES, &c.; useful HORSE, HARNESS, VAN and TILT; Two small Ricks of Meadow HAY, small GREENHOUSE, complete; WINNOWING MACHINE, CHAFF CUTTER, &c.

A Conveyance will meet trains arriving at Woking Station at 10.50 down, 10.41 up, Portsmouth line; 11.9 Southampton, to take up Purchasers.

Sale to commence at 12 o'Clock precisely each day.

Catalogues in due course (post-free) of the Auctioneer, 16, Friary Street, Guildford, and on the Premises.

Saxe-Weimar Nursery, St. Edward's Road, Yarborough ROAD, SOUTHSEA.

On WEDNESDAY, September 26, 1883.

SALE of a STOCK of PLANTS in first-rate condition, in lots to suit the Trade and Private Buyers.

MESSRS. J. S. HOWELL AND CO. are instructed by Mr. Short to SELL by AUCTION, upon his grounds, as above, commencing at 12 o'Clock precisely, about 2000 GREENHOUSE PLANTS, comprising 300 Ferns, amongst which are Adiantum cuneatum, Pteris tremula, cristata, serrulata, and other sorts; 1000 Bouvardias in flower (beautifully grown), Lycopodiums, Palms, Cocos Weddelliana, Genistas, Begonias; 200 choice Zonals in flower, including Double White, Semi-double, Gullion Mangelli, Victor Hugo, and E. V. Raspail; Lilium auratum, Erica hyemalis, Solanums, and others.

N.B.—The grounds are two minutes' walk from the Castle Hotel, where the trams pass every five minutes.

On view two days prior and morning of Sale. Catalogues may be obtained upon the grounds, or of the Auctioneers at their Auction and Agency Offices, 48, Palmerston Road, Southsea.

TO INTENDING PLANTERS.

EXPIRY OF LEASE.

GREAT CLEARING SALE

OF ABOUT 70 ACRES OF

SEEDLING and TRANSPLANTED FOREST TREES,

FRUIT TREE STOCKS,

Large Ornamental Trees for Immediate Effect,

FRUIT TREES, &c.

THE LAWSON SEED and NURSERY COMPANY (Limited), Edinburgh, have resolved to CLEAR the ENTIRE STOCK contained in the Windlestrawlee Nursery, Granton Road, as they do not intend to Renew the Lease, which expires next year. Their other Nurseries, however, will be carried on as usual. All the Stock not previously disposed of privately will be

EXPOSED BY PUBLIC AUCTION,

on October 10 and 11, each day at 11 o'Clock, by

Mr. DAVID MITCHELL, Auctioneer.

The plants are of superior quality, and in excellent condition, the Larches not having been damaged by spring frosts. The following are the principal items to be Sold, and Catalogues may be had upon application :—

LARCH, 1-yr. Seedling, extra fine.
,, 2-yr. ,, ,,
,, 1-yr. ,, 1-yr. transplanted.
,, 1-yr. ,, 2-yr. ,,
,, 2-yr. ,, 1-yr. ,,

PINE, Black Austrian, several sizes.
,, Cembra, or Swiss Stone, fine plants, recently removed, 2 to 4 feet.
,, Corsican, several sizes.
,, Mountain, various sizes.

FIR, Scotch, true Native, seedlings and transplanted.
,, Silver, Common, several sizes.

SPRUCE, Norway, several sizes.
,, Black American, true, several sizes.

And the following, both seedling and transplanted, viz. :—

Thorn ACACIA, Common ALDER, Hoary-leaved ALDER, Common and Mountain ASH, BEECH, BIRCH, SWEET BRIER, SEA BUCKTHORN, Spanish and Horse CHESTNUT, ELDER, ELM, HAZEL, HORNBEAM, LABURNUM, LIME, MAPLE, OAK, POPLAR, SYCAMORE, THORN, WHIN or GORSE, and WILLOWS.

FRUIT TREE STOCKS—

APPLE, CHERRY, PEAR and PLUM, seedling and transplanted.

Also a large quantity of RHUBARB ROOTS—Johnstone's St. Martin's, Victoria, Prince Albert, Early Red, &c.

When not convenient to attend the Sale orders will be carefully attended to by the LAWSON SEED and NURSERY COMPANY, or by the Auctioneer, 6, Comely Bank, Edinburgh.

Green Lane Nurseries,

Opposite the "Chequers Inn," Horley, Surrey, only a few minutes' walk from the Railway Station; 4 miles from Redhill and Reigate, and 5 from Crawley, on the road from London to Brighton.

TO NURSERYMEN, FLORISTS, and PRIVATE GROWERS.

MESSRS. W. and H. STACEY are instructed to SELL by AUCTION, in the above Nurseries (the Land being wanted for other purposes), on WEDNESDAY, October 17, at 11 for 12 o'Clock, in consequence of the number of Lots, a large quantity of transplanted FOREST TREES, CONIFERÆ, DECIDUOUS ORNAMENTAL TREES, and ORNAMENTAL CONIFEROUS TREES; EVERGREEN, DECIDUOUS and FLOWERING SHRUBS; Hardy CLIMBERS; HEDGE and FENCE PLANTS; APPLES, PEARS, PLUMS, CHERRIES; HYBRID PERPETUL ROSES, Tea-scented, Noisette, Bourbon, Standards and in Pots; CLEMATIS, and a large quantity of SEEDLING STOCK.

Catalogues may be had ten days prior to the Sale at the principal Hotels and Inns in the district; at the place of Sale, or of Messrs. W. and H. STACEY, Auctioneers and Land Agents, Redhill, Surrey.

To Capitalists.

WANTED, £300 to £500, by a Florist, to be Expended in the Erection of additional Houses, to meet a rapidly increasing business. £10 per cent. Interest will be paid and the Principal (which will be partly secured) repaid by instalments.

Apply, FLORIST, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Brighton—(No. 5932.)

TO BE SOLD, the Goodwill of a thoroughly genuine SEED and FLORIST'S BUSINESS in one of the busiest thoroughfares of the Town. Immediate possession can be arranged.

Full particulars of Messrs. PROTHEROE AND MORRIS, Auctioneers, 8, New Broad Street, E.C. Personally inspected and recommended.

TO BE DISPOSED OF, a genuine good going NURSERY, SEED and FLORIST BUSINESS, in one of the most fashionable Spaing places in England. Four acres of Nursery, 8acres of Meadow, to break up when required, and about 8000 feet of Glass; large House, and the usual Outbuildings, with a good large Shop in one of the principal Streets in town. Good connection. Such an opportunity seldom met with. Satisfactory reason given for giving up.

For full particulars apply to R. HUTCHINSON, Nurseryman, Harrogate.

MARKET GARDEN ALLOTMENTS, sheltered, southern aspect, light soil, 15 miles from St. Paul's, at 30s. an acre.

W., 14, Featherstone Buildings, Holborn, W.C.

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

Rhododendrons.—Rhododendrons.

G. FARNWORTH has to offer a quantity of the above, various sizes. Also ORNAMENTAL TREES, SHRUBS, and FOREST TRES.

LISTS free on application at The Nurseries, Matlock.

PHEASANT-EYED NARCISSUS.—Bulbs of this sweet-scented Narcissus 10s. per bushel, 6s. per ½ bushel, 3s. 6d. per peck. Special offer for quantities over 5 bushels. Cash with order. Package free.

W. R. ALDERSON, Bell Farm, Hersham, Surrey.

New Carnations and Picotees.

E. S. DODWELL'S LIST of New Varieties is now ready, and may be had on application.

Stanley Road, Oxford.

WATKINS AND SIMPSON, SEED and BULB MERCHANTS, Exeter Street, Strand, W.C., offer :—

100,000 DAFFODILS (Lent Lily), double.
40,000 DAFFODILS (Lent Lily), single.
50,000 NARCISS, Pheasant-eyed.
50,000 NARCISS, Double White, sweet-scented.
25,000 CAMPERNELLE JONQUIL, single.

And a great variety of other sorts of NARCISS, HYACINTHS, TULIPS, SNOWDROPS, LILIES (English and Japanese), &c.

See our Wholesale Bulb CATALOGUE, to be had on application. Special quotations for large quantities.

PANSIES.—The largest Amateur Pansy Grower in this country has authorised his gardener to sell surplus plants from his stock, which comprises over 400 exhibition varieties, and which have taken First-class Certificates and Prizes all over the country. The Pansies will be offered at prices far below what they can be obtained from nurserymen for. Particulars on application to

GARDENER, Messrs. G. Street & Co., 30, Cornhill, London, E.C.

CABBAGE—CABBAGE.—Extra strong and fine Plants of autumn sown Early Rainham, Early Enfield Market, Early Battersea, and Early Nonpareil, 3s. per 1000; Robinson's Champion Drumhead, 3s. per 1000. The above are well-rooted, and free from club. No better plants can be had. Post-office Order, or reference from unknown correspondents. Free on rail. Samples on application. Apply,

W. VIRGO, Woneesh Nurseries, near Guildford, Surrey.

Kent, The Garden of England.

300 000 FRUIT TREES in 600 varieties.

GEORGE BUNYARD AND CO. beg to intimate that their stock was never finer, and intending purchasers are invited to come, and see for themselves. The New Illustrated Descriptive CATALOGUE of Fruits for 3 stamps. Reference LIST free.

The Kent Roses do Live.

Extra well-rooted stuff, very good, very cheap.

Descriptive Rose CATALOGUE Free.

The Old Nurseries, Maidstone.—Established 1796.

SPECIAL CHEAP OFFER of HARDY PERENNIALS, SUITABLE for PRESENT PLANTING,

CONSISTING of most Useful and Effective Varieties, principally strong plants from Ground.

Priced LIST Gratis and Post-free upon application.

THOS. S. WARE, Hale Farm Nurseries, Tottenham, London.

To Florists.—For Forcing this next Winter.

LILACS (Syringa) Charles X., Saugé, and ALBA VIRGINALIS.—Nice round plants cultivated in pots, plants from 1 foot 10 inches to 2 feet 10 inches, with six, ten, and fifteen branches, well set with flowers, price £6. £8. and £10 per 100.

STAPHYLEA COLCHICA.—Plants cultivated in pots, £6 per 100.

PRUNUS SINENSIS FLORE-PLENO. — Cultivated in pots, £6 per 100.

ROSES, Niphetos, Maréchal Niel, and other Teas, for Forcing —Cultivated in pots, £4 per 100.

ROSES, Special Varieties, for Forcing. — Low-budded, fine plants, £20 to £24 per 1000.

SPIRÆA PALMATA.—Good clumps, £10 to £12 per 1000.

DEUTZIA GRACILIS.—Good young plants, six to twelve branches, £10 to £12 per 1000.

Direct Orders to

L. PAILLET, Nurseryman, Chateney (Seine), près Paris, France.

HUGH LOW AND CO. have pleasure in informing their friends and the Public that their stock of WINTER and SPRING FLOWERING PLANTS at Clapton Nursery and Bush Hill Park Nursery, Enfield, is this season unusually extensive and fine in quality, and well worth the notice of intending purchasers, who are very cordially invited to an inspection of the plants, which comprise amongst other things :—

Many thousands of ERICA HYEMALIS, of various sizes.
Many thousands of ERICA MELANTHERA.
Many thousands of ERICA GRACILIS, of various sizes.
Many thousands of ERICA VENTRICOSA COCCINEA MINOR, and other choice varieties of ventricosa.
Many thousands of ERICAS of the best varieties, including candidissima, colorans, cerinthoides coronata, caffra, Cavendishi, barbata major, grandinosa, hyemalis superba, perspicua nana, perspicua erecta, persoluta alba, assurgens, mammosa, &c.
Many thousands of HARD-WOODED ERICAS, in numerous fine varieties, a large number of which are extra sized.
Many thousands of CYCLAMENS.
Many thousands of GARDENIAS, intermedia and radicans.
Many thousands of GENISTAS.
Many thousands of EPACRIS.
Many thousands of AZALEA INDICA in variety, of various sizes.
Many thousands of AZALEA INDICA, Fielder's White, narcissiflora, and other white-flowering varieties.
Many thousands of AZALEA AMŒNA, and amœna Caldwelli.
Many thousands of CAMELLIAS, with flower-buds, various sizes.
Many thousands of GREVILLEA ROBUSTA.
Many thousands of SOLANUMS, well berried.
Many thousands of BOUVARDIAS, Red, White, and Pink.
Many thousands of LATANIA BORBONICA, various sizes.
Many thousands of PTYCHOSPERMA ALEXANDRÆ.
Many thousands of CORYPHA AUSTRALIS.
Many thousands of DRACÆNAS, in variety.
Many thousands of EUCHARIS CANDIDA.
Many thousands of CLIMBERS, Stove and Greenhouse.
Many thousands of TREE CARNATIONS.
Many thousands of the best GREENHOUSE PLANTS, such as Aphelexis, Acacias in variey, Acacia armata, Boronias, Chorozemas, Correas, Daphnes, Eriostemons, Genetyllis, Grevilleas in variety, Leschenaultias, Tremandras, Pimeleas, double white Chinese Primulas, &c.
JASMINUM GRANDIFLORUM, large winter flowering CATALONIAN JASMINE, can be offered by the 100.
GREENHOUSE RHODODENDRONS in variety, including Princess Royal and Princess Alexandra, which can be offered by the 100.
Many thousands of PELARGONIUMS, choice Show, French and Decorative varieties in 48-pots; also small plants to pot on, by the 100 or 1000
Also on hand a very large stock of ORNAMENTAL FOLIAGE and DECORATIVE PLANTS, PALMS, ASPIDISTRA VARIEGATA, BEGONIAS, FICUS ELASTICA, ARALIA VEITCHII, and others, CROTONS, PANDANUS, &c. Suitable for Table Decoration.
OTAHEITE ORANGES, in fruit; LAURUSTINUS, on stems, fine white variety, full of buds.
AMPELOPSIS SEMPERVIRENS (Cissus striatus), new evergreen Virginian Creeper.
FERNS in immense numbers. Many of the leading kinds can be supplied by the hundred, such as Adiantum cuneatum, Adiantum decorum, Adiantum gracillimum, Lomaria gibba.

Clapton Nursery, London, E.

To all Lovers of Flowers.

VIOLETS — VIOLETS. — Now is the time to transplant these sweetest and most beautiful winter flowers. Large clumps full of flower-buds. Will flower until April next, in cold frames or sheltered situations. Marie Louise, Double Neapolitan, Victoria Regina, and ten other best varieties, single and double, 6s. per dozen, 40s. per 100. Sample dozen per Parcels Post, 6s. 6d.

FRED. PERKINS, Nurseryman, 37, Regent Street, Leamington.

To the Trade Only.

SPECIAL CASH OFFER of over 20,000 PALMS, including Kentias, Arecas, Seaforthias, Latanias, Geonomas, Corypha, Phœnix, Cocos Weddelliana, Caryotas, &c.; FERNS, in 48's and 60's; ARUM LILIES, for flowering this season; PANDANUS, CROTONS, FICUS, JASMINUM GRACILLIMUM (new), STEPHANOTIS, and various CLIMBING PLANTS, Tuberous and Foliage BEGONIAS, Tree CARNATIONS, and many other useful Plants.

Price LISTS free on application. An inspection is invited.

W. M. CROWE, Boleyn Nursery, Upton, Essex.

The Nursery is about five minutes' walk from Upton Park Station (London, Tilbury, and Southend Railway), and ten minutes from Forest Gate Station (Great Eastern Railway).

Roses.—Fruit Trees.—Fruit Tree Stocks.

SPECIAL OFFER at REDUCED PRICES,

Delivered free to London.

30,000 ROSES, fine standards, No. 1 and No. 2, choice.
18,000 ,, fine half-standards, No. 1 and No. 2, choice.
45,000 ,, fine low-budded on Manetti, No. 1 and No. 2 choice.
20,000 ,, fine low-budded on Brier roots, No. 1 and No. 2.
50,000 ,, fine, own roots, well assorted. [choice.
10,000 ,, fine, own roots, Souvenir de Malmaison.
300,000 ,, Brier seedling stocks.
100,000 STOCKS, Manetti, No. 1 and No. 2.
25,000 ,, La Grifferaye, No. 1 and No 2.
100,000 PEARS, PEACHES, PLUMS, APRICOTS, APPLES, and CHERRIES, fine 1-yr. budded.
30,000 PEARS and APPLES, pyramid, fine 2-yr. budded.
15,000 PEARS, APPLES, PEACHES, APRICOTS, PLUMS and CHERRIES, formed in pyramids and palmette, fine extra transplanted, ready to give fruits.
2,000,000 FRUIT TREE STOCKS, of every kind and choice, such as Quince; Apple, 1-yr. and transplanted; Pears, 1-yr. and transplanted; Plums, St. Julien, Myrobolan, Mahaleb; common Cherries (Cerasus avium).
10,000,000 FOREST TREES and Ornamental SHRUBS, young stocks, 1 and 2-yr., and transplanted.

PRUNUS PISSARDI.

This splendid ornamental tree, with its red leaves and black wood foliage, keeping red until frost, is offered per 100 and 1000, at low prices. A few hundred fine Specimens on standards.

The prices of the Roses, Fruit Trees, and Fruit Tree Stocks are very low and advantageous, and will be sent on demand.

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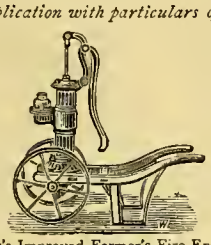
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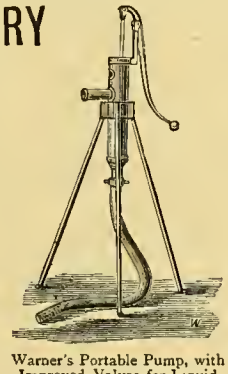
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Gardeners' Chronicle.

SATURDAY, SEPTEMBER 22, 1883.

COMPENSATION FOR UNEXHAUSTED MANURES.

IN these days of demand for freedom from restriction and of compensation to the tenant farmer for unexhausted improvements, the above subject is naturally attracting a great deal of attention amongst the numerous body interested in agriculture, and, in fact, it is a question which affects, more or less, every member of society, especially when we consider that three-fourths of our population are employed, either directly or indirectly, in some branch connected with the cultivation of the soil.

And there is no person more thoroughly competent to deal with this intricate problem than Sir J. B. Lawes, who has devoted the greater portion of his life in studying the workings of Nature, and making her, as far as lays in man's power, subservient to his will.

About two years ago a series of papers issued from the pen of Sir J. B. Lawes, on the "Fertility of Soils," which appeared first in the *Agricultural Gazette*, and were afterwards revised and published in the form of a pamphlet. Now we have before us a similar publication, from the same eminent authority, on the "Compensation for Unexhausted Manures," in which the author maintains that the objection of the landowners to legislation upon tenants' claims would be considerably lessened if the value of the claim could be more correctly ascertained. For, at present, there is some ground for the fear that from ignorance, an arbitrator may award compensation to a tenant for acts that have tended rather to reduce than to increase the fertility of the soil.

Dividing the constituents which exist in our crops into two portions we learn that carbon and water are obtained from the atmosphere, while the nitrogen and mineral substances are derived from the soil. The atmosphere furnishes from 90 to 95 per cent., and the soil from 5 to 10 per cent. of the dry substance of crops. The stock of fertility which exists in soils, though generally large, is for the most part in a latent form.

The nitrogen, for instance, which is in combination with carbon, does not appear to be available to any extent for the food of plants until it has been separated from the carbon, and by combination with oxygen has assumed the form of nitric acid. Its manuring properties we know are then very great.

The various mechanical operations which take place on the farm or in the garden — ploughing, digging, trenching, harrowing, rolling, hoeing—have for their one object the formation of nitric acid. A fertile soil is one competent to liberate and render available for the use of plants a considerable amount of active nitrogen from its store of organic nitrogen; while an abundant season is one in which the crops are enabled to take up an unusual amount of this active plant-food by means of their roots.

In an ordinary agreement Sir John supposes the landlord to say to the tenant—"You may have unlimited powers to extract what you can from the atmosphere, as it is the common pro-

perty of us all; but of the ingredients of the soil—which are my property—you must only sell such amount as is contained in animal products, or grain. You must not sell hay, straw, or roots."

The reason of this restriction is obvious enough when we consider that in relation to the money value, grain, meat and milk remove the minimum of fertility, that is of nitrogen, from the soil; this is plainly shown in the following table:—

Number of Pounds of Nitrogen contained in produce that would sell for £10.

Milk	40 lb.	Roots	250 lb.
Live animal	28 lb.	Hay	428 lb.
Wheat	78 lb.	Straw	510 lb.

Hence the soil constituents removed in £100 value of animals sold off the farm could be replaced by an expenditure of about £5; while the same money value sold off in Swedes could not be replaced for less than £40.

In the pamphlet before us Sir John brings forward many illustrations from his experiments at Rothamsted to show that unexhausted fertility is to be found quite as much in the crops grown as in any substance still in the soil which has yet to be taken up by a crop. In a well-fed pasture it is quite probable that from 60 to 70 per cent. of the nitrogen of the grass would be returned to the soil in the urine from the animals, and if the summer were not too dry a considerable amount of this nitrogen would be available for the production of active growth in the same year. While a pasture may not produce more dry substance when fed than when made into hay, an equal dry weight of the fed grass would be much richer than hay, in nitrogen, ash, and digestible food.

If, therefore, the stock of organic nitrogen in the soil is reduced by arable farming, with its constant tillage operations and absence of active vegetation during a considerable part of the year, we might naturally expect that the organic nitrogen would again accumulate during the formation of a permanent pasture; and we are told that it is quite possible for a tenant to divert the fertility from the arable part of his farm, and thus form a pasture by means of the inherent fertility which is the property of the landlord, and not from fertility which he has himself imported.

The following results give us some valuable evidence bearing upon this point:—

Table showing the Amount of Nitrogen per cent. in the first 9 inches of dry soil in several fields at Rothamsted.

	Nitrogen per cent.
1. Root crops grown continuously by mineral manures	0.0934
2. Wheat crops grown continuously by mineral manures	0.1000
3. Ordinary arable land just laid down to pasture .	0.1235
4. Pasture laid down in 1872	0.1509
5. Pasture laid down in 1863	0.1740
6. Pasture laid down in 1858	0.2048
7. Pasture laid down in 1838	0.1949
8. Very old pasture, age unknown	0.2466

Multiplying these figures by 2½ the product will represent the number of pounds per acre of nitrogen in the first 9 inches of soil. Thus No. 1 field will contain 2335 lb. of nitrogen, and No. 2 field 2500 lb. As No. 3 represents the composition of ordinary arable land we see the reduction of fertility which has followed the removal of crops for a number of years where no nitrogen has been employed as manure. The various accumulations of nitrogen are not only interesting, but extremely instructive; more especially as they have taken place under the most opposite modes of treatment.

Field No. 6, for instance, which has received alternately either an annual application of purchased dung or of artificial manures, has been mown for hay every year since it was first laid down in 1858.

In field No. 5 stock has been fed with decorticated cotton cake, and no hay taken for the last eighteen years.

The analyses of No. 8 was made after twenty unmanured crops of hay had been removed.

Assuming that all these soils were originally virgin pasture, we are able to trace the reduction of their fertility during some centuries of arable cultivation by comparing the nitrogen of the old pasture No. 8, with that of No. 3, the land just laid down to grass. If, again, we compare No. 3 with the soil of the two experimental fields, Nos. 1, and 2, we see the loss which has taken place by a more exhaustive mode of cropping without the restoration of any substance containing nitrogen for a period of about thirty years.

In the composition of the various pasture lands we may trace the accumulation of nitrogen in the soil as the pasture approaches maturity. But in all the instances recorded, Sir John says, the pastures have been formed by large imports of both nitrogen and of minerals; and that the amount and cost of these would certainly form an important item if the value of an established pasture is made the subject for compensation.

Sir John concludes by supposing that the object to be attained in all compensations is to secure to the tenant the full value of his own improvements in such a manner as shall be as little burdensome as possible either to his successor or to the owner of the land; and he raises the question whether the claim of a tenant for unexhausted fertility could not be met by assigning to him a certain portion of the various crops grown by his own importations of cake and manures, and allowing him to dispose of them in whatever way he pleased.

In many cases where the crop is grown by some artificial manure of a not very durable nature, the tenant would doubtless be compensated by giving him the ensuing value of his crop, but where a considerable portion of the produce is grown entirely by manures which the tenant has imported, Sir John considers he is entitled to carry off the portion of the crops so grown, or to receive their selling value.

New Garden Plants.

SIGMATOSTALIX MALLEIFERA, *n. sp.**

A VERY curious little gem, with all the habit of a small Oncidium, excepting its peculiar inflorescence. Bulbs oblong, scarcely reaching 1½ inch in length, ½ inch in breadth, with some short, irregular, often curved furrows, darkest brown, shining, a great contrast to the light green leaves. Leaves cuneate linear-ligulate acute, 5 inches: 0.5 inch. Inflorescence scarcely reaching the longest leaves, very slender, with some (four) fasciculi of scariose linear-lanceolate acuminate bracts. The flowers develope at distant periods. Whether the comparatively immense interval of the last flower in June to the actual end of August is regular or a consequence of travelling I cannot say. Flowers equal in size to those of Odontoglossum longifolium, Lindl. Sepals and tepals ligulate triangular acute, light yellow, with numerous transverse sepia-brown bars and spots. Lip with a broad predominant hammer-like callus, having a very short stipes, and descending, more or less lobed shanks. The blade of the lip is fleshy, tripartite, the partitions linear retuse, emarginate. There is a tumour at each side of the base of the lateral partitions. The colours are various kinds of yellow. There are two longitudinal brown lines on the mid-lacinia, and a few small spots outside on the side laciniæ. Column slender, light green, with a strong callus at the base of the triangular acuminate caudicula. I had a fine living plant of this novelty kindly sent by Mr. F. Sander. There is little doubt left me of its being of Neogranadan origin, the four comparable species being inhabitants of New Grenada. No one of them reached Europe alive, at least I think so. One species I may have seen exhibited at Brussels by Director Linden, but I never had the flowers to dissect, and have but a vague impresson. *H. G. Rchb. f.*

MASDEVALLIA TRICHÆTE, *n. sp.**

Once more a fresh gem of the Triaristella group, much in the way of triglochin, but with longer leaves and smaller flowers. These are of a richer brown-purple with orange tails, and some parts at the base are orange, too, and with brown nerves. Petals not ligulate, but ovate, with three very obscure teeth at the apex. Lip triangular-acuminate, cordate at the base. Column sulphur at the upper half. It was imported by Dr. Wallace, Lion Walk, Colchester (New Bulb Company). *H. G. Rchb. f.*

ZYGOPETALUM FORCIPATUM, *n. sp.*†

A curious Kefersteinia with as large flowers (for the group) as those of Z. gramineum, whitish-ochre coloured. The lip is very broad, dilated from the base, fimbriated on the anterior side. There are two brick-red spaces on both sides of the callus; one callus is oblong ligulate, forcipate in front, with an obtuse-angled projection on each side. There are a few purple spots on the anterior part of the lip, and similar lines at the base of the column. There is no keel under the stigmatic hollow. I had this novelty from Messrs. Shuttleworth & Carder, Park Road, Capham. *H. G. Rchb. f.*

MASDEVALLIA REICHENBACHIA, (*Endr.*) VAR. AURANTIACA, *nov. var.*

A very fine variety, having rich orange in lieu of the dark purple-brown colour that overlies the lateral sepals. I have to thank Mr. F. Sander, of St. Albans, for it. *H. G. Rchb. f.*

A SHORT AUGUST HOLIDAY.

To the hard-working professional man London becomes by the end of July well-nigh unendurable. Asphyxiation seems inevitable, and fresh air, no matter where, appears the chief object in life. To a Londoner who has the misfortune to be fond of a garden, few less satisfactory holiday resorts under these circumstances can well be imagined than those "Londons-by-the-Sea"—our ordinary South-coast watering places. Ideas, even on gardening, may, however, occur to the ozone-refreshed mind among the stucco terraces of St. Leonards, or on the bare downs of Brighton. It was at the former of these localities that my lot was cast during the first half of August; and, though during that time I saw no horticultural displays, usually so called, for suggestiveness, I cannot say that my lot was not "in pleasant places." In addition to several somewhat dismal smaller gardens, the people of Hastings and St. Leonards are fortunate in having secured a winding glen, or valley, behind the town as a beautiful public garden or park, which, in spite of the excessively light soil, cannot fail to increase in beauty as it does in age. One of the highest and best sites in the town is occupied by tennis-lawns, a few scrubby Oaks, a miserable pool of turbid water, too artificial to be dignified by the name of a duck-pond, a flagstaff—flagstaffs are inevitable appendages of a seaside garden—two "rustic" summer-houses and a geometrical bed of Sedums, &c., styled the Gensing Gardens. Here opportunities have been lost of which elsewhere more has unwittingly been made. For instance, nothing can be happier than the association of the warm red stems and delicate green featheriness of the Tamarisk, bending before the breeze, with the buff and grey masses of sandstone which crop out at the surface of the Castle rock in a natural manner, that would move the heart of any true landscape gardener to envy.

The luxuriance of Eunnymus japonicus, defying attempts at retaining its sickly golden variegation, of Hydrangeas, of the common Fuchsia, of Veronicas, and of Carnations, whilst it vividly impresses upon one's mind the characteristics of an insular flora,

* *Sigmatostalix malleifera*, n. sp.—Aff. Sigmatost. reversæ, Rchb. f. Pseudobulbis oblongo-ligulatis varie et breviter sulcatis; foliis lineari-ligulatis acutis; pedunculo distanter fasciculato; bracteis scariosis lineari-triangulis; sepalis tepalisque triangulo-ligulatis acutis stellatis; labelli callo basilari malleiformi, cruribus descendentibus extus lobatis, partitionibus ternis linearibus antice retusis emarginatis ascendentibus, basi sua umbonatis; columnæ rostello ascendente. *H. G. Rchb. f.*

* *Masdevallia trichæte*, n. sp. — Cæspitosa: foliis lineari-lanceis apice bidentatis cum apiculo; pedunculis capillaribus; sepalo impari triangulo fornicato in setam prope æqualem extenso; sepalis lateralibus prope omnino connatis supra apicem in setas breviores extensis; tepalis oblongis apice obtuse tridentatis; labello cordato triangulo. *R. G. Rchb. f.*

† *Zygopetalum forcipatum*, n. sp.—Aff. Zygopetalo gramineo, Lindl.; sepalis ligulatis, lateralibus basi externa involutis; tepalis ligulatis angustioribus; labello ab ungue statim dilatato, subrotundo, antico, divisa fimbriato, callo depresso in basi, antice forcipato, utrinque obtusangulo, carina sublovea subevandia; columna utrinque dilatata. *H. G. Rchb. f.*

shows also the selections which we should cultivate in seaside gardens, public or private. Fortunately, however, there are many beauteous plant-groupings round St. Leonards besides those planted by man. In Maplehurst Wood, near Westfield, the ground is carpeted with the lesser Periwinkle, luxuriating in the sandy soil, while here and there in open spots among the coppice are the spikes of the spotted and the sweet-scented Butterfly Orchids. Few of our common phases of Nature's landscape gardening are more charming than a small extent of true heath-land still saved by its barrenness from the remorseless plough. Little patches of the golden dwarf Furze amidst rich crimson Heath (Erica cinerea), the brownish foliage and paler pink florets of the Ling, and the delicate blue bells of Campanula rotundifolia, with here and there some unfolding crooks of Bracken, some deep red Betony, or a patch of green grass studded with the yellow stars of the tiny Tormentil, and the yet more minutely beautiful throats of white Eyebright, striped with lilac and gold. These form together a common-place assembly of common plants. You can see it at Hampstead as well as here at Westfield; but how seldom do you see a recognition of its beauties or a reproduction of them within the home inclosure. I call to mind houses near Woburn where one could step from the garden on to such a heath shut in on two sides by great solemn Pine woods whose fragrance compensated for the narrowing of a far-stretching landscape visible on the other sides; and I also remember a lovely winding pond surrounded with drooping Hornbeams at Knighton, near Woodford, where the Mediterranean Heath contrasted its crimson spring-tide blossoms not only with the warm yellow-brown of the gravel soil, but with the varied beauties of many-tinted Narcissi, orange, golden, lemon, white, and cream-coloured. It is a pity such bits of Nature-painting are not more common.

Not far from Westfield was a stream in whose waters and on whose banks a very different assemblage of common plants taught another lesson in grouping. The foamy Meadowsweet raised its rich brown stems above the brilliant spikes of the Loosestrife (Lythrum Salicaria), side by side with the almost identically coloured but fragrant "Codlins-and-Cream" (Epilobium hirsutum); and, among the abundant sedges that made an agreeable relief of green, the curious "fuzz-balls" of the branched Burreed (Sparganium ramosum), surmounted with the tufts of stamens resembling frosted silver, furnished a quaint beauty of their own. The heavenly blue of the Forget-me-Not, with its clearest of green foliage; large plants of the Water Dock (Rumex hydrolapathum), already in places turning to its fiery autumnal red; and on the bank great clumps of Ragwort (Senecio Jacobœa), surpassing all that we can make of its cousin, Cineraria cruenta; with masses of the cut foliage and delicately blushing flowers of the Musk Mallow (Malva moschata), very common hereabouts, afforded an instance of how lavish Nature can be in the use of brilliant tints without the least suggestion of garishness or incongruity. The graceful flowering Rush (Butomus umbellatus) and the strikingly large white trumpets of the Convolvulus were not in this particular landscape at Westfield; but later in my holiday I saw an attempt, in a great measure successful, to reproduce such a selection with these and other additional beauties from our indigenous flora.

By Road, Rail, and Sea from St. Leonard's to Bexhill: a Bank Holiday Excursion.—The distance is truly not great, but to the botanist the interests are varied—a shingle beach, a railway on an embankment of chalk brought from some other district, a sea marsh, traversed by a canal, and behind the sand hills, heathy on their bleaker portions, but densely wooded in their winding hollows, which mark the course of the sea-seeking rivulets—the "conditions" are certainly varied. In the hedge-rows near Hollington is the Butcher's Broom (Ruscus aculeatus), and on "rough bits" too steep for the plough sometimes the Broom, not now in flower, and sometimes its equally beautiful though lower growing relative the Dyer's Greenweed (Genista tinctoria), in full blossom. This pretty plant is very abundant in Mid-Sussex, and a glance at the representations of the Plantagenet badges of flowers and fruit can leave no doubt as to their being derived from this species. In field corners is the Hairy Tare (Ervum hirsutum), and among the now ripening corn large plants of the scarlet Pimpernel, luxuriating in the warm sandy soil on this bright August day, are expanding their purple centred flowers to fully the diameter of a fourpenny-piece. Equally rejoicing in sand, or rather in warm dry soil and in sunshine, the beautiful Centaury is everywhere abundant in this neighbourhood, and here and there are the deep blue flowers of the Flax (Linum angustifolium), waving on their slender stems. In the short grass of the breezy down behind Bo-peep, is the stemless Thistle (Carduus acaulis), and the more ubiquitous Eyebright (Euphrasia) and Bird's-foot Trefoil (Lotus corniculatus); whilst in a shady neighbouring glen, where the tufted Vetch (Vicia cracca), Black Bryony (Tamus communis) and white Convolvulus tangle among the brushwood of Alder, Hazel, and Dogwood (Cornus sanguinea), is the Shield Fern (Polystichum aculeatum), which seems here to replace to a great extent the commoner male Fern.

On the railway embankment are gigantic Teazles, their flower-heads girdled with lilac blossoms, and thronged with bees; such characteristically limestone plants as the Kidney Vetch (Anthyllis vulneraria) and the Cathartic Flax (Linum catharticum), together with abundance of Herb Robert, yellow Toad-Flax, and both the Bladder and Evening Campions (Silene inflata and Lychnis vespertina). In the sandy hedge-rows of the district the Red Robin (L. diurna) is the only common form. Here, too, I found the Yellow Melilot (Melilotus officinalis), which may be almost said to be characteristic of railway banks; the Purple Medick (Medicago sativa), and one plant of the lovely little Ivy-leaved Toad-Flax—the "*erba della Madonna*" of Italian artists—scrambling over some large blocks of chalk, as it does over the ruined walls in Bellini's pictures. Here, also, wandering from the neighbouring beach, the Yellow Horned Poppy (Glaucium luteum) was spreading its grey leaves and grotesque fruits, together with the fleshy-leaved maritime variety of the Bittersweet, the Sea Campion, the Sea Blite, and Sandwort Spurreys. Peaceably overgrowing the platform of the cannon on the beach at Bo-peep were the Viper's Bugloss, the Rest Harrow, and the Succory, mingled with the seaside Plantain and Dock; whilst inland stretched a flat covered with Rushes, Sedges, and the Squirrel-tailed grass, so abundant on Romney Marsh—Hordeum maritimum. Towards Bulverhithe, the traditional landing-place of William the Conqueror, hedge-rows come down close to the shingly beach, consisting mainly of Blackthorn and Hazel, and reminding us that it is the fruits of the latter mingled with acorns that form the chief recognisable remains found in the submerged forest opposite the Queen's Hotel at Hastings. Bexhill-on-Sea bears at present the very faintest resemblance to a fashionable watering-place; but, alas! many roads appear laid out in "eligible building estates" on its outskirts, with here and there the "shell" of two or three villas, the forerunners of that general invasion of the builder, which, were the situation more sheltered, might be imminent. Passing an old wall thickly studded with plants of Wall Rue (Asplenium Ruta-muraria) we leave the town by a steep hill, and reach the lanes between it and Pevensey.

Charles Lamb long ago defended the writers of marginal notes, and I had occasion on this 6th of August to revere the memory of one such. A certain Mr. R. Hodgson was in this neighbourhood in 1814, and in the margin of his copy of the *Botanists' Guide* (which was afterwards sold and came into my possession) he entered "Bartsia viscosa by the road-side about a mile beyond Bexhill towards Pevensey plentifully." Here I found it rejoicing, for, though not attractive, it is not by any means a common plant.

On the Track of the Invader.—From Bulverhithe there is low ground towards Crowhurst, some parts of Holliogton and Catsfield, to that field of Senlac of direful memory, now the beautiful park over which the ruined abbey still stands commemoratively aloft. Though it is the Crowhurst in south-east Surrey that is celebrated for possessing the largest Yew tree in England, the Sussex village has also a fine tree, and it was on trees intent that I thither wended my way over ground once no doubt ransacked by Norman foraging parties. Passing the uncomfortable-looking Oak, with its roots almost laid bare, that marks the "three-went-way" known as Hollington, I could not resist the temptation to turn aside and revisit the too tourist-haunted "church in the wood." Crossing sloping pastures, bright with Knapweed and Genista, and the Alder-hung "brook that brawls along this wood," I was beneath an archway of Elm boughs that usher the visitor into the crowded little churchyard. This Elm seemed like the Ulmus carpinifolia of Lindley, and its namesake the Hornbeam (Carpinus betulus), of which more anon, was not far off. The Wall Rue was growing in the crannies of the old church tower, and the thought naturally suggested itself as to the means of dispersal of such scattered plants as this. How many millions of spores may have been wasted hereabouts before the Bexhill colony was able to establish a branch here through a friendly breeze, or *vice versâ*.

The woods between this and Bexhill have every appearance of being truly remnants of the once great Anderidaes Weald, in which there were probably but scanty clearings or "fields" when William landed at Bulverhithe. They are mainly Oak, with much Hazel, a considerable admixture of Hornbeam and Holly, and plenty of Ash and Maple. Blackthorn and Dogwood form the underwood, and Elders are not uncommon, whilst all the moist glens are marked by the darker-foliaged Alder. Such is, perhaps, not an unfair representation of the indigenous British "forest primæval," at least in the south. The Oak and the Ash remind one of so-called Druidic rites and Northern superstitions, the Holly recals the ancient trees on the bleak earthworks in Cornwall and round the Speech-house in the very heart of the Forest of Dean, and the Hornbeam brings to mind the dense thickets round the old British camp at Oldbury Hill, near Ightham, Kent; the pollards of Epping, and their probably outlying kinsfolk at Easenye, near Ware, and in Enfield Chase. In heathy clearings the creamy blossoms of the Cow Wheat, and the still paler Wood Sage (Teucrium Chamædrys), probably then, as now, mingled with crimson Heath and Betony and graceful Harebells; whilst in shady spots the Red Campion abounded; but to a far more recent date belongs the smiling landscape that greets one as one descends the steep hill by which the road (flanked by the most picturesque yellow sandstone rocks) enters the scattered village of Crowhurst. Here a Hop-field, in all the beauty of a most promising crop, fills the hollow, whilst, as if to prepare you for a sight of the tree of the village, many fine Yew trees—its children, doubtless—are scattered here and there like the houses. You have to go up one hill and down another, however, before you get to the church; and at the bottom of the second you may be delayed by the charms of a rivulet, by which I noted two out of the three forms of the Purple Loosestrife, the long and the medium styled.

The church itself is not noteworthy, though prettily situated on sloping ground; but there are more than one notable tree in the churchyard. The Yew is about 25 feet in girth at 5 feet from the ground—truly a noble tree, though hollow. Near it stands a Maple about 7 feet in girth, and at three other corners of God's acre are three more Yews, one at least of which reaches 4 feet through, and is apparently sound to the core. South of the church stand the walls of a large building said to have been a manor-house. Its gable end shows the remains of so finely traceried a window that one would rather think it some ecclesiastical edifice; and among its stone ruined work grows the Wallflower, as at Lymne, at Pevensey, at Battle, and in many another Norman ruin.

Sandy lanes, where Polypody hangs from the rocky banks, amid Broom, Bracken, Bryony, and Betony, with occasionally a pretty white-flowered variety of the latter, bring me from Crowhurst to Battle, to a totally different order of beauty.

In the descriptions of the battlefield of Senlac that subjected England to a foreign yoke, we read that whilst William was entrenched on Telham Hill towards Crowhurst, Harold, on the hill where the Abbey now stands, had marshy ground on his right, *i.e.*, to the south-west of his position. Still warlike in its associations, that marshy ground is now the site of two powder-mill ponds, buried in thick woods and separated by a wooded swamp.

Few spots can better teach the lesson of reticence in landscape gardening. Surprise is an important element in beauty, and to come upon a flowery lake or rocky cascade "while wandering in the mazes of some wood," is more pleasing than to have a similar cascade or expanse of water thrust upon your notice as it abruptly ends some upland lawn, where Nature would never have placed it.

Here, beneath fine Beeches, the ground is carpeted with Bracken, Foxgloves, wild Hyacinths, Strawberries, and Wood Sorrel. The surplus water pours over mossy brickwork into a deep pool overhung with trees, and trickles out as a bubbling rivulet,

whilst if you push aside the Alder boughs, you find the swans swimming on a glassy pool, here and there overgrown with Water Lilies, or encroached upon by a miniature forest of Horse-tails or by a denser growth of Bulrushes (Typha). The swampy margins, which have been gay in succession with Marsh Marigolds, with yellow Iris, and with the now waning Meadow-sweet, are bright with Willow-herb and yellow Loosestrife. The latter (Lysimachia vulgaris) was growing here to 7 feet in height, and sending out delicate horizontal stolons of a pink colour, through the mud, for 4 or 5 feet on either side of them. The cut leaves of the Gipsy Wort (Lycopus), and the inconspicuous Skullcap (Scutellaria galericulata), mingled with the lace-flowered Bog Bean (Menyanthes trifoliata) in the water, and with the Hard Fern (Blechnum spicant) on the bank; whilst the Bur-reed mixes its green foliage with the grey sword-blades of the Bulrush, and the Bittersweet scrambles over everything, as if to proclaim itself an aquatic by predilection. Some close shaded Chestnut coppice, and a belt of sombre Pine-wood beyond give an additional piquancy to the gay beauty of this "sequestered nook." *G. S. Boulger.*

(*To be continued.*)

SPRING BULBS FOR COOL GREENHOUSE.

LAST spring I used a large number of choice hardy bulbs for the decoration of a very cool house, and the effect was quite novel. Many an experienced gardener visited that house and knew nothing, or but little of the subjects forming the display. The eye is wearied by a monotonous stage of Azaleas, Primulas, &c., however valuable they are for the purpose. In connection with such plants a judicious selection should be made of hardy bulbs, which, when in flower, will not only relieve the sameness superficially, but will stand closer investigation, so that a house thus filled becomes one of unusual interest, fresh and beautiful forms meeting you at every step. I am more strongly induced to make these remarks because I know many leading gardeners are about to introduce the system into their various establishments, simply because the tastes of the times imperatively demand it; in fact, gardeners as well as employers are being educated into the value of hardy flowers for all kinds of decorative purposes. For a long time past a select few have been grown most extensively—*e.g.*, Tulips, Roman Hyacinths, the Poet's Narcissus, Jonquils, &c.; but there is a big army of other charming kinds only requiring intelligent cultivation to substantiate what has long been said in their favour. The species described herewith have all been tried, and answer the purpose right well, all of them being extremely pretty.

They should be potted at once, and the same compost will suit all—say, two parts good loam and one leaf-mould and well-decayed manure, with some coarse sand to make the mixture open. Arrange three or more bulbs in 5-inch pots; of course, in the case of the small growing kinds, like Chionodoxa, Scillas, &c., more bulbs will be required to make a good pot. When all are potted up, plunge the pots in ashes or cocoa-nut fibre, covering an inch or two of the plunging material over the top of the pots; any position may be selected for them outside or in a cold frame; they will speedily resume root action and become well established before the winter sets in; no further protection will be requisite during the winter, as all the kinds mentioned are quite hardy. After the new year has passed it will be necessary to remove some of the covering to see whether any are showing above ground, if so, do not cover them again, or but very slightly, as it is desirable to keep them sturdy. As growth is developed it will be better to remove them to a cold frame, where they will receive protection from biting winds and black frosts, which injure the foliage and spoil the appearance of the plants. Of course the management beyond this stage must be regulated by the time at which they will be required. All will stand gentle forcing, if necessary, but they are much better if allowed to come on with the assistance of a cold frame or house only. Some kinds are naturally very early flowering, and cannot be kept back, such as the Galanthuses, &c., while others, as Narcissi for example, do not flower naturally before April, May, and early June, but they may be had in during March and afterwards with but slight forcing. Many other kinds may be judiciously added to those described below.

Anemone Robinsoniana.—Also called A. nemorosa cœrulea, which may be right, as it can only claim to be a varietal form of the Wood Anemone. It produces charming pale sky-blue flowers from 1½ to 2 inches across, on stems from 6 to 9 inches high, a veritable gem, flowering during April and May.

A. ranunculoides.—A pretty species, with divided deep green leaves and bright golden-yellow flowers, very freely produced, and lasting a long time under glass; produced in April. I find it best to allow the roots to remain undisturbed in the pots for two or three years.

A. fulgens.—The brilliant scarlet Windflower, very variable, but when you get a good form with broad segments of a dazzling scarlet colour, it is a most effective flower, surpassing anything in flower in April and May; at the time this was especially much admired.

Calochortus albus (Cyclobothra alba).—A lovely bulbous plant, producing slender glaucous foliage and terminal racemes of creamy-white flowers, the edges of the perianth divisions prettily fringed, and the inside lined with rich coloured hairs. This is a gem from the Western States of North America, and is more amenable to cultivation than many of its congeners, doing right well with pot culture. May to June.

C. pulchellus (Cyclobothra pulchella).—A charming companion to the last, flowering perhaps a little later, but it can be brought on quickly in the cold frame or cool house, as when once started into growth it will bear this. It grows from 9 to 12 inches high, with branching heads of deep golden-yellow flowers, the inner divisions of the perianth prettily fringed; it lasts well, as it is a most distinct and handsome gem, as showy as many of the choicest Orchids and at a nominal price.

Chionodoxa Luciliæ—the Glory of the Snow: a pretty name truly, but in my opinion no name is too good for this gem; many I know speak disparagingly of it, but I am sure it will become a universal favourite when the bulbs are fully developed and it shall have made itself quite at home in the country. The flowers are produced in racemes, of a rich sky-blue and white in the centre; collected bulbs varying much in the intensity of the colour and the disposition. A hardy mountaineer, it will stand a surprising amount of frost without injury, and is readily forced. March and April.

Erythronium albidum (not E. dens-canis albidum).—A very pretty Dog's-tooth Violet, with plain green lanceolate leaves, and solitary flowers on stalks about 6 inches high, about an inch long, white, tinged at the back with blueish-purple; very free growing and distinct. Flowering in April and May. Native of the United States: very widely distributed.

E. grandiflorum.—A very charming species with unmottled leaves in parts, oblong-lanceolate. Flowers sometimes solitary, or more usually in racemes with from two to six flowers, about 9 or 12 inches high; flowers when expanded from 2 to 2½ inches across, of a rich cream colour, yellow at the base, or faintly streaked with purple. A very showy plant when in flower, especially when there are several flowers open on the same raceme; some are spreading open, while others are sharply revolute, very lasting, and well worth cultivating largely. Native of the Western States.

E. giganteum.—This produces oblong, mottled leaves; flowers in racemes quite as large as, or larger than those of the best species, white with yellow, and deep orange at the base, the segments becoming sharply reflexed. A very showy but scarce species, flowering in April, but can be had in earlier. Native of the Washington Territory.

E. purpurascens.—A very rare species, with broadly-oblong, undulated leaves, slightly mottled. Flowers in racemes of from three to eight, about an inch or rather more long, pale yellow, tinged with purple and deep orange at the base. It is extremely pretty and distinct, flowering with the last. Native of the Sierra Nevada. The colour of imported bulbs varies.

Fritillaria armena.—A very charming little species, closely related to our Chequered Fritillary, and although of recent introduction it can be purchased at a very cheap rate; it grows from 6 to 9 inches high, with pendulous flowers of a rich yellow colour, expanding in April and May. Native of Asia Minor, where it is very abundant; it is very easily cultivated, and will undoubtedly be a favourite with growers of hardy bulbs.

F. Meleagris—the "Chequered Fritillary."—This can be had now in very great variety, deep and light purple, variously chequered, and quite white. All are desirable, as they are very quaint and effective. The variety alba is especially desirable for pot decoration.

F. pudica.—This is a lovely species from the Western States of North America, with flattened bulbs, producing slender stems, terminated with bright golden flowers, extremely pretty, and last a long time. My experience with this species leads me to believe it does best with pot culture in light vegetable sandy soil, as my bulbs thus grown this season are very good, while those planted out are not so fine.

F. recurva.—A little gem, from the same region as the last, sending up slender stems, supporting one or more pendulous flowers about 1½ inch long, bright scarlet chequered with yellow, so strikingly different from anything else I know of in the genus, and it does happily when liberally treated in pots. Several bulbs should be planted in each pot. *Bulbophile.*

(*To be continued.*)

CUERDEN HALL, LANCASHIRE.

THIS place dates back from an early period in the history of the county, for in Baines' *History of Lancashire* we read that, "Soon after the Conquest the manor of Cuerden was given by Roger de Poicton to Vivian Molineux, who followed him from Normandy. It afterwards descended to Henry de Kuerden, and in the reign of Henry III. was in possession of the Banastre family. The manor was subsequently possessed by the Charnock and Langton families, and next descended to the Fleetwoods and Banisters, and from the latter to the Parkers." This appears to have been about the beginning of the eighteenth or the end of the seventeenth century, in which family it has continued down to the present owner, T. Townley Townley Parker, Esq., who came into possession on the death of his father a few years ago.

Cuerden is situated south of Preston—about 4 miles distant, and is on the left of the high road from that town to Wigan. The west approach is from this road, where there is a lodge about half a mile away from the mansion. During the few years the present owner has been in possession much has been done to improve the place, including the formation of a new road through the park northwards, where it again joins the Preston and Wigan road at some distance from the village of Bamber Bridge. Here is being built a very handsome and substantial entrance of stone, including a lodge and massive gateway, approaching completion. Following this new road a good view is obtained of the park (some 400 acres in extent) and surrounding country, which from the undulating character of the land and the natural fertility of the soil is highly attractive. To name the nature of the soil surrounding an old English mansion gives a clue to the character of the timber, for Englishmen have always been tree planters, and where the land is good so will be the trees that clothe it. In this the grounds at Cuerden are no exception, being well furnished in all directions with handsome trees, medium in size

Through the park, on the eastern side of the Hall, runs a stream of water, the Lostock, to which the ground has a considerable descent on both sides, and which adds much to the general appearance. This stream has recently been taken advantage of in the formation of a sheet of water of enough extent to contribute much to the collective effect, besides being turned to account in pumping from a neighbouring spring the large quantity of water required for use in an establishment of this description, including the garden, where an unstinted supply, without the incessant work of pumping and carrying, is the greatest boon and most effectual saving of labour. The overflow has been still further utilised in supplying an artificial piece of water, taking a northern course from near the mansion, with a river-like appearance.

The Hall is a large handsome building; the greater portion is of red brick, with sufficient ornamentation in the construction; extensive additions have been completed within the last two or three years,

part of which are of polished stone, forming collectively a handsome pile. It contains a fine collection of pictures. The entrance is on the northern side, fronting which there is an unusually large sweep of gravel, which here, as elsewhere, when kept within limits proportionate to the size of building and surroundings, adds much to the effect. Adjoining the mansion on the south side is a conservatory, the roof a series of five spans; the plants are grouped in beds on the floor, and have a natural and pretty effect; the back wall and roof are nicely draped with climbing plants, consisting of Tacsonias, Passion-flowers, Plumbago capensis, and Roses. Fronting this is a long stretch of level lawn, beyond which is a deep, well-sheltered hollow, which has been arranged as a pinetum and American garden, and the sheltered position seems to suit whatever is planted here, the Coniferous trees especially thriving in a way that they otherwise will not do in this part of the country, as will be seen by the size that some of the best have reached —Sequoia sempervirens, 43 feet; ditto, 52 feet; Cedrus Deodara, 46 feet; Thuiopsis borealis, 34 feet; Abies grandis, 33 feet; ditto, 42 feet; A. nobilis, 34 feet; A. amabilis, 34 feet; A. lasiocarpa, 23 feet; Cedrus atlantica, 32 feet; Cryptomeria japonica, 46 feet; Araucaria imbricata, 34 feet. These measurements are small as compared with many in localities better adapted to the growth of trees of this description, but enough is exemplified to show that where the needful shelter is present, and the soil is fairly suitable, in this part of the country fair results can be attained.

Extensive alterations have been effected in the garden department by pulling down nearly all the old plant and fruit houses, which were worn out, and by erecting ranges of new ones in their stead, with excellent fruit-room and Mushroom-houses, and convenient offices requisite in the working of a large garden. The work has been very well done, both as regards the material and construction; most of the paths are laid with polished slate slabs—a material that is durable and has a nice appearance. In all some sixteen new plant and fruit houses have been built within the last three years; they are well heated and ventilated, and in every way calculated to do the work required; they were erected by Messrs. Allen & Co., of Holmes Chapel, Cheshire. Just outside the old walled garden on the north side, and parallel with it, one of the new ranges has been erected. The houses are all span-roofed. The first is a mixed stove and propagating-house, standing ends north and south, filled with Gardenias and similar flowering stock, along with fine-leaved plants of the usual decorative character. Leading from this, but standing to the opposite points of the compass, are two Pine-stoves, occupied by a well-grown lot of plants, successions and fruiters, some bearing ripe fruit, others coming on. Of the former there were some good examples of Queen, Black Prince, and others. In continuation are four more medium-sized houses, used for forcing pot Vines and growing Melons and Cucumbers, which are well managed—the Melons coming on in succession, so as to give a lengthened supply. Celosia pyramidalis in one of these houses was well grown and nicely flowered, in which condition it is a most useful plant, alike acceptable for cutting as for general decoration. The last house in this range, which is a counterpart of the first, and, like it, stands with the ends north and south, was mostly filled with specimen Fuchsias, medium-sized, nicely flowered plants, useful for conservatory decoration.

The next range of new houses is just within the walled garden already named, covering the entire length of the wall except room for the doorway at each end. Like the preceding range a span-roofed house of good size, standing with the ends north and south, occupies a position at each end. Beginning at the western end there is a roomy stove devoted to the usual heat-requiring plants, including Stephanotis, Clerodendrons, Gardenias, Crotons, Dracænas, Begonias, Ferns, and Lycopodiums, with a few Orchids, such as Cattleyas, Cypripediums, Dendrobiums, and Calanthes, for winter flowering. As an encouragement to those who are timid in using that cheapest and most efficient of insecticides, paraffin, I may state that Mr. Roberts uses it freely for the most troublesome kinds, such as mealy-bug and scale, syringing the plants overhead with it as they stand, just as one would do in the ordinary way with water. As a matter of course it is sufficiently diluted with water and kept thoroughly stirred up whilst the work is going on, and some soft-soap is added, which helps to keep the paraffin better mixed with the water. The Cavendish Musa was fruiting here. Leading from this stove we enter the first of six fruit houses against the wall, and which is a curvilinear roofed lean-to filled with Peaches and Nectarines—the earliest forced. The internal arrangement is a trellis in front, not too high, to admit of the trees on the back wall continuing to bear properly. The Peaches grown are confined to the best flavoured varieties, with Lord Napier Nectarine, which undoubtedly stands at the head, taking all properties into account.

Then we come to four hip-roofed vineries, the first of which are brought in to succeed the pot Vines that are forced for the earliest crop. There are some of the old Vines here still remaining, over which the new houses were built; the remainder are young ones planted by Mr. Roberts two years ago, and have done well. Black Hamburgh and Foster's Seedling are the principal kinds in this house. The next house contains late varieties, Gros Colmar, Gros Guillaume, Lady Downe's, Black Alicante, Alnwick Seedling, and Muscat of Alexandria, two years planted, and carrying some nice bunches. The adjoining division is filled with Black Hamburgh, Buckland Sweetwater, and Muscat Hamburgh, with a large Fig on the back wall. The last of these hip-roofed houses is occupied by late kinds, and Muscats, also planted two years, and that have made good progress. The next is another curvilinear-roofed lean-to, corresponding with that at the opposite end, and used as the second Peach-house, with a similar arrangement of the trees, the crop of which is over. For the time they have been planted they have made good progress. The end span-roofed house is devoted to a miscellaneous collection of plants, such as succeed under ordinary greenhouse treatment. Enough roof climbers are here used to give a furnished appearance without unduly shading the plants beneath. For this purpose Acacias, Plumbago capensis, and Cheshunt Hybrid Rose are used. The north end of this house is formed by the garden wall, on which it abuts. This wall Mr. Roberts ash very successfully clothed by covering it with moss, held in its place by wire netting, similarly to the way often adopted in a stove; in this he has planted different kinds of Sedum, interspersed with Ferns, Echeverias, and other plants that will thrive in such a position. So clothed it has a nice appearance.

Outside this garden, on the south side of the wall, is a couple of old houses that have both been planted with Peaches, which are carrying a nice crop. At a short distance from this is an old-fashioned lean-to greenhouse, in which Camellias are planted out, with some on the back wall as well, thriving as these plants usually do when they have liberty for their roots. Roses are grown overhead, which give the shade needful for the Camellias, and, being very strong and of large size, they yield quantities of flowers. In front of this house is a small flower garden, just enough to give a bit of bright colour to lighten up the dark foliage of the banks of big Rhododendrons, which enclose it right and left to the back. The walls are well stocked with trees, especially Pears, for which Cuerden is celebrated, for in addition to the trained trees there is an enclosed Pear orchard, many of the trees in which have reached unusual size, the largest being from 30 to 40 feet high, and it is remarkable that this season, when Pears in most places are thin, that most of them are bearing very heavy crops, the branches literally hanging like ropes of fruit. The principal sorts grown are Williams' Bon Chrétien, Dunmore, Seckle, Eyewood, Marie Louise, Suffolk Thorn, Louise Bonne of Jersey, Beurré d'Amanlis, White Doyenné, and Hessle, Beurré Gris, Brown Beurré, Napoleon, Broom Park, Winter Nelis, Glou Morceau, Beurré Spence, Easter Beurré, Beurré Bosc, Althorpe Crassanne, and Soldat Laboreur, which, latter, grown on a west wall, is the heaviest cropper here. These are not all carrying a crop this year. I give the names as showing what sorts succeed, so as to be worth growing in this locality, for Pear growing, I believe, was a favourite hobby of the late Mr. Robert Townley Parker. The fruit of most of the sorts is small this year, as is the case in most places. Apples are a good crop: King of the Pippins, Cox's Orange Pippin, Lemon Pippin, Blenheim Orange, Court of Wick, and a late-keeping Codlin, locally known as Livesey's Scotch Bridgett are the best bearers.

In the culinary vegetable department there is the same evidence of Mr. Roberts' care and attention that is apparent in other matters connected with the garden, it being well done so as to insure a plentiful supply throughout the year. *T. B.*

Foreign Correspondence.

Geneva.—If there are two towns in Europe wherein more than any other one would expect to find well-ordered botanic gardens, those towns are Paris and Geneva. The tourist fresh from Kew, from Edinburgh, Dublin, or Cambridge, with his mind naturally dwelling on the achievements of the Jussieus, the Mirbels, the De Candolles, the Brongniarts, the Decaisnes, and others whom he has been accustomed to venerate, will naturally feel a shock to find what is, or ought to be, hallowed ground, in such pitiable plight. Here, in Geneva, where the bust of the first De Candolle is not needed to recal the vastness of the services he rendered, and which his descendants continue to render to science—here in Geneva, of all places in the world, the Botanic Garden is about the meanest it has ever been our fate to visit, and, as we should have supposed, utterly inadequate to the requirements of modern botanical teaching. This is no fault of its curator—far from it; there are evidences of intelligent zeal which go to show what might be done even in this limited area (which looks as if it were on the site of the old town ditch) if sufficient funds were provided. But the whole establishment, including the salary of the curator, and the wages of the labourers is maintained upon considerably less than £500 a year. A public thoroughfare runs along one side, with nothing but a low wire fence to separate the garden from the roadway. A similar wire serves to mark out the limitations of a *café chantant*, after the Champs Elysées type—a *café* which, with its surroundings, has, to all appearance, been filched at some time or another from the garden. Scientific gardening—gardening of any kind—is heart-breaking work under such circumstances, but M. Correvon is brave and zealous. He does not waste his time in vain laments, but he endeavours, and with a large measure of success, to make the best of things as they are. We hope, for very shame, that the citizens of Geneva, who should be jealous of the honour that botanists have conferred on their city, will speedily provide an adequate garden in a suitable situation, and not allow the powers of their curator to be wasted, as they are at present. We have no animus against the *café*; we would endow it with the whole of the present garden, on consideration that it were kept as an open space. A town—even one like Geneva—cannot have too many or too large open spaces, and as for the *café*, I do but echo the universal lament that such institutions are, or seem to be, impossibilities for decent folk in our large towns. But to return to the botanic garden: there is the usual "*école de botanique*," arranged after the time-worn model of the Jardin des Plantes; there is a fine wall, affording shelter for several remarkable plants; there is a small range of houses, dark, and inconvenient; there are some notable trees; and there are, what we specially came to see, some rockeries. These latter are constructed with a view to utility rather than picturesque effect, and consist of eight long mounds, running north and south, broad at the base, tapering gradually to the top like a pit of Mangel Wurzels on an English farm. The constituent stones are some granitic, others calcareous, others silicious, and the plants are arranged on them according to their requirements. M. Correvon has discussed this subject, so that it is only necessary to say that the rockeries here afford ample corroboration of his statements, and make it clear that M. Correvon writes from experience. For some plants M. Correvon adopts the plan of growing them under shelter of a projecting rock, so that they are completely protected from wasting rain or undue exposure to the sun. Fortunately there is a good water supply, and hence the rich collection can be kept duly supplied with the most essential element of their food. The collection, as I have said, is large and varied, but this is not the season to see it in perfection, nor, if it were so, could I be expected to write a catalogue. The hardy aquatic plants are grown in shallow oblong tanks divided by stone partitions. The Anacharis is as great a pest here as elsewhere, but that has not prevented M. Correvon from getting together an excellent representative collection, among which I noted the curious Water Chestnut, Trapa natans. Perhaps, however, the most remarkable thing about the garden is the very large collection of seedling alpine plants. These are grown in pots placed in frames shaded with lath trellis-work, and their health and general con-

dition show that the town atmosphere is by no means inimical to them when tempered by the assiduous attentions which it is clear are bestowed upon them.

Among the more notable trees are a fine specimen of Virgilia lutea, two large examples, male and female respectively, of Ginkgo biloba, and others planted by A. P. De Candolle. Against the lofty wall of which we made mention Lagerströmia indica forms a large bush. It flowers freely, and does not succumb to a Geneva winter. Zyzyphus jujuba, Passiflora cœrulea, Bridgesia spicata, Porliera hygrometrica, Thladiantha dubia, are in like case; the latter indeed is a *mauvaise herbe*. M. Correvon is also getting together a collection of species of Eucalyptus, and has the nucleus of a good selection of succulents. *Rambler.*

NEW SOUTH AMERICAN PLANTS.

CAROLO SPEGAZZINI is the author of a pamphlet placed in our hands entitled *Plantæ Novæ Nonnullæ Americæ Australis* (decas i.) When we state that twenty-two full octavo pages are devoted to the Latin description of only ten plants, our readers will get some idea of the terrible length of each description; and, what is worse, we fear that many of the plants to which new names have been given are old acquaintances. This little work emanates from the University of Buenos Ayres, and is probably one of those productions that serve to qualify for a degree. It is a pity that descriptive work, in which the authors are so likely to encumber literature with worse than useless matter, is preferred to biological research—a practically limitless field. The plants described are Cleome titubans, Hibiscus pulcherrimus, Magallana porrifolia, Polygonum bonaërense, Hydrocotyle cryptocarpum, Dionophyton argenteum, Benthamiella patagonica, Verbena carroo, V. patagonica, and V. struthionum. The most interesting plant is the Magallana porrifolia, which was long ago imperfectly figured by Cavanilles. This is the only old plant, or at least the only recognised old plant, of the ten; and if the author has correctly identified it he deserves the thanks of botanists for this part of his work at any rate. Magallana, as figured by Cavanilles (*Ic. Pl.*, iv., t. 374) has the flowers of a Tropæolum with a very different, three-winged fruit. Bentham and Hooker (*Genera Plantarum* i., p. 274) regarded it as a made-up figure from a depauperate form of Tropæolum pentaphyllum and the fruit of a totally different plant; and this conclusion is justified by the fact that the specimen represented bears two expanded flowers, and from the axil of the only leaf separating them an apparently fully developed fruit. However, Mr. Spegazzini states that although his few specimens are destitute of fully developed fruit, what he has fully agrees with Cavanilles' description and figure. And we have little doubt that he is right. It appears that the ovary consists of three carpels, each furnished with three wings on the back. Usually two out of three abort in a very early stage, and only one reaches maturity. This has three broad wings on the back, while the ventral part bears the rudiments of the abortive carpels. Cavanilles seems to have very carelessly placed the fruit in an impossible position with regard to the expanded flowers. Spegazzini further states, what is true for all the specimens that we have seen, that Tropæolum pentaphyllum is not found in a higher latitude than 38°, and there only very rarely; whereas Magallana is from Port Desire, South Patagonia, in 48° S. lat. Magallana would seem, therefore, to be a good and very distinct genus. Benthamiella will be recognised as a new generic name. The author dedicates to our venerable botanist "an apparently very distinct genus of Solanaceæ," and we hope it will prove so; for already two genera bearing the name Benthamia have been proposed only to be reduced again, to say nothing of a Benthamantha. In 1828 Achille Richard founded the first Benthamia for a Bourbon Orchid, which has since been considered not generically different from Habenaria. Five years later, or just fifty years ago, Lindley established a second Benthamia on Wallich's Cornus capitata, and called it Benthamia fragifera. This handsome shrub is still met with in a few gardens in this country; but although very different at first sight, especially when in fruit, from most species of Cornus, the authors of the *Genera Plantarum* have reduced it to that genus again. Benthamiella patagonica is described as a pretty, tufted cushion-like shrub of a peculiarly Patagonian type. It is said to be allied to Cestrum, and one of the principal technical characters of the genus is that the two-celled ovary with few ovules becomes by abortion a 1-celled, 1-seeded, 4-valved capsule. *W. B. H.*

SLATE FENCES.

IN the vicinity of slate quarries it is quite surprising to the uninitiated the many uses to which slate is applied; and in no department are these more varied than in forestry—gate-posts, fences, both useful and ornamental; tree labels, water-troughs, sheds, &c., being made of this material. Of fences three different sorts are usually erected, either solely of slate, or in conjunction with wood or stone. In the following note I purpose to give a short description of each kind, with illustrations, and cost of erection.

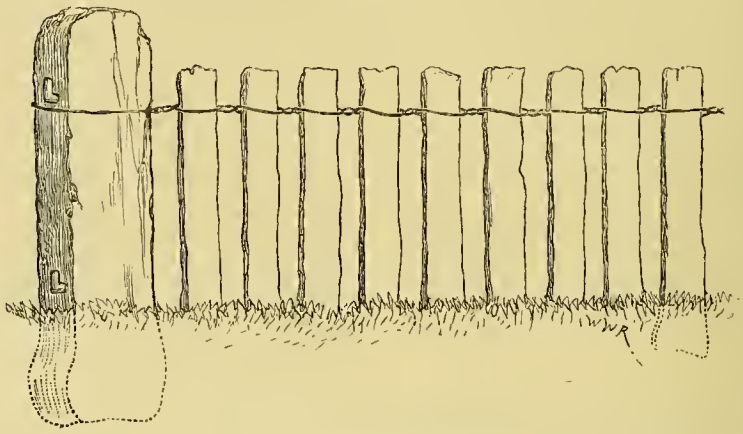

FIG. 53.—SLATE FENCE.

For general plantation purposes, fig. 53 is that usually adopted, the slabs, or pales as they are called here, being of refuse slate, and of the following dimensions:—Length 5 feet, breadth varying from 4 to 6 inches, and about 1 inch in thickness; but being made of refuse slate the dimensions may vary a little from those given.

In erecting the fence a trench is cut 1 foot in depth and 8 inches in width along the intended line of fence, care being taken that one side is cut perfectly perpendicular, so as to insure the pales standing in a similar position. These are then placed upright in the trench, with their flat side close to the perpendicular cut, and about 3 inches apart, and the soil that was formerly taken out is now replaced and rammed firmly. A double fencing wire is then interlaced at 3 inches from the tops of the pales, and given a double twist between each, thereby insuring the greatest possible stability by uniting the fence and also keeping the pales at equal distances apart. Should, at any time, a pale chance to get broken, it can easily be taken out and replaced without in the least damaging or undoing the fence. When properly erected this is a most useful, and, I might almost add, everlasting, fence, equalling any, and surpassing most of those now in general use.

A rabbit-proof fence suitable for young plantations can easily be made of the above by placing the pales close to each other; and at any future time, when it may be deemed advisable, every alternate pillar can be removed without in the least damaging the remaining part of the fence.

Including materials and erection a fence of the above kind will cost 10*s.* 6*d.* per rood of 8 yards, the pales costing 15*s.* per ton, or about 3*d.* each. These prices may be considered about the average for pales in the immediate vicinity of slate quarries, additional cartage or carriage by rail increasing their value considerably.

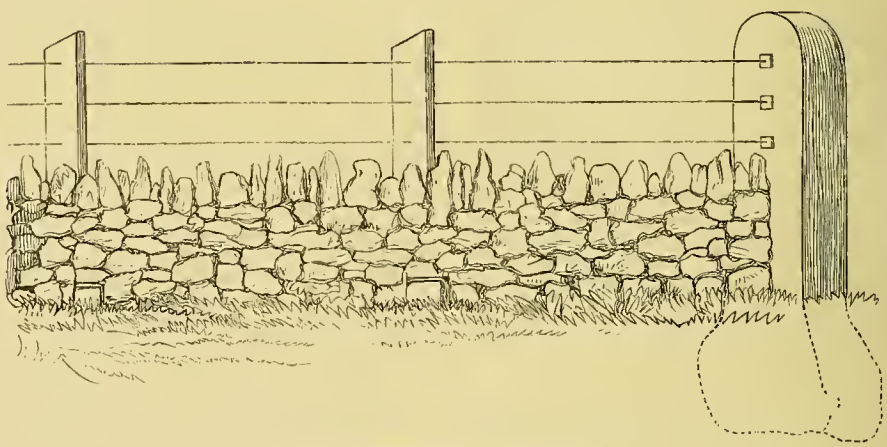

FIG. 54.—FENCE OF SLATE AND WIRE.

Fig. 54 shows a remarkably neat and substantial fence, more usually adopted as a division or farm fence than for ordinary plantation purposes. It is of the following construction, and generally erected where sufficient stones cannot be conveniently procured to form an entire wall. A wall is built 3 feet high, 24 inches wide at the base, and tapering to 13 inches at the top, into which pillars similar to those already described are built at the distance of 7 feet apart, and projecting 2 feet above the cope-stone, which is laid in mortar. Three holes, 7 inches apart and 3 inches from the top, are drilled in each pale previous to building these in the wall, through which wires pass from the straining posts at each end. These straining posts are also of

slate, 7 feet in length, 6 inches in width, and from 2 to 3 inches in thickness, and drilled similar to the pales, but with holes of sufficient size to allow ½ inch bolts passing through, one end of which is an eye, to which the wires are joined, and the other a nut and screw, by means of which the wires are strained to the required tightness. The erecting of a fence of this kind will cost 7*s.* 6*d.* per rood, all materials being placed along the line of fence and convenient for the workmen.

For ornamental purposes, such as garden divisions, or, in fact, any fence used contiguous to dwelling-houses, fig. 56 will be found both neat and serviceable. The cost of this fence, owing to the pales being more carefully dressed and rounded on the top, is proportionately higher than those already described. It is constructed in the following manner:—A wooden erection is first made by fixing posts in the ground 1 foot in depth and 6 feet apart, the posts being 4 feet in length, either square or triangular in shape, and about 3 inches square. A rail 2½ inches wide is next nailed to the upright posts at 6 inches from the top, to which the pales are attached by means of screw nails. The pales are 2½ inches in width, by about 4 feet in length, 6 inches of which is sunk in the ground in a manner similar to that described for the first figure, and placed about 3 inches apart.

When properly erected this fence has a very neat and tidy appearance, the wooden supports being hardly visible from the side on which the pales are placed. The cost of material for such a fence varies a good deal, much depending on the size of the pales and the manner in which they are dressed.

Fig. 55 represents a slate gate-post, of which a great variety are in use, differing according to the positions in which they are used. They are usually 8 feet in length, 6 feet being squared to 9 inches by 4 inches, and the remaining portion, which is inserted in the ground, being left rough or unsquared. Most of our gate-posts are of slate, and for strength, durability, and neatness they are much in preference to wooden ones. *A. D. Webster, Penrhyn Castle, North Wales.*

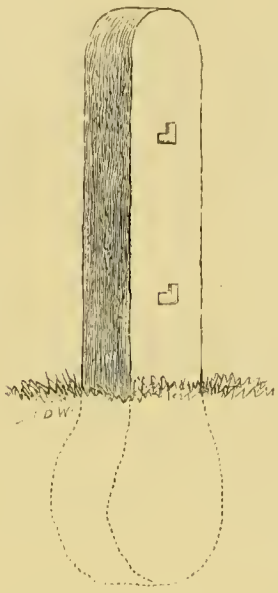

FIG 55. SLATE POST.

NEWER KINDS OF POTATOS.

THE pressure of a long report of the International Potato Exhibition just before going to press last week prevented that full reference to the newer kinds of Potatos introduced so largely to notice on that occasion which their respective merits deserve. Naturally, out of these most interest attached to the seedling kinds—that is, varieties not in commerce, but tested by the Seedling Committee at Chiswick during the past summer. Of these some thirty or more kinds were sent for trial, but it happened, unfortunately, that owing to the pressure for space, and the large number of kinds sent also for the notice of the Royal Horticultural Society's Fruit Committee, some few had to submit to imperfect culture in poor ground, and the result was not satisfactory. Were raisers to be a little more moderate in their contributions, and instead of sending a dozen sorts, not a few of which are useless, but to send half that number of really good kinds, the result all round would be much better. All those that found space in good soil did remarkably well, and those which were not so well placed will doubtless receive better treatment next year. At the same time it is but fair to Mr. Barron and his aids to state that all that can be done to treat every raiser and his seedlings fairly and justly is done, and only more space is needed to enable the trials to be absolutely perfect. The Seedling Committee of the International Potato Exhibition visited the gardens twice, and on each occasion, after selecting those kinds which seemed to be most promising, had about a dozen of them cooked and tasted, so that the important duty of testing their table merits was carried out under the most favourable conditions. Three marks were given to the best croppers, and three to the best cookers, and those kinds which secured the full number of marks, and also obtained three marks on the show able, became entitled to Certificates of Merit, of which honours only eight were eventually awarded, as our report of last week showed. These were, to white kidneys, Beauty of Eydon and Hughes' Prolific, both handsome kinds, each bearing considerable resemblance to Woodstock Kidney, raised from Beauty of Hebron × Myatt's Ashleaf, and of capital quality and good croppers. These were raised by Mr. Hughes, Eydon Hall, Northampton, who is also one of our leading exhibitors and growers. Welford Park Seedling, shown by Mr. Ross, of that place, runs very much like International or Lapstone in appearance. It is very smooth and handsome, and because of its beauty secured the prize in the class, as well as a Certificate. Its parentage is not given, but information on that head should henceforth be made a condition of exhibition for all seedling kinds. Of other white kidneys that merit special notice are Recorder, a long flat kind, handsome, of fine quality, and a heavy cropper, and which, having a short top, is well suited for small gardens. This is own brother to that fine kidney, Cosmopolitan, and also to Midsummer Kidney, also certificated this year, both at the International Potato Show and also by the Fruit Committee — Mr. Hughes' Beauty of Eydon alone sharing with it these double honours. Midsummer Kidney is specially worthy of notice as being a first early kind, and, indeed, ripens even earlier than the Ashleaf, whilst its handsome tubers are larger and of excellent quality. It is from the large American Success, by that capital pollen parent Woodstock Kidney. Sanday's Seedling, which took for Messrs. Pearson, of Chilwell, the 1st prize in the class for white kinds sent out last winter, is a very Lapstone-like variety; the tubers handsome and smooth, having after a day or two's exposure that purple tinge which always betokens the Lapstone race. This is said to be a seedling from the latter kind crossed with Myatt's Ashleaf. Early King Offa is a long kind, that bears close resemblance to King of Potatos, and is raised by Messrs. Myatt, of Evesham. Lord Beaconsfield, shown by Mr. Ellington, of Mildenhall, is a large, handsome Snowflake-like kind, and is much praised. Distinctness both in tubers as well as in top is a great desideratum in new kinds. Chancellor, the product of a cross between Advance and Woodstock Kidney, is a fine late kind of first-rate quality, and combines the best properties of those two excellent sorts; the tubers also resemble those of the parents, and are very handsome. Alderman, first brought into commerce last winter, is a broad, flat kidney, a seedling from the American Rose. Kentish Invicta bears a close resemblance to St. Patrick, and is a large cropper; and Snowdrop, still another Snowflake-like kind, proved to be at Chiswick a fine cropper and of fair quality. It will be seen from this that of while kidney varieties newly in commerce or just coming in there is no lack, and that there are some very notable kinds in the list.

The most noticeable of all coloured kidneys of the year is Edgecote Purple, to which the prize and a Certificate of Merit in its class was awarded. This is a long flattish straight tuber, remarkably handsome and fine, and of a deep purple colour externally. It is a natural seedling from Edgcote Seedling, which is supposed to have been crossed with Purple Ashleaf by insects. It seems to be a great cropper and of excellent quality. It was grown at Chiswick, but no fair test of its merits could be obtained. Another newly certificated coloured kidney is Cardinal, a handsome broad flat tuber of a bright red colour, and awarded at Chiswick the full number of marks, both for cropping and quality. This is an American Rose product from a cross with Dean's Bountiful, and is not only very handsome in its class, but is a wonderful cropper. A pretty red kidney from Mr. Fenn, marked No. 4, was grown at Chiswick, and obtained the full number of marks for cropping and table quality, but it did not appear on the show table. Rose Queen, from Mr. Hughes, bore a close resemblance to Prizetaker, but was perhaps a shade redder. It seems to be a capital cropper. Wiltshire Giant is a fine long roundish red kidney, raised by Mr. Lye; and Red Lion, already in commerce, bears considerable resemblance to the American Superior.

Very few positively new white rounds are found in that section, indeed the only one that secured a Certificate this year was Prime Minister, a seedling from Magnum Bonum × Woodstock Kidney, large, flattish, oval round, netted skin, and yet handsome, a great cropper, and of fine quality; indeed this kind combines, to some extent, the qualities of Magnum Bonum, Victoria, and Regent. Sunrise, a product of Beauty of Hebron × Woodstock Kidney, is a first early largish round, a great cropper, and of beautiful quality. This variety in all probability will make a fine addition to our early garden kinds. Lord Mayor, a variety yet to be put into commerce, is a fine flattish round, from American Rose × Early Market; and of kinds newly introduced, Standwell, a seedling from the Vicar of Laleham, may be said to be a white form of that fine variety, standing long after all other kinds have lost their leafage, and keeping well; also Early Regent and Lady Truscott, two of Mr. Fenn's best kinds, both rather long, flattish, and somewhat of the Snowflake form, and of fine quality. First and Best, a very handsome round, too much like Porter's Excelsior, is one of the most noteworthy of newer kinds recently put into commerce.

Coloured rounds is an even more limited class, for here again only one certificate has been awarded, viz., to The Dean, raised at Bedfont, and which Mr. Dean claims to be a greatly improved Vicar of Laleham, from which it is a seedling, both in colour and in table quality. Mr. Lye has in Purple King a large cropping pale purple round, and Mr. Fenn in Alderman De Keyser a longish red round of great promise. The Belle, a new American kind, bears a marked resemblance to Queen of the

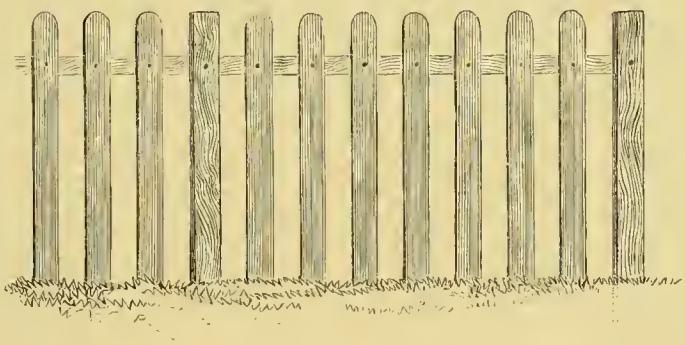

FIG. 56.—SLATE FENCE.

Valley. It is most probable that the larger portion of the new kinds mentioned will be put into commerce during the coming winter, and therefore their merits will soon be much more largely tested than they have hitherto been.

FORESTRY.

FLUCTUATIONS IN FORESTRY.—That "Time changes men and things" is a common but true adage, and it is equally true that there is nothing new under the sun. In a general way all things are as they have been or probably ever will be, so long as tide and time keep flowing, but in the particular both men and things are constantly undergoing changes neither slight nor unimportant. About the beginning of the present century machinery began to develope at a rapid rate, and some of the more thoughtful, wise, and far-seeing proprietors, by way of anticipating increased demand and high prices for certain kinds of wood, planted such very extensively. On some extensive estates known to the writer Beech was planted almost to the exclusion of all other trees with the view of supplying it for the making of machinery. Machinery and mechanical powers of all kinds have within the last fifty years or so developed in a way probably far beyond what the most sanguine ever anticipated; but while that is the case it by no means follows as a consequence that the demand and high prices of Beech-wood have kept pace, or have even been maintained. One of the factors in the calculation had inadvertently been omitted, and therefore the results have naturally fallen short of what was anticipated. Iron was at that time both inferior in quality, scarce, and dear, and besides it was not then thought that it could be used for the many purposes it is now applied to, yet even iron itself is now made almost as plastic in the hands of the engineer and mechanic as wood itself was in former years.

It was only the other day that we saw in an extensive machine factory a tradesman paring and shaving a piece of cast metal as deftly as if it had been a piece of Beech or Sycamore, and not only was he planing it like a piece of wood, but in order to show us its strength (though only about ⅜ inch thick), he took a hammer and subjected the plate to what we considered a very severe test, by striking it as if it had been a piece of malleable iron or steel. It was explained, however, that the plate in question was a composite metal, made from five or six others of different proportions all fused, combined, and tempered in a peculiar way, and was moreover of American manufacture, and tempered with wood charcoal. Oak also, in anticipation of increasing demand and high prices, was on some estates at one time planted as the principal tree, and looked forward to as a certain and reliable source from whence to derive an important revenue. It is scarcely necessary to say that in consequence of the adoption of iron and other metals in the construction of ships of every build, Oak has rather receded than advanced in price, and at the present day there is still a downward tendency. Oak bark, too, at sundry times, and especially during what is known as the "French war," sold in Scotland at about the same price as oatmeal, weight for weight, which would probably be about £25 per ton, while at the present time it is selling at only about one-fourth of that price.

Of the Larch the same statements may be given as of the Oak, for the Duke of Athole about the year 1800 did no small part of his Larch planting under the assumption of receiving 3*s.* per foot for his Larch timber, having sold as many trees as built several large vessels at 3*s.* per foot: one tree in particular realised £25 5*s.* For the same description of timber at the present day, less than one-half is obtained or perhaps one-third is nearer the current price.

For many years, and till recently, the demand for burnwood for drying and colouring fish was so great that along the coast of Banffshire prices quite fabulous were often given at auction sales, 18*s.*, 20*s.*, and as high as 25*s.*, was given for lots of about a ton weight. Probably not one load is now used for three, five, or six used years ago, and the price has in consequence fallen at least one-fourth.

The enormous consumption of wood for railway purposes, which is believed to be equal to, if not in excess of the whole of our home growth, would of itself evidently be sufficient to maintain a high price and ready market for all our home produce; and this, no doubt, would be the case, but for certain counteracting influences, such as foreign supplies, which in the meantime (whatever may be the result in the future) are sufficient to keep down the price of home-grown wood. Next to the requirements of railways, housebuilding and mining purposes, fencing in this country at the present time is probably the next greatest, and it is difficult to see where and when the consumption and demand for fencing wood will cease, or even abate. As this department, however, requires small wood rather than large timber, there is every probability of the supply continuing for many years at least equal to the demand. The country at the present day (speaking generally) abounds with small wood, generally known by the terms sparwood and propwood. There are several plain reasons why there is such superabundance of small wood and such a scarcity of mature, large, well-grown timber on almost every estate in Scotland, if not also over the whole of Great Britain; and it is principally to show how this is brought about, what the evil consequences of it are, that this paper is written; but in order to do anything like justice to so important a subject, it would appear advisable to take it up on another occasion.

So long as mining operations were specially active and remunerative, the consumption of small wood in that department was very considerable, and prices so comparatively high as to encourage woodland proprietors to grow and supply the market. Important changes here, however, as in other departments, have taken place, and now the demand is not only less than the supply, but the price given for pit-props is so very low as barely to cover the expenses of labour and transit. What ought now to be aimed at in forest operations is to grow good, sound, mature timber of a size suitable for farm buildings and the houses required upon an estate.

Timber, next to stones and sand, is the least portable material used in a building, and costs in carriage a large percentage. Every extensive estate should evidently grow timber sufficient for its own use, and there appears no good reason why it should not do so. Our own native Highland Pine (Pinus silvestris), as has been proved beyond dispute, is more durable in buildings than the wood of any other country or clime, and for outdoor purposes, such as gates, fence-posts, and such-like, is almost as durable as some stone, and certainly in districts near the sea much more so than iron; Larch timber also, if well-grown in proper situations, will last, whether for indoor or outdoor purposes, an ordinary lifetime.

The Spanish Chestnut is well known to have remained sound in some old buildings for at least 500 years. Oak, Gean, Silver Fir, Norway Spruce, and some species of Tree Willow, are severally of sufficient quality if properly grown and well matured and seasoned to warrant their introduction into our best buildings; and, therefore, instead of so much money being spent, or, rather, wasted, and labour bestowed in growing small wood, which scarcely, as already said, pays the expense of labour and carriage, our efforts should be directed to grow timber, and thereby increase an important industry and promote our national wealth. *C. Y. Michie, Cullen House, Banffshire, Sept.* 10.

Orchid Notes and Gleanings.

WORK IN THE HOUSES.—The advice given in the last Calendar to put the cool Orchids in good order to pass safely through the winter will now, to some extent, be applicable to the East Indian section. There is no more favourable season than the end of the present month or the beginning of the next for lowering any of the Aërides or Vandas that may have lost their lower leaves, and have got a little unsightly in consequence. In all cases where the stems of the plants are severed a few young healthy roots should be established on the upper parts of the severed stem to assist in establishing the plants again quickly. Give perfect drainage to all plants treated as recommended above, and use a good proportion of crocks in the sphagnum moss when filling in round the roots and up the stems of the plants. After being potted these plants should be placed in a moist corner of the house for a week or two, and a slight dewing over with the syringe will be beneficial to them on fine days. It will be advisable to examine the whole of the Aërides at this season, as, after the constant watering necessary during the growing season, the sphagnum will in many cases be found rotten and compressed, and in an unfit state for the roots to pass through the winter with safety in it. In doing these up for the winter, a more liberal use of crocks and charcoal should be made when filling in around the plants, as these will prevent the moss from getting too compact during the winter season. During the disturbance and upset of the plants in the house, the occasion should be taken to give the structure a thorough cleansing, washing all the woodwork and cleaning the glass thoroughly, to admit all the light possible during the winter season; and in old houses, where insects are generally abundant, their haunts should be flooded with scalding water. With the introduction of fresh sphagnum a sharp look-out must be kept for snails, especially in the cool-house, or they will soon do irreparable mischief among the young spikes now showing. The ripening of the growths on many species will now require close attention. Schomburgkias that have completed their growths should be planted in an intermediate temperature on a light elevated shelf, where they will be benefited by the slight sunshine that the autumn months usually give us. The earliest plants of Cœlogyne cristata and Lycaste Skinneri will be completing their growths, and should be treated to full light and a slightly reduced supply of water at the root. Later plants of these must be encouraged, with a little extra warmth, to complete their growths before the days decline more rapidly. Cymbidiums will require less water than hitherto, so as to gradually bring them to a state of rest. Cattleya Trianæ, C. chocoensis, C. Dominiana, and others completing their growths will require very little moisture at the root. Sobralias and similar plants in a state of growth must be afforded the lightest positions in the houses during the winter. *J. Roberts.*

CATTLEYA AUREA, Linden, *Illustration Horticole*, t. 493.—Introduced by M. Linden, from Colombia, in 1872. Flowers large, segments spreading, pale yellow; lip very large, its central lobe carmine-crimson, with a network of golden veins. The principles of culture laid down are—as much light as possible during the resting stage, moist heat and abundance of water during the growing stage; and, remembering that the plants are epiphytes, to grow them on fibrous peat perfectly well drained.

ORCHIDS IN BLOOM AT MOUNT MERRION, DUBLIN.—This is one of the fine places within the vicinity of Dublin that any of the readers of the *Gardeners Chronicle*, having time and taste, would be amply repaid by visiting. It belongs to the Earl of Pembroke, but as his lordship seldom visits his extensive property here it is managed almost exclusively by Mr. Vernon, of the Land Commission, and admirable everything seems, from a gardening point of view. One entrance is from a finely wooded avenue near Blackrock, upwards of an English mile long, from the highest point of which can be had magnificent views of Dublin Bay and Kingston, not to be had elsewhere. Our party was courteously received and shown over the numerous houses and grounds by Mr. Duncan Welsh, head gardener. I do not intend to do more than refer to the large collection of Phloxes and other herbaceous plants at the entrance; the wall fruit trees seemed fairly stocked, with the exception of Pears, which, as elsewhere, seemed below the average; while Apples seemed above that. Stove and greenhouse plants, Ferns, &c., were healthy and very select. What a striking object at this time is the bright purple berries of Callicarpa rosea! Mr. Welsh prefers growing it in the stove and with a moist atmosphere. As I should have no hope of your giving me space for a general review of all we noticed, as the collection of Orchids in the several houses is very select, I may be permitted to copy my notes of those I found in flower when there, a week since. Odontoglossums were in different houses, as their treatment required a cool or high temperature. There were three varieties of O. crispum in bloom, and two of O. grande, but neither could compare with O. bictonense splendens in 5-inch pots, surfaced with living sphagnum, and 6 inches across. There were some rather uncommon Epidendrums, including E. prismatocarpum, E. variegatum, E. verrucosum, and the older E. vitellinum majus, all well grown and bloomed,

though not large specimens; the last seemed the sweetest scented. A few of the Oncidiums were blooming, amongst the rest O. divaricatum, O. leucochilum, and O. incurvum. Cœlogynes were represented by C. cristata Lemoniana, and C. variegata, Miltonia Morelliana, a very fine specimen. Masdevallia Veitchiana seems ever in bloom, but hardly as fine as its hybrid friend, M. Chelsoni. A few of the Cattleyas were showing their brilliant tints, among the rest a fine C. bicolor, C. Mendelli, and some promising hybrids of Mr. Dominy; Lælia Dayana, the too seldom seen Mesospinidium vulcanicum—very effective, with all the newer hybrid Nepenthes, Cypripediums, &c. However, Mount Merrion is particularly distinguished for Darlingtonias, having a whole house for themselves. Many had thirty pitchers, from 6 inches to 3 feet high, with lovely shades of crimson, white, and green. *W. J. Murphy, Clonmel.*

Vanda Lowei.—There are now flowering in the Victoria Nurseries, at Holloway, two plants of this remarkable Orchid: one has two spikes, the other one; the smaller plant is a very fine variety, and is preferable to the old form. There are also several other interesting things in bloom, among which may be mentioned Warscewiczella Wendlandi and Epidendrum Wallisi.

The Flower Garden.

Pelargonium Indian Yellow.—This being a very free-growing, profuse flowering, and effective bedding Pelargonium, the wonder is that it is not more widely known and grown than it appears to be, judging from the fact that we seldom meet with it in our rambles. This is all the more remarkable, seeing that, in addition to the good points above indicated, the colour—a yellow-scarlet—is strikingly distinct from any other bedding Pelargonium that we are acquainted with. In habit of growth and form of leaf Indian Yellow, which I believe was raised by the late Donald Beaton, very much resembles Vesuvius, but far surpassing it in profusion and size of flower. Beds of it just now are greatly admired, as they have been for week's past—the large masses of subdued scarlet being very telling when contrasted with those of bright scarlet (Tom Thumb), pink, &c. Therefore it is with the object of extending its culture—or, more correctly speaking, with a view to raising such an excellent bedding Pelargonium from comparative obscurity—that these notes are penned. *H. W. Ward.*

Calceolaria amplexicaulis. — This is one of those good old plants that is not so extensively cultivated and consequently not so frequently met with in the flower garden as it deserves to be. Yellow—not that objectionable glaring colour so frequently associated with the inmates of the flower garden, but a soft yellow—being indispensable in an agreeable floral display in the garden during the summer and autumn, the plant under notice is the one *par excellence* for supplying that colour. Moreover, it is a good and sure grower, and the shoots, pliable to peg down, flower well; the character of the plant in general being such as not to cause any apprehension regarding blanks occurring in the beds, through the plants (as is the case with other varieties) dying through some cause not yet satisfactorily explained. Cuttings taken off the end of this, or beginning of next month, and inserted, 3 or 4 inches apart, in a cold frame, placed in a south aspect, watered, and shaded from bright sunshine, will root in a few weeks. Prevous to the cuttings being put in a couple of inches of short dung should be placed in the bottom (which should be hard) of the frame; then a like complement of soil and loam, and, lastly, a surfacing of sand, which, as the cuttings are being inserted, will be worked in around them. When they have taken to the soil the sashes should be drawn off on every favourable opportunity, to prevent the plants being drawn, putting them on again at night, and covering with mats and Fern in the event of frost setting in. *W.*

Lobelia pumila magnifica.—This is one of the best dark blue Lobelias in cultivation, and has been very much admired this season on account of its even habit, profusion and colour of flowers. Plants of it taken up now and potted in 48's in light soil, stood in a pit or frame, watered and shaded from bright sunshine for a few days, will soon take to the soil, the roots and tops being trimmed alike before being potted. These plants should be wintered the same as Pelargoniums, and by putting them into heat in spring will then supply plenty of cuttings for propagating. *H. W. W.*

Grapes and Vineries.

Vines.—The earliest vinery will now have lost most of the foliage; but where it is still green it is a good plan to shorten them back—say half prune them—to let in all the light and air possible, to plump up the buds. Leave the front and back ventilators open night and day, and water the border inside with clear cold water when dry. Houses in which ripe fruit is hanging must be kept cool and dry, and have plenty of air on the front and back ventilators when the external atmosphere is bright and dry, but on dull or foggy days do not give much air, and that on the back ventilators only. Late Hamburghs will now be ripe, and will not require much more fire-heat after this time, and only on dull or wet days, to dispel the damp. If the inside border is dry, water with clear tepid water, choosing a bright day, so that the extra surface moisture can dry up before evening. If the fruit is required to be kept as late as possible, cover the outside border with shutters, to throw off the autumn rains. All Muscats should now be ripe, for if they are later they never keep so well, and the temperature can be steadily reduced, and rather more air given on bright dry days; but they will not require so much air as the other late-keeping varieties, for if they are exposed to cold draughts the berries will turn brown, and not keep so well. To keep the berries plump give the border sufficient water of the same temperature as the house. If any Muscats are late, and not finished, keep the house as advised in my last Calendar until they are ripe. All late varieties of Grapes for keeping through the winter should now be ripe, and can have the temperature steadily lowered; and if the inside border is dry, water with clear tepid water of the same temperature as the house, and cover the outside borders with shutters if the autumn rainfall is excessive; for if the outside border is wet now it will be sufficient for the Grapes until they are cut. If the border is dry it would be better to water it with tepid water, and then place on the shutters. Give air on the front and back ventilators on all favourable occasions, and use a little fire-heat on dull days to dry up the damp. Any other varieties of late-keeping Grapes that are not yet ripe must be kept as advised in my last Calendar. Young Vines from which the fruit is cut, if extra strong in growth, will be better with a little fire-heat in the daytime until the wood is well ripened, with plenty of air on the front and back ventilators; and when the border is dry, water with clear water. Early pot Vines for fruiting next year that are placed outside must not be allowed to get dry at the roots, and should be tied so that the winds cannot damage them. Planting canes can be placed outside, as the frost will not hurt them if the pots are buried in Cocoa-nut fibre, or sunk in the soil. *Joshua Atkins.*

The Hardy Fruit Garden.

We have just experienced a fortnight of delightful, bright autumn weather, which has greatly assisted the ripening of late fruits, and effected, to a great extent, a well-ripened condition of the wood where exposed. Peach trees, from which the crops are cleared, should be syringed during dry and warm weather, to keep the foliage clean and free from insects. Continue to pinch closely any newly made growth on all fruit trees.

Trees that have made a too vigorous growth can now have their roots operated upon, and so check it, so that fruit-bearing wood may be secured. A trench should be taken out at a distance from the stem of the tree—the distance to be determined upon according to the size of it—sufficiently deep as to cut through all spreading roots; then remove the surface soil, and gradually but carefully fork away the soil from between the roots, so as to ascertain the whereabouts of any that have taken a downward course: these should be severed quite close to the tree. It is these that are generally the immediate cause of the evils to be remedied. The horizontal roots and those near the surface must be carefully preserved, and will require simply a clean cut with the knife where the spade severed them in taking out the trench. The extent to which a tree must be root-pruned depends upon the vigour of the tree and the quality of the roots; an excessive pruning may cause a general decline, or require several years to recover from the effects. In practice it will be found that a tree may be made productive, by simply lifting and replanting. The operation should be performed expeditiously, the soil replaced and made firm. The earlier in the season it is done, the better chance the trees have of making new roots before the winter sets in, and consequently there will be less risk to the crop the following season.

Grub up old trees where it is intended to plant new ones. I prefer planting young trees to grafting on old stools, especially now fine healthy bearing trees can be secured from any nurseryman at a moderate price.

Trench and prepare ground for new plantations by draining, manuring, and the addition of soil, if the natural soil is unsuitable for the growth of fruit trees. A good heap of soil should be prepared in readiness for use when planting. It is desirable to despatch the order for fruit trees early to insure the best, as naturally the worst if any are left till the last.

Make gatherings of Apples and Pears as they become fit, but do not remove any from the tree too soon, otherwise they will shrivel. By gathering Pears a few at a time of each kind, the season of each will be much extended; we have had Williams' Bon Chrétien in use for more than a month, and some are on the trees still. Beurré d'Amanlis, and Louise Bonne of Jersey we have ripe, but the majority of the crops are still on the trees, and will be gathered at several times; we have also made a first gathering of Muirfowl Egg, Marie Louise, and Beurré Diel. The above varieties carry us on through the next two months. The past fine weather has done much towards swelling the fruit and colouring it.

The fine season has made the wasps very troublesome, and it will be found necessary to bag and net up late Peaches, Plums, and Cherries, to save them. Remove the nets from fruit trees immediately the crops are cleared, and any netting still left out on quarters or walls not required, should be taken indoors the first opportunity of getting them dry. Filberts and Cob nuts should now be gathered, and Walnuts at the end of the month.

The spell of dry weather has afforded a capital opportunity for the weeding of fruit quarters and borders, which will now remain clean for the winter. *D. C. Powell, Powderham Castle.*

The Peach Curl.—Dr. B. D. Halstead, of New York city, who is especially skilled in that branch of science which includes the injurious fungi, has forwarded us a letter, from which we quote:—"This injurious deformity of the Peach leaves has been ascribed to plant lice and other insects, but is now known to be caused by a minute fungus known to science as Taphrina deformans. This minute parasitic plant makes its appearance in early spring, and causes the foliage, as stated in your bulletin, to twist and curl out of natural shape. The fungus is not distantly related to, or causing the black-knot of the Plum and Cherry trees, and the same remedy is the only one used, as far as I know. Remove all the affected parts so soon as they appear, and burn them. It is best to cut off the young twigs bearing the 'curled' leaves, and this can be done quite rapidly. Be sure and burn all parts removed, to prevent the ripening of spores in the infested leaves." The progress of a fungus disorder is extremely insidious. If the spores are allowed to ripen there is a liability of rapid and extended dissemination, which at times appears mysterious in its character. The only safety, therefore, in dealing with fungi is in the removal, but equally as important the absolute destruction, as by burning, of the portions removed. Carelessness in the destruction will make of no avail the benefits following removal. Neglect on this score is responsible for many a failure in attempts at growing Plums, the black-knot being cut away as fast as it appears, but the labour being lost and disappointment ensuing through neglecting the gathering together of the diseased portions, and destroying them. Although a fungus is a parasitic life it is as well a vegetable life, and hence we can hardly expect its destruction through poisons without destroying the tissue within which it forms its nidus. Vigorous growth will, however, often protect a tree from destruction by a fungus with which it is infested. But this, however beneficial, cannot be depended upon as an absolute remedy. Weakened trees, and unthrifty trees, are especially subject to fungus injury, and as well show the effects of the injury sooner than would a more vigorous tree. Hence thrifty growth, in conjunction with the early removal of diseased parts, becomes the remedy from which, if there is no neglect, good results can be anticipated. *E. Lewis Sturtevant, Director of the New York Agricultural Experiment Station.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Sept. 24	Sale of Dutch Bulbs, at Protheroe & Morris' Rooms Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Sept. 25	Sale of Ferns and Roses at Sims' Nursery, Foot's Cray, by Protheroe & Morris. Sale of Building Land at Stratford, by Protheroe & Morris.
WEDNESDAY,	Sept. 26	Sale of Winter-blooming Plants at Woodroffe's Nursery, Harrow Road, by Protheroe & Morris. Sale of Nursery Stock at the Royal Norfolk Nurseries, Norwich, by Protheroe & Morris (two days). Sale of Dutch Bulbs, at Stevens' Rooms.
THURSDAY,	Sept. 27	Sale of Exhibition Plants at Peed's Nursery, Streatham, by Protheroe & Morris. Sale of Bulbs, at Protheroe & Morris' Rooms. Sale of Nursery Stock at the Royal Norfolk Nurseries, Norwich, by Protheroe & Morris. Sale of Imported Orchids, at Stevens' Rooms. Great Sale of Lælia elegans, at Protheroe & Morris' Rooms.
FRIDAY,	Sept. 28	Sale of Nursery Stock at Herbert's Nursery, Streatham. Sale of Scientific Instruments and Miscellaneous Property, at Stevens' Rooms.
SATURDAY,	Sept. 29	Fungus Foray in Epping Forest. Sale of Dutch Bulbs, at Stevens' Rooms. Sale of Bulbs, at Protheroe & Morris' Rooms.

WE are glad to be enabled to publish the following official circular relating to the NATIONAL APPLE CONGRESS, to be held at Chiswick from October 4th to 18th next. It will be seen that the main object of the "Congress" is to secure as perfect a display of Apples as possible, with a view to the identification of sorts and to the adjustment of synonyms. So far good, but the word "Congress" implies something more than a mere display of Apples, and we trust that some arrangements will be made for utilising the great display that will doubtless be made. If not, we fear the benefit that will accrue will be small, and that the opportunity may be, to a large extent, wasted. To carry out the spirit of the programme the exhibition should include specimens of the wood, buds, and foliage of the various kinds exhibited, as well as of the stocks employed, together with illustrations of the methods of pruning, training, grafting, &c., best suited to particular circumstances.

Exhibitions of samples best suited for particular localities and for special purposes, as for kitchen use, for dessert, for orchards on a large scale and for market purposes, as well as for smaller fruit gardens, and particularly for cottagers, should be arranged. It is especially desirable that exhibitors should specify, as far as possible, which varieties are the best for packing, and those which best bear the inevitable vicissitudes of travelling. It is, moreover, a matter of great importance to record those varieties which are latest in their period of blossoming, and which may therefore be relied on to escape injury from late frosts. From this point of view the question of stocks becomes one of great interest, for it is certain that the "habit" and fertility of the Apple are greatly influenced by the character of the stock.

The Apple crop, when we get one, is so important commercially and economically that every means should be taken to classify and arrange the specimens for the purposes we have indicated. If no arrangement of this nature is made, and the exhibition is limited to the display of so many hundreds of dishes of Apples without method or order, the result will be trifling compared with what might and ought to be attained, and the benefit to all but a very few will be of the slightest, while even the few experts would be thankful for some scheme or method of arrangement which will enable them to profit by what they see with the greatest facility and the least loss of time. It is possible that these requirements have been foreseen and provided for, but there is no definite indication given in the circular as to any scheme of arrangement. It may be that the limited time at the disposal of the committee will prevent any elaborate scheme of this kind being carried out. This may well be, for we see that only one clear day is allotted between the final period for the reception of specimens and their display.

If this is so, then the only thing that can be done—and, at all events, and in any case, we earnestly trust it will be done—is to commission a small body of experts to make a thorough examination of the specimens exhibited with a view to the publication hereafter of a properly digested and well arranged report, conveying the kind of information which we have hinted at, supplemented by anything else that may be desirable. It is true that the horticultural Press may be trusted to give reports of the exhibition, but those reports must be prepared in haste, and must, owing to the exigencies of journalism, be of a more or less superficial and incomplete character.

The Royal Horticultural Society deserves credit for affording every facility for carrying out the exhibition, but that is not all that is expected of a body which represents the horticulture of the country. A mere exhibition is no more useful than would be the scattering on a table of the letters of the alphabet, or the pieces of a child's puzzle. To turn the valuable ore to account the smelter, the forger, the machinist, are required. In this case the growers and exhibitors will contribute the raw material of their abundance—it is for the Fruit Committee, or some other competent body, to turn it into account; and if they do not, as we have said, a fine opportunity will be wasted.

Although called a "Congress," we see no provision made for any general meeting or meetings for discussion on the part of those competent and interested, but such a meeting might well be held towards the close of the exhibition, when a general summary of results might be given.

The following is the text of the circular above alluded to :—

"At a meeting of fruit growers, held at South Kensington, in conjunction with the Fruit Committee of the Royal Horticultural Society, on September 11, it was decided to hold a conference on Apples in the great conservatory of the Society at Chiswick from October 4 to 18 next.

"The unusually abundant crop of this year affords a favourable opportunity for examining the numerous varieties cultivated throughout the country; to correct their nomenclature, and to compare their merits. For this purpose the Council of the Royal Horticultural Society have given the use of their great conservatory, and the collection of Apples grown in the garden, which contains many typical varieties, will be available for comparison.

"This Conference will not take the form of an ordinary exhibition, as there will be no competition and no prizes, the sole object being to seize so favourable an opportunity of gaining information, and making the meeting instructive and educational.

"All fruit growers are invited to send, and the more widely the collections are procured the greater will be the interest the exhibition will create. It is very desirable, therefore, that every collection should be accompanied with as much information as can be furnished with regard to soil, exposure, and physical conditions of the districts from which they are gathered. No limit will be put upon the number which any one may see fit to send, and it is not at all necessary that they should be the product of his own grounds. The committee desire that an effort be made to procure representatives of all the varieties that are grown in the various districts, and that all *should be distinctly labelled with the name or names under which they may be known in their respective localities.*

"As the specimens sent are strictly for examination, they must necessarily be at the disposal of the committee where required.

"All packages addressed to the Secretary must be delivered on or before October 3. Exhibitors staging their own fruit may do so on the 3d or morning of the 4th, to be ready for the inspection of the committee. Notice of intention to exhibit must be given to Mr. BARRON, Royal Horticultural Gardens, Chiswick, not later than September 29, stating the number of varieties to be exhibited, or the amount of space that will be required.

"All exhibitors will be admitted to the gardens free, and they will receive a certain number of tickets, according to the extent of their exhibits, for the admission of friends.

"Growers of fruit will have in this exhibition an opportunity of correcting or verifying the nomenclature of their fruits by bringing specimens with them and making a personal comparison.

"The following gentlemen have been appointed a committee to carry out the objects of the Congress in various parts of the country :—

Blackmore, R. D., Teddington.
Britcher, G., Tunbridge.
Brotherton, R. P., Tyninghame.
Bunyard & Co., Nurseries, Maidstone.
Burnett, J., The Gardens, The Deepdene, Dorking.
Cheal & Sons, nurserymen, Crawley, Sussex.
Cranston & Co., nurserymen, Hereford.
Dancer, F. N., Little Sutton, Chiswick.
Dickson, F. & A., 106, Eastgate Street, Chester.
Dickson, James, 108, Eastgate Street, Chester.
Dickson, A., & Sons, Newtownards, Belfast.
Dunn, M., The Gardens, Dalkeith Palace, N.B.
Fisher, Son, & Sibray, nurserymen, Sheffield.
Garland, John, The Gardens, Killerton, Exeter.
Gilbert, R., The Gardens, Burghley, Stamford.
Goldsmith, G., The Gardens, Hollanden, Tonbridge.
Graham, John, Canford, Hounslow.
Grieve, Peter, Bury St. Edmunds.
Harrison & Sons, nurserymen, Leicester.
Haycock, Charles, The Gardens, Barham Court, Maidstone.
Hibberd, Shirley, Brownswood Park, Stoke Newington.
Hogg, Dr. Robert, 171, Fleet Street, E.C.
Jefferies, John, & Sons, nurserymen, Cirencester.
Jefferies & Sons, nurserymen, Oxford.
Jones, T., The Royal Gardens, Frogmore.
Killick, Lewis A., Langley, Maidstone.
Lane, H., & Son, nurserymen, Berkhamstead.
Laxton, T., Bedford.
Lee, Chas., & Son, The Nurseries, Hammersmith, W.
Lee, John, 78, Warwick Gardens, S.W.
Miles, G. T., The Gardens, Wycombe Abbey, High Wycombe.
Ormiston & Renwick, nurserymen, Melrose, N.B.
Pearson, J. R., The Nurseries, Chilwell, Notts.
Paul & Son, The Nurseries, Cheshunt.
Paul, Wm., & Son, The Nurseries, Waltham Cross.
Poynter, Robert, nurseryman, Taunton.
Rivers & Son, The Nurseries, Sawbridgeworth.
Roberts, J., The Gardens, Gunnersbury Park, Acton.
Ross, Charles, The Gardens, Welford Park, Newbury.
Rutland, F., The Gardens, Goodwood, Chichester.
Saltmarsh & Sons, The Nurseries, Chelmsford.
Shingles, Thomas, The Gardens, Tortworth Court, Gloucester.
Smith, James, The Gardens, Mentmore, Leighton Buzzard.
Smith, R., & Sons, The Nurseries, Worcester.
Stevens, Z., The Gardens, Trentham, Stoke-on-Trent.
Strickland, Sir Charles, Bart., Hildenley, Malton, Yorkshire.
Turner, Charles, Slough.
Veitch & Sons, nurserymen, Chelsea, S.W.
Wheeler & Son, nurserymen, Gloucester.
Woodbridge, John, The Gardens, Syon House, Brentford.

"Any further information that may be required may be obtained on application to the Secretary, Mr. A. F. BARRON, Royal Horticultural Gardens, Chiswick; or to Mr. L. A. KILLICK, Langley, Maidstone."

At a meeting of the sub-committee, held at the Royal Horticultural Society's Gardens, Chiswick, on the 18th inst., JOHN LEE, Esq., in the chair—and of which we received intimation since the above was written—it was decided that exhibitors be requested to send not less than two fruits of a kind, or more than six, for the purpose of examination.

All packages should be addressed to the Secretary, Mr. A. F. BARRON, Royal Horticultural Society's Gardens, Chiswick; the charges for carriage of the same will be defrayed by the Society.

Admission to the public will be 1*s.* on the 4th, and 6*d.* on other days.

—— INTERNATIONAL HORTICULTURAL AND FORESTRY EXHIBITION.—We have been requested by Mr. WILLS to publish the following communication received by him :—

"My dear Sir,—I am desired by Mr. BIRKBECK to inform you that a preliminary meeting was held here yesterday on the subject of the International Horticultural and Forestry Exhibition, when, after a long and exhaustive discussion, it was unanimously decided that, having in view the vast amount of preparation necessary for its success, especially with reference to forestry, it would be impossible to hold it at so early a date as next year, and that much more good would be done, and the chances of success much greater if it were postponed to the year 1885, which it was accordingly decided to do.

"I am to request, therefore, you will use your influence to notify this fact; for it is certain that, even with this additional time before us, due notice should be given to the trade that it is intended to hold such an exhibition in the spring, summer, and autumn of the year 1885.

"EDWARD CUNLIFFE OWEN,

"*Secretary to Chairman, International Fisheries Exhibition, South Kensington, S.W., Sept. 13.*"

—— NEW AËRIDES. — The magnificent new Aërides in flower offered by Messrs. F. SANDER & Co. at STEVENS' Rooms on Wednesday, after a very spirited competition fell to Sir TREVOR LAWRENCE

FIG. 57.—CATTLEYA WARNERI: FLOWERS ROSY-LILAC, LIP CRIMSON. (SEE P. 372.)

for 235 guineas. The robust growth of the plant is that of a very strong A. quinquevulnerum, and the pure white and carmine flowers, which are each 1½ inch long, seem a combination of all that is beautiful in A. odoratum and A. falcatum, with a trace of the widely inflated centre of A. crispum. Briefly the plant may be described as the best and most beautiful Aërides ever introduced.

—— THE INTERNATIONAL POTATO SHOW.—A sight of the schedule of prizes offered by the committee of the International Potato Show at its recent exhibition can hardly have failed to make the mouths of secretaries of other shows to water. Probably the schedule is, as far as the prizes are concerned, quite unique in its kind, for of over £140 offered, only 20*s*. of the entire amount was furnished by the committee out of current income, the rest being given as special prizes by numerous donors. The securing of these special prizes has from the first been the intention of Mr. McKINLAY, who has always proved singularly successful in the discharge of that important duty, and in doing so has obtained for himself numerous friends. Having regard to the marked success that has attended that gentleman's efforts from the first, as has been from time to time shown in the really grand exhibitions of his favourite esculent, the Potato, the most recent of which we fully reported upon last week, it is not a matter for surprise to learn that some who have watched and appreciated those efforts to the full have thought that the time had arrived when some tangible effect should be given to their admiration for zeal and labour of the most disinterested and enthusiastic kind. The show next year will complete the decade. It will, as has already been publicly promised, be honoured with the patronage and presence of the Lord MAYOR of London—perhaps the last of his peculiar race—and not least, all continuing well, that Lord MAYOR will be Mr. McKINLAY's own ward alderman, and as such standing towards the subject of these remarks in close social and municipal relationship. These things in combination point to next year as presenting a fitting time to honour specially the real father of the Potato show.

—— HORTICULTURAL EDUCATION.—Farmers are at length awakening to the imperative necessity of developing their resources by this means, and the gardeners must follow suit. We have often had occasion to lament the want of proper education for gardeners in the principles of their art, and have pointed to the well-equipped schools of horticulture in Belgium and others countries. Now the facilities of obtaining such education are happily increasing. To say nothing of the agricultural colleges, there is the Institute of Agriculture, which we alluded to last week; the School of Gardening at the Crystal Palace; and now we have before us the programme of a system of education adapted alike for agriculturists and gardeners, carried out at the Birkbeck Institution, Southampton Buildings, Chancery Lane. Mr. DAVID HOUSTON is about to begin a series of lectures, and demonstrations on Elementary Botany and the Principles of Plant Cultivation. The fees are very low, and the time selected so as not to interfere with the day's work. The text-book for Vegetable Physiology is Dr. MASTERS' *Plant Life;* that on Chemistry, *The Chemistry of the Farm*, by Mr. WARINGTON. We learn that these classes are well attended, but that gardeners constitute the smallest number of the students, albeit the subjects treated of are calculated to be as useful to them as to agriculturists.

—— LONDON TO CALCUTTA IN A WEEK.—Mr. BOURNE, C.E., the Principal of the new Engineering College at Muswell Hill, contributes to the *Chamber of Commerce Journal* for September an article descriptive of a proposed new junction railway intended to unite the railways of Europe with those of India, and which will so accelerate communication between the Eastern and Western worlds that by its aid we shall be enabled to travel from London to Calcutta in a week! The European system of railways is now complete or being completed up to Constantinople. The Indian system is complete up to Sibi on the road to Candahar, and the junction link now proposed between these two points, and which would be 3000 miles long, or of the same length as one of the railways across America, would run from Constantinople through Angora, Sivas, Van, Tabreez, Teheran, Meshed, Herat, and Candahar.

—— A NATIONAL SANITARIUM.—The acquisition of the extensive grounds of the Alexandra Palace by the London Corporation as a public park is at present under consideration, and is said to be favourably regarded—Lord SHAFTESBURY and other influential persons having urged the expediency of the purchase in the interest of the public at large, and especially in that of the great suburban district on the north of London, now being covered with houses at so rapid a rate. Some demur, we understand, has arisen in regard to the palace itself, for which it was apprehended no remunerative use could be found, as it has failed as a place of amusement in successive hands. Mr. BOURNE, C.E., the Principal of the new College of Practical Engineering at Muswell Hill, suggests that a portion of the palace building should be converted into a great sanitarium, the residue being devoted to popular amusement and instruction as heretofore; and he reckons that by the introduction of this new feature the total receipts will be so much increased that the scale will be turned in the right direction. Certainly there is no sanitarium in England such as the Palace thus utilised would constitute. It is heated throughout by hot-water pipes, so that an equable temperature can easily be maintained throughout the year, while its spacious halls, conservatories, theatres, &c., would afford ample space for valetudinarians to walk about in, and take any exercise suited to their condition, or to mingle with amusements so far as they might feel disposed, enjoying all the while a genial climate without having to go abroad in search of it.

—— CINCHONA IN BENGAL.—The total number of Cinchona trees of all sorts, according to Dr. KING's annual report to the Government, at the close of the year was 4,711,168, namely, red (Cinchona succirubra), 3,713,200; yellow (Calisaya Ledgeriana), 662,998; hybrid unnamed variety, 304,378; and other kinds 30,592. The crop of the year is the largest that has yet been harvested on the plantations. It amounted to 396,980 lb. of dry bark, of which 372,610 lb. were of succirubra, 22,120 lb. of Calisaya and Ledgeriana, and 2250 lb. of hydrid bark. By far the largest portion of the produce was made over to the factory for conversion into Cinchona febrifuge, while about 41,800 lb. of yellow and red barks were sent, at the request of the Secretary of State, to London, to be there converted into various forms of febrifuge and returned to India for trial by the medical department. It is disappointing to notice the continued failure of Carthagena bark, notwithstanding that the utmost care has been taken of the plants and every endeavour made to grow them at various elevations and with various exposures. An attempt has been made by the superintendent to introduce the Remija plant, which belongs to a genus botanically allied to Cinchona. It is said to be less particular than Cinchona as to soil and climate, and produces a quinine-yielding bark under the name of Cuprea. This bark forms a very large proportion of the quantity of quinine bark imported into Europe. Dr. KING has eventually succeeded in obtaining an analysis of the bark renewed on succirubra trees that had their original bark removed by the shaving process introduced by Mr. MOENS, the distinguished Director of Cinchona Cultivation to the Dutch Government. It appears that this process consists in shaving off the greater part of the bark of a living tree to the height of from 8 to 10 feet from the ground, care being taken to leave everywhere a sufficiently thick layer of bark to cover the wood. This method has had a fair trial on the Sikkim plantations, and the result has, beyond doubt, been favourable, as the bark renews perfectly. What, however, remained to be seen was, whether the renewed bark was as rich in medicinal alkaloids as the original. It was with the object of determining this question that the analysis above referred to was undertaken during the year. The results are thus described by Dr. KING:—"The bark renewed rather slowly, but the analysis shows that it is very rich both in quinine and cinchodine; and there can be no doubt that in countries where red bark trees are perfectly at home, and where their continuance in good health and vigour for a long series of years can be absolutely counted on, this shaving process must be a very excellent one."

—— CYCAS REVOLUTA.—So popular and ornamental a plant as this is probably absent from few places; but subjects of this nature being most highly valued in a small state, are seldom retained in private gardens till they attain flowering dimensions (number and neatness being the object aimed at, especially where house-room is limited). In the fine collection in the Palm-house at Kew, a female fruiting plant at the present time attracts a fair share of attention from visitors. Owing to the height of the stem (about 6 feet) and the depth of the tub in which it is grown, as well as the broad spreading crown of leaves, the remarkable inflorescence is partly out of sight, and consequently not so conspicuous as desirable. Moreover the bright red seeds nestling amongst the lower divisions of the morphologically modified floral leaves just excite enough of curiousity to see and know more. These leaves being produced in a dense terminal crown or tuft, and being densely covered with a rusty coloured wool, have a plume-like and highly ornamental character.

—— MUCUNA IMBRICATA.—Amongst the large number of climbers cultivated in the great Palm-stove at Kew, the subject of the present note is certainly one of the most curious and attractive. At a short distance its long-stalked pendulous racemes of large closely-packed flowers look singularly like bunches of black Grapes. At one time this species was mistaken for M. prurita, an East Indian species, which, like the West Indian M. pruriens, furnished the cowage or cow-itch of the Materia Medica, a celebrated remedy for intestinal worms.

—— CROCUS VALLICOLA.—In the Kew Crocus collection, which has lately been entirely re-arranged under Mr. MAW's supervision, in accordance with the classification devised by that gentleman, Crocus vallicola is now finely in flower. It is a handsome species, with pale cream-coloured flowers internally veined with purple and marked with two small orange-coloured blotches near the throat. It is a native of the Alps of Trebizond and Lazistan, at altitudes of from 6000—7000 feet.

—— MONTBRETIA ROSEA. — Although this is an old plant its merits seem to be overlooked, or its hardiness ignored, in gardens generally, otherwise its handsome rose-coloured flowers, abundantly produced in branching panicles, should secure the favour of every hardy plant lover. In the herbaceous ground, Kew, where it has been flowering alongside of M. Pottsii, the flowers are much larger than those of the latter species, more regularly funnel-shaped, beautifully feathered with dark veins on a paler ground, and marked on the three lower segments with yellow club-shaped stripes margined with red. It is a suitable companion for M. Pottsii, requiring the same simple cultural treatment in a light, rich, and rather warm soil. It is also known as Tritonia rosea.

—— ACER CIRCINATUM.—This Maple is one of the most desirable of hardy small-sized trees for planting for colour effects, both in spring and autumn. In spring the rich green of the young foliage contrasts strikingly with the deep red of the large bud-scales and flowers, and in the autumn months the rich colours assumed by the decaying leaves—a series of shades of red and crimson—render bushes of this species most attractive in the shrubbery border. Moreover the slow growth and neat habit combine to make it a most desirable plant as a single specimen on a lawn, particularly if planted with a dark evergreen background, so as to show off its beauties to the best advantage.

—— IPOMŒA FILICAULIS is a graceful and elegant climber, with very slender wiry stems, tiny sagittate leaves, and pretty, dark-eyed, cream-coloured flowers. It is a very widely distributed annual, being found wild in India, the Malay Archipelago, Australia, Africa, and also in the warmer parts of the New World. As a warm-house plant for summer decoration I. filicaulis is well worth growing, and as it requires but very little room the objections on the score of space brought against so many handsome members of the Convolvulus family do not apply in this case. Now in flower in the stove at Kew.

—— ROCKWORK. — Whether composed of real stone, or the material now so well made in imitation, the introduction of this kind of garden embellishment is as much dependent for success on suitability of situation, as it is on skilful construction. Either of these being wanting, the result ends in failure. Within comparatively recent years a decided advance has been made in this kind of work, both in regard to the

selection of the materials, and in putting them together in a way to give a natural effect, but it is no unusual thing to see elaborate constructions of this kind introduced where they become incongruous. As opposed to this may be named the rockwork in Miller Park, Preston. A few years back the railway company constructed an additional high embankment through these beautifully situated grounds, which, needless to say, was the reverse of an improvement. Here was something that it would be an advantage to even partially hide, with a good substantial background against which to place the work. The neighbouring quarries of Longridge afford the best of material, both as to size, colour, and everything required in stone for such purposes. The work has been done to as nearly imitate Nature as possible, and now that the dwarf shrubs, Ivy, and other plants used to give the partial covering necessary have had time to grow, the whole has a pleasing and effective appearance.

—— Angelonia grandiflora. — Under this name there is growing in the Portland Nurseries of Messrs. Sutton & Sons, at Reading, a charming plant, bearing spikes of small Tigridia-like flowers, purple with a white lip; and so free of bloom is it that the stems of the flower-spikes throw out lateral growths that in their turn become spikes of flower. The genus is generally regarded as embracing a section of stove herbaceous plants, but here it is treated as a half-hardy annual, growing freely and blooming abundantly in the open ground. It is well deserving of notice as a subject for pot culture. It can be raised from seeds, as the plants at Reading were; and any one who may be disposed to make a trial of it will find in it a subject of considerable floral interest.

—— Essex Field Club. — The fourth annual cryptogamic meeting of the Essex Field Club will take place in Epping Forest on Saturday, September 29. A large number of botanists have promised to be present and act as referees. In the evening a meeting for the exhibition of botanical specimens will be held in the assembly room at the Roebuck Hotel, Buckhurst Hill, when the following papers will be read: — "Recent Additions to the Fungus Flora of Epping Forest, by Dr. M. C. Cooke, M.A., F.L.S.; "The 'Lower Orders' of Fungi," by Worthington G. Smith, F.L.S.; and "Fungi as Poisons," by Dr. Wharton, M.A., F.L.S. Botanists wishing to attend, or willing to assist by exhibiting specimens, &c., should communicate with the Hon. Secretary, Mr. W. Cole, Buckhurst Hill, Essex.

—— Metrosideros buxifolia.—In some books this plant is described as synonymous with M. scandens, and is stated to be a climber attaining a height of 10 feet. Many of the species reach and exceed that height, but are evergreen trees or shrubs, of self-supporting not climbing habit. As seen in a small state it betrays no tendency to assume any other habit than that of a close branching densely leafy bush. The flowers in several, and probably in all the species owe their characteristic colour to the long numerous brush-like bunches of stamens, which in the present instance are white. They are produced in the axils of the upper leaves, often appearing terminal, until by the elongation of the branches this character disappears. M. buxifolia is figured in the *Botanical Magazine*, t. 4515, and is to be seen flowering in the winter garden at Kew. Other species have scarlet or crimson stamens, and the plants themselves are so nearly hardy that they will succeed in a very cool conservatory or greenhouse.

—— Harvesting the Cones and Berries of Conifers.—Although this is an operation the English gardener is seldom called on to perform, except in the case of his having charge of a home nursery, it is still one that he may be called on to carry out should he take foreign service, for the proprietors of gardens and parks there do not rely so much on the nurserymen for their trees and shrubs as is the custom here, but raise a great many of them at home: hence the need of seed saving. As an example, Pinus Strobus may be mentioned; it is a fine park and garden tree, umbrageous when old, picturesque in outline then, and rapid of growth till its fortieth year; for clumps or wayside shade trees it is one much to be recommended, although as a timber tree it is of small value. The cones are ripe in the end of August, and must be gathered as soon as the seeds turn only slightly brown, and before the cones become open: if left on the tree later than this the seed fall out and are lost. Squirrels are sometimes very destructive to this sort and others with largish seeds. When the cones are gathered they must be placed on broad, shallow troughs of wood or metal, or on canvas stretched on frames, in a sunny place in the open. In rainy weather removal to a shed, or covering up securely, must be done. After a few weeks of this treatment the seeds will fall out of the cones in great numbers, but not all; the remainder must be removed by tearing open and beating them. To clean them a few sieves of various sizes of mesh are required, and for large quantities a species of winnower. Seeds of Pinus, Picea, Abies, Wellingtonia, Cryptomeria, and Thuias of sorts, are all manipulated in a similar manner, the chief thing being to observe the time when the seeds begin to turn of a brown colour, then gathering at once. The Juniperus virginiana berries are ripe in October, and can safely be left till the approach of winter; but as they are eaten by birds during hard weather, it is not safe to leave them unpicked much later than the beginning of December. The pulp of this kind of Juniper made into jam is given medicinally in some parts of the Continent in cases of catarrh. It may be remarked that the finest cones, and those which contain the best germinating seeds, are to be found on the tips of the uppermost branches, and on others that are high and well exposed to the sun, so that these should be gathered in preference to those lower down and easier reached. The same remark holds good of most tree and shrub seeds.

—— Illustrations of British Fungi.—Dr. M. C. Cooke has completed the second volume of this great work, and we print the following extract from his preface with the hope that he may yet get more subscribers, though we suspect the small number of subscribers is due partly to the fact that a considerable proportion of the persons interested in fungi are unable to afford to buy the work:—

"At the meeting of the Woolhope Club in the autumn of 1880 the subject (*i.e.*, the publication of figures of fungi) was again considered, and I was induced to commence these *Illustrations* provided a sufficient number of subscribers could be secured to guarantee the continuance of the work, and limit the pecuniary responsibility within reasonable bounds. Although hitherto the receipts have fallen short of the expenditure, the arduous undertaking has been pursued without interruption or recompense until the section Leucospori of the large genus Agaricus has been completed in two volumes, containing 292 plates, illustrating 378 species, with varieties, leaving only about twenty-six species in this section, which have been recorded as British, without figures, including some very doubtful ones. It is probable that some of these may yet be obtained and figured as an appendix. It is intended to proceed forthwith with the publication of *Illustrations* of the remaining sections of Agaricus, which it is estimated will occupy two volumes, including about the same number of plates as the two volumes just concluded. Up to this point it is considered that the *Illustrations* will compare favourably in number with any work hitherto published. Sowerby figured only 165 species of Agaricini, of all kinds; Hussey, 80; Bolton, 108; Bulliard, 287; Krombholz, 230; and Fries' *Icones* include 209 species of the Leucospori; so that already a larger number of white-spored Agarics have been figured herein than all the gill-bearing fungi in Sowerby, Hussey, and Bolton together, or that were contained in the large work by Krombholz. Although this may fairly claim to be a national work, it is remarkable that less than seventy of the inhabitants of the British Islands contribute as subscribers to its success, and its very existence is consequently dependent upon foreign support."

—— A New Mexican Cycad.—Two or three years ago, a Mr. C. J. Hoge arrived in this country from Mexico, bringing, among other objects of natural history, a single plant of an undescribed Cycad, which he offered, at a certain price, to the authorities at Kew; but as they do not purchase expensive novelties, his offer was not accepted. What became of the living plant we do not know, though we know that Mr. Hoge gave Mr. Thiselton Dyer one dried leaf. Now, in the last issue of the *Garten Zeitung*, appears a description of this Cycad by Dr. Eichler, under the name of Dioon spinulosum, Dyer. According to Dr. Eichler, Mr. Dyer's leaf came from the Mexican province of Yucatan, while the first plant received at the Berlin Botanic Garden was obtained, through a Mr. E. Kerber, from a nursery at Cordova, in the province of Vera Cruz, Mexico, and on the authority of the owner of that nursery the plant is wild in ravines near Tuxtla. More recently the Berlin Botanic Garden has received from the same source a consignment of about forty living plants. Hitherto only one genuine species of Dioon has been known, for although Miquel described a D. imbricatum and a D. augustifolium, and Lemaire a D. aculeatum, those authors subsequently reduced the forms to which they had given the foregoing names to varieties of D. edule. The new D. spinulosum differs from D. edule in the segments of the leaf being much broader and invariably armed with thorny teeth. The number of segments, so far as known, is much fewer, less than half the number of those in fully developed leaves of D. edule.

—— Salvia Rœmeriana.—This charming half-hardy perennial scarcely receives the attention it deserves. It is a singularly effective plant, of dwarf growth, close and compact habit, and yielding a profusion of spikes of bright crimson flowers. It is simply necessary to raise the seeds in spring, and plant out in the open ground in good soil. In this manner were raised the plants forming a large group which we saw at Messrs. Sutton & Sons' Portland Nurseries, Reading, a few days ago, and the somewhat dense tufted plants were heavily laden with blossoms.

—— Publication Received. — *Tomatos; a Manual of How, When, and Where to Purchase and Propagate Them.* By George Roberts — *Appendix, Numerous Recipes of their Use in Cookery* (Sully & Ford, Plough Court, Fetter Lane, London, E.C.).

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Sept. 17, issued by the Meteorological Office, London:—The weather during this week has been characterised by clear, fine, and warm days and cool, foggy or misty nights and early mornings, and very heavy dews. Scarcely any rain has fallen, but some local thunderstorms were experienced over England towards the close of the period, that which passed over London during the afternoon of the 17th being accompanied, in the northern suburbs, by unusually heavy rain. The temperature has been slightly below or about equal to the mean in Ireland and the south-west of England, but 1° or 2° above it elsewhere. The maxima were generally registered on the 17th, and varied between 68° and 71° in the western and extreme northern parts of the kingdom, and between 75° and 77° over eastern, central, and southern England. The minima—which were re-recorded on the 12th in Scotland, and a few days later elsewhere—ranged from 45° in "England, S.W.," and 44° in "England, N.E.," to 37° in "Scotland, W." and "Ireland, N.," and to 34° in "Scotland, E." The rainfall has been very much less than the mean in all districts. At most stations in the west of Great Britain the weather was altogether rainless. Bright sunshine shows a decided increase in duration in nearly all places, the percentages varying from 61 in "England, N.W." to 49 in "England, S.W.," and 48 in "Scotland, W.," to 34 in "England, N.E." Depressions observed:—Pressure has been highest over Scandinavia, and rather high and uniform over the whole of our area, but lower to the westward and south-westward than elsewhere. The only depression, in addition to some very shallow ones over England towards the close of the week, was one which was travelling E.S.E. over our southern counties as the week commenced. The winds on the 11th were moderate from the N. on all our coasts, and during the next few days N.E. in the south and east, and S. in the west and north, but subsequently became very light and variable in all districts.

—— Gardening Appointments. — Mr. Frederick Peppitt, who has been Plant Foreman for the last two years at Lockinge Park, Wantage, as Gardener to Mrs. Egerton, Aldwarke Hall, Rotherham. —Mr. J. Wakefield, late Gardener to Mrs. Leigh, Manor House, Ham, as Gardener and Bailiff to E. Pettit, Esq., Broadwater, Oatlands Park, Weybridge.—Mr. Thomas Glen, Head Gardener to Percy Bicknell, Esq., of Foxgrove, Beckenham, Kent, for the last four years, has been appointed to, and taken charge of the gardens at Worth Park, Crawley, Sussex.

THE LARGE FLOWERED CATTLEYAS.—I.

CATTLEYA LABIATA, being the first of the section to be introduced, is the proper one to commence with, the more particularly as it is sought to make it the representative species. Of its introduction but little is known beyond that it was received into this country from Rio about the year 1818; at the same time, or soon after, several other plants of the same species were imported from the same source. On being cultivated each of the plants displayed great dissimilarity from the others either in colour or time of flowering, the famed autumn flowering variety which has obtained such a great reputation, and which seems to get dearer every year, being one of them, the others being summer flowering. Whether the autumn flowering variety is a local form of which all the plants of C. labiata in its particular locality flower at the same time of year, or whether it is a chance plant out of the summer flowering varieties is not known, for although probably no Orchid has been more studied or has had more money expended on it in research, its native habitat has never been found notwithstanding many a venturesome and bootless journey has been undertaken on the strength of what was supposed to be reliable information—one collector more certain of success than all the rest being only rewarded at the end of his journey by the sight of rugged rocks clad with Araucaria brasiliensis and little else. The varieties then of what is called true labiata each sprang from a single parent plant, and the stock now in the country being the result of propagation by division, the species is easily recognised, each of the varieties after its kind; but as we see that every one of the originally imported plants differed widely from the others, does it not point to the fact that in their native habitat they are as variable as any of the other varieties (such as Warneri, Mossiæ, and gigas), which have been placed by botanists as mere varieties of C. labiata, and by reason of that variability it is utterly unworthy to be advanced as the specific type of other varieties as distinct and as well marked as itself. I am not going to question whether many of the showy Cattleyas are or are not of the same species, so far as the botanists can ascertain by the study of the inconspicuous organs; but I am sure that all cultivators will agree with me that they are all distinct enough, for garden purposes, in habit, in plant, and in flower, to warrant us in asking that they may be spared the infliction of the name of that unstable variety labiata on them. In these days we claim to be progressing, it is, therefore, unnecessary for a botanist now to follow an erroneous name merely because it was the name given by one in former times. [It is necessary to point out that the writer has the requirements of the cultivator alone in view. ED.] If we follow the errors or unnecessary elaborations of twenty years ago, what is to prevent us going back a few years more, and calling up the genera Cymbidium, Epidendrum, Limodorum, &c., as they once stood with their bizarre companies? Professor Reichenbach, to whom we all owe so much, has long been at work on a digest of the whole matter; let us hope that he will, aided by the information obtained from the cultivators, with the specimens for which he always craves, be enabled to give us a reasonable set of names for these Orchids in general, and for Cattleyas in particular; and that he will not be tied down by erroneous matter previously written. The following names, which are in general use in collections, and which I am sure will never be displaced by any botanical discoveries, I consider correct, the name C. labiata being given to the varieties from Brazil only, as, whatever the resemblance may be by which the botanist connects them with the other varieties, to the cultivator who studies his plants in all their characteristics at all seasons, they have nothing consistent in common to connect them:—

Cattleya labiata Warneri (fig. 57, p, 369).—This beautiful variety, which has now been in collections a good many years, was first flowered by Mr. R. Warner, and figured in the *Folia Orchidacea*. It was received from Rio, the same locality from whence the old "labiata" came, and in growth, as well as flower, it is evidently a true "labiata." The more common the plant becomes the more evident it is that it, like the old labiata, must be of mixed parentage, as out of fifty plants in bloom at one time probably not two could be selected alike in all points, even the growth differing much, some of the plants being green and others quite red. A good variety of Cattleya labiata Warneri is one of our most beautiful Cattleyas. It succeeds well in pots in fibry peat, the plant being kept high above the rim of the pot. In order to flower it well it should be kept well up to the glass, and shaded only very lightly even in the brightest weather, as few plants are more impatient of shade and a close atmosphere than it is.

C. Mossiæ.—One of the finest of Cattleyas, introduced nearly fifty years ago. It offers a greater variety than any Cattleya, except perhaps C. Trianæ, but no matter what the shade of colour may be, or how the different colours may be distributed, the Mossiæs of all importations are curiosities to Orchid growers, and they run no risk of mistaking them. They are also very constant in their time of flowering. To this must also be added, along with the long list of named and figured varieties—

C. Mossiæ Wagneri, a rare variety, with pure white sepals and petals. I really believe this variety was easier to obtain many years ago than it is now, for I remember getting some good plants of it over twenty-five years ago for Mr. B. S. Williams from Dr. Butler's collection at Woolwich.

C. Mossiæ Reineckiana, a beautiful white variety, with mauve veining in the throat, some very fine plants of which are in Mr. Lee's magnificent collection.

C. Mossiæ alba, also a very rare white variety.

C. speciosissima is another usually referred to the C. Mossiæ, and by the same rule may have the name "labiata" tacked on to it. To a cultivator it is the most distinct of all the Cattleyas, and could not possibly be confounded with any of the others. He would tell you that a boy who knew the plant could pick it out in the dark either in or out of flower. It is a beautiful Cattleya, and under its expressive title, "speciosissima," may well be left to grace our collections without a long string of names which are never used being applied to it. In appearance the plant is more like C. Eldorado than any other, it having the variously shaped rounded bulb and hard texture of that variety; its delightful odour, too, is between that of Mossiæ and that of Eldorado. It is now in bloom with Messrs. Shuttleworth, Carder & Co. C. speciosissima is said to be difficult to bloom, and so I know it to be as a pot plant, but on a block, or in a basket without much stuff around it, and being suspended in a very light or sunny intermediate-house, and kept very wet when growing and rooting, and cooler but yet moist when the growths are fully made, it blooms well. *J. O. B.*

(*To be continued.*)

Notices of Books.

The Fertilisation of Flowers. By Prof. Hermann Müller. Translated and edited by D'Arcy W. Thompson, B.A., Scholar of Trinity College, Cambridge. London: Macmillan & Co., 1883.

The relation between insects and flowers has only been fully worked out in recent years. It is true that references to the visits of insects to flowers for the purpose of obtaining their nectar are by no means rare, even in ancient literature, and they well express the state of science at the time they were written; that is to say, the work of the insect was regarded simply as a search for food, which it found without in any way benefiting its entertainers. Later on, however, when the doctrine of the sexuality of plants had secured a firm foothold, the importance of insects as the agents of fertilisation began to be better understood; but even then it was thought that pollen is dusted on to the stigma merely by the shaking to which the stamens are subjected by insects during their visits, and it was not until the appearance of C. K. Sprengel's *Das entdeckte Geheimniss der Natur*, in 1793, that correct observations were recorded. In this great and original work Sprengel proved (1) that honey-containing flowers are fertilised by one or several species of insect, and (2) that this is effected by the brushing out of pollen on to various parts of a visitor's body, whence it is conveyed to the stigma. Sprengel showed that several hundred kinds of flowers examined by him possess a nectary which secretes honey, a receptacle for its storage, arrangements for its protection from rain, and means by which insects are directed to the store. He also showed the impossibility of many flowers being either fertilised by their own agency or by transport of pollen by the agency of the wind, while he was often an eye-witness of the conveyance of pollen by insects to the stigma. But a most important point was overlooked by Sprengel. He saw that much of the structure, whose meaning he fathomed with such sagacity and patience, tended to the dusting of stigmas with pollen brought from other flowers, and he had some suspicion of the purpose of this; but here he stopped, and it was reserved for Andrew Knight in 1799, and more recently, by a series of masterful experiments, for Charles Darwin, to unlock the mystery by enunciating as a law, applicable to vegetable as to animal life, that "no organic being fertilises itself for a perpetuity of generations, but that a cross with another individual is occasionally—perhaps at very long intervals—indispensable." By aid of this law the reason of insect-agency was fully brought to light.

The enunciation of the Knight-Darwin law of benefit from crossing appeared in the *Origin of Species*, a work which acted like a powerful tonic upon the somewhat enervated constitution of the naturalist. Dormant energies were everywhere aroused, and a school of clever observers appeared recipient of the new views, and desirous of applying them to natural history in all its departments. Under these circumstances Sprengel's work, which had suffered undeserved neglect, received its due homage, and the observations recorded therein were largely added to. Charles Darwin himself led the way with his beautiful book on the fertilisation of Orchids, his steps being closely followed chiefly by Hildebrand, Delpino, Axell, and Hermann Müller of Lippstadt, whose loss we have so recently been called on to deplore.

In Müller's *Befruchtung der Blumen*, which serves as a lay-figure, as it were, to the present volume, we see an able naturalist patiently solving the problems set before him by the aid of wide knowledge of entomology. He prefaces his work with a well illustrated account of the insects which visit flowers; the orders of plants are then treated of *seriatim*, the structure of the flower of each species being explained, and in many cases illustrated; and to this a list of its insect visitors is appended. It may, therefore, be readily gathered that the book teems with the records of careful observation, varying from obvious explanations to the unriddling of such structures as the detaining flowers of the Ceropegias, Aristolochias and Arums, and the deceptive ones of Paroassia, Lopezia, and Solanum Dulcamara; until we reach such a case as the fertilisation of Yucca by the Yucca moth, which demands for its solution capacity for the observation of fleeting phenomena as great as was possessed by Gilbert White. Nor will the practical man be unrewarded by mastering the work. We will give an instance. Every gardener knows that the species of Abutilon are readily hybridised, but are barren if their stigmas be dusted with pollen from the same flower. Now the Abutilons in their native country are well adapted to fertilisation by humming-birds, which perform their task with such diligence and certainty that every stigma must infallibly receive foreign pollen. Under these circumstances the species have lost the now useless faculty for self-fertilisation, and the range of their affinities being widened, we might expect, as indeed is proved to be the case, that hybrids would be readily produced.

Additional value is given to the English edition by including in it many discoveries made subsequently to the publication of the German original, as well as Mr. Darwin's preface, one of the last writings of the illustrious naturalist. To the translator it has evidently been a labour of love; he is to be congratulated on a very fairly rendered text, on the happy inspiration which has led him to rearrange the orders in a sequence familiar to the English reader, and on the useful bibliography at the end of the volume. There are a few slips, as, indeed, is inevitable in a large work of this kind. The hood of Aconites is not formed of two sepals, but by the hinder one alone. Heterocarpæa is not a Leguminosa, nor does Ocimum belong to Verbenaceæ. Cleistogamy is known in the case of just twice as many Orchids as Müller mentions; and while the well known instance of Krascheninikowia is omitted, such unsatisfactory examples as Stapelia and Hoya are included in the cryptogamous list. Mistakes in spelling, like Lesperdeza, Rohdea, and Ceropejia, one would suppose to be oversights, but for their repetition in the index. After all, these are but tiny flies for a jar of such fine honey, and we notice them merely that they may be removed when, as we anticipate and as the work thoroughly deserves, a second edition shall be called for. In the meantime we earnestly recommend its careful perusal by all gardeners interested in the setting of their Grapes, Melons, &c., and especially

to all those engaged in hybridising and raising new forms of flowers, fruits, or vegetables.

Tomatos. By George Roberts.—A short, concisely written pamphlet on this popular fruit, by one who evidently knows a good deal about what he writes. Succinct directions are given as to raising, planting-out, and harvesting the crop, as well as numerous recipes as to the methods of cooking and serving them at table. We quote one on Tomatos stuffed :—"Cut the tops off eight large ones, scoop out the pulp, mix it with an ounce of bread crumbs, one of butter, broken into small pieces, some pepper and salt. Fill the fruits with the mixture, and bake in a moderate oven for ten minutes, or a quarter of an hour." Singularly, none of the sorts popular with gardeners are named; but only such sorts as General Garfield, Jackson's Favourite, and Daniel's Crimson-Green.

BROOMEIA.

IN a recent paper at the Linnean, Broomeia congregata, Berkl., was the subject of inquiry. If the Rev. C. Kalchbrenner and myself had been able to carry out our original idea of publishing an extended paper on the South African Pungi collected by myself there would have been no question as to the outer peridium. My venerable friend has no doubt the MS. notes upon this rarity, which I have sent to Kew, to Vienna, and sundry private mycologues. The fungus arises much as other Gasteromycetes, showing a white flattish-ovoid floccose outer peridium, breaking through the ground under trees of Acacia horrida, W. When by growth the corky cubiculum has reached the surface level the peridium breaks, so far as I have seen, regularly in a circumscissile manner along the lower edge. The loose peridial cap blows away before the wind, or, detained by an unbroken corner, decays *in situ* with with the first damp weather. I send a specimen, upon the surface of which you will find remains of the floccose outer peridium lying upon the aggregated inner ones. *P MacOwan, Cape Town.* [The plant is figured of the natural size in fig. 58. To the right is shown a section with spores magnified; S, P, are the spores, magn. 780 diam.; M is the mouth, detached, from which the spores are discharged, magn. 3 diam.; O, P, is the outer peridium or shell; I, P, the inner peridium; S, T, the stroma or cellular matrix from which the spore-cases arise. In the young state the stroma is continuous with the outer shell at A, A. The analyses and drawings have been made by Mr. W. G. Smith. ED.]

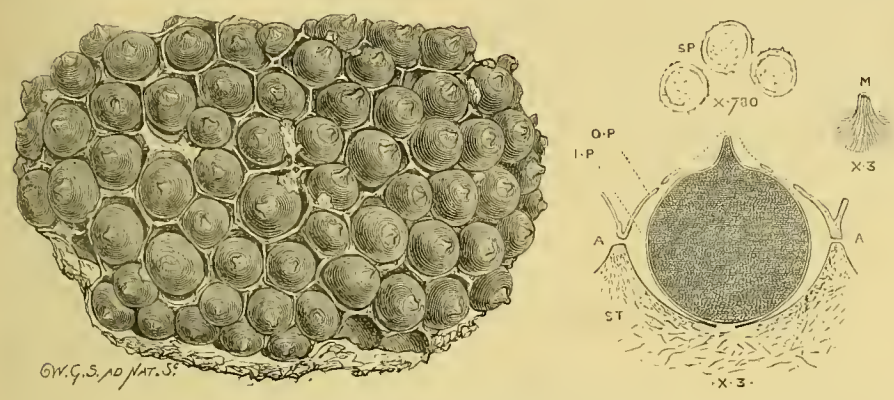

FIG. 58.—BROOMEIA CONGREGATA: NAT. SIZE.

PLANTS IN FLOWER.

ZEPHYRANTHES MACROSIPHON.—This is one of the latest introductions and at the same time one of the most beautiful of a genus the members of which are characterised by the comparatively large size of their flowers and their exceeding chaste and attractive appearance. They are easily distinguishable from the allied species of Habranthus (likewise producing one-flowered peduncles) by the funnel-shaped perianth which is drawn out into a tube at the base while that of the latter is turbinate-campanulate. The subject of this note has bright rosy-red flowers with a long white tube making itself a conspicuous object amongst other flowering plants in the Cape-house at Kew. It is a Mexican species lately introduced and described in the *Gardeners' Chronicle* for July 16, 1881. All are so nearly hardy as to thrive outside in favoured localities, but their delicately coloured flowers (especially the white ones) are so apt to get bespattered and torn by the autumnal rains, that the most suitable place for them when in flower is a cool conservatory or greenhouse.

SANCHEZIA NOBILIS.—The present species seems to be the only member of the genus introduced and subjected to cultivation in this country. The order of Acanthads to which it belongs is numerously represented in warm countries in many parts of the world; but the plants are usually so unattractive as to find small favour in gardens. The subject of this notice, however, has bold foliage clothing the shrubby stems, which are surmounted by panicles of yellow flowers, collected in heads and enclosed by large crimson and yellow-coloured bracts. The forms with the variegated leaves are undoubtedly the most handsome, and will be most appreciated in gardens as ornamental leaved stove plants. Being a native of Ecuador warm treatment is necessary. Other and herbaceous species extend southwards through Peru. A form of S. nobilis, flowering in the Victoria-house at Kew, is conspicuous amongst other plants by the penninerved leaves, which have a distinct creamy-yellow stripe along the midrib and all the principal lateral veins.

SCABIOSA HOOKERI.—Amongst a number of fine things in the way of herbaceous plants, seeds of this new and distinct Teazel-wort were collected by Mr. H. J. Elwes in the Sikkim district of the Himalayas. Of those sent to Kew plants have been raised and flowered, showing a very different habit of growth from the numerous representatives to be met with in gardens where hardy plants are a speciality or receive a due share of attention. The leaves, of firm leathery texture, are oblong and entire, or more or less deeply pinnatifid, with oblong obtuse segments, and form a radical rosette, from which the naked peduncle rises to the height of about 15 inches, bearing a bold solitary head of flowers. These are pure white, save for the deep violet anthers, and form a semi-globose mass without the rays, so prominent a feature in S. caucasica, S. columbaria, and some other species. If it prove comparatively hardy in this country, of which there is a likelihood, the neat habit of growth and large head of white flowers will constitute it a plant deserving a place in the rock garden.

SCROPHULARIA AQUATICA VARIEGATA.—Under the name of S. nodosa variegata this plant has become widely distributed in gardens all over the country, but why it should be thus erroneously designated is not very obvious, as the two plants are readily distinguishable at sight. Both are natives, and although occasionally found inhabiting the same locality in a wild state, S. aquatica shows a decided preference for the margins of ditches and wet places, while the other usually affects shady banks and waste places, which are naturally not what could be termed wet. The latter has a knotty tuberous rootstock, acuminate, sharply and doubly serrate leaves, while S. aquatica has usually very obtuse leaves, with a doubly crenate margin. The rootstock is stout and fleshy, but without the knotty protuberances of the other—a fact which must be apparent to every gardener who has increased his stock by division. Both are weedy coarse plants with inconspicuous flowers, but the variegated form of S. aquatica is a decided acquisition for garden purposes, especially in spring, when the ample foliage puts on its best tints of creamy yellow and white, which it never fails to do if the soil in which it is planted is tolerably moist. The typical form is figured in *English Botany*, 854.

PHLOMIS LEONURUS.—Messrs. Cannell send us specimens of the very handsome Phlomis Leonurus, a Salvia-like plant with dense whorls of large woolly orange flowers, of which we gave an illustration at p. 186, vol. xix., 1882. It is one of the handsomest plants of its class.

NOTES ON IRISES.

(*Continued from p.* 332.)

AFTER these preliminary statements, which I trust the reader will excuse, on the plea that they clear the way for what is to follow, I may turn now to my own special attempts.

HYBRIDS OF I. VARIEGATA WITH I. PALLIDA.—I have in my garden an Iris which I received under the name of I. variegata. It is not a typical variegata, since it has not the full golden-yellow of the type, but in its duller colouring tends rather to I. sambucina or I. lurida. Still I feel compelled, on the whole, to call it variegata; and it possesses one striking physiological character of variegata: it dies down completely and early in winter. This, as old Parkinson noted long ago, is a very distinct feature of I. variegata. Left to itself, this Iris has never seeded with me; during some six or seven years I have never gathered a pod, or even seen an ovary really begin to swell unless I had manipulated the flower.

In the summer of 1880 I removed from a plant all anthers as soon as the flowers opened. I may here remark that, with very few, and these doubtful, exceptions, all Irises are protandrous; that is to say, the anthers burst before the stigma is ready to receive the pollen, the readiness of the stigma* being shown by its separating from the bases of the crests, and falling down into a horizontal or inclined position. With a very little care, all the anthers may be successively removed, even before they have burst, and certainly in time to prevent any pollen falling on the stigma. I think, therefore, that I may safely assume that the plant in question could not have fertilised itself.

Upon the stigmas of some dozen or a score of flowers I placed, in due time, the pollen, in some cases of I. pallida (a fairly typical form), in others of the large oriental form of I. germanica, marking the flowers thus treated. Of the flowers so manipulated nine gave large thoroughly turgid pods, which on dehiscence were found to be full of well formed seed. Of the rest some swelled at first, but subsequently went off. Of the flowers on the plant not so manipulated not a single one so much as began to swell, and this was also true of the few last flowers, which did not open until the manipulated ones had withered and set, and from which, therefore, I did not think it necessary to remove the anthers. I concluded from these results that the pods in question were the products of the strange pollen which I had put on the flowers—that, in fact, I had effected hybridisation; and I do not as yet see any flaw in the argument leading to this conclusion.

Unfortunately I did not affix any mark distinguishing those flowers on which I had placed germanica pollen from those on which I had placed pallida pollen. I have found, however, by experience that the pollen of pallida is very much more potent than that of germanica. Every hybridist is early struck with the fact that the pollen of some forms produces seed much more readily than does the pollen of other forms; and this is true of Irises also. So far I have not as yet succeeded in getting any ripe germinable seed as the result of the application of germanica pollen, whereas I have in various stages successful products of pallida pollen (including several varieties of pallida) placed on very different flowers. And while in the summers of 1881-83 I have again succeeded in impregnating I. variegata with pallida, all

* By the stigma I mean the stigmatic surface only, the little ledge below the crests. Most authors give the name stigma to the whole tripartite upper part of the style, and speak of the crests of the stigma; but it seems to me more appropriate to speak of the style as dividing into three parts, each bearing two crests, and below these a stigma; for the stigmatic surface is not in the Iris as, *e.g.*, in Gladiolus, extended over the whole of the tripartite end of the style.

my attempts to cross variegata with germanica have absolutely failed. I conclude, therefore, that all my seed was probably the result of pallida pollen, and this conclusion is borne out by the characters of the seedlings. I shall, therefore, venture to speak of their parents as I. variegata and I. pallida.

The seed was gathered as soon as ripe, and sown immediately. It germinated very readily, and I have from it a very large number of seedlings, some of which flowered in the summer of 1882, and still more this summer, but a large number have yet to bloom. The special characters of the seedlings vary very considerably; it would be tedious to enter into detail, but the following general statement may perhaps not be without interest.

In foliage they are for the most part intermediate between the mother and the father, but favouring the former rather than the latter, very few indeed showing the broad massive leaves of pallida. Some have red bases to the tufts of leaves, as had the parent variegata, others have green bases like pallida; but nearly all the plants resemble pallida and differ from variegata in that the leaves do not die completely down in winter. In stature also the children are intermediate between their parents; most, however, have the shorter scape and more compressed inflorescence of variegata, while some few show the taller more loosely branched stem of pallida.

Perhaps the more characteristic feature of I. pallida is the possession of thin papery colourless or white spathe valves, which become scarious so early as to lead one at first sight to fear that the as yet unopened bud is about to wither. In variegata the spathe valves are green flushed with purple, and much more persistent. In this respect also the majority of the seedlings were intermediate, having spathe valves which early became scarious, but yet turned brown flushed with purple, instead of taking on the silvery whiteness of the spathe valves of pallida.

The flowers themselves varied exceedingly in size, form, and colouring. In general the form of the flower and of its component parts, by the greater length of the perianth tube, by the narrower more pointed crests of the style, and by the shape of the segments, drew near to variegata; and the blood of this, the mother, was in most cases obvious in the bold and conspicuous veining of the claws of both the falls and the standards. In point of colour I was able to arrange a long series, passing from nearly typical pallida, through a variety of tints, to something which was as nearly as possible a reproduction of the mother, variegata. There was, however, on the whole, a tendency, on the one hand, to the development of a deeper blue than is ever seen in pallida; and, on the other, to the appearance, especially in the standards, of dusky and dirty hues of yellow.

Lastly, though I. variegata has no odour at all, many of the seedlings were exceedingly fragrant, more so even than I. pallida, the scent being as strong, and very much of the same character as that of I. plicata or I. Swerti.

I venture to think, then, that I have in this case not simply produced a number of variations from the type of the mother, but actually effected a hybridisation, the offspring favouring the mother in foliage and habit (save as far as relates to the greater or less persistence during winter), and in the form of the flowers, while the influence of the pollen is most evident in the large amount of blue coloration visible in by far the greater number of the blooms.

I stated a little way back that I believed that a large number of the Irises which nurserymen speak of as varieties of germanica are hybrids; and among these hybrids of which I am speaking are many which seem almost identical with various "named" forms of our gardens. Very many of these named forms are by Mr. Barr classed as varieties of I. neglecta, to my mind very justly so. Now it is specially these so-called forms of neglecta to which my hybrids come near; so much so that I feel very much inclined to believe that the typical and original neglecta of Hornemann is actually a hybrid between I. variegata and I. pallida.

But I may perhaps go farther than this. Very many of the garden varieties may be classed as forms of I. squalens, I. lurida, I. sambucina (which are veritable species found wild in Europe), but some of my hybrids run very close indeed to these. These three Irises have many points in common and have been at times variously confused by successive authors (indeed I cannot say that my own mind is as yet clear about them); they are also related to variegata, the four forming a group, the members of which are more closely connected with each other than with any other Iris. The view which naturally commends itself is that these four forms have arisen from one of the four, or from some lost common ancestor, by simple variation without the admixture of foreign blood. But my hybrids raise the suspicion that possibly natural hybridisation may have intervened. Of course further evidence is needed before a definite opinion can be arrived at. In this relation I may, perhaps, state that in the summer of 1881 I crossed the same plant of I. variegata with the pollen of a handsome garden Iris known as Queen of the May, and have obtained a large number of seedlings. Of these I may have to speak hereafter, meanwhile I quote them, since among them are plants the flowers of which, save as regards some inner structural features which a casual observer would overlook, are almost exactly like I. flavescens. Now the Queen of the May, though having reddish flowers, is in all essential characters a pallida, almost a typical pallida. Whether it be, as I suspect, a hybrid or simply a variation I do not know; but unless it be a hybrid with, what seems extremely unlikely, flavescens blood in it, so that the appearance of a plant like flavescens in my seedlings is simply a reversion to a part of the ancestral blood, the fact of the appearance of the flavescens features in the progeny of variegata (from which flavescens is widely different) as the result of hybridisation suggests that the wild flavescens is itself a hybrid.

To conclude this long story, I will call to mind a suggestion of Dean Herbert. That wonderfully sagacious man (and the more I try to follow up his work the more I marvel at his breadth of view and at his insight) threw out the suggestion that all the bearded Irises growing round the Mediterranean basin were after all mere varieties of one form, and would be found to cross readily with each other. My own short experience leads me to believe that, within limits determined more by breeding capacity than by specific differences, he was right; and this opens up the question whether the variations giving rise to our many species of bearded Iris are, in part at least, due to natural hybridisation. *M. Foster.*

(*To be continued.*)

The Rosery.

OLD AND NEW ROSES.—The following interesting article, written by the late Mr. H. B. Ellwanger, for the July *Century*, will be especially appreciated by our readers. We regret that lack of space forbids our publishing it in full, but we have, however, retained such portions as are of most interest. Mr. Ellwanger says, by way of introduction, that "It is worthy of note that our fathers and forefathers had in general a better nomenclature for their Roses than is used in these days! Such names as Dame Blanche, La Favorite, Rosalie, La Coquette, and those of the various mythological characters—as Hebe, Juno, and Calypso—were freely used. Now the favourite Roses are Dukes and Duchesses, Counts and Countesses, Lords and Ladies, Generals and Senators, till we wonder if there are any plebeians left."

There are many old Roses that should never be forgotten, though they have been pushed aside by newcomers, and are seldom to be found on sale at the florists'. Blanchefleur, Madame Hardy, Madame Zœtman are delightfully fragrant, beautiful white Roses, whose places have not been filled by any of the usurping H.P.'s; and there are others, of the Provence and Damask families, nearly as fine as those named. In all our improvements we have not yet bettered the quality of the old white summer Roses of thirty and forty years ago. The demand is now altogether for those varieties which bloom more than once, and in achieving freedom of bloom we have lost in fragrance, have lost in hardiness; therefore, to leave out and cast aside these favourites of a generation that is passing away is surely a serious mistake. Others besides the old white summer Roses should be retained. There is the Centifolia, or Cabbage Rose, so unfortunately named, which is yet a model for form and fragrance; there is the common Sweet Brier, with its bright orange-red heps—not a flower for florists truly, but how attractive to the artist, how full of inspiration to the poet, how grateful to all who are pleased by fragrance! For bright yellow shades, we yet look to the old Austrian Roses, so-called, Harrison's and Persian Yellow. Then what is more charming than the Moss Roses? What bouquet more beautiful than loose branches of the Gracilis, the common and crested Moss Roses?

The Charles Lawson, Coupe d'Hébé, Paul Ricaut, and some others of the old summer kinds are also very useful as pillar Roses; they have nearly everything that makes a Rose valuable, save the property of blossoming more than once. It must also be remembered that the old Roses were not alone such as bloomed in June only. Agrippina, Edward Desfosses, Hermosa, Souvenir de la Malmaison, Aimée Vibert, Lamarque, Solfaterre, Bon Silène, Bougère, Devoniensis, Flavescens, Madame de Vatry, Niphetos, Odorata, Safrano, Triomphe de Luxembourg are members of the Bengal, Bourbon, Noisette, and Tea families, introduced more than forty years ago, and in none of these groups has any great advance been made. Certainly many beautiful and distinct varieties have since been introduced, but the improvement in quality of these classes has been slight as compared to the advance made by the introduction of new groups.

Roses of the present, as compared with those of the past, are superior by reason of the introduction of groups that are hardy, or nearly so, and that blossom at intervals and continuously through the summer and autumn. We remember the great interest awakened by the varieties sent out by Laffay, such as Madame Laffay, Mrs. Elliott, and a few years after, La Reine. The two former have nearly disappeared from cultivation; but La Reine is still much grown, and, like the Général Jacqueminot, Victor Verdier, and Jules Margottin, has been the progenitor of most of the hardy Roses cultivated at this day.

It would astonish the uninitiated to learn the number, not only of those who propagate plants for sale, but those who are engaged in the production of new varieties from seed. Strange to say, the raising of new Roses has been done successfully only in France and England. Italy and Germany have accomplished almost nothing in this line, although the climate of those countries is as favourable for the purpose as that of the other two; but in this they only follow the general line of horticultural progress, for Italy and Germany have produced few varieties of European fruits that are valuable. America has originated more fruits of high quality than any other country, but her contributions to the list of good Roses, though larger than those of Italy and Germany, fall far short of what they should be. With an extent of territory that gives greater variation of climate and soil than is to be found in any other country, it must be that America will yet produce her share of fine Roses.

With the year 1842 appeared the Baronne Prévost, which is now the oldest type among hybrid perpetual Roses. It is not a numerous class, and is of much less importance to us than many others, but we can well imagine what pleasure it gave when it was introduced to the rosarians of that day. The flowers are very large and full, flat in form, quite fragrant, and in colour same shade of rose. It is the most hardy type we have. The only varieties commonly grown are Boieldieu, Colonel de Rougemont, and Madame Boll.

The Général Jacqueminot, the head of what is now considered the most valuable type, made its bow in 1852, to an admiring world, clad in rich crimson livery. It still commands respect and admiration, and marshalled under its generalship is the army of dark Roses which so excite and please our senses by their charms and loveliness. This family probably originated from the old hybrid China, Gloire des Rosomanes; they are moderately hardy, but less so than those of the Baronne Prévost, Jules Margottin, and La Reine types. The flowers are invariably shades of red and crimson, generally highly perfumed, freely produced in the spring, but varying greatly as to their autumnal bloom. As a group they are much more shy in the autumn than any of the others. It is now the most numerous of the groups, due to the fact that popular taste inclines more to crimson than to light-coloured Roses.

In 1853 Jules Margottin, of Bourge-la-Reine, near Paris, sent out a fine Rose, which he called after himself. Though he has been raising seedling Roses ever since none of them has quite come up in worth to his namesake, the flowers of which are large in size, very full, somewhat flat in shape, in shades of rose and carmine, and almost without perfume. They are generally free in the autumn, are very hardy, though

as a rule difficult of propagation from cuttings, but make very vigorous plants when budded.

The Duke of Edinburgh is the only English Rose which may be regarded as the founder of a family. The flowers are inclined to be thinner in petal than those of the Jacqueminot type, rather smaller, burn much more quickly in the sun, and are not constant in autumn. It is a very beautiful group when grown in a moist, cool climate; but there are few of the members that will do well under our hot sun.

Baroness Rothschild is the typical representative of a small but very beautiful group, the very aristocracy of Roses. It is not a new Rose, but its merits have not been recognised till within a few years. Now that the florists have finally taken it for winter forcing it is becoming well known, but it will always command comparatively high prices. Twelve and fifteen dollars for a dozen blooms have been the prices during the winter months. Mabel Morrison, Merveille de Lyon, and White Baroness, are three white Roses of the type that are to-day the special sensation of the Rose world. They have the same short-jointed stems, with the beautiful foliage closely set under the blooms, that are a characteristic and pleasing feature of the parent. Mabel Morrison is the only one of the white trio which is likely to be seen in any number for some time to come; the others are but just out, and florists will use all the wood the plants make for propagating. Three white hardy varieties of such high rank as these may well excite the enthusiasm of all who grow Roses.

All of the families of Roses so far discussed are members of the hybrid remontant or hybrid perpetual class, certainly the most important of the many groups of Roses now cultivated; but there are others of modern origin, which have also strong claims on our attention, the oldest of which is the hybrid Noisette family, that may be divided into two sections. The original variety, Madame Récamier, was sent out by Lacharme in 1853. Nothing more is known of the origin of this sort, other than that one of the parents is supposed to have been a Noisette Rose. Belonging to this type are Mademoiselle Bonnaire, Madame Noman, Eliza Boelle, and Madame Oswald de Kerchove. The flowers are of medium size, and of circular, very beautiful form. Though devoid of fragrance, the flowers are freely produced from June throughout the summer; for which reason these varieties are to be valued as most charming acquisitions on our list of white or light-tinted Roses.

Gloire de Dijon was sent out in 1853. In its habit of growth it showed itself distinct from all others, and it has become the head of a class known as climbing Teas. When the plant has once become established it is of vigorous growth, and has long been a favourite as a pillar Rose, both for conservatories and in favourable situations out-of-doors. Its parentage is not known, but I believe it must have originated from a natural cross between a Bourbon and a Tea-scented Noisette Rose.

The most valuable type of Rose since Général Jacqueminot is the hybrid Tea. The original of this new race is La France, introduced in 1869 by Guillot, of Lyons. This was raised from the seed of a Tea Rose, but is entirely distinct from all Tea-scented kinds. In colour it is a soft silvery rose, delicately tinged with a faint shade of lilac; in its fragrance a most delightful combination of the Provence and Tea perfumes. It blooms perpetually, the end of each shoot always carrying a flower-bud, and these shoots constantly pushing forth. In these three qualities, so essential to a perfect Rose, it has scarcely any equal, and solely by its intrinsic merits has now gained a popularity shared by few or none other of its sisterhood.

(*To be continued*)

Gathering Caoutchouc in Equatorial America.—The tapping of the trees they had discovered was being actively carried on. The adventurers, clad in ragged pantaloons, the body naked, were behaving like demons under the supervision of their chief round the gigantic Figs (Ficus), whose bark they were tearing off by slashing it with their hatchets. The operation reminded me of the process of gathering resin in the Landes of Gascony. But here, instead of zinc cups to receive the resinous juice the *caucheros* placed Heliconia leaves, on which the precious latex flowed, white as milk. The liquid was collected and poured into calabashes (*totumas*), where it soon coagulated and formed caoutchouc, ready to be packed and exported. *Ed. André*, "*Le Tour du Monde*," *p.* 399.

Home Correspondence.

The Apple Show at Chiswick.—I am glad to hear that the fruit show is to be carried out. Such an exhibition of fruit, held at Chiswick, will be one of the most attractive and useful of all the exhibitions ever held at that famous centre of horticulture. It is many years since we have had such a fine crop of hardy fruit, so that there is an abundance of material in the country to make a large and interesting show. Of course the show should include eatable fruit of every description in a fresh state, grown either under protection or in the open air, at home or abroad; but Apples and Pears would naturally form the chief feature of the show. With the fine collection of these grown at Chiswick, and the other excellent facilities which Chiswick affords for the comparison and correct naming of fruits, I think that such a show at the present time would be highly instructive, especially to gardeners and those who grow fruit for market, and I know that the kind of information which such a show can give is very much wanted. In Scotland we have a great crop of fine fruit of Apples and Pears, and no doubt proper contributions will be sent to it from this side of the Tweed. Hothouse fruit—Grapes, at least—would also be contributed in force, if the show is held within the next six weeks. *North Briton*. [Apples alone are to be exhibited. Ed.]

Hardy Wall-Shrubs for the Year.—I am attempting to make a trustworthy list of shrubs suitable for growing on the south and west walls of an English house in any but the most exposed situations; and shall be much obliged if you will allow me to ask your readers to help me. My object is to get the true names, not of novelties, but of well established favourite plants. I hope to discover two or three such plants for every month in the year, but have found it difficult to meet with what I want for the months printed below in capital letters—viz., February, July, October and November—because I purposely exclude those plants whose attraction resides in their foliage, berries, or catkins. I therefore venture to ask your readers' kind and careful assistance in enlarging, or correcting, the following list:—

Name.	Month of Flowering.	Colour of Bloom.	If sweet-scented.
Chimonanthus fragrans grandiflorus	January	Yellow	Yes
Jasminum nudiflorum ..	FEBRUARY	Yellow	No
Magnolia conspicua	March	White	?
Wistaria sinensis alba ..	April	White	Yes
Weigela rosea	May	Rose	Yes
Jasminum revolutum ..	June	Yellow	Yes
Jasmine Honeysuckle ..	"	Say pink	Yes
Clematis cœrulea odorata ..	JULY	Blue	Yes
Magnolia grandiflora ..	August	White	Yes
Jasminum officinale	"	White	Yes
Lonicera Halleana	September	White	Yes
Caryopteris Mastacanthus (Veitch)	OCTOBER NOVEMBER	Blue	Little
Chimonanthus fragrans grandiflorus	December	Yellow	Yes

William H. Sewell, Yaxley Vicarage, Suffolk.

Boltonia indica.—Having received a specimen of Boltonia indica (Benth.) from Rev. C. W. Dod, under the name of Aster japonicus, it may be of interest to those who grow the plant under that name to know its correct cognomen. The genus Boltonia is readily distinguished from Aster by its very short pappus, although Franchet and Savatier, the authors of *Enumeratio Plantarum Japoniæ*, disregard this, and place the Boltonias in Aster; but the distinction, being a definite one, is easily seen, and the genus Aster being already very large, it is perhaps more convenient to keep Boltonia distinct as a genus. There is a Boltonia japonica, or Aster japonicus, as Franchet and Savatier call it, but that is very different to the plant sent by Mr. Dod under that name, having cordate, coarsely-toothed leaves; whereas B. indica has narrow lanceolate-oblong leaves, the lower ones toothed or pinnatifid, and the upper ones entire; the heads are about 1¼ inch in diameter, having a pale lilac ray and yellow disc; they are disposed in a lax open corymb. It is a native of China, Japan, and Java. *N. E. Brown*. P.S.—Since writing the above I have received from Mr. Dod a note objecting to the name of Boltonia indica for the plant he has under the name of Aster japonicus, at the same time sending me a plant he grows as B. indica, with the following remarks:—"I send what I had on very good authority as Boltonia indica, which is a very different plant both in habit and appearance from the Aster japonicus I sent, and which you call Boltonia indica. In fact, the Aster does not seem to me to have any Boltonia characters; the Boltonias have the stalks leaved to the ground and run at the roots." This is all very true, and the two plants sent are in appearance very different, and it is possible may be distinct species. But those who have studied the forms of this plant most, and are the best qualified to judge of their specific distinctness, all declare them to be forms of one very variable plant. Another form differing from that of Mr. Dod is grown at Kew as Aster japonicus, and still another, which I am doubtful about, but which may be only an extreme form—make together three or four forms of this plant all different from each other, and not one of them is identical with the numerous forms of Boltonia indica in the Kew herbarium! And yet it only needs a little examination to convince me that they are either forms of that species, or distinct and undescribed species. If the latter view were adopted nearly all the specimens in the Kew herbarium would have to be treated in the same way, as very few of the forms are alike. This would almost amount to naming individuals, and would prove worse than useless, as in the case of Jordan's 200 species concocted out of Draba verna. *N. E. Brown*.

Chrysanthemum coronarium.—This most useful hardy annual is futher known as the new African Daisy. Last spring I saw in the *Gardening Illustrated* an advertisement of a new African Daisy, and in exchange for a few postage stamps I received a small number of seeds. These were kindly sown by Mr. Roberts, of Gunnersbury, and the result is—the single white form of Chrysanthemum coronarium. Now, seeing that this was introduced from Sicily in 1629, it cannot either be new or African. But all who got seeds of it under the name of the African Daisy will, I am sure, be delighted with it, and not a few will regard it as new, and I have no doubt revere it as such. It is well-named the Garland Chrysanthemum: the flowers are single, large, striking, and freely produced; in the centre is a kind of button of orange, round this is a broad well-defined ring of pure gold, and a broader margin of white. Mr. Roberts is delighted with it for pot culture, and well enough he might be. I am sorry there is no immediate meeting of the Floral Committee, as I should show it as the new African Marguerite, and that would have obtained a First-class Certificate of Merit. It deserves it, and if it were only new instead of two and a half centuries old, we should all rave about it. I am not at all sure that it is easy to obtain seeds of the single or original form of C. coronarium; but let me advise those that can obtain them to grow these charming plants. *R. Dean*.

Plants at Hay Lodge.—Amongst the many rare plants at Hay Lodge is a Bromeliad from Quito, Rhodostachys litoralis, now blossoming for the first time. The foliage is glaucous, and much recurved. The flowers are light pink, as is also the flower-stem and some bracts. The stamens are bright orange and very large, and give a salmon tint to the pink flower-head. Androsace grandiflora is also in blossom, the head of pinkish-white flowers is about 3 inches across. It grows at an elevation of 13,000 feet in Sikkim. Senecio laxiflora has not yet flowered, nor has Ourisia Colensoi (?), the foliage of which is Salvia-like. Mimulus prostrata survived the journey from New Zealand by post. Its growth slightly resembles that of Nierembergia rivularis, but it has not yet blossomed. All these plants have been introduced by Mr. Anderson-Henry, and amongst the numerous hybrids raised by him is a Campanula, C. intermedia × C. Alioni, in which the perennial nature of the latter has been preserved. Another hybrid, Pleroma sarmentosa × Lasiandra Fontanesia, flowered for the first time this autumn, though the seed was sown in 1870. The foliage is very hairy, and the flowers (which are of intermediate size between those of the two species) are dark purple. *C. M. O.*

Verbenas at the Chiswick Gardens.—A most effective and satisfactory trial of Verbenas was made this season at the Chiswick Gardens. Mr. Barron had managed to get together a good representative collection, and it enabled visitors to estimate the value of the leading varieties for bedding purposes. It must not be supposed for a moment that we have done with the Verbena as a bedding plant; some of the most charming beds seen at Chiswick were those formed of Verbenas. Recently these beds were inspected by the Floral Committee and the result was the granting of First-class Certificates to the following varieties:—Beethoven, bright magenta-rose, very fine pip and truss, a variety that keeps its colour well, excellent spreading habit, and very fine; Marion Baker, brilliant cerise flushed with red, white eye, very fine pip and truss, and capital habit, a bold and showy bedder; R. F. Schule, a variety that opens bright cerise-rose paling to pink, large white eye, fine truss, and good habit; Faust, opens scarlet and changes to deep reddish-cerise, good pip and truss, and an excellent bedder; and Swanley

Gem, a variety that opens pure white, heavily flaked with pale purple, and with age changes to grey flushed with crimson, very fine pip and truss, and good habit. Other fine varieties were :—Mrs. Trollope, rich crimson, with pale eye, very fine pip and truss; King of Verbenas, rich carmine-rose, changing to deep pink, pip and truss both fine; Simon Krauser, very rich scarlet, large white eye, fine in colour; Lady of Lorne, white, purple eye, a good old variety; Regalia, bright red, changing with age to rosy-red, fine pip and truss; Dr. Feyntier, deep shaded crimson-maroon, almost black, fine pip and truss; Basilisk, brilliant scarlet, very fine; Earl of Beaconsfield, bright red, large white centre, fine and showy; Annie Ford, flesh colour, with pale rosy centre, or broad rose eye, very fine pip and truss; Lustrous, brilliant red, white eye, very fine, bold and showy; Sir Garnet Wolseley, pale purple, white eye; Lady of Langleybury, a charming purple and white striped variety, a sport from the old Purple King; Hampton Court Crimson, bright red, dwarf, very free, an excellent bedder; Purple Emperor, deep purple-crimson, noticeable for its colour; Melindres splendens, a charming small-flowered variety, very showy indeed, and with a close creeping growth; Blue Beauty, deep blue, noticeable for its colour; Victor Emanuel, pale magenta, very good; Eclipse, bright crimson, an excellent bedder; La Grande Boule de Neige, pure white, one of the best of this colour; Nemesis, bright crimson, very good; Lord Cranbrook, brilliant red, very fine and showy; Blue Boy, bright purple-blue; Nero, bright lilac, dashed with purple; and Swanley Striped, white, flaked and striped with bright red, very good. It must not be supposed that of all the foregoing varieties only the five first given were worthy of First-class Certificates, for to not a few of the remainder Certificates have been awarded during the past few years. But it does appear as if there had been of late something like a pause in the production of new varieties. The work carried out so well for many years by the late C. J. Perry, H. Eckford, and Keynes & Co., and more recently by Mr. Mould, of Devizes, seems now to be left undone in this country; though Mr. W. H. Stacey, of Dunmow, brought up to a recent meeting some cut blooms of new seedling varieties, to a few of which First-class Certificates of Merit were awarded. Occasionally a new variety finds its way to this country from the Continent. Of late years the Verbena has fallen a great deal into disuse as a bedding plant. Carpet-bedding has driven from the flower-garden many a useful flower, but who can condemn a system of gardening that looks so charming in late summer, when many flower-beds have grown shabby and almost flowerless? But where flowers are still used, beds of mixed Verbenas are as satisfactory as any. They are singularly bright and effective, and last a long while. Some gardeners have ceased to propagate Verbenas, and instead purchase seeds in colour, and raise their own plants. It is worthy of notice how true Verbenas will come to colour from seeds sold in varieties, but the seedlings are generally of strong growth, and better adapted for large than for small beds. Propagated plants do not grow so freely as seedlings, and though it can scarcely be said they are freer of bloom, they are earlier generally in flowering. Some day, and perhaps at no distant date, the Verbena will again be generally used in flower gardening arrangements. It is something then to have a collection maintained, and it is this good work Mr. Barron performs at Chiswick. The best varieties of the past ten years can be found there; and any new forms can thus be fully tested. The time has almost passed when the merits of new Verbenas should be appraised from cut specimens only. Habit of growth is a matter of the first importance, as the Verbena has pretty well ceased to be a florist's flower for exhibition purposes. *R. D.*

Hybrid Rhododendron.—The Rhododendron figured in the *Gardeners' Chronicle* last week was raised by the late Mr. Standish, from whom we obtained it as a seedling from Aucklandii. *Anthony Waterer.*

Amaryllis Belladonna.—Already plants of this very chaste and beautiful Lily are fast pushing up their flowers, and fine they always are when we get a good autumn, as they can then expand without being knocked about and damaged by wind and wet, the combined influence of which soon spoils their beauty. The best place I have ever found to grow them is close along the front wall of a stove or other warm house, facing south, as there they flower earlier through making a more forward growth owing to the warmth they get through the bricks, which is also the means of keeping frost out of the ground, and preserving the bulbs from taking any harm during the winter. To render them quite safe at that season, the border in which it is intended to plant them should be drained by having a layer of broken brick-bats in the bottom at about a yard deep, and if these are covered with long manure the interstices between will be kept open for a very long time. The soil best adapted to grow Belladonna Lilies in is that which is light, sandy, and rich; and if they are well watered once or twice while making their foliage it will be a great help towards enabling the bulbs to form plenty of blooms. *J. S.*

New Zealand Veronicas.—The following are amongst the many Veronicas introduced by Mr. I. Anderson-Henry, and now growing at Hay Lodge, Edinburgh:—V. amplexicaulis, V. cataractæ, V. chathamica, V. diosmæfolia, V. Haastii (a rare species even in New Zealand), V. Kirkii, V. Lewisii, V. lævis, V. macrantha, V. odora, V. pimeleoides (very distinct, Pimelea-like foliage), V. Raoullii, V. epacridea (?), V. lycopodioides, V. salicornioides. The foliage of the last two species is most singular, far more like that of Conifers than Veronicas. A bed of V. salicornioides in the Edinburgh Botanic Gardens is like a mass of dwarf bright green Conifers of the Dacrydium type, and not of pyramidal habit; it shows that the plant is an effective one as a "foliage plant" as well as a botanical curiosity. The microscopic structure of the wood of this species shows the punctated discs characteristic of the Coniferæ. It (as well as several others of these species) has not yet flowered since its introduction several years ago. *C. M. Owen.*

Serapias cordigera.—It may interest some of your readers to know that this Orchid, so well figured in last week's edition, as well as Orchis stabiana mentioned by your correspondents Messrs. Dammann & Co., have both stood our past winter with impunity and also flowered well during the present season. They were planted amongst a collection of our native Orchids and received no protection whatever, save a slight covering of Spruce branches during frosty weather. The species of Serapias are well worthy of attention, and may be easily grown in good loamy soil with the addition of a little lime or chalk. The different species and varieties are beautifully illustrated in Barla's *Iconographie des Orchidées*. Orchis stabiana is also a beautiful and interesting plant, with dark or olive-green leaves, tinged with pink or red, the flowers resembling a form of O. maculata, not at all uncommon in this district. The white form mentioned by your correspondent I have not seen. *A. D. Webster, Llandegai, Bangor.*

The Chiswick Apple Show.—I should like to suggest that in connection with the proposed Apple show in the Great Vinery at Chiswick next month, the Floral and Fruit Committees should for once, and in honour of the show, also meet there. Surely, to be on their own ground is better than to be the slaves of the Fisheries Commissioners, and to be ordered from pillar to post as is convenient. If the Council would determine to have their winter meetings at Chiswick, I think eventually they would have good reason to believe they had done the right thing. *Pomona.*

Potatos: Protective Moulding.—Having some few weeks back, through the medium of your columns, expressed a doubt regarding the benefit likely to accrue from protective moulding, and at the same time stating with reference thereto that "we should be able to speak with more certainty a few weeks hence," it is not unreasonable to expect that many of those who are interested in the matter have already begun to think there is something more due from me on the subject. I have now simply to say that we have given the protective moulding method what we consider to have been a fair and impartial trial, with the result that we have failed to discover its utility or to find out where the advantages are which have been claimed for it. At the beginning of the planting season, 10 perches of land were marked out and planted with the same variety in rows 3 feet apart, one half being treated in the ordinary way, and the other half in accordance with the proposals as set forth in the *Gardeners' Chronicle*, xviii., p. 38. We have just lifted the crop, which I am pleased to say is in all respects a satisfactory one; of diseased tubers, however, the percentage was about the same under each system of culture. My own opinion is that this nostrum will live only for a very short time in this country, and where labour is not over-abundant one years' experience will be quite sufficient to condemn it. *J. Horsefield, Heytesbury.*

Hyacinths.—While at Haarlem, in the spring, I noticed as being very fine the following Hyacinths, which may be of use to those of your readers now thinking of procuring bulbs. Very dark blue, Uncle Tom and Henry Barclay; light blue, Sir William Mansfield and John Bright. Uncle Tom and John Bright are cheap varieties, and nothing could give a greater contrast than adjoining beds of these two. The four varieties are distinct shades of blue. At Mr. Barnaarts extensive bulb growing establishment at Vogelenzang, they are very highly thought of. Among the reds, Lord Macaulay seemed to be the most grown. The premier place among the whites varies in successive seasons. Mr. Ittersum, of Vogelenzang, gave his vote this year for La Grande Blanchisseuse, the beds of which were truly magnificent; but outsiders must not be critics, for every sort seemed magnificent—to use a provincialism, we were "wholly struck." *C. A. M. Carmichael, Henley-in-Arden.*

A Variegated Onion.—A pretty variegated form of Onion comes from our valued correspondent, Mr. Culverwell, of Thorpe Perrow, in which the markings of cream stripes, longitudinally arranged on the healthy green leaves, are rather curious features in this genus, in which we find but few departures from normal structure and colour. The odour will not permit its use in the flower garden, but there need be no scruple to use it in the spring salad bowl, to which the variegated leaf may be an acquisition, that is, of course, premising it comes true from seed. *M.*

Gloxinias in 60-sized Pots.—Those who are in the habit of attending provincial flower shows must admit that Gloxinias are often among the least worthy of exhibition plants. They are often over-potted, the foliage weak, not unfrequently badly infested with red-spider, the flowers poor and sparingly produced; and yet one meets also with many illustrations of the fact, that Gloxinias can be and are most successfully grown and flowered in small pots. When Messrs. Sutton & Sons, of Reading, set up at the Sandhurst Show, held recently, their extremely interesting stand of flowers, a number of charming Gloxinias in small pots was a great centre of attraction. These were selected from the large collection they grow in their nurseries at Reading, where can be seen, all through the summer and up to the middle of September, hundreds of plants in 60-pots, in rude health, with grandly developed leaves, and bearing ten and twelve splendid flowers. We have seen them in April and again six months after, the van and the rear of a long procession with one uniform splendid quality running through them, massive flowers, as fine in form as they are brilliant and varied in colour. The fact is, Gloxinias may be had in bloom almost all the year round by judicious management. They conform to the quick system admirably, as they are very easily raised from seed, and make a really beautiful display for very little trouble. The time for named Gloxinias is well nigh past. Cultivators are finding out that excellent varieties come from good strains of seed, and seedlings are, there is no doubt, much more vigorous in growth than propagated plants. How is it that one sees at Reading such finely-grown and successfully-flowered plants? it may be asked. Simply because the plants are diligently cared for from the time the seed is sown until the plants flower. There are no secrets of the cultural process, and nothing requiring to be hidden. At Reading the seed is sown very early in the year, and by means of successional batches the Gloxinia is had in flower for a considerable period. The seedlings rapidly form strong, healthy plants, and from sowings in February and March flowering bulbs that produce their blossoms in July are obtained, as well as in August and September. A sowing made in July gives young plants to flower the following spring, but they require to be tenderly cared for during the winter. There is this advantage about raising seedlings, that the grower gets a great variety of colour: at Reading it is the practice to carefully fertilise all the best flowers, the result being, that not only is a variety observable in the progeny, but a high standard of quality is also obtained. Gloxinia seed germinates rapidly in a brisk heat, and the plants so get large enough to prick off into store pots. The best soil for the Gloxinia is a light compost made up of fibrous loam with a little peat and silver sand. This is well suited for the young plants; and at a later stage it is better on the whole to apply some fertiliser like Clay's, or give manure-water, than to mix in with the soil manure that may prove deleterious, or contain the spawn or bodies of noxious insects. The best specimen Gloxinias we ever saw were treated to manure-water twice a week. Some growers fail by exposing their plants to too much sunshine, or by keeping them in too dry an atmosphere. The Gloxinia is a shade-loving plant; and at no time should it suffer from drought. A moist, damp atmosphere, with the temperature about 60° to 65°, is just suited to the well-being and fine development of the Gloxinia, but they may be grown with success either in a greenhouse, or in a pit heated with hot water or manure. The treatment of Gloxinias after they have done flowering is one of some moment. We have seen plants stood by on a hot dry shelf, and there neglected, and allowed to become quite dried up. This is a barbarous course of treatment. When they have done flowering water should be given sparingly but sufficiently, and as soon as signs of decay in the leaves present themselves the plants need to be placed in a light airy position, where by a gradual reduction of moisture the leaves will fall off gradually. The plan adopted at Reading of laying the pots on their sides under the stage of the house, where the plants die off very gradually, is a good one, and answers well.

When the roots are finally shaken out of the pots, the best mode of keeping them through the winter is a matter of moment. It is well to bury them in dry cocoa-nut fibre and peat, in equal parts, which tends to keep the bulbs plump without exciting them into growth; and keep the receptacle containing them in a temperature of about 50°. By-and-bye it is an easy matter to select a few of what appears to be the most forward of the bulbs, pot them, and grow them on for early flowering. *R. D.*

Fuchsia Madame Cornellisen. — This, if my memory serves me rightly, was one of the white-petalled Fuchsias, and used to be a great favourite, which position it still deserves, for though it may have been beaten by others of the same class for pot culture and exhibition purposes, it is quite unrivalled as a bedder, as it is very floriferous, and stands well erect, showing off its numerous light, elegant pendulous blossoms to the greatest advantage. In a cabbage garden near here there is a huge bush, the plant having stood there for years, and is every summer and autumn a fine sight, for though it gets killed to the ground every winter, it breaks and comes up again, and forms quite a shrub, clothed in the gayest of sheen. Not only is it valuable for either beds or borders, but it is a capital winter bloomer, and to have plants in at that season, it is only necessary to give them a little rest towards the autumn by keeping them partially dry for a time, and then to start them on again by gentle moist heat, soon after which they will begin flowering again as freely as ever. *J. S.*

Tap-Root Pruning of Old Pear Trees.—I sent you a note last October, in which I mentioned a tree of Beurré Rance Pear which was then bearing twenty dozen splendid fruit upon it, the second year after tap-root pruning. Allow me to chronicle the success of this the third year after root-pruning. The tree set forty-three dozen this spring, I reduced the number to thirty dozen, and from the general appearances of the fruit, and the healthy look of the tree, the fruit is likely to finish well. I may say that the tree is now 36 feet long instead of 33 feet, as last year, with a crop of breastwood as well every year. *Robert Smith, Kenward Gardens, Yalding, Maidstone.*

Lapagerias.—Thinking you would, perhaps, like to hear further concerning my Lapageria, recently referred to, I have sent you two trusses, one of the alba and one of the rubra superba. On the former I counted ninety trusses of five to ten blooms each. It is also showing many more, in various stages, and will continue blooming until the middle of January. I enclose a photograph, which will give you an idea of its beauty, although it fails to convey an adequate idea of its grandeur. At the extreme end of the house is a plant of the rubra superba bearing some forty trusses or more, with an average of six or seven blooms each, the dark flowers of which are scarcely visible in the photograph. The sticks on the right hand side represent a portion of the young stock now ready to be taken off. *R. H. Vertegans, Chad Valley, Birmingham.*

Rhus Cotinus.—Of all deciduous shrubs this, I think, is one of the most handsome, its lovely, bright, feathery plumes being conspicuous from a long distance, and so ornamental and glowing that they quite light up a place. To bury plants of it up among others is a great mistake, as half their beauty is lost, and the more sun and exposure they get the more colour the inflorescence assumes. Planted in the centres of beds, or on lawns, they produce a charming effect, and may easily be kept to a small size and compact shape by occasionally pruning them. The time to plant is as soon as the leaves fall, and if moved then plants will get good hold before winter sets in, and by making roots easily will be able to start strong in the spring. *J. S.*

Bedding Dahlias.—It was on the evening of the 3d inst.—the day succeeding the wind storm that passed over our southern counties—that I dropped into the Slough Nursery to have a look at Mr. Turner's truly splendid collection of Dahlias. It was a bad time for a visit, for the hurricane had played havoc with the blooms, and just then it was difficult to find many that were worthy of mention. But the giants of the Dahlia family had less interest for me than had the dwarfs, although in relation to average height nothing is more striking than is the immense improvement in habit seen in nearly all the show varieties, most of them carrying their fine blooms on plants not exceeding 3 feet in height. But whilst the big flowered kinds had suffered for the time from the storm, the dwarf branchy bedding kinds seemed absolutely proof against external influences. Talk about pegging down Dahlias, the labour is worse than thrown away upon the taller kinds, when such dwarf, compact habited kinds can be had so much better fitted for the purpose, which Mr. Turner has selected and classed as bedders. The shortest of these, carrying very showy heads of flowers, medium in size, and good double form, held on stiff stems, erect, just above the foliage were about 18 inches in height, and the *beau ideal* of effective bedding plants for large beds. Others ranged up to 3½ feet, and keeping these for the centre, or a back row, there were of intermediate kinds enough to give a truly beautiful and well graded mass of flowers. It was for the purpose of note taking, unfortunate that I was, at the nursery after the usual hours of labour, and the stock book, containing the names of the various kinds of Dahlias had been locked up. Still I think I am correct in calling a charming little scarlet-flowered bedder as Rising Sun, and a more perfect kind for the margin of a Dahlia bed could not be found. It was just 18 inches in height, and full of bloom. Then but a mere trifle taller came Mont Blanc, and a remarkably free and striking white kind, just fitted to come behind the scarlet and show up its rich hues by comparison. Surely the 2 feet high free blooming purple kind is the old Selinda which is so effective; this kind should come into the third row, and behind that Cloth of Gold, a bright yellow-flowered kind that is just about 2½ feet in height, and wondrously free to bloom. Next comes Little Wonder, a bright red form full of life and colour, and sixth I placed Flora Macdonald, 3 feet in height, and full of bloom of a pale primrose-yellow hue. From amongst the pompon kinds it would have been easy to select several that flower most freely, and, not least important, carry their blooms erect with marked effect. A light purple and a good red kind, Nos. 354 and 397 respectively, were capital examples. If some of those who are just now a little crazed over the use of single Dahlias as bedders would but give a trial to the kinds named above, they would be more than pleased, for truly they are all first-rate for bedding purposes. *A. D.*

Novelties in Nomenclature.—At p. 305 you note some "novelties in nomenclature;" you will find the enclosed card well to the front in this direction. We receive from a commission agent in Covent Garden regular supplies of "Stiffer Notice" (Stephanotis). Last spring we had one morning twelve bunches of "Sacrament;" on unpacking the box we found Cyclamens the only article to correspond with the invoice. At present we are frequently in receipt from the same source of "white Lapergerias." Some time ago we were asked by a gentleman in the South if we could supply a plant, the name of which he had received from his gardener, but which he had failed to find in any nurseryman's catalogue—viz., the "Oyer Beller." Not long ago we were shown a copy of a name on a label attached to a plant in a gentleman's greenhouse, "Rinkum sparum Jessie Mindes." The plant was found to be Rhynchospermum jasminoides. *T. & Co.*

Single Dahlias.—The tendency with raisers of these, and the taste of a certain portion of the public, is for big flowers, which I think is a great mistake, and should be discouraged by the committees and censors they come before for the purpose of being certificated or adjudicated for prizes, as there is quite as much, or more, beauty in small blooms, which are, moreover, by far the best and most elegant for cutting to put up in vases—a purpose for which these light single Dahlias are specially adapted, and for which they are likely to be very much grown. To get them the size of Sunflowers or plates may be easy enough, and no doubt such monsters will have their admirers, and they may even be sported in the buttonholes of some professed æsthetics, whose ideas seem to run on large things and loud colours; but what is wanted for the ornamentation of our borders and the embellishment of rooms is flowers that will stand out without being torn and disfigured by a little wind, and that do not look massive or obtrusive and vulgar within. Dahlias, being autumn bloomers, are much subjected to the weather, which, as is well known, is often unsettled and wet at that season, and it is only small, stout blossoms that bear the least chance of escaping uninjured. The way single Dahlias sport and vary from seed is surprising, and with so many being raised in that manner there will be no end to the variety to select from, and to get a number of choice sorts is only a question of time. Scarlets of all shades are abundant, and seed saved from Paragon produces nearly all of these colours. I hope soon to see a race of semi-doubles after the style of Juarezi and Glare of the Garden, as they would be fine decorative subjects if free-blooming, and would be far more lasting, as they would not drop their petals in the quick way the single ones do, which is owing to the multitude of anthers and the abundance of pollen worked on by the bees. *J. S.*

Chrysanthemum Society.—I am glad that the establishment of a national Chrysanthemum Society is proposed, seeing that the varieties of this flower bloom naturally for six months in the year, mostly through the darkest and dullest season, when flowers are more appreciated and welcomed, and certainly most needed. I have often judged at the Brixton Hill show, which I assisted to establish, and which is considered a model society, and where for twenty years or more the cry has been, "We have not room enough!" I have often thought this must be the best and certainly the most convenient time for gardeners to attend and hold a show. There is more leisure at this dull season—work is not going on with such rapidity as at other seasons in the garden. Young gardeners, I believe, can obtain more benefit at the Chrysanthemum shows than at any other; and again, these productions brought before employers are then of double value. If I am not mistaken, much good would be achieved from the formation of a head or central body of practical men to assist the provincial societies, which are springing up all over the United Kingdom, from Aberdeen to Cornwall. On the Continent they are also exhibiting on a large scale. At Utrecht, Holland, the great city of scholars, the Chrysanthemum show is one of the *fêtes* of the year. Further, and what is most necessary, out of the many hundred varieties reliable nomenclature is sadly wanting. Sports, and the confusion of names, are subjects which ought to be dealt with. In my opinion a national society is much needed, and the sooner it is established the better, with a committee to compile and issue an official catalogue of the best sorts, on a similar basis to that of the Rose Society. I have great pleasure in enclosing a cheque for three guineas as my mite towards forwarding and attaining that object. I also send you a bunch of blooms, with names affixed, of the varieties now in flower, and also some dried blooms which are past, to show that the Chrysanthemum does flower in July and August, and now forms one of the most important groups of decorative plants that we possess; and every year new varieties show how they are developing into some new form or a wider range of flowering. We are sadly in want of a leader. On the Continent the highest state officials throw in their aid to assist horticulture, and both the King and Queen of the Belgians lend their sanction in a way that if the same could be done in England our many empty tables would be made to groan with the weight of the choicest productions of our land. *Henry Cannell, Swanley.* [With this we received a cheque for £3 3*s*., which we shall be happy to hand over to the treasurer, when duly appointed. We have received several other letters advocating the formation of a Chrysanthemum Society, and suggesting that the Borough of Hackney Society should be reconstituted and extended so as to form the central society desired. Ed.]

Herbaceous Phloxes.—How grand these have been this year!—the weather all through the early part of the season having just suited them, as, besides being cool, we had frequent rain, and Phloxes grew strong and sent up towering stems that have borne fine heads of bloom. Some plants I saw in Mr. Gilbert's nursery at Ipswich the other day were from 5 to 6 feet high, and though past their best they bore the impress of beauty still on them, and showed what fine decorative subjects they are when planted in ground or situations that suit them. Where they do best is in moist deep soils, and they also pay well for a good mulching of dung and frequent soakings of sewage, as they are gross feeders, and make a great many roots that ramify wide. To have fine heads Phloxes require frequent dividing or thinning of the shoots, and young plants will always be found to be the most vigorous. The time to propagate is in spring, when the young growths are about 3 to 4 inches long, which, if taken off and inserted in sharp sandy soil and kept close under a handlight or frame, soon root, and may then be planted out where they are wanted to bloom. *J. S.*

Tricyrtis hirta.—The enclosed flower is grown at Messrs. Ireland & Thompson's nursery, near Edinburgh. The plants seem as yet too young to judge much of their habit, but the flower is striking from its resemblance at first sight to a small Passion-flower. It has, however, but six perianth divisions, white, thickly spotted with lilac, with a bright orange spot at the base of each division. Six thick filaments, and the three large reflexed divisions of the pistil, are also spotted with lilac, these divisions being fringed with glandular hairs. The stem is hairy, and the leaves are simple, sharply pointed, and somewhat woolly. The blossoms are in the axil of the amplexicaul leaf, on peduncles about half an inch long, and at the base of the latter are very small bracts. In the same nursery are various kinds of Nepenthes, well grown and well pitchered, including one or two hybrid seedlings raised here. A very fine plant of Sarracenia purpurea remained out-of-doors through last winter, in a northern aspect, close to one of the stoves. The pot is plunged in a pan of sphagnum, and covered with a bell-glass. Several other insectivorous plants are grown here, but not out-of-doors. There are some very effective Aroids; Anthurium Veitchii has leaves between 3 feet and 3½ feet long, and almost perpendicular in

their habit of growth all round the pot. Anthurium Andreanum is also very well grown, and A. cristallinum, Alocasia metallica, and Alocasia Thibautiana. In contrast to these, as foliage plants, is a finely cut Fern, Gymnogramma schizophylla, and Asparagus plumosa nana, the latter a great improvement on the type. Croton Thompsoni raised here is very good. Impatiens Sultani is flowering well, as is also the bright red Tropæolum Bothwell Castle Gem, which, as a climbing plant, under glass, is very effective. *X.*

Eucharis.—In reply to "H. A. G.'s" query in last week's issue—"Can the same bulb be made to flower more than once in a season?"—I say, undoubtedly it can, and that without any extra treatment, for early in February last I potted up some bulbs which had not been disturbed for four years, and potted several singly in pots, when in about six weeks from that time several of them flowered. During the last few weeks three of the same plants have flowered again, two of which I am confident are the same bulbs which flowered in March or April last, as I marked the pots they are growing in, and they have no other foliage but what springs from the one bulb. *J. R. M., Notts.*

Judging at Horticultural Exhibitions. — The vagaries of judges at shows are many and curious, as exhibitors know; but the most singular instance of their sometimes strange decisions came under my notice the other day at a *fête* I attended, where they disqualified a collection of vegetables for having round red and white kidney Potatos to make up the twelve sorts for which the prize was offered and fairly won by the man displaying the lot. As the same error may be perpetrated again, it is, I think, desirable to have such matters ventilated in the gardening journals, which may stop their occurrence and save those who compete the mortification and disappointment of having to bear and put up with a wrong, besides the uncertainty they must feel on entering the lists again, for were they to add some other sort of vegetable, as well as display the two varieties of Potatos, the very next set of judges might justly disqualify them for having thirteen. In all large collections of fruit of so many distinct kinds, black and white Grapes are admissible, and two or more sorts of Peaches and Nectarines, and so on; and it is just the same with vegetables, unless there is a clause in the schedule shutting them out. In the case referred to, the wording of the schedule was "for the best collection of vegetables consisting of twelve sorts, displayed in a basket or tray," and therefore nothing could possibly be plainer, which makes the decision one of those things "no fellah can understand." *J. S.* [The committee should act as a court of final appeal in such cases. ED.]

Reports of Societies.

Royal Caledonian Horticultural: *Sept.* 12 *and* 13.—While it may be true in a large sense that the flowers of autumn do not lend themselves in the same degree to an effective exhibition as the horticultural products of midsummer, yet this cannot be alleged of the autumn display of the Royal Caledonian Horticultural Society, which took place in the Waverley Market, Edinburgh. We do not remember to have seen the immense structure decorated in a more telling and magnificent manner, while the wealth of bloom and the infinite variety of colour must have satisfied and gratified—we do not insinuate that it is possible to have satiated—the most ardent and enthusiastic florist. But it was not the exuberance of the floricultural exhibits for which the show was alone notable, the amount and quality of the fruit staged far exceeded anything experienced in Edinburgh, if we except alone the great International Show of 1882. The entries numbered no fewer than 1404, of which 670 were of fruit; and the amount of money offered and paid in awards was £240. In 1881 the entries only reached the figure of 748, or little more than half of those of this autumn, and of these 328 (less than a half) were of fruit, the prizes running up to £181, or £60 less than on this occasion. It would be difficult to speak in too high terms of the quality of the exhibits. The show was, from a popular point of view, likewise a great success, for on both days it was attended by thousands of persons.

THE FRUIT.—As was beseeming an autumn show, the place of honour was given to the fruit. For the collection of twelve sorts chief honours fell to Mr. George Johnstone, Glamis Castle. His lot comprised a brace of bunches of Black Alicante Grapes—one irregular in shape of bunch, but the other perfect, and both excellent in size of berry and finish. The pairs of bunches of Muscats of Alexandria were little inferior to the Alicantes, one of them especially being of a beautiful wedge shape, while in colour and compactness of berry they left nothing to be desired. There were a fine ripe bunch of Musa Cavendishii, a plate of luscious Brown Turkey Figs, though not large in size; two plates of Peaches—it were hard to say which was finest, the Royal George variety or the Late Admirable, both as to colour and size; two plates of Nectarines, Duc du Telliers and Pitmaston Orange; two Pines, a Charlotte Rothschild and a Smooth Cayenne, both perfect in shape and flavour; and two Melons, Lady Gage and Bloxham Hall. Mr. J. McIndoe, Hutton Hall, was 2d. For a collection of eight sorts there was more competition, and Mr. D. Murray, Maybole, received 1st honours. His Grapes were superb, the Black Hamburghs in finish and size of berry being simply splendid, though one of the bunches had been somewhat injured in the handling. The Muscats of Alexandria were also fine, though one of the bunches had a few of the berries slightly spotted. The Melons were good, as were the Peaches, which were of a rich colour and large size; the Castle Kennedy Figs large and thoroughly ripe, without a crack; the Plums luscious and in perfect colour. This collection was closely approached by that of Mr. W. McKelvie, Broxmouth Park, who stood 2d; and Mr. J. M'Conochie, Cameron House, came 3d, with an excellent lot. Keen discussion took place over the awards for the best collection of ten sorts of hardy fruits. Surely there must have been some mistake as to the meaning of the word "sorts," which implies, if we are not sadly mistaken, distinct fruits. Apart from this if the Society's conditions, specially underlined, that all the fruits in this collection must be grown out-of-doors were fulfilled—and some cynics took leave to doubt it—the display was something marvellous—the season, continued rains and lack of sunshine, being considered. The 1st prize fell to Mr. P. W. Fairgrieve, Dunkeld, but his collection consisted of five sorts though ten varieties. His Peaches, magnificent even if grown under glass, were Royal George and Early York; Apricots, to which a similar remark applies—Large Early and Orange; Pears exquisite in colour and beautifully ripe—French Bergamot; Cherries, Morello, and three varieties of Plums—Jefferson, Goliath, and Kirk's. Second honours fell to Mr. J. McIndoe, who also fell into the same mistake as to sorts. To Mr. J. Day, Garlieston, was awarded 3d prize. In the class for a collection of twelve bunches of Grapes, Mr. W. McKelvie, Broxmouth, and Mr. J. McIndoe were placed equal, but there was a pretty general consensus of opinion that there was room for four or five prizes between Mr. McKelvie's lot and that of Mr. McIndoe. For the best eight bunches, six sorts, Mr. McKelvie was deservedly placed 1st; second honours falling to Mr. A. Kirk, Alloa; and Mr. McIndoe was 3d. A superb lot from Mr. A. Kirk's vinery carried the leading prize for four bunches, sorts; Mr. J. Day was 2d, and Mr. W. Lees 3d. It would be tedious to go through the minor competitions for two bunches and single bunches; suffice it to say that the entries were numerous, that the Grapes were admirably grown, that generally speaking the colour was good, and that on the whole they seemed well placed. In the contest for best bunch of any black variety, the 1st prize was given to Mr. W. Lees for a splendid bunch of Cooper's Late, and Madresfield Court shown by J. Forbes, Dean Path, being 2d. For the best bunch of whites, any variety, J. Archibald, Tilliconltry, came 1st with Duke of Buccleuch, rich in colour and enormous in size and berry—G. Ramsay, Fordell, being 2d with a variety marked "name not known." Not unlike the style of Duke of Buccleuch and rich in colour, it was a handsome bunch. For flavour in black Grapes J. McIndoe came to the front with Madresfield Court, and flavour among the whites was awarded to S. Castle, West Lynn, for a Muscat of Alexandria. The best bloom among blacks was awarded to W. Lees, for Cooper's Late, D. Murray's second bunch being Alnwick Seedling, darker in its violet bloom, but without a flaw. The display of Peaches was capital, and if G. McKinnon's (Melville Castle) lot, were richer in colour than J. McLeod's, the latter were not a whit behind in size. The Figs were fine, as were the Apricots and Nectarines, and except at the International Show we question whether finer Pears were ever seen in Edinburgh. Pine-apples seemed a good show, though, being scattered for decorative purposes, it was difficult to compare them. Of the hardier fruits, such as Apples and Currants, there was a large and fine display.

PLANTS: NURSERYMEN.—The principal competition among the nurserymen was for the £10 prize for the best furnished table for effect; and here, as for several seasons past, an easy victory was achieved by Messrs. Ireland & Thomson. Considerable skill and artistic deftness were exhibited in the arrangement of the table. It did not appear so crowded—so overladen with plants as in July, yet it was more effective, inasmuch as there was room for the setting off of the individuality of the plants, while that again was subordinated to general effect. Among the finer plants which went to make up this pleasing *ensemble* were Anthurium Veitchii, with its grand leaves 4 feet long drooping so gracefully; Alocasia Thibautiana, whose metallic foliage relieved with grey markings caused it to stand well out in the group; Anthurium Warocqueanum, with beautiful velvety foliage in grand health; Anthurium Andreanum, with quite a galaxy of its strange scarlet flowers. There was a grand lot of Crotons, including C. Thomsoni, sent out last year—one of the finest coloured Crotons grown. It has very large yellow leaves tipped with green. Another fine-foliage plant was the old Cyanophyllum magnificum, whose large velvety leaves are exceedingly attractive. Prominent in the collection was a grand lot of Nepenthes, including a splendid specimen of N. Hookerii. Among the general stuff with which these plants were set out were Dipladenia amabilis and D. Brearleyana, the pink and white varieties of an exquisite flower, Liliums, dwarf Palms, &c.; while the Orchids included Masdevallia chimæra, with its peculiar hair-covered flowers and long wings like feelers; Cypripedium Stonei, having exquisitely spotted tails; Dendrobium thyrsiflorum, with a fine spike of its graceful white and orange flowers, &c. The judges placed the table of R. Laird & Sons 2d, but their taste was at fault here unless they took into account the good collection of large Palms which formed the staple of the furnishing of the table. Unless the mass of foliage were taken there could be little said for artistic effect here. Among the plants were, besides the Palms, which included Seaforthias, Arecas, and Latanias, a fine plant of Pandanus elegantissimus, a well-grown Cordyline indivisa, and one of the largest Jacaranda mimosifolia we have seen, Statice profusa, Anthurium Andreanum; while filling up the spaces between the larger stuff were Liliums, Begonias, Pelargoniums, and Ericas. To our mind Messrs. T. Methven & Son's table ought to have been placed 2d, though it was not honoured with a ticket. As a specimen of formal arrangement for effect it was as good in its way—and that is high praise—as Messrs. Ireland & Thomson's was in its own peculiar style. The 3d prize was awarded to Messrs. Dickson & Co., Pilrig. Close by this table was one furnished from the Royal Botanic Gardens. The plants were specially attractive from their scientific interest, and included a fine collection of Nepenthes, of Droseras, and other carnivorous plants and Sarracenias.

Returning to the circular space at the west end of the hall, we find the Lawson Seed and Nursery Company occupying their assured position as 1st for twelve Conifers in pots or tubs—a very handsome and interesting collection. The same firm furnished a table in a somewhat unique fashion. On one side there was displayed, in such a manner as must become a gracefully decorated dinner-table, a number of dwarf Dracænas and Palms, while between were set out a collection of hand and breast bouquets. Seldom have we seen such a charming display, and the crowds of ladies who hung about the table showed their appreciation of their artistic beauty. On the other side of the table were arranged in groups a fine collection of annuals, alpine, and herbaceous flowers. Messrs. Jas. Dickson & Sons had a neat collection of shrubs and Conifers, relieved with an assortment of Heaths and Gladioli. Corresponding with this group was one of variegated Hollies and Junipers, contributed by Messrs. Cunningham, Fraser & Co., who also furnished a couple of tables with a general assortment of greenhouse plants and flowers. Messrs. Todd & Co. struck out a new line at these shows in the exhibition of floral crosses and wreaths, worked up in white flowers and Maidenhair Ferns in the most artistic style. The chief flowers employed were Eucharis, Tuberose, Lapageria, and white Asters. From Mr. Thos. S. Ware, of London, came a splendid collection of single Dahlias of endless variety. These flowers, so perfect in form and so beautiful in colour, have struck a chord in the public taste, as was evidenced by the deeply interested crowds who clung round Mr. Ware's tastefully set-out table. In the competition for Dahlias, Messrs. R. Laird & Son took 1st prize for the doubles with large and pure coloured flowers; Mr. Campbell, High Blantyre, being 2d. But for the fancies the positions were reversed—Messrs. J. Lamont & Sons seizing the tide of popular favour, by showing a table of single Dahlias, many of them of their own raising, and all of them staged in perfect condition and with an eye to effect. Messrs. D. & W. Croall, Dundee, took a fairly creditable 2d place. Last, but not least, among the nurserymen's exhibits were the Roses, and for the late season the quality was wonderfully fine. The veteran Hugh Dickson, Belfast, came to the front as usual with a splendid stand, in which old favourites were more conspicuous than newer varieties.

GARDENERS AND AMATEURS.—Of the plants and flowers staged by gardeners and amateurs, it may be conceded that they sustained the reputation of the Northern floriculturists as men of enthusiastic skill and abundant resource. The place of honour in the section was given to the table of plants for effect, 20 feet by 5 feet. The competitors were R. Grossart and A. Paul, and both tables were worthy of the reputation of the exhibitors, the former as a gardener, and the latter as an amateur. The general scheme of arrangement was alike in both tables—a bank of Ferns and creeping variegated plants, from which rose the more attractive and valuable decorative plants. If preference might naturally be given to Mr. Grossart's table, ticketed with the 1st award, it was simply that there was more variety in his plants, and that with his greater command of flowers of different types he secured a lighter and more graceful effect, though mayhap as to value the plants on Mr. Paul's table bore the palm.

The Corporation of the City of Edinburgh offered a special prize for six stove or greenhouse plants in flower, and Mr. J. Paterson, Milbank, once again proved that he is not to be easily deprived of his well won and modestly worn laurels.

Foliage plants and Ferns were, as usual, numerous and excellent; and the Fuchsias, Liliums, Vallotas, Petunias, Pelargoniums, and Geraniums staged in admirable order. Of the cut flowers it may be said that they came little behind those in the nurserymen's department; indeed, the Hollyhocks were better, and the bouquets quite as good.

Vegetables were a fine show, and special mention ought to be made of the Cauliflowers, Leeks, Turnips, and Potatos. (*From a Correspondent.*)

The Cryptogamic of Scotland.—The ninth annual conference of this Association, which numbers upwards of 120 members, opened at Dumfries on the 12th inst. Various excursions were organised, and among the fungi collected about 117 species were found to be represented. Only one species new to Scotland was sent in. This was the Hydnum gelatinosum, Scop., from Terregles. Perhaps the next most im-

portant species was the fine pale-coloured Agaricus virosus. This species was also got at Cromlongan on Thursday. Agaricus mappa was found in several examples, and was examined critically as one of the "good things" of the exhibition. Agaricus odorus, a dark-coloured scented species with a rough-looking pileus, was in several of the lots from Kirkcudbrightshire, and was also got at Comlongam subsequently. A very large and fine-looking Agaric—the Pholiota aureus var. Vahlii—was new to the fungologists, but a reference to Cooke's *Handbook* furnished the name. Of the genus Lactarius the rare species torminosus was present. Lentinus cochleatus, a very scarce plant in Scotland, was detected in two of the lots from Kirkcudbrightshire, and attracted much attention. A monstrous mass, over a yard wide, of Polyporus giganteus, came from Mr. Gracie, Kirkmichael House; a number of specimens of the Giant Puff-ball (Lycoperdon giganteum) from Mr. Jardine, Houston Cottage, were placed amongst Mr. W. G. Gibson's exhibits. We are told that Mr. Jardine has "cultivated" these plants for some years for using in a dried state to "smoke" bees with. They have the property, when a piece is lighted in a dried state, of rendering bees insensible, so that they may be worked amongst without fear of attack. Mr. Jardine originally prepared a suitable corner of his garden, on which he sowed the spores or "seeds," and the Puff-balls have grown annually since.

At the evening meeting Mr. King, of Glasgow, read a paper on the Potato disease, from which, as reported in the *Dumfries Herald*, we extract the following:—

It is stated that "the Potato disease has never been known in Chili, where the Potato grows wild." After receiving this report in the autumn of 1881 I asked my brother, who is resident in Chili, to send me some good tubers to plant—not wild ones but those of a good cultivated variety. Now Chili, stretching a great distance north and south, has many different climates. Seed was got from Llanquihue in the south, where the climate somewhat resembles our own. But it could not be got in the best condition, for Chili being within the southern hemisphere the seasons do not occur at the same same time as with us. At Llanquihue Potatos are dug in the month of May, while here they are planted in April. So they had to be taken up when only about half grown, and after all they arrived too late but quite sound. Portions were planted in fifteen different places—some during the second half of May, others not till the beginning of June. They grew vigorously, producing tall strong stems with great broad leaves, and I have here a dried leaf with the terminal leaflet 8 inches long by 6 inches broad. The principle on which I was acting was this. Tubers with a sound constitution will produce healthy disease-resisting plants. However, in the month of July I observed in a small plot at Irmellan the peculiar flocculence clearly showing the presence of the disease. I visited some of the lots myself and got reports about the others. The results were very varied. Those grown in England were reported free from disease—some at Dublin as a complete failure. At Lochwinnoch some grown on peaty soil had one-fourteenth diseased, while at Pollockshaws, on clay soil, the proportion affected was about one-sixth. In all cases the yield was small—but that was not to be wondered at. There was no disease in the field. Mr. Finlay Bell told me last week (September 5) that those planted on his farm at Monkton were still free from disease. On September 6 I visited a lot in the garden of Mr. James Henderson, Cadder, near Glasgow. Here the leaves had black spots, woolly beneath, clearly showing the presence of disease. The results were disappointing, still the trial had been made under favourable conditions, and was not decisive; so this year I am trying again. The tubers kept well during the winter, and were planted early—some in March, some in April. It is yet too early in the season to know the results. But on Saturday, September 1, I saw some that had been planted by Mr. Latta, farmer, Carmyle, near Glasgow. I have called them red Chilians. They were brought, as you remember, from the South, where the climate is like our own. But this year I got a different variety from the North, where the climate is dry and warm. These Potatos are ripe in the month of January. They arrived in March, and were planted with the others. This second variety is called "Borajila," which may be rendered Borage-leaved, and is, I think, better than the other. On August 21 I saw a plant of each dug in the garden of my brother at Wolverton, Buckinghamshire. The plants were growing together. The red Chilian had only a few small tubers, while the Borage-leaved had sixty, and the half of these were large enough to cook. But even on this variety I have seen spotted leaves. What may be the value of these varieties three or four years hence I do not know, but I am afraid that we are not able to banish the disease by simply importing a fresh stock. So far as we see at present, the best way to diminish the severity of the annual attack, is to sow the seeds contained in the Potato Plums. These produce many different varieties of which those kinds should be cultivated which are found to resist the disease best. In this way we have obtained Champion, &c.

AGERATUM TOM THUMB. — This being a very dwarf-growing and profuse flowering Ageratum it should find a place in every flower garden, its mauve flowers being very effective, either in patches, in mixed beds, or in masses. But, on account of its free disposition to flower, it is somewhat difficult to obtain a sufficient number of cuttings in the autumn for stock, therefore a few plants should be lifted before they get severely nipped by frost, and potted for supplying the necessary number of cuttings in spring. *H. W.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, SEPTEMBER 19, 1883.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rainfall.
Sept	In.	In.	°	°	°	°	°	°	°		In.
13	30.05	+0.17	69.0	54.1	14.9	59.2	+ 1.8	56.0	88	E. : N.W.	0.00
14	29.87	−0.01	71.0	53.0	17.4	60.4	+ 3.2	55.1	83	N.E.	0.00
15	29.83	−0.03	65.0	53.0	12.0	57.6	+ 0.5	52.9	84	S.S.W. : N.N.W.	0.00
16	30.01	+0.14	72.2	49.3	22.9	58.7	+ 1.8	53.6	91	E. : S.W.	0.00
17	30.04	+0.19	75.1	48.5	26.7	60.0	+ 3.4	55.5	85	E.	0.03
18	30.02	+0.18	75.1	51.3	23.7	61.6	+ 5.2	57.0	85	E. : E.S.E.	0.00
19	29.85	+0.03	75.0	52.5	22.5	61.8	+ 5.7	54.8	77	E. : W.N.W.	0.00
Mean	29.96	+0.10	71.8	51.8	20.0	59.9	+ 3.1	55.0	85	E.	0.00

Sept. 13.—Fine day and night.
— 14.—Very fine day and night.
— 15.—Fine day, cloudy at times. Fine clear night.
— 16.—Fog in morning. Fine day and night.
— 17.—Slight fog in morning. Fine day; mostly overcast, and thunder at 3 P.M. Fine bright night.
— 18.—Fine bright day, and night cloudless.
— 19.—Fog on low ground. Fine bright day. Fine night, moon shining faintly.

LONDON: *Atmospheric Pressure.*—During the week ending September 15 the reading of the barometer at the level of the sea increased from 30.13 inches at the beginning of the week to 30.20 inches by 9 A.M. on the 9th, decreased to 29.94 inches by 3 P.M. on the 10th, increased to 30.28 inches by 9 A.M. on the 13th, decreased to 29.95 inches by 9 A.M. on the 15th, and was 30.10 inches by the end of the week.

The mean reading for the week at the level of the sea was 30.14 inches, being 0.43 inch higher than last week, and 0.02 inch above the average of the week.

Temperature. — The highest temperature in the shade in the week was 71°, on the 9th and 14th; the highest reached, on the 11th, was 59°. The mean of the seven high day temperatures was 67°.

The lowest temperature was 44°.1, on the 9th; on the 11th the lowest temperature was 54°.5. The mean of the seven low night temperatures was 52°.2.

The greatest range of temperature in one day was 26°.9, on the 9th; and the smallest was 4°.5, on the 11th. The mean of the seven daily ranges was 14°.8.

The mean temperatures were—on the 9th, 56°.2; on the 10th, 57°.8; on the 11th, 55°.7; on the 12th, 59°.8; on the 13th, 59°.2; on the 14th, 60°.4; and on the 15th, 57°.6. Of these the first three were below their average by 1°.9, 0°.2, and 2°.1 respectively; and the rest were above by 2°.2, 1°.8, 3°.2, and 0°.5 respectively.

The mean temperature of the week was 58°.1, being 2°.8 higher than last week, and 0°.5 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 132°.5, on the 9th. The mean of the seven readings was 110°.1.

The lowest readings of a minimum thermometer, with its bulb on short grass, was 36°, on the 9th. The mean of the seven readings was 44°.4.

Rain.—Rain fell on the 11th and 12th to the amount of 1°.62 inch, of which 1.34 inch fell on the 11th.

ENGLAND: *Temperature.*—During the week ending September 15 the highest temperatures were 74°.1 at Cambridge, 71° at Blackheath, and 70° at Truro and Brighton; the highest at Wolverhampton was 65°.4, at Plymouth 66°.1, and at Bristol 66°.4. The general mean was 68°.3.

The lowest temperatures in the week were 37°.4 at Wolverhampton, 38°.6 at Nottingham, and 39° at Truro; the lowest, at Preston, was 50°, at Liverpool 48°, and at Sunderland 47°. The general mean was 43°.2.

The greatest ranges of temperature in the week were 34°.3 at Cambridge, at Truro 31°, and at Wolverhampton 28°; the smallest ranges were 17° at Preston, 21° at Liverpool, and 20°.4 at Bristol. The general mean was 25°.1.

The mean of the seven high day temperatures was highest at Cambridge, 68°.4, at Blackheath 67°, and at Truro 66°.1; and were lowest at Bradford, 62°.3, at Wolverhampton 62°.7, and at Liverpool 63°. The general mean was 64°.1.

The mean of the seven low night temperatures were highest at Brighton, 52°.4, at Blackheath 52°.2, and at Preston 52°; and were lowest at Bolton, 47°.2, at Wolverhampton 47°.5, and at Truro and Plymouth 48°.4. The general mean was 50°.

The mean daily range of temperature was greatest at Sunderland, 10°.6, at Liverpool and Preston 11°.5; and were least at Cambridge and Truro, 17°.7, and at Bolton 17°.1. The general mean was 14°.1.

The mean temperature was highest at Cambridge, 58°.3, at Blackheath 58°.1, and at Brighton 57°.7; and was lowest at Sunderland, 53°.2, at Wolverhampton 53°.8, and at Bolton 54°.4. The general mean was 55°.8.

Rain.—The largest falls were 1.62 inch at Blackheath, 1.38 inch at Hull, 1.08 inch at Wolverhampton, and 1.06 inch at Bristol; the smallest falls were 0.16 inch at Truro, 0.23 inch at Preston, 0.38 inch at Liverpool, and 0.41 inch at Leeds. The general mean fall was 0.82 inch.

SCOTLAND: *Temperature.*—During the week ending Sept. 15 the highest temperature was 67°, at Perth; at Aberdeen the highest temperature was 61°.8. The general mean was 64°.9.

The lowest temperature in the week was 35°, at Glasgow and Perth; at Greenock the lowest temperature was 44°. The general mean was 38°.4.

The mean temperature was highest at Greenock, 55°.1; and lowest at Aberdeen, 52°.1. The general mean was 53°.8.

Rain. — The largest fall was 0.46 inch, at Glasgow; and the smallest was 0.06 inch at Aberdeen. The general mean fall was 0.24 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—BACON.

PUBLIC WAY.—Having a public footpath and bridle road leading close by a dwelling-house, to the great annoyance of the owner, can any reader inform me of any means whereby the road and path could be removed a distance of 100 or 150 yards. *A Constant Reader.* [You do not say if it is a "highway," or a "parish or private way." You would probably have to apply to the Court of Quarter Sessions, but the district surveyor should be able to give you the requisite information. ED.]

Answers to Correspondents.

*** ADVERTISERS BEWARE!—Gardeners seeking situations by means of advertisements are recommended to pay no heed to so-called agents, who profess to obtain situations for gardeners on consideration of stamps being sent beforehand. Some of these men may be respectable, but we know that others are not, and counsel gardeners to take great care in the matter, or they will find themselves not only disappointed but deprived of their money.

ARAUCARIA: *T. T.* The tree is growing in unsuitable soil.

ARAUCARIA CUNNINGHAMI: *Old Subscriber.* This is a tall-growing tree in its native country, and not a shrub.

BOOK: *C. Silberad.* Get Paxton's *Cottagers' Calendar*, published at this office, to commence with.

DEADLY NIGHTSHADE: *Dr. Prior.* The pulp surrounding the seeds of this plant may not act as a poison on the birds, and the seeds are voided by them. The same thing occurs with birds eating Yewberries, which they do with immunity from all harm. The seeds of this tree are an acrid poison, but the pulp is harmless.

DRYING PLANTS: *L'Allegro.* The essentials are firm pressure, a plentiful supply of paper frequently changed, and ventilation by means of lattice frames inserted between the drying-papers. The use of chemicals has no practical value.

DUNDEE HORTICULTURAL SOCIETY: *D. W. S.* The misspelling of the name was a printer's error. For the report, as sent, it is written that John Stewart & Sons obtained the 1st prize for their table, &c. The "also" clearly refers to another class, and does not bear the interpretation you put on it.

ERRATUM: COVENT GARDEN CRICKETERS. — In our last issue (p. 336), alluding to the achievements of the pomological gentlemen, instead of "that they had made seventy-five runs between them," read "had lost four wickets for seventy-four runs."

FLOORE GARDENS. — Your correspondent is in error in stating the "long border" to be "hard on 400 feet." It is 760 feet long, and from 12 to 18 feet wide. *Floore.*

FUNGUS ON PEAR LEAF: *W. T. T.* The fungus isRæstelia cancellata, which, in one stage of its existence is the very different looking jelly-like fungus known as Podisoma juniperi. Burn all the affected leaves you can sweep up, and destroy or remove all Junipers and Savins in the neighbourhood.

INSECTS: *Robt. Young.* Your box contained two Apple leaves, and two objects which seem to be the droppings

of some small bird or large caterpillar, what we cannot tell. *I. O. W.*

LARCH: *T. T.* The trees are infested with Larch scale (Coccus laricis). The trees are out of health, and afford an easy prey to the insect. We cannot suggest any remedy.

LUMINOSITY OF FLOWERS: *W. H. Smith & Sons.* Yes, the Nasturtium (Tropæolum rather) is stated to have the same property.

NAMES OF FRUITS: *Alfred Bishop.* Tomato A. Bishop, large and handsome, a yellow fruited variety of Hathaway's Excelsior, well worth growing. Your second question we see no way of replying to. — *Robert Smith, Kenward.* 1, Doyenné Boussoch; 2, Catillac; 3, Gansell's Bergamot; 4, Fondante d'Automne. *Peach*, Walburton Admirable; *Nectarine*, Pitmaston Orange—well-grown examples.—*S. Geer.* Old Hawthornden.—*Dereham.* 1, Kirke's Plum; 2, Beurré de Capiaumont; 3, quite decayed; 4, Summer Thorn; 5, Cox's Emperor; 6, Nonsuch; 7, Yellow Ingestre. —*K. D.* 1, Manks' Codlin; 2, Maiden's Blush.—*H. R. B.* Large fruit, General Todtleben; small, Comte de Flandre.

NAMES OF PLANTS: *O. & Co.* Polygonum Sieboldi.—*W. H. Parker.* Colchicum autumnale.—*E. V. B.* Probably the Lyme-grass (Elymus arenarius), which grows in the situation mentioned, and is one of the most useful sand-binding plants. The specimen, however, is insufficient.—*P. B.* Parnassia palustris and Impatiens parviflora.—*Euritoma.* Can you not send us a specimen in flower not distorted by the Isosoma? It looks like Triticum repens (Couch-grass).—*H. Cannell & Sons.* Hibiscus Trionum.—*T. S. B.* Spiræa canescens.—*E. C. C. D.* Impatiens Roylei, and Celsia arcturus probably, but the fragment is insufficient.—*A. Sparey.* 7, Centranthus ruber; 8, Tradescantia virginica; 9, Lychnis coronaria.—*A. B.* 1, apparently a species of Senecio, which we cannot name without flowers; 2, Thuia (Chamæcyparis sphæroidea); 3, Thuia (Chamæcyparis pisifera); 4, Aucuba japonica var.—*C. W. Dod.* Aster versicolor var., and A. leucanthemus.—*E. J. Bouvardias:* 1, Bridal Wreath; 2, Humboldti corymbiflora; 3 and 4, varieties of Hogarth. *R. N.* Lapageria rosea.—*Ireland & Thompson.* Tricyrtis hirta.—*J. Johnson, Raby Street, Darlington.* Flowers insufficient to identify.—*Dr. Morton.* Chrysanthemum coronarium flore-pleno.—*A Subscriber.* Pyrus Aria nivea.—*H. Cannell & Son.* The blue Ageratum is good in colour, compact in habit, and dwarf. It should make a useful bedding kind. The white one appears to be hardly pure enough in colour for a first-class bedder.—*Meads, Hailsham.* Specimen insufficient.—*Old Subscriber.* The red and blue are varieties of Anagallis monelli; the other is Nierembergia gracilis.—*Camjee.* Carduus Marianus — the Blessed Thistle. The yellow flower next week.—*F. Kneller.* Polygonum cuspidatum.—*Pritchard & Son.* Impatiens Roylei.—*W. J. C.* Impatiens Roylei; the grass we cannot name.

NICOTIANA: *A. M.* It is probably N. affinis, as that answers nearest to your description.

NUTS: *W. Bate.* Mr. George Bunyard's *Fruit Farming for Profit*, we think, gives the information you want. His address is Maidstone.

PEACH: *D. D.* The roots are dead, but from what cause we cannot say. Send us some of the leaves.

RHEEA FIBRE: *China Grass.* See *Pharmaceutical Journal*, vol. iii., iv. (1873), 8. A. H. Collier, *Rheea Fibre: its Cultivation and Preparation:* Calcutta. Dennet, C. F., *Vegetable Fibres:* Brighton (1875). Dickson, J. H., *The Fibre Plants of India, &c.:* London (1873). J. F. Watson, *Report on the Preparation and Use of Rheea Fibre:* London (1875). The last the most important.

ROOTS ON VINE STEMS: *J. H.* The aërial roots on the Vine do no harm, but they indicate a too close and moist atmosphere.

SEA SIDE PLANTING: *Subscriber, Cork.* You do not give the locality, but in your own neighbourhood, if you afford sufficient shelter, you have a large choice among Japanese and New Zealand shrubs. The main point is shelter nearest to the sea. We should plant Tamarisk with Atriplex halimus for variety. Then Sea Buckthorn, Hippophae, and double-flowering Gorse. Intermixed with these the Pines mentioned below and the Cypress—which will grow up under the shelter of the shrubs. You can choose among the following:—

Evergreen Shrubs.

Euonymus japonicus	Laurus nobilis
Pittosporum Tobira	Yucca gloriosa
Atriplex Halimus	Phillyreas
Tamarix germanica, next the sea	Hippophae rhamnoides (deciduous)

Trees.

Cupressus macrocarpa	Acer Pseudo-Platanus
Common Elder [aster	Some of the Willows
Pinus austriaca and Pin-	Evergreen Oaks

Flowering Shrubs.

Escallonia macrantha	Baccharis halimifolia
Ribes sanguineum	Spartium junceum
Buddleia globosa	Berberis Darwinii
Hydrangeas	Fuchsias
Cissus ladaniferus	Double Gorse

SEEDLING PEA: *W. F. & Co.* The sample was too old. We like to see them fresh and on the haulm before giving an opinion.

SINGLE DAHLIAS: In our report of the recent exhibition of Dahlias at South Kensington, we omitted to mention that Mr. Charles Turner, of Slough, obtained a First-class Certificate for white single Dahlia Duchess of Westminster.

TOMATO: Wash the seeds in a fine sieve held in a vessel of water, and dry in the shade.

VINES: *C. H.* We failed to find any Phylloxera on the roots, and do not consider the louse to be the cause of the curling of the leaves.

WEED ON LAWN: *T. T.* Prunella vulgaris. A dressing of nitrate of soda in early spring will encourage the grasses at the expense of the weed.

COMMUNICATIONS RECEIVED.—R. B.—A. W.—J. S.—J. D.—W. B. H.—Mrs. B.—N.—W. C.—J. D.—A. F. B.—Pomona.—Dutton, Christchurch, New Zealand.—V. & Sons.—W. C. L.—W. L.—Old Subscriber.—J. H.—J. S. L.—J. R. M.—J. H.—N. D.—An Amateur, Eastbourne (next week).—W. J. C.—T. Challis (too late).—J. S. L.—N. D.—Scott Wilson.—P. T.—B. S. W.—Haage & Schmidt (with thanks).—W. F.—P. & C.—H. B.—H. H. D'O.—M. D.—J. Lecomte, Jumet.—C. W.—J. M. P. (next week).—W. L. Bromley (we are unable to trace your specimens).

Markets.

COVENT GARDEN, September 20.

APPLE MARKET dull; prices giving way. A demand will now be felt for good English Pines, as also late Peaches. The supply of Cobs has been limited, and prices of all samples have improved. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 6– 2 6	Melons, each ..	1 0– 3 0
Cobs, per 100 lb. ..	100 0–116 0	Peaches, per doz. ..	1 6– 4 0
Figs, per dozen ..	1 0– ..	Pine-apples, Eng., lb.	2 0– 5 0
Grapes, per lb. ..	1 0– 2 0	Plums, ½-sieve ..	7 0–10 0
Lemons, per case ..	20 0– 30 0		

VEGETABLES—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz. ..	2 0– 3 0	Lettuces, Cabbage, per dozen ..	1 0– ..
Beans, French, lb. ..	0 4– ..	— Cos, per dozen ..	1 6– ..
— Scarlet, per lb. ..	0 3– ..	Mint, green, bunch ..	0 6– ..
Beet, per doz. ..	1 0– ..	Mushrooms, p. baskt.	1 0– 2 0
Cabbages, per doz. ..	1 0– 2 0	Onions, per bunch ..	0 6– ..
Carrots, new, p. bun.	0 4– 0 6	— Spring, per bun.	0 6– ..
Cauliflowers, English, dozen ..	2 0– 3 0	Parsley, per bunch ..	0 4– ..
Celery, per bundle ..	1 6– ..	Peas, English, quart	1 0– ..
Cucumbers, each ..	0 4– 0 8	Radishes, per doz. ..	1 6– ..
Endive, French, per dozen ..	2 0– ..	Small salading, pun.	0 4– ..
Garlic, per lb. ..	1 0– ..	Spinach, per bushel	2 6– ..
Herbs, per bunch ..	0 2– 0 4	Tomatos, per lb. ..	0 6– 0 9
Horse Radish, bund.	3 0– 4 0	Turnips, new, bun.	0 4– ..
		Vegt. Marrows, each	0 2– 0 4

POTATOS.—Kent Kidneys, £3 to £4 per ton; do., Regents, £3s. to £4 per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per dozen ..	12 0–24 0	Ferns, in variety, per dozen ..	4 0–18 0
Arbor-vitæ (golden), per dozen ..	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each ..	2 0–10 0
Asters, per doz. ..	4 0– 9 0	Fuchsias, per dozen	4 0– 9 0
Begonias, per doz. ..	6 0–12 0	Hydrangea, per. doz.	9 0–24 0
Bouvardia, doz. ..	12 0–18 0	Liliums, various, per dozen ..	12 0–30 0
Caladiums, per doz.	6 0–24 0	Marguerite Daisy, per dozen ..	12 0–24 0
Cockscombs, doz. ..	3 0– 6 0	Mignonette, doz. ..	4 0– 6 0
Coleus, doz. ..	2 0– 6 0	Myrtles, per doz. ..	6 0–12 0
Dracæna term. doz.	30 0–60 0	Palms in variety, each	2 6–21 0
—viridis, per doz. ..	12 0–24 0	Pelargoniums, scarlet, per dozen ..	2 0– 6 0
Erica, various, doz.	12 0–36 0	— decorative, doz.	6 0–12 0
Euonymus, various, per dozen ..	9 0–18 0		
Evergreens, in var., per dozen ..	6 0–24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Marigolds, 12 bun. ..	2 0– 4 0
Asters, 12 bunches ..	2 0– 9 0	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 0
— French, per bun.	1 0– 3 0	Pansies, 12 bunches	0 9– 1 6
Bouvardias, per bun.	1 0– 1 6	Pelargoniums, 12 spr.	0 6– 1 0
Carnations, 12 blms.	1 0– 3 0	— zonal, 12 sprays	0 3– 0 6
— 12 bunches ..	3 0– 6 0	Picotees, 12 bun. ..	2 0– 6 0
Cornflower, 12 bun. ..	1 6– 4 0	Primula, double, bun.	1 0– 1 6
Dahlias, 12 bun. ..	3 0– 6 0	Pyrethrum, 12 bun. ..	3 0– 6 0
Eucharis, per doz. ..	3 0– 6 0	Roses (indoor), doz.	2 0– 6 0
Gardenias, 12 blms. ..	3 0– 6 0	— (outdoor), 12 bun.	3 0– 6 0
Gladioli, 12 spikes ..	1 0– 3 0	— coloured, doz. ..	3 0– 8 0
Heliotropes, 12 sp. ..	0 6– 1 0	Stephanotis, 12 spr.	3 6– 6 0
Lapageria, white, 12 blooms ..	3 0– 6 0	Sweet Peas, 12 bun.	2 0– 4 0
— red, 12 blooms ..	1 0– 3 0	Sweet Sultan, 12 bun.	4 0– 6 0
Liliums, 12 bun. ..	12 0–18 0	Tropæolum, 12 bun.	1 0– 2 0
Marguerites, 12 bun.	6 0– 9 0	White Jasmine, bun.	0 6– 1 0
Mignonette, 12 bun.	2 0– 6 0		

SEEDS.

LONDON: *Sept.* 19.—The trade for farm seeds continues quiet. Red Clover seed promises to be exceedingly cheap: a large English crop, as is probable, would render imports unnecessary. Trifolium realises late rates. Winter Tares still tend upwards; Rape seed also is firmer. Mustard seed moves off slowly on former terms. English blue Peas are in fair demand: the quality is good, and prices moderate. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

POTATOS.

The Borough and Spitalfields markets reports state that there have been fair supplies, and a moderate demand. Quotations:—Kent Regents, 80s. to 100s.; Essex Regents, 80s. to 90s.; Magnum Bonums, 80s. to 100s.; and Roses, 60s. to 70s. per ton.—The imports into London last week consisted of 500 bags from Hamburgh.

WASPS.—How to Catch Them and Save a Crop of Grapes.

Mr. FREESTON, *Gardener at Brookfield House, Upper Tooting, writes, Sept.* 12, 1883:—"The box of Myocom Fly Gum you sent me some three weeks ago has exceeded my most sanguine expectations. Hundreds of wasps have been caught, and saved my crop of Grapes."

Messrs. JAS. DICKSON & SONS, *Chester, write, Sept.* 11, 1883:—"We have sent you, per Parcels Post, a specimen gummed string prepared from your Myocom Fly Gum, which you will see has done good work."

MYOCOM is prepared and sold in 1s. Tins (8s. per dozen, trade terms). Sample Tin by post for 14 Stamps.

Sole Proprietors, THOS. CHRISTY AND CO., 155, Fenchurch Street, London, E.C.

☞ Of all Chemists.

Important Discovery.

For Cleansing Plants from Aphides, and all Parasites. To prevent American Blight, all kinds of Scale, &c., and for Washing all Hard-wooded Plants, always use

HUDSON'S EXTRACT OF SOAP.

A ¼ lb. Packet to 3 Gallons of Water.

A strong solution thickened with clay makes an effective Winter Dressing.

Testimonials.

"Coton Hall Nursery, Shrewsbury, July 28, 1880.

"We find Hudson's Soap a very useful Winter Dressing for all kinds of Fruit Trees; both as a preventive and cure against American Blight and all kinds of Scales. We also use it for Camellias, Azaleas, Rhododendrons, and all kinds of Hard-wooded Plants. We have much pleasure in presenting you with this testimonial, and remain, yours truly,

(Signed) "JOHN JONES AND CO."

"201, Broad Street, Birmingham, August 15, 1883.

"DEAR SIR,—I have lately tried Hudson's Extract of Soap for the mildew on my Rose trees in the greenhouse, and I find that with one syringing it completely cures it instantly. I should say I tried it some time ago with the same result. Yours truly,

(Signed) "W. JAMES."

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REMARKABLE DISAPPEARANCE! of all DIRT from EVERYTHING BY USING HUDSON'S EXTRACT OF SOAP.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1s., 3s., & 10s. 6d.

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

GISHURSTINE, for dry feet and boot comfort, is much used by Gardeners, Farmers, Ladies, Sportsmen, and Shore-waders; is sold by Nurserymen and Oilmen, with testimonials and directions for use, in boxes, 6d. and 1s. each. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), London.

PURE WOOD CHARCOAL FOR VINE BORDERS, FRUIT TREES, STRAWBERRIES, ROSES, FLOWER BEDS, POTTING PURPOSES, AND GENERAL HORTICULTURAL PURPOSES. HIRST, BROOKE, AND HIRST, Manufacturers, Leeds, Yorkshire.

BAMBOO CANES, for Nurseries and Gardens. Hundreds of tons in stock, from 1 to 4 inches in diameter, and up to 16 feet. The largest importer in England. P. B. HARKIN, Dutton Street, Liverpool.

GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of WATSON AND SCULL, 90, Lower Thames St., London, E.C.

Under the Patronage of the Queen.

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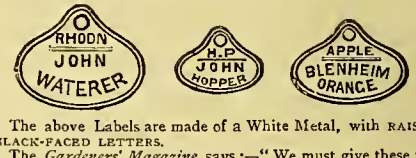

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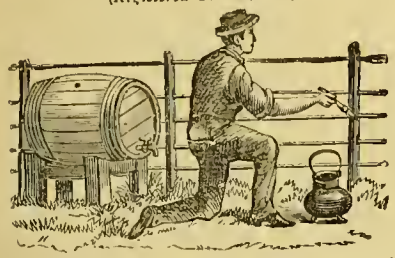
FISHER, CLARK & CO., BOSTON, LINCOLNSHIRE.

INDIAN MUSLIN, for Garden Shading.—100 yards for 10s., delivered at Burnley Station; or 85 yards for 10s., delivered free per parcels post. Very useful pure Cotton for Curtains, Blinds, Draperies, &c.; cream colour. Postal Order to be sent with each Order. Send stamped envelope for Pattern. J. KAY AND SONS, Burnley Wood Mills, Burnley.

REIGATE SILVER SAND.—Coarse and fine, on rail at 7s. 6d. per ton—not less than 4-ton trucks Terms cash.—Apply to H. SIMS, The Priory, Reigate.

Oil Paint No Longer Necessary.

HILL AND SMITH'S BLACK VARNISH, for Preserving Ironwork, Wood, or Stone. (*Registered Trade Mark.*



This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the Advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its coostantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in Casks of about 30 gallons each, at 1s. 6d. per gallon at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"*Piercefield Park, June* 21, 1876.—Sirs —I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, WM. COX."

CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S 's Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

Large illustrated CATALOGUE of Fencing Hurdles, Field and Entrance Gates, &c., sent free on application to

HILL AND SMITH, Brierley Hill Ironworks, Staffordshire; 118, Queen Victoria Street, London, E.C.; and 196, St. Vincent Street, Glasgow.

To the Trade.

FLOWER POTS.—1000 Cast for Sale. Used last season. 48's and 60's, at 8d. per Cast.

E. CHAMBERLAIN, Nurseryman, 1, Pilgrim's Lane, Hampstead, N.W.

SPECIAL 21-OZ. SHEET GLASS, BRITISH

HORTICULTURAL SIZES.

20 Boxes, 20×12	10 Boxes, 20×13	10 Boxes, 20×14
10 ,, 20×15	10 ,, 20×16	20 ,, 20×18
	20 ,, 24×18	

In 200 feet Boxes, at 2¼d. per foot nett for not less than 1000 feet. BOXES FREE.

GEORGE FARMILOE & SONS,
GLASS, LEAD, OIL and COLOUR MERCHANTS,
34, St. John's Street, West Smithfield, London, E.C.

BELGIAN GLASS for GREENHOUSES, &c.
Can be obtained in all sizes and qualities of
BETHAM & SON,
9, LOWER THAMES STREET, LONDON, E.C.

B. & Son have always a large stock in London of 20 in. by 12 in., 20 in. by 14 in., 20 in. by 16 in., 20 in. by 18 in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200-ft. and 300-ft. cases.

TEN SILVER MEDALS
AWARDED TO

JOHN MATTHEWS, THE ROYAL POTTERY, WESTON-SUPER-MARE, Manufacturer of TERRA-COTTA VASES, FOUNTAINS, ITALIAN BASKETS, BORDER TILES, GARDEN POTS of superior quality, from 1 to 30 inches diameter, stand the frosts, and seldom turn green; ORCHID, FERN, SEED and STRIKING PANS, RHUBARB and SEAKALE POTS, &c. Price LIST post-free. Sheet of Designs, 6d. Book of Designs, 1s.

HORTICULTURAL SHEET GLASS,

21 oz. Foreign, of the following sizes, in boxes of 100 and 200 feet, 3ds and 4ths qualities always kept in stock:—

14×12	20×12	20×14	20×16	20×18
16×12	16×14	20×15	22×16	22×18
18×12	18×14	18×16	24×16	24×18

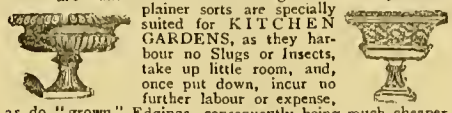
Stock Lists and Prices on application.

All descriptions of British and Foreign Glass can be obtained from

GEORGE FARMILOE & SONS,
GLASS, LEAD, OIL and COLOUR MERCHANTS,
34, St. John's Street, West Smithfield, London, E.C.

Rosher's Garden Edging Tiles.

THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

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ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.

F. ROSHER AND CO., Brick and Tile Merchants.
See Addresses above.

SILVER SAND, fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Stations. Samples of Sand free by post.

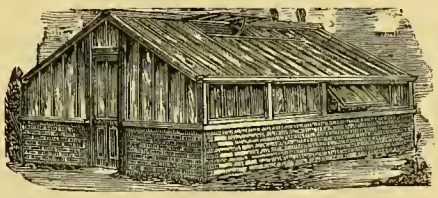
FLINTS and BRICK BURRS for Rockeries or Ferneries.

KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

DEANE & CO.'S
CONSERVATORIES & GREENHOUSES.



The prices given include ERECTING COMPLETE, with all necessary brickwork, &c., within fifteen miles of London.

SPAN ROOF CONSERVATORY.

Size....	15ft. by 9ft.	20ft. by 12ft.	25ft. by 15ft.
Price ..	£30	£42 10s.	£58.

LEAN-TO GREENHOUSE.

Size..	10ft. by 6ft.	12ft. by 8ft.	15ft. by 10ft.	20ft. by 12ft.
Price.	£19 10s.	£23 10s.	£29 10s.	£40.

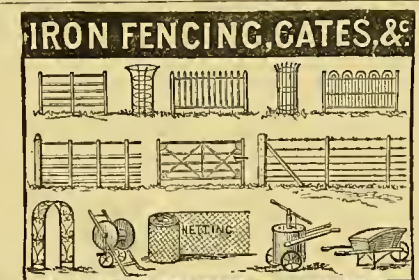
Proportionate prices for other sizes and at any distance.

Drawings and Estimates for Conservatories free.

THE LOUGHBOROUGH HOT WATER APPARATUS, £4 4s.—The simplest, cheapest, and most powerful, requiring no Brick Setting, and no Hot-water Fitter for fixing. LISTS free.

DEANE & CO.,
(46, King Wm. St.), LONDON BRIDGE.

IRON FENCING, GATES, &c.



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WOLVERHAMPTON
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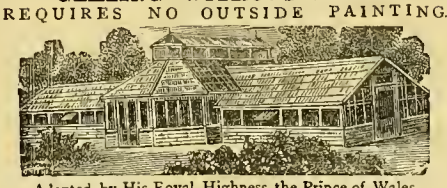
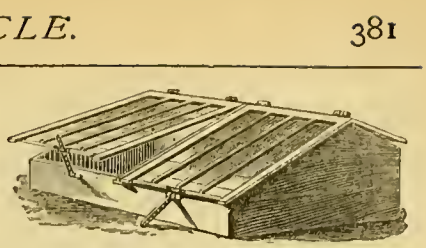
HELLIWELL'S PATENT SYSTEM OF GLAZING WITHOUT PUTTY
REQUIRES NO OUTSIDE PAINTING.



Adopted by His Royal Highness the Prince of Wales.
Banksian Medal of Royal Horticultural Society.
OLD ROOFS RE-GLAZED. OLD WOODWORK COVERED.
Plans and Estimates free of charge from

T. W. HELLIWELL,
Royal Horticultural Works, Brighouse, Yorkshire; and
8, Victoria Chambers, Westminster, S.W.



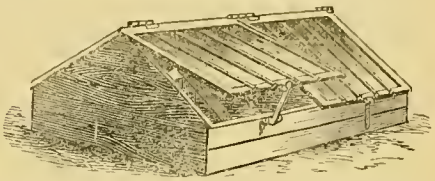
No. 74. Three-quarter SPAN-ROOF GARDEN FRAME.
CASH PRICES—Carriage Paid.

No. 2 size ..	8 ft. long ..	6 ft. wide ..	£4 15 0
No. 3 size ..	12 ft. long ..	6 ft. wide ..	6 10 0
No. 4 size ..	16 ft. long ..	6 ft. wide ..	8 5 0

These Frames are 13 inches high in front, 24 inches high at the back, and 32 inches at the ridge. Front or back lights turn over. Set-opes are provided for ventilating. All painted four coats of best oil colour, and the lights are glazed with best 21-oz. English glass.

GREENHOUSES,
Suitable for Villas, Small Country Houses.
NEW CATALOGUE. NOW READY. FREE ON APPLICATION.

BOULTON & PAUL, NORWICH.



PORTABLE PLANT FRAMES.

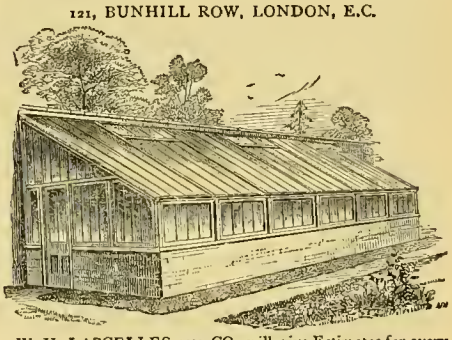
The above are without exception the most useful kind of Frame for Plant Growing, and every one with a garden should possess one. The sashes turn right over one on to the other, and the boxes are put together with wedges, and can be taken apart in a few minutes. Sizes and prices, carriage paid to any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

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

The glass is nailed and puttied in.

R. HALLIDAY & CO.,
Hothouse Builders and Engineers,
ROYAL HORTICULTURAL WORKS, MIDDLETON, MANCHESTER.

W. H. LASCELLES & CO.,
HORTICULTURAL BUILDERS,
121, BUNHILL ROW, LONDON, E.C.



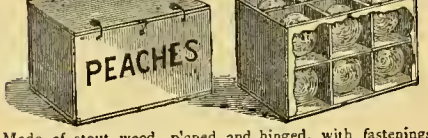
W. H. LASCELLES AND CO. will give Estimates for every description of HORTICULTURAL WORK, free of charge, and send competent assistants when necessary.

LASCELLES' NEW ROCKWORK material in various colours.

Samples can be seen, and prices obtained at 121, Bunhill Row, and 35, Poultry, Cheapside, E.C.

Illustrated Lists of Wooden Buildings, Greenhouses and Conservatories, and Concrete Slabs for walls, paths, and stages, sent post-free on application.

FRUIT BOXES.



Made of stout wood, planed and hinged, with fastenings and holes, through which a string can be passed and sealed on the top to prevent all tampering or pilfering. Movable wooden divisions keep each Peach or Bunch of Grapes in its place. Wrapped in wool or tissue paper the Peaches fit in firmly and never bruise.

Boxes for 12 Peaches, 1s. each, or 11s. 6d. per doz.
,, 24 ,, 2s. ,, 23s. ,,
,, for Grapes, 8 divisions, 10 in. × 4 in. × 4 in., 4s. each.

THOS. CHRISTY & CO., 155, Fenchurch Street, E.C.
MANUFACTURERS OF HYDRO-INCUBATORS.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, HORTICULTURAL BUILDINGS and HOT-WATER APPARATUS MANUFACTURERS.

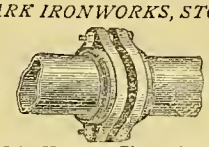
Plans and Estimates free.

GLASSHOUSES & HEATING.
B. W. WARHURST PRICES FREE
HIGHGATE ROAD, LONDON, N.W.

BOILER CHALLENGES. — Noticing an advertisement of Messrs. Wright & Co. which has just appeared, asserting that "not one tradesman has come forward" to object to their boiler, or to answer a formal challenge said to be sent, but which I for one never received, I take this means as the only public one available of denying the assertions made in such advertisement. Owing to the receipt of a pamphlet, in which I accidentally saw my "Ben's Boiler" mentioned with an entirely erroneous estimate of its heating value (5 instead of 10), I wrote, pointing out the inaccuracy, and by doing so involved myself in a wearisome correspondence with the authors, W. Wright & Co., in the course of which I distinctly and decidedly denied their claim as to economy, power, simplicity, or cheapness, and also offered one of my Ben's Boilers to be publicly tested alongside of theirs (to at least 2000 feet of pipe) by the "Scientific Committee," which was to be called forth for that purpose. As an evidence of the hollowness of this so-called "formal challenge" of W. Wright & Co., I give quotations from a letter received so lately as August 24, in which they say:—"Do you still wish to have your Boiler tested with ours" . . . . "if you are still determined, write us and we will arrange further." . . . . "We think your best plan is to admit our Boiler to be the most powerful, you can of course claim second position, which is surely an extremely honourable position." (! ! !)
B. W. WARHURST, Highgate Road, London, N.
September 15, 1883.

THOS. W. ROBINSON,
DENNIS PARK IRONWORKS, STOURBRIDGE.

The "Expansion Joint."



The Best and Quickest Made.

4-in Expansion Joint Hot-water Pipes, 9 feet long, 4s. 3d. each.
4-in. Socket Hot-water Pipes, 9 feet long, 4s. 6d. each.
Price List on application.

HORTICULTURE. — SILVER SAND, 6s. per ton; HEATH PEAT, 7s. per ton; FOREST PEAT, 8s. and 10s. per yard; FOREST LOAM, 10s. and 12s. per yard. On rail, loose, from 2 tons upwards. Sent to all parts at lowest rates.
W. SHORT, Horticultural Co., Midhurst, Sussex.—Est. 1862.

RUSSIA MATS, Archangel, Taganrog, Petersburg, and Dunnage.
SACKS and SEED BAGS. ROPES, LINES and TWINES.
RAFFIA FIBRE.
TOBACCO PAPER, PEAT and SILVER SAND.
BEST COCOA-NUT FIBRE REFUSE, 1s. 3d. per sack (sacks included). Descriptive CATALOGUE on application.
JAMES T. ANDERSON,
149, Commercial Street, London, E.

ARCHANGEL and PETERSBURG MAT MERCHANTS and IMPORTERS.—All the usual kinds at reduced rates. Sacks and Seed Bags, new and second-hand, of every description. Raffia Fibre, Netting and Tiffany, Tarpaulins, Rick-covers, Horse-cloths, Ropes, Lines, and Twines. Price LIST on application to J. BLACKBURN AND SONS, 4 and 5, Wormwood Street, London, E.C.

UNDER SPECIAL ROYAL PATRONAGE

DAY, SON & HEWITT,
Inventors and Sole Proprietors of the "ORIGINAL"
STOCK-BREEDERS' MEDICINE CHESTS,
For all Disorders in Horses, Cattle, Calves, Sheep and Lambs,
And Inventors of the First Animal Medicines ever known as "Day's."

Price of Chest complete, including "Key to Farriery," £2 16s. 6d., sent carriage paid throughout Great Britain.

CAUTION.—Beware of imitations, and see that the name, DAY, SON & HEWITT, is on all Bottles and Packets.

DAY, SON & HEWITT,
22, DORSET ST., BAKER ST., LONDON; AND WANTAGE, BERKS.

CARSON'S PAINT.

Patronised by
HER MAJESTY,
HIS ROYAL HIGHNESS THE PRINCE OF WALES,
15,000 OF THE NOBILITY, GENTRY, AND CLERGY.
Is extensively used for all kinds of
OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames.
CAN BE LAID ON BY UNSKILLED LABOUR.
1 *Cwt., and Oil Mixture, Free to all Stations, Prices, Patterns, and Testimonials, Post-free.*

CARSONS,
LA BELLE SAUVAGE YARD, LUDGATE HILL, LONDON, E.C.;
BACHELOR'S WALK, DUBLIN;
and 55, ROYAL AVENUE, BELFAST.
Discount for Cash.

MONEY LENT WITHOUT SURETIES by the NATIONAL DEPOSIT BANK.
16 and 17, Russell Street, Covent Garden, London.
Capital, £200,000.—Reserve Fund, £75,000.
ADVANCES MADE at a few hours' notice, from £10 to £5000, in town or country, to male or female, upon note of hand alone, shares, warrants, bonds, jewels, mortgage of furniture, stock, plant, crops, farming implements, steam launches, yachts, barges, boats, and all available securities, without removal. Also upon life policies and deeds from £5 per cent. from one month to 15 years. No sureties required.
Arrears of rent, executions, and debts paid.
All communications strictly private. State amount required.
CHARLES H. WHEATLEY, Manager.
Special Notice.—Country loans immediately attended to. Commission paid to solicitors, auctioneers, accountants, and all persons introducing business. No genuine proposal ever refused. Personal application preferred if possible, and where desired the repayments can be made by easy instalments to suit applicant's circumstances. The advances exceed £250,000 per annum.
Prospectus post-free.
(ESTABLISHED 1867.)

Accidents!—64, Cornhill.
No Man is Safe from Accidents! Wise Men Insure against their Cost! Accidents by Land or Water insured against by the RAILWAY PASSENGERS' ASSURANCE Company. The oldest and largest Company, insuring against Accidents of all kinds. Subscribed Capital, £1,000,000. Paid-up Capital and Reserve, £250,000. Moderate Premiums. Bonus allowed to Insurers after five years. £1,840,000 has been paid as Compensation. Apply to the Clerks at the Railway Stations, the Local Agents, or 8, Grand Hotel Buildings, Charing Cross, or at the Head Office, 64, Cornhill, London.
WILLIAM J. VIAN, Secretary.

CAMBRIC Children's ..... 1s 10½d. per dozen. Ladies' ..... 3s. 3d. " Gentlemen's .... 4s. 10d. "
HEMSTITCHED.—Ladies' 5s. 11d., Gentlemen's 7s. 11d. per doz.
Direct from the Manufacturers. POCKET "The Irish Cambrics of Messrs. Robinson & Cleaver, Belfast, have a world-wide fame."—THE QUEEN.
Samples and Price Lists post-free.
By appointments to the Queen and Crown Princess of Germany. HANDKERCHIEFS.
ROBINSON & CLEAVER, BELFAST.

OVER SEVEN!
The finest Whiskey in the World is
"SPECIAL JURY" (Irish) WHISKEY.
Supplied to Guards' Club, Pall Mall.
Supplied to Vice-Regal Suites, at Imperial Hotel, Belfast.
Never bottled under seven years old.
It is agreed on all sides that New Whiskey is quite unfit to drink. It produces headache and prostration, by reason of the fusel oil it contains, which is inseparable from all Whiskey under a certain age, and which nothing but age can eliminate.
The consensus of opinion of the Medical Press and of the Profession at large is that Fine Old Irish Whiskey is the best stimulant known, not only for Invalids, but for the robust. Such a desideratum is
"SPECIAL JURY" WHISKEY.

SAMPLE BOTTLE (Parcels' Post)	4s.	CARRIAGE PAID (United Kingdom).
SAMPLE QUARTER DOZEN CASE	12s.	
SAMPLE HALF DOZEN CASE	24s.	
SAMPLE DOZEN CASE (2 Gallons full)	48s.	

POST-OFFICE ORDERS to sole Owner of Brand,
W. J. JURY, Belfast.
N.B. The price of Whiskey should be regulated by its age.

BRYANT & MAY'S MATCHES

PAXTON'S CALENDAR.
Now ready, a Revised Edition of the
COTTAGER'S CALENDAR
OF GARDEN OPERATIONS.
Originally Compiled by the late Sir Joseph Paxton, M.P.
PRICE 3d., POST FREE 3½d.
W. RICHARDS, 41, WELLINGTON STREET, STRAND.

PARTNER WANTED, in a good going Florist and Seed Business in the Midland Counties. One to take Charge of Shop preferred. Splendid opportunity for man with moderate capital.—X. Y., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO NURSERYMEN and SEEDSMEN.—A young man (married), with moderate capital, desires PARTNERSHIP. Several years' practical experience in Nursery Business, also Travelling, Book-keeping, Correspondence.—A. B. C., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, a HEAD WORKING GARDENER, at Blackheath, where five others are kept. Age about 35. A Scotchman preferred. Must have filled a similar situation for some years previously, and thoroughly understand every department. Good personal character indispensable. Wages 30s. Unfurnished rooms Vegetables, coals, and gas allowed.—Apply by letter, with full particulars of situations held during the last ten years, and, if married, how many children, to K. L., Mr. Wenham, Blackheath, Kent.

WANTED, a WORKING GARDENER, where assistance is given, for a Gentleman's house near London, who understands Vines, Greenhouse Work, Frames, Flower and Kitchen Gardening. Must be thoroughly trustworthy; single.—Apply by letter, stating wages, to SHINGLETON'S, 112, High Street, Kensington, W.

WANTED, by a Gentleman, as GARDENER and GROOM, a sober, steady man, between 30 and 40, married, without children, having only two small rooms to live in rent-free. Must be a good Grower of Flowers and Vegetables, attend to one Horse, be a careful Driver, and of light weight.—A person of good character may address a letter to P. P., Miss Robbins, Stationer, Hendon, Middlesex, N.W.; stating wages required.

Colchester Cemetery.
SUPERINTENDENT REQUIRED.—The Committee are prepared to receive applications for the above situation. Applicants must not be over 45 years of age. A practical knowledge of Trees, Shrubs, and Flowers is necessary. The salary will be 25s. a week, with a house and garden.
Applications in the handwriting of the Candidate, stating age, whether married or single, number of children, and previous occupation, with Testimonials, must be addressed to the Burial Board, and delivered at the Burial Board Office, not later than the 1st of October next. Canvassing not allowed.
The Candidate selected will be required to commence his duties on the 1st of November next. All particulars of duties may be obtained from the undersigned,
PHILIP SMITH SPARLING, Clerk to the Board.
Burial Board Office, St. John Street, Colchester.—Sept. 12, 1883.

WANTED, a steady, active, and industrious married MAN (without family preferred), to take the Management of a small Branch Nursery and Plant-houses. Residence in the nursery.—REUBEN TOWLER, The Vale of Mowbray Nurseries, Bedale, Yorks.

WANTED, a young man who is a good PROPAGATOR of Soft and Hard-wooded Plants, also a good GROWER of Pot Roses. One preferred from a Nursery. 22s. per week, with rising wages.—WALTER GREEN, Gardener, Crow Nest Park, Lightcliffe, near Halifax.

WANTED, a PROPAGATOR and GROWER. Must be a first-class Grower of Pot Roses, Soft and Hard-wooded Stuff, as well as the usual Decorative Plants, Cut Flowers, &c., to furnish a Retail Trade. Preference given to one from a Market Nursery. To an energetic and suitable man this will be a permanent situation.—Apply, stating references, age, and wages expected, to ALEX. DICKSON AND SONS, Nurserymen, Newtownards, Belfast.

WANTED, a steady, energetic MAN, well up in Growing all good stuff for Market.—None need apply unless good experience in this respect.—POLLARD, The Willows, Garratt, Tooting.

WANTED, a Married Couple, for place of trust—GARDENER, or superior FARM LABOURER—Church people, without young children.—Miss COOKE, Beckley Grove, near Oxford.

TO FLORISTS, NURSERYMEN, &c.—An OPENING presents itself for a MANAGER to a Nursery of about 12 acres, in full working order, at Tooting.—Address, stating qualifications, salary required, &c., to CHAIRMAN, 66, Ludgate Hill, E.C.

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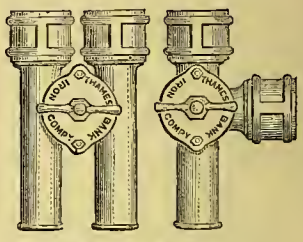

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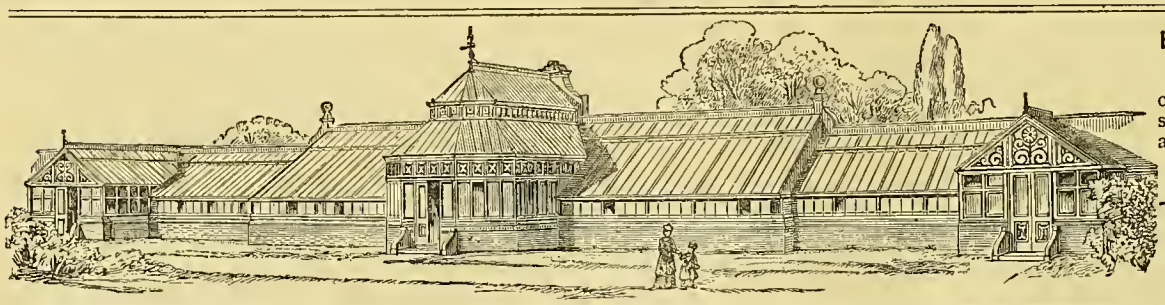

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THE

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N.B.—LILY of the VALLEY CROWNS, SPIRÆA, DUTCH and other BULBS, &c., for DISPOSAL. Send for LISTS.

W. WEEKS, NURSERYMAN, 440, Fulham Road, S.W., is a BUYER of large PALMS. A good price given for Kentias.

WANTED, 1-yr. and 2-yr. Seedling QUICKS and Standard Keswick APPLES. State lowest cash prices, and send samples to
R. CRUST AND SON, Nurserymen, Spalding.

WANTED, PINES, PEACHES, NECTARINES, TOMATOS, CUCUMBERS, GRAPES, PEARS, &c. Also GARDENIAS, STEPHANOTIS, EUCHARIS, White CAMELLIAS, Maréchal Niel and other ROSES, &c.
WISE AND RIDES, Fruit & Flower Salesmen, Covent Garden.

African Tuberoses.
JAMES CARTER, DUNNETT AND BEALE have just received advices of the shipment of their Bulbs, and are now prepared to make special low quotations to large buyers. 237 and 238, High Holborn, London, W.C.

LARGE SPECIMEN CAMELLIAS for Sale, to make room. LIST on application to
E. COOLING, Derby.

ROSES ON OWN ROOTS.—Best varieties, Red Gloire de Dijon, Baroness Rothschild, &c., from open ground. Strong plants, free by Parcels Post, four for 2s. 6d., or 7s. per dozen free.
MAIRIS AND CO., Weston-in-Gordano, Bristol.

JULES DE COCK, Ornamental Plant Nursery, Ghent, Belgium.—Many thousand AZALEAS, INDICA, MOLLIS, and PONTICA; DEUTZIA, HELLEBORUS, SPIRÆAS, are disposable. CATALOGUE free on application.

EIGHTY THOUSAND CLEMATIS, in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants.
Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

PRIMULAS, CINERARIAS, and CALCEOLARIAS.—Bull's choice strain of the above, in good transplanted Seedlings, at 8s. per 100, 70s. per 1000, package and carriage free for cash with orders. Good strong Maréchal Niel and other Tea ROSES, in 48-pots, at 60s. per 100.
T. FLETCHER AND SON, Florists, &c., Chesterfield.

CHOICE FLOWERS for WINTER.—TREE CARNATIONS, Gloire de Nancy, La Belle, A. Alegatière, and other fine kinds, strong plants, 40s. per 100. BOUVARDIAS, fine plants, with 15 to 30 shoots, best market sorts, including Alfred Neuner, 40s. per 100.
W. JACKSON, Blakedown, near Kidderminster.

IVIES—IVIES—IVIES.—Broad and Narrow-leaved, Gold and Silver Variegated, from pots. 9s. per dozen. Six or more, fine healthy plants (my own selection), delivered free on receipt of Postal Order.
E. CHAMBERLAIN, Nurseryman, 1, Pilgrim's Lane, Hampstead, N.W.

AQUILEGIA GLANDULOSA (GRIGOR'S, guaranteed true).
Twelve Plants of this beautiful Columbine, to bloom next season, free to any part of the United Kingdom, at 6s. per dozen. Cash with order.
JOHN GRIGOR AND CO., The Nurseries, Forres, N.B.

CARNATION, "MARY MORRIS."
Plants ready for delivery in October.
First-class Certificate was awarded at Kensington, Aug. 22, 1882. A beautiful Rose-coloured Self, very highly scented, of great size, very full, and of perfect shape; does not burst the calyx, a very free bloomer and vigorous grower, and perfectly hardy. See *Gardeners' Chronicle*, August 4, 1883, page 146. Price and all particulars on application to
H. G. SMYTH, 21, Goldsmith Street, Drury Lane, W.C.

AFRICAN TUBEROSES.—Our first consignment of Bulbs, grown especially for us, are now arriving in splendid condition. Those who have not placed their orders, are respectfully recommended now to do so without delay.
HOOPER AND CO., Covent Garden, London, W.C.

Specimen Hybrid Rhododendrons.
R. B. LAIRD AND SONS (Successors to the late Firm of Dowie & Laird), have for disposal a few extra fine specimens of the above in tubs, and well set with buds. A LIST of the sorts, with heights, will be sent on application.
Royal Winter Garden, Edinburgh.

CHILANTHUS ELEGANS.—A splendid specimen of the above for sale, measuring 4 feet in diameter. Too large for owner's house. For particulars apply to
H. BUTLER, Elmore, Chipstead, Merstham, Surrey.

Until the Stock is Exhausted.
CHARLES NOBLE will supply the finest forcing clumps of crowns ever offered of:—
SPIRÆA PALMATA at 15s. and 20s. per 100, 130s. per 1000.
„ JAPONICA, 12s. 6d. per 100, 100s. per 1000.
Orders with cash or reference should be sent at once.—Bagshot.

STRAWBERRY RUNNERS, from 20 choice varieties, price 3s. per 100, 12s. 6d. per 500, 20s. per 1000. Free by Parcels Post, 4s. per 100. Terms cash. Sample and LIST free.—W. LOVEL AND SON, Strawberry Growers, Driffield.

STRAWBERRIES—Next Summer, by planting now: capital roots, 4s. per 100; 6d. extra per 100 for delivery by Parcels Post. In a Few Months, by forcing: plants in pots, 16s. per 100. Only the best varieties are offered. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

STRAWBERRIES.—We are now prepared to supply strong healthy Plants, from ground and in pots, of all the most approved kinds. A select descriptive LIST post-free on application.
THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

SALES BY AUCTION.

Dutch Bulbs.—Great Unreserved Sales,
Every MONDAY, THURSDAY, and SATURDAY.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every MONDAY, THURSDAY, and SATURDAY, at half-past 11 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other ROOTS from Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Upper Tooting Park, Balham, S.W.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. C. Young (who is relinquishing the business owing to ill-health) to SELL by AUCTION, on the Premises, The Nursery, Upper Tooting Park, S.W., about ten minutes' walk from Balham Station, on TUESDAY, October 2, at 12 o'Clock precisely, without reserve, a large quantity of remarkably well grown NURSERY STOCK in excellent condition for removal, consisting of thousands of Ornamental Trees, Evergreens, and Coniferæ, Fruit Trees, and a variety of Stove and Greenhouse Plants, Palms, Ferns, Azaleas, Camellias, and other stock. May now be viewed.

Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B.—The LEASE of the OLD ESTABLISHED NURSERY is for DISPOSAL on moderate terms. Particulars of the Auctioneers as above.

Abbey Wood, Kent.—Clearance Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Abbey Wood Nursery and the Orchard Nursery, Lessness Heath, within a few minutes' walk of the Abbey Wood Station, on WEDNESDAY, October 3, at 12 o'Clock precisely, by order of Mr. Henry and Mrs. Havelock, a large quantity of well-grown NURSERY STOCK, including a variety of specimen Coniferæ, 500 finely furnished Cupressus Lawsoniana, 5 to 9 feet; handsome specimen Variegated and Green Hollies, of sorts, &c.; the whole in fine condition for removal.

May now be viewed. Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Richmond, S.W.—Without Reserve.
IMPORTANT SALE of beautifully grown TREES and SHRUBS.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. G. & W. Steell to SELL by AUCTION, on the Premises, The Gas Field Nursery, Sandy Lane, and the Sheen Common Nursery, Richmond, Surrey, S.W., about seven minutes' walk from the Richmond Railway Stations, on WEDNESDAY and THURSDAY, October 3 and 4, at 12 o'Clock precisely each day (in order to make room for other stock), an immense quantity of NURSERY STOCK, the whole of which is in good condition for removal, having been transplanted within the last two years. It comprises large numbers of specimen CONIFERÆ and EVERGREENS, such as Standard and Pyramid Portugal LAURELS, 3 to 5 feet; Hybrid and Standard RHODODENDRONS, 3 to 7 feet; THUIAS and CUPRESSUS in large quantities, CEDRUS ATLANTICA, and others. Standard and other specimen Variegated and Green HOLLIES, fine plants; FLOWERING SHRUBS in great variety, ORNAMENTAL and FOREST TREES, 1100 Standard and Dwarf ROSES, thousands of small SHRUBS for potting, &c.

May now be viewed. Catalogues may be had of Messrs. G. AND W. STEELL, The Nursery, Kew Road, Richmond, S.W.; and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Friday Next.
VALUABLE IMPORTED ORCHIDS, in the best condition, by order of Messrs. Shuttleworth, Carder & Co.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, at half-past 12 o'Clock precisely, ODONTOGLOSSUM PESCATOREI, O. VEXILLARIUM, O. GRANDE, O. CRISPUM (Alexandræ of the best type), CATTLEYA MENDELI, C. TRIANÆ, C. AUREA, C. DOWIANA; MASDEVALLIA MACRURA, M. HARRYANA; ODONTOGLOSSUM PHALÆNOPSIS, ONCIDIUMS, &c.

On view of morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Brixton, S.W.
TWO DAYS' SALE of WELL GROWN NURSERY STOCK, all recently transplanted, and in fine condition.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Nursery, Loughborough Park, Brixton, S.W., on FRIDAY and SATURDAY, October 5 and 6, at 12 o'Clock precisely each day, by order of Messrs Ponsford & Son, a large quantity of well grown NURSERY STOCK, comprising 1500 Aucubas, 2500 Laurels of sorts, 1500 Cupressus, &c.; 2500 Box, 3000 oval and Box-leaved Privet, 5000 Variegated and Green Euonymus, 1500 Flowering Shrubs, 700 handsome Standard Planes, Limes, Poplars, and other Ornamental and Forest Trees; Hardy Climbers, 1500 Green and Variegated Ivies, 500 Ampelopsis Veitchii, Fruit Trees, 1000 fine Standard Mulberries; also a variety of Stove and Greenhouse Plants, 5000 Ferns, 2000 Azaleas, Camellias and Bouvardias, 1000 Summer and Autumn Flowering Chrysanthemums, and other Stock.

May now be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Tuesday, October 9.—Unreserved Sale of
A small but well grown COLLECTION of CHOICE ESTABLISHED ORCHIDS, the stock of a Gentleman who is giving up their cultivation.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE, to take place at the Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, October 9, to commence sharp at half-past 12 o'Clock. The collection includes some fine species of PHALÆNOPSIS AMABILIS, SCHILLERIANA and GRANDIFLORA; also CATTLEYA DOWIANA, C. AUREA, C. SCHILLERIANA, C. MAXIMA, C. TRIANÆ, C. ELDORADO, C. MENDELII, C. SUPERBA SPLENDENS, C. GIGAS IMPERIALIS, a magnificent variety; MASDEVALLIA DAVISII, VEITCHII, AMABILIS, LÆLIA HARPOPHYLLA, AUTUMNALIS, and PURPURATA; several fine pieces and superb varieties of ODONTOGLOSSUM ALEXANDRÆ, O. TRIUMPHANS, O. HALLI, O. RADIATUM, O. MADRENSE, CŒLOGYNE CRISTATA, VANDA GIGANTEA and TERES, LYCASTE FULVESCENS, ONCIDIUM FORBESII, &c.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Weybridge.
About a mile from Weybridge or Walton Stations.
GREAT UNRESERVED CLEARANCE SALE of well-grown NURSERY STOCK, the Land being required for Building Purposes.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Oatlands Park Nursery, Weybridge, Surrey, on TUESDAY and WEDNESDAY, October 9 and 10, at 12 o'Clock precisely each day, by order of Mr. Henry Chapman, about 6 Acres of unusually well-grown NURSERY STOCK, lotted to suit the Trade and other large Buyers, including 9000 Portugal Laurels, 1 to 5 feet; 8300 Laurels, 4 inches to 3 feet; 1100 Green Hollies; 2000 Weymouth Pines, 1 to 7 feet; 1500 English Yews, 1 to 4 feet; large quantities of Cupressus, Thuias, and Thuiopsis of sorts; thousands of small Coniferæ for growing-on, comprising 6000 Retinosporas of sorts, 4000 green and variegated Euonymus, 7000 seedling Hollies, 2-yr. transplanted; 15,000 Spruce Firs, 6 inches to 3 feet; 5000 Privet, 6 inches to 4 feet; 3000 Limes, 3 to 10 feet; an assortment of specimen Coniferæ and Evergreen Shrubs in the borders; 1400 Forest Trees of sorts; and large quantities of other Stock, too numerous to mention. Also a variety of GREENHOUSE PLANTS, including 400 Maidenhair Ferns in 48-pots, and 50 specimen Azalea indica, 1½ to 3 feet.

The Stock may now be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B.—Goods may be transmitted from Weybridge station to all parts. Purchasers may arrange with Mr. Chapman to have their lots taken up and conveyed to the station at the cost of labour and time incurred.

Lewisham, S.E.
GREAT ANNUAL TRADE SALE of FERNS and WINTER-FLOWERING PLANTS, in large quantities, to suit extensive buyers.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Biggs to SELL by AUCTION, on the Premises, The Nursery, Lewisham, S.E., on TUESDAY, October 16, at 12 o'Clock precisely, 50,000 Maidenhair FERNS, 2000 ditto in 32 and 48-pots, many thousands of PTERIS ARGYREA, LOMARIAS, CAMELLIAS and AZALEAS in bud, BOUVARDIAS, HEATHS, EUCHARIS AMAZONICA and CANDIDA, PALMS, Winter-flowering CARNATIONS, PRIMULAS, DRACÆNAS, 1000 specimen CHRYSANTHEMUMS, and other Stock.

May be viewed. Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Ealing, W.—Preliminary Notice.
GREAT UNRESERVED CLEARANCE SALE.
Important to Nobleman, Gentlemen, Nurserymen, and others largely engaged in Planting.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Charles Lee & Son to SELL by AUCTION, on the Premises, The Ealing Nursery, Ealing, W., several acres of exceptionably well-grown NURSERY STOCK, in young and thriving condition. Thousands of FRUIT TREES, &c.

Catalogues will be published in due course, and may be had at the Auctioneers' offices as above.

Dutch Flower Roots, every Monday, Wednesday and SATURDAY.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely, a large consignment of first-class DOUBLE and SINGLE HYACINTHS, in all colours; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, Early ROMAN HYACINTHS, and other BULBS, just received from well known farms in Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale, and Catalogues had.

Thursday Next.
VANDA SANDERIANA.
LÆLIA ELEGANS ALBA.
LÆLIA ELEGANS VAR.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October 4, at half-past 12 o'Clock precisely, a splendid specimen of VANDA SANDERIANA, and the finest established plant in the country; also a superb specimen of LÆLIA ELEGANS ALBA and ELEGANS VAR. in flower; with a fine lot of CATTLEYAS, ODONTOGLOSSUM ALEXANDRÆ and VEXILLARIUM, MASDEVALLIA HARRYANA, &c.

On view morning of Sale, and Catalogues had.

Sarracenias.—New Varieties.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 4, a Grand Collection of New Hybrid SARRACENIAS, raised by the most successful grower in the country, O. O. Wrigley, Esq., of Bury, consisting of many very distinct varieties, not yet in commerce, and in splendid condition, being the finest lot ever brought to auction, and sold by order of Mr. G. Toll, who has purchased the entire stock from the raiser.

On view morning of Sale, and Catalogues had.

Important Sale of Established Orchids.

MR. J. C. STEVENS has received instructions from Charles Dorman, Esq., of The Firs, Lawrie Park, Sydenham, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 11, at half-past 12 o'Clock precisely, about 200 lots of CHOICE ESTABLISHED ORCHIDS from his well-known collections, comprising, amongst other fine things, good plants of:—

Angræcum eburneum	Odontoglossum Krameri
Cattleya aurea	Odontoglossum Ruckerianum
Cattleya Alexandræ	Odontoglossum Wilckeanum
Cattleya exoniensis	Phajus tuberculosus
Cattleya Sanderiana	Epidendrum Wallisii
Cattleya Skinneri alba	Miltonia Warscewiczella æthe-rea
Cattleya Trianæ Backhousiana	Cypripedium Schlimii
Cattleya ditto eboracensis	Cypripedium Spicerianum
Cattleya ditto Dodgsoni	Lælia anceps rosea
Cœlogyne Cummingii	Lælia anceps alba
Cœlogyne Massangeana	Lælia anceps Dawsoni
Oncidium curtum	Lælia elegans alba
Lycaste Skinneri alba	Masdevallia Yeitchii grandi-flora
Masdevallia Harryana Marshalli	Dendrobium Brymerianum; and Dendrobium Nobile Nobilius, &c.
Dendrobium Ainsworthii	
Odontoglossum Andersonianum	

On view morning of Sale, and Catalogues had.

Stove and Greenhouse Plants, the Property of a NOBLEMAN.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 11, a small COLLECTION of STOVE and GREENHOUSE PLANTS, including a few specimen Azaleas, Dracænas, Pandanus, Euphorbias, Adiantums, Ficus elastica, &c., all clean and well-grown, the property of a Nobleman.

On view morning of Sale, and Catalogues had.

Established Orchids from a Private Collection.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 11, about 50 lots of good ESTABLISHED ORCHIDS from a private Collection, including Odontoglossums, Lycastes, Masdevallias, Cypripediums, Lælias, and Cattleyas in variety, &c.

On view morning of Sale, and Catalogues had.

Highly Important Sale of Specimen Camellias, AZALEAS, PALMS, &c.

MR. J. C. STEVENS has been favoured with instructions from Hermann Rucker, Esq., to offer for SALE by AUCTION, without reserve, on the Premises, West Hill, Wandsworth, on TUESDAY, October 16, and following days, at half-past 12 o'Clock precisely, the entire COLLECTION of PLANTS formed by the late Sigismund Rucker, Esq. The collection is general, and comprises about 200 of the finest Camellias in the country, all beautifully set with bloom; about 200 Azaleas, fine Palms, Tree and other Ferns; a fine collection of Nerines, large Myrtles in tubs, Stove Plants, and a few good ORCHIDS; also GARDEN SEATS and CHAIRS, VASES, and PEDESTALS, CHINA POTS and STANDS, SLATE TUBS, BELL GLASSES, GARDEN TOOLS, &c.

On view the day prior and mornings of Sale, and Catalogues had on the Premises, and of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, W.C.

Established Orchids.

MR. J. C. STEVENS has received instructions from J. Grimshaw, Esq., of Leeds, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 25, at half-past 12 o'Clock precisely, his entire COLLECTION of ESTABLISHED ORCHIDS, comprising about 800 plants, including specimen Vandas, Dendrobiums, Cœlogynes, and Cattleyas; Stanhopea Wardianum, in bloom; Phalænopsis amabilis, with spikes; some of the finest Cattleya Mossiæ and Trianæ ever flowered, C. speciosissima in sheath, &c.

On view morning of Sale, and Catalogues had.

Bowden, Cheshire.
IMPORTANT SALE of upwards of 100,000 valuable EVERGREENS, SHRUBS, CONIFERS, ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, &c., being the largest collection of coniferous plants ever submitted to competition in this district.

MESSRS. ARTINGSTALL AND HIND have received instructions from Mr. John Shaw, who is retiring from the Nursery business, to SELL by AUCTION, on October 1, 2, 3, and 4, at the Stamford Nurseries, Bowden, Cheshire, the whole of the valuable HORTICULTURAL STOCK, which will be sold in lots suitable for the Trade and private buyers.

For further particulars and Catalogues, apply to the Auctioneers, 45, Princess Street, Manchester.

N.B.—The Nurseries are situate 8 miles from Manchester.

Tansley Old Nursery, near Matlock, Derbyshire.
SECOND CLEARANCE SALE of NURSERY STOCK, comprising large quantities of Seedling Forest Trees and Shrubs, Gorse, Broom, &c., for Covert; hardy Shrubs, Herbaceous Plants, and other Stock.

MR. WM. SHUTES will SELL by AUCTION, unreservedly, on the grounds of the Tansley Old Nursery, in the occupation of Mr. Stephen Smith, about 2½ miles from Matlock Bridge Station, Midland Railway, on TUESDAY, October 16. Sale to commence at 11 o'Clock.

For Catalogues apply to the Auctioneer, or to Mr. STEPHEN SMITH, Tansley Old Nursery, Matlock. The lots may be viewed on Monday, October 15, also early on morning of Sale.

Auctioneer and Valuer's Office, Matlock Bridge.

Green Lane Nurseries,
Opposite the "Chequers Inn," Horley, Surrey, only a few minutes' walk from the Railway Station; 4 miles from Redhill and Reigate, and 5 from Crawley, on the road from London to Brighton.

TO NURSERYMEN, FLORISTS, and PRIVATE GROWERS.

MESSRS. W. and H. STACEY are instructed to SELL by AUCTION, in the above Nurseries (the Land being wanted for other purposes), on WEDNESDAY, October 17, at 11 for 12 o'Clock, in consequence of the number of Lots, a large quantity of transplanted FOREST TREES, CONIFERÆ, DECIDUOUS ORNAMENTAL TREES, and ORNAMENTAL CONIFEROUS TREES; EVERGREEN, DECIDUOUS and FLOWERING SHRUBS; Hardy CLIMBERS; HEDGE and FENCE PLANTS; APPLES, PEARS, PLUMS, CHERRIES; HYBRID PERPETUAL ROSES, Tea-scented, Noisette, Bourbon, Standards and in Pots; CLEMATIS, and a large quantity of SEEDLING STOCK.

Catalogues may be had ten days prior to the Sale at the principal Hotels and Inns in the district; at the place of Sale, or of Messrs. W. and H. STACEY, Auctioneers and Land Agents, Redhill, Surrey.

Tansley Nurseries, near Matlock, Derbyshire.
To NOBLEMEN, GENTLEMEN, NURSERYMEN, and OTHERS.

MR. G. MARSDEN respectfully announces that he is instructed by Messrs. Samuel and James Smith to SELL by AUCTION, on the Premises, at Tansley Nurseries, near Matlock, on WEDNESDAY, THURSDAY, and FRIDAY, October 17, 18, and 19, commencing punctually at 11 o'Clock each day, about 1300 lots of choice and highly valuable NURSERY STOCK, consisting of about 300,000 transplanted Rhododendrons of the choicest specimens, growth, and quality, in upwards of 350 named and common hybrids; 20,000 Ivies and Laurels, immense lots of Retinospora plumosa and aurea, in sizes suitable for all purposes; Cupressus Lawsoniana aurea, Golden Yews, Gold, Silver, and Green Hollies (some thousands of singly grown specimens, many of large size); choice specimens of Yew elegantissima, 6 to 10 feet; Cedrus Deodara, Araucarias in good condition, having been removed within the past two and three years; 250,000 Spruce and Larch, immense quantities of Poplar, Limes, Beech, Chestnut, Ash, Oak, and other Forest Trees, in great variety.

Catalogues will be ready fourteen days prior to the Sale, and may be had on application to Messrs. SAMUEL and JAMES SMITH, Tansley Nurseries, Matlock; or the Auctioneer, Wirksworth.

On view Monday and Tuesday, October 15 and 16.

SURPLUS STOCK OF GREENHOUSES, &c.,

comprising Ornamental Octagon Conservatory, 16 feet diameter; two Ranges of Lean-to Greenhouses, 45 feet by 30 feet long; three Summer-houses; two Wall-tree Covers, 44 feet and 24 feet long; one Galvanised Iron Lean-to Greenhouse, 12 feet by 8 feet; one Lean-to Wood-framed Greenhouse, 20 feet by 10 feet; one ditto, 12 feet by 10 feet; one ditto, 8 feet by 8 feet; several 10 feet by 5 feet; one Span Conservatory, 12 feet by 8 feet 6 inches; various Plant Frames, a large quantity of Hand Lights and Sashes, various Second-hand Boilers, a small Steam Boiler, &c., will be

SOLD BY AUCTION,

on TUESDAY, October 9, at 2 o'clock precisely, at the Anchor Works, Queen Street, Chelmsford. *May be viewed for a week prior to Sale.*

Catalogues on application to T. H. P. DENNIS AND CO., Chelmsford, and Mansion House Buildings, London, E.C.

Trains from Liverpool Street Station to Chelmsford at 10 A.M., 11.12 A.M., and 12.15 P.M. Return fares:—1st class, 8s. 6d.; 2d, 6s. 10d.; 3d, 5s. 6d.

TO INTENDING PLANTERS.

EXPIRY OF LEASE.

GREAT CLEARING SALE

OF ABOUT 70 ACRES OF

SEEDLING and TRANSPLANTED FOREST TREES,

FRUIT TREE STOCKS,

Large Ornamental Trees for Immediate Effect,

FRUIT TREES, &c.

THE LAWSON SEED and NURSERY COMPANY (Limited), Edinburgh, have resolved to CLEAR the ENTIRE STOCK contained in the Windlestrawlee Nursery, Granton Road, as they do not intend to Renew the Lease, which expires next year. Their other Nurseries, however, will be carried on as usual. All the Stock not previously disposed of privately will be

EXPOSED BY PUBLIC AUCTION,

on October 10 and 11, each day at 11 o'Clock, by

Mr. DAVID MITCHELL, Auctioneer.

The plants are of superior quality, and in excellent condition, the Larches not having been damaged by spring frosts. The following are the principal items to be Sold, and Catalogues may be had upon application:—

LARCH, 1-yr. Seedling, extra fine.
" 2-yr. " "
" 1-yr. " 1-yr. transplanted.
" 1-yr. " 2-yr. "
" 2-yr. " 1-yr. "

PINE, Black Austrian, several sizes.
" Cembra, or Swiss Stone, fine plants, recently removed, 2 to 4 feet.
" Corsican, several sizes.
" Mountain, various sizes.

FIR, Scotch, true Native, seedlings and transplanted.
" Silver, Common, several sizes.

SPRUCE, Norway, several sizes.
" Black American, true, several sizes.

And the following, both seedling and transplanted, viz.:—

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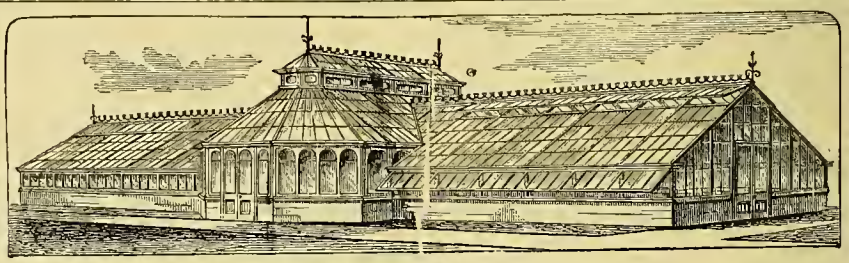

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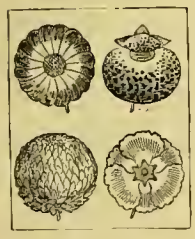

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THE QUEEN'S SEEDSMEN,
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THE
Gardeners' Chronicle.
SATURDAY, SEPTEMBER 29, 1883.

GLASNEVIN.

I HAD the good fortune to visit this beautiful public garden on a fine autumnal day, when the many deciduous and evergreen trees and shrubs were clothed with luxuriant foliage, and the greensward was in perfect order. These conditions serve to impart a greater interest and beauty to the various classes of flowers. This is a garden of hardy flowers. Here, there, and everywhere hardy plants are to be seen, and they have been planted under the conditions most favourable to their perfect development. Many plants succeed in the neighbourhood of the Irish metropolis that would scarcely exist near London. For instance, Francoa ramosa and F. appendiculata stand out in the open border in winter. They are Chilian plants, but would not survive here unless under specially favourable circumstances. A border has been made up in front of the hothouses in such a position that even a severe frost could scarcely penetrate it, and no doubt it is well drained and made up with suitable compost, so that Cape and other presumably half-hardy bulbs succeed well.

Strolling round the garden with Mr. Moore, who seems to be intimately acquainted with every plant, shrub, and tree under his care, objects of interest and beauty are before you at every step. Splendid examples of Irish Yew are in the form of isolated specimens on the lawns. Here also is the original Golden Yew, an immense specimen too, but it has been cut back considerably, owing to its overgrowing a footpath. It would take up considerable space to enumerate only the interesting trees and shrubs; indeed, I confined myself to taking a few notes of the hardy plants in flower about the first week in September.

The first plants to attract attention were examples of Chrysanthemum lacustre—tall plants, some of them 5 feet or more, well furnished with pure white flowers 3 inches across. In contrast to it were equally good examples of the quaint-looking Eryngium amethystinum, 4 feet high, well branched. The remarkable part of the plant is the Thistle-like heads of flowers, with blue flower-stems, and the blue involucral leaves which enclose the heads of flowers. Here is also a Mexican plant, Amicia zygomeris, 5 or 6 feet high, producing lateral clusters of yellow Pea-like flowers; and in passing the rockwork in front of the long range of hothouses to reach the herbaceous border I noticed a bright mass of Polygonum vaccinifolium, with pretty spikes of rose-coloured flowers, well set off with the small deep green shining leaves. It is a very nice rock plant.

In the herbaceous ground the most prominent objects of attraction were the Pentstemons. One of the very latest of the group is P. Cobæa, and also one of the most distinct and showy. We could do nothing with it in Scotland, owing to its propensity to flower late, but in this moist yet genial clime it has a strong spike 3 feet high, clothed with its large purple flowers, with a whitish fringe at the base of the lip. P. barbatus, or, as it is named here, Chelone barbata, has numerous graceful racemes of bright scarlet flowers which are really pretty. The

variety Torreyi has larger and brighter flowers, which are more freely produced than on the normal form; and another variety—antwerpiense—is distinct from either. The earlier-flowering species were over, of course. Phygelius capensis, a nearly allied plant, producing spikes or racemes of bright scarlet flowers—their effect heightened by the dark, shining, deep green leaves—is a very handsome late-flowering border plant, delighting in good rich garden loam. Mentha canadensis, the best of this set, gives a mass of bright blue flowers on a bush 3 feet across. Here also are the Monardas in flower, among the most handsome of herbaceous plants truly. There is M. didyma, with deep red flowers, and alba, but the variety purpurea is the best of them. They are useful, flowering so late in the season. Helenium autumnale, and the variety pumilum, are very handsome Composites; the bright yellow ray-florets have a good effect; the normal form grows about 3 feet high, and the variety is a dwarf plant; the flowers are 2 inches across. Here is a grand example of Tritoma Burchellii; the flower-heads are thrown up to a greater height, and they are larger and deeper in colour than those of T. uvaria. Achillea eupatorium had grown to a height of 4 feet, and formed a great bush, which was crowned with large symmetrical heads of golden flowers.

Doronicum Clusii is one of the most free-flowering of all the species of Leopard's Bane; Mr. Moore thinks very highly of it, as it is in flower nearly all the year round.

Mr. Moore led the way to a sheltered garden where bog plants and other delicate flowers are cultivated and experimented with. We passed an immense plant of Aristolochia Sipho clambering amongst the trees and bushes to a great height, its large leaves and tropical aspect being very striking. We also saw another Tritoma—T. nobilis; this Mr. Moore considers the best of the T. uvaria type. There were many interesting plants in the bog-ground, and a considerable number in flower. Here was Ourisia coccinea, forming dwarf bushes on tufts of deep green leaves clothed with bright scarlet flowers. Near it is Parnassia caroliniana. Our native Grass of Parnassus is a really pretty bog plant, but this Carolina species is quite distinct. Its flower-stems were but 9 inches high, the flowers white, delicately veined with green. Montbretia Pottsii growing in great masses, producing freely its rich scarlet flowers, is a sight not soon to be forgotten. It takes a few years to make itself at home, but in some gardens it will not take kindly to the soil or situation. In the College Botanic Garden it has done fairly well, but has not the deep green free growing character it has here. Polygala chamæbuxus atropurpurea is a charming little plant, reminding one in its habit of the common Milkwort of our own heaths. The purple flowers, freely arranged amongst the small leathery leaves, are really very pretty. Meconopsis Wallichii was nearly over, but one plant was still producing a few of its pale blue flowers. The stout stem, as tall as a man, was furnished with scores of branches. This is a handsome plant, not truly perennial, but it is not difficult to raise from seeds; the plants die when they have produced their flowers and seeds.

The large ranges of glass houses are well furnished with plants, and many specimens of great interest might be enumerated. Disa grandiflora has succeeded admirably. I fancy climatal influences have much to do with the success or failure of this handsome terrestrial Orchid, a moist climate being that best suited to its requirements. There are also some grand examples of Gleichenias in the same house where the Disas were doing so well. In the cool Orchid-house Mr. Moore has collected a very complete set of species and varieties of Masdevallia, which he cultivates with very great care, the plants showing by their healthy development that they appreciate the attention they receive. In other Orchid-houses a few good examples of various popular species and varieties are in flower. Brassia brachiata is one of the most handsome of the species; its flowers are quite 12 inches across, yellow, with numerous maroon spots. Bolbophyllum umbellatum is a very pretty Orchid, with small flowers, crowded with dark spots.

I noticed that in Ireland Filmy Ferns are well cultivated, the Killarney being in excellent condition; but nowhere did I see such a display of handsome specimens, as well as rare and choice species and varieties, as here, under the care of Mr. Moore. The smaller growing species are grown in large flat pans, which they fill to overflowing; and those that form single specimens, such as Todea Fraseri, T. pellucida, and T. superba, are grown in pots. A plant of the last-named was 7 feet across the spread of its fronds. The house where this fine collection is grown is a lean-to, with a north aspect. It scarcely gets any sun, being much shaded by trees. A canvas shading is used during the summer months, as it gets at that time about two hours' sun.

I did not intend to do more than send a few notes on the hardy plants, but the attractions of this beautiful garden are so impressed on my mind that I have thus far exceeded the bounds of my previous intentions. *J. Douglas.*

THE VEGETATION OF AUSTRALIA.*

No botanical project, probably, has been so fruitful as that of the late Sir William Hooker, to provide descriptions in the English language of the plants of the various British colonial possessions. In his capacity of Director of the Royal Gardens, Kew, he became impressed with the great necessity, in the interest of applied botany, for systematic works on the vegetation of the countries concerning which he was constantly being applied to for information. He accordingly proposed a plan, and estimated the cost of publishing a series of Colonial Floras. This was about twenty-five years ago. Sir W. Hooker's plan was adopted, and has been carried out, or is being carried out, by the home and colonial Governments, for most of the countries included in his project, which, it may be added, embraced India and all the colonial possessions with the exception of the Bermudas,† St. Helena, and similar small islets. It was computed that there were altogether about 46,000 species of flowering plants and Ferns to deal with, and the descriptions of them would occupy forty-three volumes of 500 pages each. But the most striking feature in the project was the modest sum (£6450) set down as "authors' remuneration," and to the industry and self-denial of a few botanists the public is already indebted for some twenty-five volumes at the rate of remuneration upon which that total was based. From a utilitarian point of view there could be no more profitable investment, while from the scientist's standpoint the value of these volumes is incalculable, because, as in the case of the *Flora Australiensis*, to give an example, they treat of many plants which are exceedingly local, and will soon disappear before advancing cultivation. There is yet another aspect from which we may regard these descriptive works, and that is, in relation to the means they afford thousands of enjoying the beauties and mysteries of Flora. One of the chief merits—or, as some think, demerits—of these works is, that they are wholly written in the English language, and in such a simple form that very little preliminary study is necessary to enable one to use them. The Australian colonies were among the first to provide the means for carrying Sir W. Hooker's proposal into effect, and it is not too much to say that they have largely profited by their foresight. Commerce in vegetable products has probably not been thereby much influenced in its extent; but the sources of the best qualities of the various products have been fixed, and this knowledge has led to precautionary measures of conservation.

One obvious instance of the usefulness of exact descriptions is afforded by the fact that there are probably not fewer than 150 species of Gum trees (Eucalypti) in Australia, and many of them are so much alike in general appearance as not to be easily distinguished, though their timbers are of widely different qualities. We have been led into this digression on the utility of descriptive botany in consequence of a too prevalent idea, that it merely administers to the pleasures of a few.

Before proceeding to an examination of the books before us, we will give a few particulars respecting the *Flora Australiensis*.

The *Flora* is a work of seven volumes, containing descriptions of upwards of 8000 species, wholly written by Mr. George Bentham, with the constant aid of Baron von Mueller. The first volume was published in 1863, and the last in 1878; and in this work Australia can boast of what no other large country, not even Europe, possesses, namely, a practically complete account of all its known plants. The extraordinarily rich and varied vegetation of Australia is so entirely different from that of the northern, and in a less degree from that of other countries in the southern hemispheres, that the least observant of travellers is impressed with it. The lively and refreshing green of various shades that characterises the foliage of the fields and forests of Europe is very largely replaced by a sickly depressing bluish green in Australia. On the other hand the flowers are often most gorgeous and usually very brilliantly coloured, in striking contrast to the inconspicuous flowers of the majority of our trees and shrubs. Then the proportion of woody to herbaceous plants in Australia is very high, and the same type of foliage is repeated in the most distantly related families, so that experienced botanists cannot determine the affinities of many of these plants without their flowers. The leaves are usually small, hard and rigid, and where they are larger the surfaces are often vertical instead of horizontal. The beautiful feathery leaf of the Acacia of other countries is here reduced, in 271 species out of 293, to a flattened or rounded variously shaped stalk, the true nature of which is revealed in one or two species by the occasional development at its tip of the feathery blade. These reduced organs exhibit a surprising diversity in the 271 species described, while the flowers are invariably of some shade of yellow. In other genera there is a great wealth of colour. Another remarkable phenomenon in Australian vegetation is the prevalence of woody seed vessels, often of great thickness and density, and sheltering seeds most delicate in texture or very small in size. It has been stated that Australian plants are for the greater part peculiar. This holds good very largely for genera and almost invariably for species, yet some of our British genera have their greatest concentration of species in Australia. The Sundews (Drosera) are a noteworthy instance. About one hundred species are known, and they are scattered nearly all over the world except the Pacific Islands and oceanic islets, though nearly half of them are endemic in Australia. A large proportion of them are limited to Western Australia, and are sand-loving plants with bulbous root-stocks; and some of them have slender climbing stems.

But those who would get some idea of Australian vegetation, and for that matter of many other countries, should visit the "North" Gallery of Paintings of Plants and their Homes in the Royal Gardens, Kew. There may be seen the colossal Gum trees (Eucalypti), the Grass tree (Xanthorrhœa), the Flame tree (Nuytsia), various species of Acacia, gorgeous members of the Myrtle, Protea, and Pea-flower families, together with numerous other elements of the flora of the most distant parts of the country.

Dr. Woolls is an enthusiastic amateur, who has laboured much to popularise the study of natural history in New South Wales, and the lectures which were delivered with this object here brought together cover a period of fifteen years. They were not composed for critical audiences, yet some of them are of general interest and full of useful information. That on the progress of botany in Australia is a fairly good outline of the history of botanical discovery in the country and of the literature relating thereto.

It is now nearly two centuries since Dampier first visited the north-west coast at one of the most desolate points, and he published a most dismal account of the country, its productions, or rather want of productions, and of its miserable inhabitants. Eleven years later—in 1699—he again visited the same coast further south, and on this occasion in the more respectable position of commander of a ship of the British navy. His first voyage was with the buccaneers. Dampier's second visit was to a less sterile part of the coast, in the neighbourhood of Shark Bay, whence he brought to England the first specimens of Australian plants seen in this country. It is a very small collection, still preserved at Oxford, and contains only a few species, and among them none of the great prevailing Australian types of vegetation except a Casuarina and one species of the genus Dampiera. It included, however, a member of the Papilionaceæ, which has the most gorgeous and brilliantly coloured flowers of any of this family, so numerously represented in Australia—we mean the "Glory Pea,"

* *Lectures on the Vegetable Kingdom, with special reference to the Flora of Australia.* By William Woolls, Ph.D., F.L.S. Sydney and Paramatta. 1879. 8vo, pp. 227.

A Lecture on the Flora of Australia. By Baron Sir F. Mueller. Ballaarat, 1882. 8vo, pp. 31.

Systematic Census of Australian Plants: Part I., Vasculares. By Baron Sir F. Mueller. Melbourne, 1882. 4to, pp. 152.

† The interesting vegetation of these islets will be treated of in the forthcoming volume on the *Botany of the "Challenger Expedition."*

Clianthus Dampieri, whose only congener is endemic in New Zealand. Nearly a century passed before anything more was known of the natural history of Australia. In April, 1770, the illustrious Cook discovered New South Wales, and landed in Botany Bay. With him were Sir Joseph Banks and Dr. Solander, and these naturalists were the first to enjoy the delights of investigating the rich and varied flora, so different from anything previously known. But it was reserved for the great master in botany, Robert Brown, to make known to the world the botanical treasures collected by Banks and Solander, which he published, together with portions of his own vast collections, in 1810. Brown himself accompanied Flinders in his voyages from 1801—1803. Between the expeditions of Cook and Flinders, Vancouver had visited Western Australia, where Menzies, the surgeon, collected a few plants. Previous to the appearance of Brown's essay on the vegetation of Australia and technical descriptions of the genera and species of plants, some 400 species had been described by various botanists, a large proportion of them from specimens cultivated in Europe. White's *Journal of a Voyage to New South Wales* (1790) is perhaps the earliest work containing coloured figures of characteristic Australian types of vegetation. It contains figures of a Banksia in various stages; the singular "Wooden Pear," Xylomelum; two of the Gum trees — Eucalyptus piperita and E. resinifera, and a few other things. There is also an imperfect description of one of the Grass trees—Xanthorrhœa sp.

From the time of Robert Brown's visit with Flinders the botanical exploration of Australia has proceeded almost uninterruptedly, and it has been prosecuted with great activity during the last thirty years, mainly owing to the exertions of Baron F. Mueller, in whom not only the colony of Victoria, but all the colonies of Australia, have a most able, enthusiastic, and indefatigable labourer in this branch of natural history.

He was, we believe, instrumental in inducing the colonies to grant the small sum required for the *Flora*; and although he is not directly responsible for any portion of the seven volumes, he contributed a vast quantity of material, published and unpublished, that was of great service to Mr. Bentham in his elaboration. Moreover, as we learn from his lecture, he has published from time to time between 700 and 800 species discovered since the publication of the *Flora Australiensis*. Perhaps the most useful of his numerous works will be the exhaustive monograph of the genus Eucalyptus, in course of publication, and which has reached the eighth part, each part containing figures, descriptions, and history of ten species.

Having enlarged so much on the progress of botanical discovery in Australia, we must dismiss the remainder of Mr. Woolls' lectures in a few words. The "Botany of the Castlereagh District" is an interesting sketch interspersed with anecdote, as is also "Wonders of Australian Vegetation;" but the author is more ambitious and less successful in "Variations of Species in Relation to the Variations of Languages." This is a dogmatic condemnation of the theory of evolution, which is quite safe from such criticism. He is not more happy when contrasting Bentham's classification of the Gum trees, based on modifications of the anthers, with Mueller's, which is based on variations of the bark of the trunk. The latter is undoubtedly the most useful to the forester, while it is impracticable in the herbarium, and *vice versâ*.

Baron Mueller's lecture contains the results of much research and labour. At p. 371 of the last volume of this journal some statistics of the Australian flora are given; but Baron Mueller's lecture affords a much more complete analysis of the components of the flora and the distribution of the genera and species. We extract some of the figures, which occupy little space, though they represent much labour.

Total of all Plants Indigenous in each Colony:—

	West Australia.	South Australia.	Tasmania.	Victoria.	New South Wales.	Queensland.	North Australia.
Dicotyledones	2552	1331	685	1217	2106	2245	1290
Monocotyledones	555	358	271	388	568	621	351
Ferns and allies	29	34	75	85	130	168	34
	3136	1723	1031	1690	2804	3034	1675

Of the above the following numbers are restricted to each colony:—

	West Australia.	South Australia.	Tasmania.	Victoria.	New South Wales.	Queensland.	North Australia.
Dicotyledones	2306	232	149	33	404	792	739
Monocotyledones	363	16	37	21	100	169	130
Ferns and allies	11	4	12	5	22	61	4
	2680	252	198	59	526	1022	873

The total number of vascular plants known as indigenous in Australia is about 8800. Of these 1250 are also found in various other countries, thus leaving 7550 strictly endemic species, a proportion only approached in any large flora except in South Africa. These are the figures as Baron Mueller is able to give them now. Further investigation will doubtless considerably modify them as to the internal distribution of species. Another curious feature is the number of genera (550) represented in Australia by a single species each. Of these 390 are represented in other countries, often very largely, leaving 160 Australian monotypic genera. By way of comparison, Mueller gives the number of species of European flowering plants enumerated in Nyman's *Sylloge*, including the supplement. Europe, with an area of about 750,000 square miles greater than Australia, has, according to Nyman, 10,900 species of flowering plants; but, in making this comparison, it must not be forgotten that both Mr. Bentham and Baron Mueller have taken a very much wider view of species in their works than Nyman in the *Sylloge*. In Nyman's *Conspectus Floræ Europææ*, completed at the end of last year, we see that the total number of species is 9395, with 2014 "sub-species." Of the lower cryptogams 582 species of mosses, about 1200 fungi, and about 1000 algæ, exclusive of the microscopic ones, have been collected in Australia or Australian waters.

The *Census of Australian Plants* we approach with mixed feelings, for although it embodies a vast amount of work, and will be exceedingly useful for reference, there are some features in it that we are sorry to see—features that fill the mind with dread as to the future of botanical nomenclature. Yet it should be mentioned that in most things the author merely carries out what he has suggested in his previous writings. One of these features is absolute priority in names — every other consideration being subordinated to mere priority. On this point Mr. Bentham says (*Journal of the Linnæan Society*, xix., p. 19):—"It would indeed be mere pedantry, highly inconvenient to botanists, and so far detrimental to science, now to substitute Blumenbachia for Sorghum, Fibichia for Cynodon, Santia for Polypogon, or Singlingia for Triodia." Yet this would have to be done if we are to be guided by strict priority alone. Such changes are inconvenient in themselves, and often involve numerous other changes, in consequence of the same names having been retained in other natural orders. Of course, if we have no hard and fast rule to abide by there will be conflicts of opinion and in practice, but we venture to say it would be trifling in comparison with the confusion arising from such changes as the following, which we give as an example of what Mueller has done in his *Census*. In 1805 Labillardière founded a genus Candollea; but he shortly discovered that Swartz had published the same genus under the name of Stylidium a few months before his Candollea appeared. Thereupon he proposed and described a second Candollea, a genus of Dilleniaceæ. Now, Baron Mueller reduces, rightly or wrongly, the latter Candollea to Hibbertia; and he follows this up by deposing the Stylidium of Swartz in favour of the original Candollea, because Loureiro had previously (1790) published a genus Stylidium, which genus was afterwards unwittingly re-described as Marlea by Roxburgh. So this reform reinstates the first Candollea for what we have all our lives known as Stylidium; the plants we have called Candollea we should have to call Hibbertia; and our old coriaceous friend Marlea would become Stylidium. As long ago as 1838 the elder De Candolle was aware that Stylidium, Loureiro, was the same as Marlea, Roxburgh; yet as the former, though the older, had not got into use, he would not adopt it in the place of a name that had become familiar in association with a certain plant.

Another feature developed in the *Census*, to which we can merely allude, is the extensive agglomeration of genera, which is quite in consonance with the author's ideas of the limits of species, as set forth in his *Vegetation of the Chatham Islands*, where he proposes reducing the seventeen species of Epilobium of the New Zealand flora to E. tetragonum, L. Here are two or three examples of his proposed aggregate genera. In Eriostemon he merges Crowea, Phebalium, Microcybe, Geleznowia, and Asterolasia; while Cyathodes, Astroloma, Leucopogon, Acrotriche, and Monotoca, are reduced to Styphelia. Such combinations and changes are specially annoying to horticulturists, who have no means of knowing that an Eriostemon under a new name is no other than an old Phebalium or Crowea, &c., as the case may be. We do not ignore the fact that some of these reductions may be perfectly justifiable, and would meet with general acceptance.

In conclusion, it may not be out of place to call attention to the greater degree of activity in scientific research exhibited by those colonies possessing practically complete works on their vegetation; and this activity has not been confined to botany. Geology, entomology, and other branches of knowledge have indirectly benefited by these publications. New Zealand was the first to enjoy the advantage, and the result is in every way most gratifying. Again, the *Flora Hongkongensis* has been instrumental in fostering the study of the vegetable products of China by merchants and others in that part of the world. *W. B. H.*

A SHORT AUGUST HOLIDAY.

(*Concluded from p. 362.*)

BREAKING the journey at that most old-fashioned of inland watering-places, Tunbridge Wells, we travelled about the middle of the harvest month to that quiet Surrey village, once a somewhat notorious rotten borough, and now fast becoming well-known in the horticultural world, Blechingley, near which is Pendell, the seat of Sir George Macleay. Leaving our hotel under the Lime trees of the Pantiles of the last century Cheltenham of Kent, we were able to study once again how Nature can render even bare masses of a cold grey sandstone picturesque, by moulding into grotesque, top-heavy shapes, and surrounding it with such simple vegetation as Bracken, Heather, and Harebells. This, the lesson of the common and of Burstall Heath, it is almost futile to attempt to reproduce except on sandy or limestone soils. Rockeries rising abruptly like volcanic cones of clinkers from a level surface of stiff clay are simply absurd.

The numerous Yew trees scattered through the woodlands of the Happy Valley, with recollections of those that mark the little-trodden pilgrim roads on Surrey and Kentish hillsides — roads probably far earlier in date than the martyr of Canterbury—suggested the truly indigenous character of this long-lived tree; but it was in vain that we sought among modern villas and their enclosed parklets for the Sundew and other marsh plants, recorded not many years since in local guide books from Culverden. However, the berries of the Gueldres Rose made a fine show in the hedge, and the tall spikes of capsules told of the past glories of the Foxgloves in the woods, where the little yellow Pimpernel luxuriated in shade and moisture. It is, perhaps, the most graceful of our indigenous yellow flowers.

The chief point that attracted our notice as the train whirled us through the well-wooded and fertile garden of the Weald, now festooned with promising Hop vines, was the intensely dark colour of the almost mahogany-tinted red Wheat of the Kentish fields. About Redhill and Blechingley it was far paler, though still red and not white Wheat prevailed.

We stopped at the village station of Merstham, where the parish church stands prettily

"Bosom'd high in tufted trees,"

on a knoll of the Firestones below the chalk downs, at the foot of which gushes forth one of the clear springs that hereabouts supply various affluents of the Mole. Thence we drove along the valley of that rivulet, for here it is little more, over those "black lands" of Gault that abundantly justify William Smith's name of Oak-tree Clay, to a house whose old-fashioned garden, though quite eclipsed by the magnificence of Pendell Court, over the garden of which

Mr. Charles Green so ably presides, is perhaps worthy of description.

Blechingley Rectory is about a mile from the village, which stands on the Greensand ridge, whilst the Rectory is at the bottom of that same "winding vale of Holmesdale," in which Pendell Court is situated. The two houses are, in fact, not much more than a quarter of a mile apart, and the same stream which supplies the ponds of the one has been in part diverted into those of the other. As in many of the parsonages in the neighbourhood, part of the glebe takes the form of a small park in front of the house. This well-timbered pasture lies on the northerly slope or Folkestone Sands, which conceals the house at but a short distance from it. On one side one of the streams thrown out by the seams of fuller's-earth, much worked in this district, has been formed into a series of three small stew-ponds, dating, perchance, from times even earlier than those when Queen Elizabeth stoutly maintained the discipline of the Lenten fast; on the other is one of the most lovely hollow ways, where orange and yellow ledges of sandstone, here and there grey with cup-moss and other lichens, overhang a winding roadway quite overarched with trees. Once it was draped with Ferns, but nearly all have disappeared into the rapacious basket of the London street vendor. This is the penalty of being within 20 miles of the metropolis. Two ha-has and a public road separate the park from the house and garden. A fine clump of Portugal Laurel, which this year has been full of blossom, is on one side of the gate to the semicircular drive; and on the other the creeper-hung stump of a Horse Chestnut, which having succumbed to a gale, and being cut short and replanted upside down, had yet the vitality to send out shoots in the following spring. A sloping lawn leads to the front door, a verandah running along this, the south side of the house, over which climb Maréchal Niel Roses, Japanese Honeysuckle, and Virginian Creeper, and under which may be large pots of scarlet Pelargoniums or Lilium auratum, and a little edging of blue Lobelia. The house is almost square, and only two storeys high, with a low roof, but it stretches westwards into offices that run out to the stable-yard, once the tithe-barns of the Bishops of Rochester, to whom this parish was a "peculiar." In front of this wing is a small conservatory, where Lapageria rosea, Fuchsia fulgens, and Abutilon Boule de Neige hang over a free-growing mass of Ferns, Hart's-tongue and Maidenhair, from Madeira, Amaryllids from the same island, and other more commonplace conservatory properties. Here Anagallis tenella, our native Bog Pimpernel, has been living for some years, and a flower-pot, side by side, with the more modern Nertera depressa. Just outside the door a fine Magnolia and a Wistaria compete for a limited wall space. To the east of the house is a croquet lawn, on the north and south-west sides of which are two magnificent trees—a Beech and a Lime, towering up, each unsurpassed in its kind. The east side is a bank thickly planted with Primroses, and surmounted by a shady "Belle Allée" of high-growing shrubs, Laurels, and such-like, beyond which lies the kitchen garden, most of which is within four square walls, further protected on the east by a high Holly hedge. Not to speak of prolific Peach trees and Strawberries that maintain the ancient fame of the district, the notable features here are a round pond filled with Menyanthes, a bed of Belladonna Lilies, and others of Anemone fulgens and coronaria, and a house festooned with Tacsonia, with a large night-flowering Cereus on the end wall.

Behind the house is a lawn dotted with little beds of various shapes, gay with Verbenas, Portulaca, Pelargoniums, and Lobelias, curious "knots" whose design carry out the Baconian suggestions of the "Belle Allée." On one side is a group of three good trees, perhaps a trifle too close together, a Weeping Ash, a Cedar of Lebanon, and a deciduous Cypress. Alas! the fellow of the last has fallen a victim to the snows of recent winters, giving more room to a fine young Cedar, now nearly forty years of age. Dividing the parterre is a walk bordered with Roses growing on chains festooned from posts and leading to the broad green walk beyond the high fence of Rhododendron, past the sun-dial, into the wilderness. To the west of the house a shrub-sheltered bed of herbaceous plants, gay with Foxgloves, Anemone japonica, and sometimes with Hollyhocks and Dahlias, extends towards the vinery, in front of which is a bed of Papaver imperiale and a wall well covered with Roses and Jasmine. In the vinery, besides Camellias and Ferns, which latter have sprung up spontaneously in every cranny about the place, a small plant of Pinguicula vulgaris is growing in a pot, an offset from one brought by the writer from Gloucestershire several years ago, which has since lived, flowered and died here. The green walk is shut in with Rhododendrons and Kalmias, several of which are very fine here, with a Copper Beech and a fine Tulip tree on either side, and a Catalpa standing alone among the long grass of this outer untrimmed lawn. On its eastern side is a well grown Araucaria excelsa and a bed of Trilliums, handsome plants, not grown as often as they deserve; a clump of Portugal Laurel, another Cedar, more Rhododendrons and a bed in which single Dahlias, Macleaya and the white variety of Malva moschata, which is here wild, are now the principal plants; but perhaps the most instructive feature of this unpretending garden is the lower portion round the water.

In the long grass flowers the Ragged Robin, but clumps of Rhododendron conceal the water from the grass walk, which ends in an Ivy-covered summer-house and rustic bridge. A thick growth of Reed-mace, Iris, and Sweet-sedge block up either end of the ponds, and their surfaces are almost covered with white Water Lilies. An island is simply a clump of Rhododendrons rising from the water, and while a path runs all along one side, moorhens nest unmolested on the other in a tangle of Osmunda, Lythrum, yellow Loosestrife, and Rose-bay. The flowering Rush (Butomus) grows luxuriantly in the water, but, perhaps from the rich mud at the bottom, refuses to flower. The zoologist looks with surprise at the hundreds of mussels that here enjoy life, and no doubt if, as is proposed, sphagnum be introduced at one end of the pond, a most interesting colony of the more beautiful of our bog plants may be established in this same mud.

Before saying farewell to Blechingley I visited a garden which rejoices in a somewhat remarkable horticultural curiosity. Some fifteen winters back a large limb broke off the old Mulberry, and though the snow was on the ground, the proprietor, amidst much ridicule, insisted on having it cut into five good-sized branches and planted. They gave no sign of life during the following year, but now, two having been given away, three remain as fine well-formed trees that have borne well from the second year after they were planted. One does not often see four good Mulberry trees in one garden. *G. S. Boulger.*

New Garden Plants.

STATICE SUWOROWII.*

WE are indebted to Messrs. Haage & Schmidt for the receipt of fine specimens, native and cultivated, of this newly-described species. The original figure in the *Gartenflora* gives no idea of the beauty of this fine species as grown by Messrs. Haage & Schmidt. It is in the way of S. spicata, but larger in all its parts, the flowers of a deeper colour, and the glaucous undulated leaves are broader and less deeply divided. The small illustration (fig. 59) we now give—and for which we are also indebted to Messrs. Haage & Schmidt—shows on a greatly reduced scale the general habit of the plant, while the botanical details given in the *Gartenflora* relieves us of the necessity of repeating them here. For garden purposes Statice Suworowii may be described as a very fine growing, profusely flowering annual. A single plant will, as exemplified by the specimens sent to us, last in bloom for more than two months. If sown in succession from February to April, it may be had in full bloom throughout the summer from May till October. A bed of this plant is a beautiful sight, being one mass of pale rosy-lilac flower-spikes, which conceal the comparatively small foliage, which lies on the ground. Regel's figure shows an unbranched spike, but in cultivation a central spike, some 15—18 inches high, is produced with ten to fifteen side spikes, the whole forming a pyramidal mass. We have here doubtless one of the finest annuals for summer gardening, or for greenhouse purposes, and one for which we may safely forecast great popularity if our gardeners manage it as well as Messrs. Haage & Schmidt have done. The plant is a native of Western Turkestan, where it was discovered by M. Albert Regel.

* *Statice Suworowii*, Regel, *Gartenflora*, 1882, tab. 1095, figs. 1, 2. Vide etiam fig. nost. n. 59, p. 393

VANDA INSIGNIS (*Bl.*) VAR. SCHRŒDERIANA.

This fine variety has lately appeared with Baron T. H. W. von Schrœder in his grand collection at The Dell, Windsor. It made its *début* at the Royal Horticultural Society on Tuesday, September 11. The plant is an introduction of Messrs. James Veitch & Sons. It is one of those beauties which can only be appreciated by those who are not exclusively wedded to scarlet, crimson, and other brighter colours. The sepals and petals are of a light yellow. I nearly copied the tint by adding a very little orange paint to a good sulphur-yellow, and there are the usual blotches on this ground colour, also of the lightest orange. The lip itself as well as the column is cream-coloured. The two orange lines under the column are well developed. There are no calli on the basilar angles of the lip. It belongs to the variety with a large anterior portion to the blade, such as Mr. Walter Fitch has so well represented in *Bot. Mag.* 5759. It affords me great satisfaction to name the variety after its possessor, who takes the most sympathetic and skilful care of his beloved plants. *H. G. Rchb. f.*

MAXILLARIA VARICOSA, *n. sp.**

A fresh member of the Xylobia group, which Sir William Hooker reduced with such good judgment to Maxillaria. The bulbs appear to be of a different shape, fusiform or nearly conico-pyriform, furrowed, nearly 3 inches in length. Leaf with a petiole nearly 2 inches long, and a blade reaching 1 foot in length, 2 inches broad, oblong ligulate acuminate. The inflorescence is three-flowered, and may by-and-bye become richer. The linear acuminate bracts are longer than the stalked ovaries. Flowers much in the way of those of the short bracted M. corrugata, but the lip is broader and very distinct. It was discovered in Bolivia by Mr. Bang, and has just flowered with Mr. T. Christy, F.L.S., Malvern House, Lower Sydenham, London, S.E. *H. G. Rchb. f.*

FERRIÈRES.

THE Château de Ferrières, the country seat of the Baron Alphonse de Rothschild, is situated about 20 miles from Paris. After leaving the railway station the visitor enters a long avenue of trees, about 2 miles from the château, with woods on either side, and fine trees, with an undergrowth of Rhododendrons, which, with their dark green foliage, produce a fine appearance. In May and June the effect must be grand. The park itself is well planted with fine trees, well diversified. The mansion is a fine structure, and stands on rising ground, whence a splendid view of the surrounding scenery can be obtained. The lake and grounds are well laid out; there is a bridge crossing one side of the lake, from which also a grand view of the château and the grounds on either side are obtained, which enable one to gain idea of the good taste that has here been displayed. On the terrace, around the mansion, and on the other front are some of the finest Orange trees in tubs we have ever seen. The different views of the avenues here obtained are charming. Some fine specimens of Spruce Firs have been very successfully moved by machinery; enormous trees have been transplanted in this way, and do not seem to have suffered from their moving. Great care and judgment, however, are required in this matter, and also to keep them in a growing state after they have been moved.

On leaving this part of the grounds we come to a very large orangery, where there are many fine specimens in front standing out in the open on each side of a broad walk; they are kept there until the cool season advances, and then they are removed into the extensive orangery, where they must look noble. We now proceed through avenues of trees until we come to the principal glasshouses, which are so arranged that one can go all round them, beginning at one end. They form a kind of square with terrace-walks in front, and a sunken garden below, with grass and beds of flowers and shrubs. The houses

* *Maxillaria varicosa*, n. sp.—(Xylobium). Aff. M. corrugatæ: racemo (ad manus quidem), trifloro; bracteis lineari-lanceis acuminatis ovaria pedicellata superantibus; mento obtuso; sepalis lateralibus triangulis acutis; sepalo mediano ac tepalis lineari ligulatis acutis; labello basin usque bene lato, oblongo apice obtuso ob dentes minuto laterales angulatos, ante apicem trilobo; lobo antico nervis; nervillisque incrassatis rugosis; callo transverso quinquedentato ante possito. Ex Bolivia, introd. cl. T. Christy. *H. G. Rchb. f.*

are well backed with trees a short distance off, which present a good appearance. The trees also serve to protect the houses in winter, especially if they are on the north and east side of the houses, provided that they are far enough away not to interfere with the shading of them, as plants and fruit trees require all the light possible.

The first house we entered was one for East India Orchids, the plants being in fine health and vigour. A most glorious specimen of Vanda Lowii, standing 6 feet in height, with four fine growths proceeding from the main stem, and every leaf perfect, bore eleven spikes of its charming flowers, which extended 9 feet in length. The reddish-brown blossoms are barred with lines of greenish-yellow, and the flowers at the base of each spike are of a tawny yellow, spotted with crimson. Some people imagine that this plant does not flower until it attains a large size, bul we have seen it bloom when the plants were but 2 feet high, and then with two and three good spikes. We also noticed the pretty Renanthera matutina, with a spike in full bloom bearing twenty flowers; young fine-grown plants of Vanda suavis, V. tricolor, and a good variety of V. insignis in beauty. Phalænopsis Schilleriana is well grown, and the foliage is strong and robust. P. violacea was finely in bloom, as were also some good specimens of Saccolabium retusum. By the side of this was a fine plant of Cypripedium Sedeni, a very pretty hybrid, nearly always in bloom. Cattleya gigas was finely in flower, with its showy blossoms, sepals and petals of a beautiful rose colour, llp large, of a deep rich purplish crimson-violet in front, with yellow in the throat; there were also several other good plants in bloom. The next house is devoted to foliage plants, such as Marantas, Anthuriums, with fine-foliage and some flowering plants, which help to enliven the others. Passing on we come to a grand house full of fine Palms getting too big for their places, and which are to be moved to a larger house. Among the inmates we noticed some fine specimens of Latania borbonica, a noble Palm when well grown good plants of Areca and Seaforthia, also some very fine specimens of Anthurium Warocqueanum, Veitchii, and crystallinum, together with A. Ferrièrense, a new hybrid between A. ornatum and A. Andreanum, which is noble when grown. A fine house of Dracænas next attracted attention. The plants are well grown and of fine colour, making fine decorative plants.

Crossing the broad terrace walk we come to a fine range of vineries 200 or more feet in length, span-roofed, and loaded with fruit from one end to the other. The bunches were of good average size for table. The Peach-houses have been bearing well. There is a very long Camellia-house with many fine specimen plants in it of the best kinds, with Lapagerias alba and rosea showing bloom. There are several other houses in this range filled with good plants. One house is filled with Odontoglots, grown for cutting purposes and for decoration, such as O. crispum (Alexandræ), O. Pescatorei, O. Halli, O. nævium majus, the latter with fifteen spikes; a most lovely species, and still rare. Associated with these were Masdevallias in strong specimens, Oncidium macranthum, O. incurvum, a fine plant in bloom; Cœlogyne cristata, promising well, and the interesting Drosera dichotoma growing with the cool Orchids. Disa grandiflora was in full beauty, with its bright scarlet, pink, and crimson flowers.

Fig. 59.—Statice suworowii. (see p. 392.)

Leaving this house we came to a piece of rock-work that leads to a noble house just being built for a winter garden for Palms foliage plants and Tree Ferns, of which there are some fine specimens, that will produce a good effect at once. All the pipes being put down in this house are of copper, and we believe that all the houses are heated with pipes of the same metal. They look clean and nice, and heat more quickly than iron pipes, but it is only those whose purse is well filled that can indulge in them, though when done with they are always worth their weight.

Proceeding onwards we arrived at a long range of span-roofed houses, the first of which was filled with flowering plants, such as Pelargoniums, Hydrangeas, Trachelium cœruleum of a fine colour, and contrasting well with the other plants, the colours being distinct. Roses are climbing up the roof, and must have a good appearance when in bloom. We also noticed a span-roofed house full of fine-foliage plants, such as Palms, Zamias, and others, with fine specimens of Clivea miniata and Pancratiums. From the roof hung a collection of Stanhopeas in baskets, some in bloom. By thy side of this there is a new span-roofed house for Azaleas, of which there is a fine collection of well grown plants; but they were, at the time of my visit, all out in the garden to finish their growth and plump their buds for blooming. They will be brought into this new house at the end of the summer. We next entered a large span-roofed house with some rockwork and water, with foliage plants and Ferns; over these are some Nepenthes with numerous pitchers, which have a good appearance. Hanging from the roof at the back are some good Vandas, such as V. suavis, V. tricolor, and a noble plant of Vanda Batemanii. On the side table was a well bloomed specimen of Cypripedium superbiens, one of the best of the barbatum section; also a good plant of Dendrobium Schröderi, Angræcum superbum, Calanthes for winter blooming, &c. In another span-roofed house we noticed a fine plant of Alocasia Thibautiana, with its dark, bronzy-green leaves, and other foliage plants. By the side of these were some Cattleyas, such as C. Dowiana, C. Mossiæ, C. Mendelii, &c.; also Odontoglossum vexillarium, and O. vexillarium rubellum in bloom. The last house in this range is very gay with flowering greenhouse plants, one mass of bloom.

Crossing the terrace we come to the department where most of the plants are grown by the thousand in small houses and pits for the decoration of those we have just been speaking of, and also for the ornamentation of the château. There is no pretence in these houses, they being merely intended for the growth of the plants. In one house a quantity of Vanda teres is planted out in moss, and thriving well, many hundreds of spikes of bloom are gathered here every year; when in flower they must afford a grand sight. These plants are treated in the same manner every year. All the light possible is given to them, together with a good supply of water in their growing season, which is in summer; in winter they are kept dry to induce them to bloom.

Pines are well grown, and there are many fine fruits coming on. We saw hundreds of Tree Carnations coming on for flowering in pots for decoration, also Bouvardias; indeed, almost all kinds of useful decorative plants are well cultivated here. Everything is kept in the best of order; cleanliness prevails everywhere, and great credit is due to M. Bergman for the way in which the place is conducted, and the great interest he seems to take in all those who are under him. *B. S. W.*

NOTES FROM BROCKHURST.

The summer is over. Autumn is upon us, and winter is near. The thoughts of all gardeners are directed forward; plans are laid out for the new year. Bulb catalogues pour in upon us, and you have to decide quickly and order at once, else all the best will be gone. It is a busy anxious time, and upon its right employment much depends. The recent succession of hard winters has taught us to provide a large stock of duplicates of all choice border plants. Almost everything is benefited by renewal. Old clumps grow coarse and poor, and young plants should be brought forward accordingly. Propagate! propagate! is, therefore, the motto, that you may have stock enough in reserve to supply your own wants, and spare stock also for your friends. Seed time and harvest are also with us. It is impossible to gather it all in, and so the borders should be lightly raked over, and the seeds allowed to fall around the plants. In this way you may have an abundant stock of Delphiniums, Lupines, Verbascums, and a host of other useful border plants without much trouble.

Rockeries require especial attention, or some of your choicest treasures will disappear. Some are smothered by the overgrowth of larger plants. Others damp off with the autumn rains, and require every care to preserve the residue. Some of the Saxifrages are especially liable to loss in this way, especially such as Burseriana, conoides, and the like. Narcissus clumps should be thinned and replanted, and some good rich soil substituted for that worn out by three or four years' Daffodil growth. Such valuable plants as Anthericum liliastrum should be overhauled and the crowns divided. In three or four years they form a dense ball of root crowns, which meet together and interlace until the life is almost squeezed out of the centres. One clump which I took up yesterday divided into four dozen good crowns, the produce of half a dozen single crowns in about four years.

Now is the time also to buy Hellebores, which bear removal best at this season. They should be top-dressed with leaf-mould and old rotten manure, so as to carry a large mass of blossom at Christmas

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time. According to Mr. Barr's catalogue there is to be a great Hellebore campaign, and we must all prepare for it. There is no plant better worth growing than the Christmas Rose, and it is well worth while to find out which is the best and how it can be obtained. This is to be tested at Tooting, and no doubt others will experiment also for themselves. Perhaps a special show of Christmas Roses could be arranged at the Horticultural Society's meeting, as near Christmas as practicable, so that the public also might judge of the merits of the rival sorts.

The most interesting plants now in flower are the Asters and Helianthuses. This year we have a long row of them, and a grand show they make, rivalling even the Tritomas for grand effect. I hear the latter are of shorter stature than usual—5 feet at Munstead—owing to the dry season; but it is not so here, we have had moisture enough, and ours are over 7 feet high. The Helianthuses are bigger, however—giganteus and decapetalus are each 9 feet high, and the multiflorus varieties are seven. Some of the Asters are fully 7 feet high, and all are very floriferous this season, and form a most interesting feature in the borders. On the rockeries the Cyclamens are very beautiful, and the charming Acæna microphylla with its rosy burs never was finer than it is this season. Senecio pulcher is also grand, the flowers measuring quite 3 inches across. The Androsaces lanuginosa and coronopifolia are also very full of flowers and charmingly pretty.

Shrubs of every sort have made extraordinary growth this summer, and Rhododendrons and Azaleas are thickly set with buds, giving great promise for the coming year. *Wm. Brockbank, Brockhurst, Didsbury, Sept. 22.*

SPRING BULBS FOR COOL GREENHOUSES.

(*Continued from page* 362.)

Galanthus Elwesi.—In my opinion this is the finest of the Snowdrops. It grows very freely, with glaucous foliage, and large globular flowers, the deep green bases of the inner divisions of the perianth being seen between the outer divisions, which renders it distinct from all other Snowdrops. *G. Redoutei* is also a very fine species, with large leaves and flowers; both are well worth growing in quantity for the embellishment of the cool-house.

Iris reticulata.—One of the bulbous species, flowering very early in the year, even outside. It grows from 6 to 9 inches high, with deep violet-purple flowers marked with golden-yellow, varying in ground colour, but always charming. It is most easily grown, very distinct, sweetly scented, and in every way worthy the attention of cultivators of the beautiful. I should recommend collectors to grow I. Histrio, but am afraid it is far too rare to secure for the work a gem of the first order.

Lilium tenuifolium.—One of the most charming of all Lilies, and the earliest flowering, sending up slender stems furnished with deep green leaves, and terminated by a raceme of bright scarlet flowers, with the perianth divisions sharply recurved, so that they resemble little brilliant spheres. It is far too rarely seen in our collections; more is the pity, for a more lovely little subject could not be cultivated.

L. pulchellum.—This flowers a little later, with umbels of erect flowers of a rich orange-red colour, on stems about 2½ to 3 feet high. It is a very handsome and easily grown species, but by no means common. The price of many of these Lilies has much to do with their scarcity in our gardens, and the question why they should maintain such high prices is indeed rather puzzling. Native of Silesia, &c.

Muscari armeniacum.—Nothing gave me greater pleasure last spring than a nice collection of Grape Hyacinths in pots, among which was this species, with its long spikes of light sky-blue flowers, deeper coloured outside, each flower a little model in itself; the flower-stalks were about 9 inches high, and the flower-bearing portion about one-third of its length.

M. Argæi.—Another species with good spikes of flowers, of a deeper blue, and a longer and differently formed perianth; very free-flowering and showy.

M. botryoides alba.—This is the white variety of the common Grape Hyacinth, and a charming bulb it is for pot culture, the pure white spikes of flowers rendering it very effective; indeed, no plant was more admired than this, and the variety pallida was when in flower. The latter is of a pale starchy-blue colour, with lengthened spikes, both lasting a long time in flower.

M. moschatus.—A species of very different appearance, the flowers being less numerous on the spikes, of a greenish-yellow colour, with a strong musky perfume, which, apart from its beauty, render it very desirable.

M. Heldreichii.—This is a dwarf-growing species, with compact spikes of small globular flowers of a deep sky-blue colour, with the small divisions of the perianth limb slightly reflexed and pure white, and it strikes you at once as being distinct, although a gardening friend failed to see any distinctions between any of the Grape Hyacinths. It is strange what gardeners, as well as other persons, will sometimes commit themselves to say.

Narcissus bicolor and its Varieties.—All these are well worth growing in pots, with their spreading white perianths and deep golden trumpets, conspicuous amongst Daffodils. The typical form, with the varieties Horsfieldi, Empress, major, and sulphureus, are really bulbous plants of the first order, and are likely to have a very bright and happy future.

N. Bulbocodium. — What is more showy than good potfuls of the old Hoop Petticoat Daffodil? Arrange about seven good bulbs in your 5-inch pots and wait the results. Numerous bright golden flowers springing up from the grass-like leaves will brighten up whatever position they occupy, and if in association with it you cultivate the white variety, frequently named monophyllus or Clusii, you will have greater cause to bless the genus Narcissus for the beauties included in her pale.

N. triandrus.—Another gem, with the perianth divisions of a soft primrose colour and recurved like the petals of Cyclamen or Dodecatheon, while the cup is comparatively small and projecting; the flowers are borne in umbels, and I have known as many as nine flowers in one umbel. A charming little subject, it should be well managed.

N. maximus.—The large Daffodil, with golden perianth and trumpet of the latter projecting, and with deeply frilled mouth. It is one of the showiest kinds under cultivation, and for what a long time it has been known in this country. Good old Parkinson cultivated it in his time, and later on Curtis honoured it by a figure in the *Botanical Magazine.*

N. moschatus.—One of the "silver Daffodils." How charming such a designation sounds. Plant it more freely ye growers of hardy bulbs! The perianth and trumpet are soft silvery white, pale primrose when first expanding, much resembling N. cernuus; in fact, I have never yet seen or read of reliable points of difference, which makes me believe they are of one type. Which is the type? Most likely the common Daffodil, N. Pseudo-Narcissus.

N. Pseudo-Narcissus plenus.—I think if a choice had to be made between the many double Daffodils I should select this in preference to all the rest; the regularly interposed segments of gold and silver render it charmingly attractive, and it is sweetly scented, and lasts a long time under glass. I might enumerate a host of other varieties, but presuming everybody grows Jonquils (N. odorus) I must leave them. *Bulbophile.*

(*To be continued.*)

HARDY HEATHS.

It is curious that hardy Heaths are not more generally grown than appears to be the case, as few autumn flowers make better beds where soft colours are required to relieve, or rather to enhance, the brilliant tints of the autumn flower garden; and still better is their effect when grown near shrubbery walks, where not too much shaded, giving unexpected bits of colour amongst the shrubs, most of which are now out of blossom. For their successful culture it is necessary to replant them every third year, laying the long woody branches under ground. A mass, or bed, of each variety grown separately, is much more effective than when different kinds are planted in the same bed. Their beauty is well shown in the Edinburgh Botanic Garden, where small beds of some of the best kinds are grown (one variety in each bed). From early spring, when Erica carnea, E. carnea alba, and E. herbacea, begin to flower, to far on in the autumn, a perpetual succession of blossom may be had, if a careful selection of kinds be made. There are several good collections of Heaths to be found in the Edinburgh nurseries, but, perhaps, nowhere could there be found a larger variety of hardy kinds than at Comely Bank. In August and September they are especially well worth a visit. One of the prettiest, when looked at closely, is the double form of Erica vulgaris; this also makes a pretty bed. A double white form of this Heath would be a great acquisition amongst hardy Heaths. Is there such a plant in cultivation? Erica cinerea alba is one of the most effective kinds; a good contrast to it is the dark red form, E. cinerea atro-sanguinea. All the varieties of E. ciliaris are good, especially E. Mawiana (introduced from Portugal to the Edinburgh Botanic Gardens), and E. tetralix alba is worthy of a place in every collection; E. tetralix Lawsoniana is also good. E. vulgaris Alportii is very distinct, both in habit and in the dark colour of its flowers; E. v. Hammondii, white, is beautiful; E. v. Serlei much resembles it, but is said to flower a little later—the golden leaved and the silver variegated forms (sometimes tinted with rose colour) are pretty and distinct; and the mossy green form, E. v. pygmæa, differs much in habit from all the others. Several varieties of Erica mediterranea should not be omitted, as they flower earlier; and for beauty of foliage as well as good flowers, Erica vagans and its varieties are valuable. An excellent use is made of this Heath at the Pilrig Park Nurseries, and also at the Warriston Nursery, as an edging to the walks. It forms miniature hedges but a few inches high, bright green, and in autumn supplies no small quantity of blossom. It is one of the prettiest edgings I have ever seen, and though it requires to be replanted oftener than Box, the trouble saved in clipping must more than make up for the trouble of replanting once in two or three years. *C. M. O.*

VEGETABLE PRODUCTS OF JAVA.

The British Consul, reporting on the trade and commerce of Java for the year 1882, says, that in many parts of this island, especially to the eastward, Tobacco, which in former years was a fruitful source of wealth both to Europeans and natives, has become almost a thing of the past, and even in eastern and southern Java, where several planters have persevered in the cultivation, the resuts are such as to warrant but little hope of the industry being continued.

Under the head of Tea it is said that planters have paid increasing attention to the improvement of their gardens, and with few exceptions have quickly adopted all improvements in machinery proved to be successful in British India and elsewhere. The yield of Java gardens (nearly entirely confined to the westward portion of the island) is rapidly increasing, and every care is being taken to introduce the best description of plants, the preference being still given to the Assam hybrid. Exports to England and Holland have been nearly equal during the past year, the low price of British Indian Tea in the London market having caused shippers to direct a large portion of the late production to Holland.

Arrack appears to be an important production of Batavia. It is stated that from the coast distilleries at Cheribon, Samarong, and Sourabaya a fair proportion was exported to Europe.

Private exports of Cinchona, although considerably larger during 1882 than in the preceding year, only amounted to 181,354 Amsterdam pounds, but as numerous Cinchona gardens, commenced some five or six years ago, must shortly begin to yield, this article may soon be expected to take a prominent position in the list of exports from Java; various concessions of land in the high districts of East Java have lately been granted for the cultivation of Cinchona, and working capital has been readily forthcoming, showing general confidence in the future of this culture.

Under the head of "Government Cinchona Plantation" the following statement is made:—The Government Cinchona crop is steadily increasing year by year as the plantations are enlarged. This, year's crop (1882), to December 31, amounted to 230,000 Amsterdam pounds as against 165,000 Amsterdam pounds in 1881, and 100,000 Amsterdam pounds in 1880; but this figure does not represent the whole crop, the remainder of which will be gathered during the commencement of 1883. The 1881 crop netted in Holland 218,441 fl. 75 c., or about 1 fl. 32 c. per Amsterdam pound.

Experiments were made during the year with a view to ascertaining what percentage of alkaloid was contained in the bark of young Ledgeriana trees grown

from the seed of the parent tree, from which it would appear that bark of four years old when in good condition contains from 9 to 11.75 per cent. quinine, or fully more than the older parent trees.

The number of trees in the Government nurseries and plantations at the end of 1881 and 1882 stood as follows :—

Young Trees in the Nurseries.

	1882.	1881.
C. Ledgeriana	820,700	515,000
C. succirubra	198,300	199,300
C. officinalis	186,890	22,300
	1,205,800	736,600

Trees in the Plantation.

	1882.	1881.
C. Ledgeriana	694,900	620,680
C. Calisaya and Hasskarliana ..	445,500	520,000
C. succirubra and caloptera ..	474,500	596,600
C. officinalis	475,500	458,100
C. lancifolia	9,000	12,100
	2,099,400	2,207,480
Total number of trees ..	3,305,200	2,944,080

Black Pepper.—The "Lampong" crop of 1882, which constitutes the bulk if not the whole of the so-called Batavia Pepper, was during the year unusually large, being estimated at about 53,000 piculs as against an average of 23,000 to 25,000 piculs for the last two years. The crop commences to arrive at Batavia during August, and the final sendings would be received until well into March of the present year.

EUCHARIS AMAZONICA.

FEW flowering plants are of easier cultivation, or more serviceable to those who have choice flowers to produce in quantity; for not only will this useful plant yield its flowers during the summer, but they are produced with equal freedom during the worst months of the year. With a good number of plants it is not difficult to maintain a regular and constant supply of flowers the whole year round. The whole of the plants can be brought into flower at one time, where quantity is required in preference to a succession, or they can either be retarded or pushed forward at discretion. It can, if absolutely necessary, be flowered three times during the year, but this only gives four months for the growth to be made, for resting, and for the flowers to be produced. This strain soon taxes the energy of the plants, and instead of increased strength and vigour they decrease, and only puny flower-spikes result. When well grown, and only flowered twice, strong spikes are produced, with from five to seven enormous flowers upon each spike.

Some plant out the Eucharis in a prepared bed, and doubtless they will do fairly well, but this is by no means the most satisfactory system. To have such plants permanently occupying a house, often places cultivators at a disadvantage when quantities of other plants have to be grown and house-room is only limited. Again, when planted out they must be subject to what is called the "constant growing" system when flowers that are wanted successionally, and flowers at a given date cannot be depended upon with any degree of certainty. The above system may commend itself to those who require abundance at one time, when the whole can be subject to the same treatment: then they may as surely be depended upon as if grown in pots. Some contend that rest is unnecessary. I have tried both plans, and consider the non-resting system both unwise and unnatural, as the Eucharis enjoys its season of repose, and is benefited by it, as most plants are. The system of culture I have found best is after the growth is matured to gradually diminish the supply of water at the roots, and thus to assist in bringing them slowly and naturally to rest. During this time the flower-spikes are properly and thoroughly developing themselves in the bulb, and the plants are afterwards subjected to a temperature 5° or 10° lower than that in which they were grown for three weeks or a month; the length of time, however, being generally regulated according to the time the flowers are wanted. Cold draughts are avoided while the plants are in a lower temperature, and only sufficient water is given to keep the foliage and roots in a healthy condition. They not unfrequently, if left for a month, commence throwing up their flowers before they are again removed to the house in which they make their growth. Under this system the flowers are not small through premature production, but throw up naturally, and the flowers in consequence are of the finest quality.

Bottom-heat, so strongly advocated by some as an essential item in the cultivation of these plants, is unnecessary. Where a judicious system of cultivation is practised the maintenance of bottom-heat is only a waste of fuel, as they will do as well without it as with it. Neither is it necessary after resting to assist them in throwing up their flower-spikes. If once the plants are trained, and grown in sufficient quantity to yield a constant succession of flowers, some will be growing, some resting, others flowering, while others will just be completing their growth, and so on.

When the Eucharis is once trained to make its growth at different periods they will ever after continue to do so if properly treated with that end in view. At first their time of flowering should be noted on labels placed into the pots until they are divided into sufficient batches, and all in various stages of development, according to the demand and circumstances. After their first season their condition is readily recognised by experience.

I prefer to repot the plants where a succession of flowers is the object, as the different batches go out of flower, instead of going through the whole stock at one time. At one time the idea was prevalent, and is still persisted in, that these plants flower more profusely when thoroughly root-bound; in consequence they are sometimes allowed to remain in the same pots for a number of years. Experience teaches us that this practice is more imaginary than real, for our plants bloom profusely, and are subject annually to a thorough shaking out and repotting in new compost. In potting the pots should be well and liberally drained, covering the drainage with moss or the roughest portion of the compost. The soil should be pressed firmly into the pots, and should consist of rich fibry loam, charcoal broken moderately small, one 6-inch potful of bone-meal, and the same quantity of soot to each barrowful of loam, with sufficient sand to make the whole porous. They may, after being thoroughly shaken out, show signs of flagging for a few days, but if watered at once, and the foliage kept constantly moist, the house quite close, and the plants well shaded from strong sun, they commence rooting and growing freely in about ten days or a fortnight. Large specimens can be grown by placing a number of bulbs in a good-sized pot. Although we grow a few large plants, the majority of our stock is in 5-inch, 6-inch, and 7-inch pots, which prove the most serviceable, as they can be used in those sizes for a variety of decorative purposes. When grown in comparatively small pots they are more easily managed, and a constant supply of flowers is by no means difficult to produce. We never allow more than two bulbs in the 5-inch and 6-inch pots, and often only one in the smallest size. At the annual potting the small bulbs are removed, and either potted if we wish to increase the stock, or thrown away if not wanted.

Water must be liberally and constantly supplied while the plants are growing; in fact, they should not suffer from the want of it in any stage of development. Constant supplies of water soon bring the soil into a very unsatisfactory state for the roots to work in, especially where the plants are not potted for a number of years. These plants will stand liberal and constant supplies of liquid manure while growing and flowering, but I prefer annual potting, which affords a liberal and suitable medium for the roots to work in, instead of feeding continually with stimulants.

The night temperature during winter should be 60° to 65° while growing, with a rise of 5° or 10° by day, and during the summer 70° to 75° at night, with a corresponding rise of 10° to 15° by sun-heat during the day. Air is freely admitted when favourable, and the plants during summer shaded from strong sun. *Wm. Bardney.*

HOW FLOWERS ARE MODIFIED.—"The dependence of entomophilous flowers (flowers for whose fertilisation the agency of insects is essential) on guests so infinitely various in habits, tastes, and numbers, in their food and in the means of obtaining it, must have rendered possible, not one, but countless paths towards perfection, paths leading not always forward, but sometimes backwards; and only in such a way could the infinite variety of existing flowers have come into existence." *Müller's "Fertilisation of Flowers."*

ODONTOGLOSSUM CRISPUM

(*Lindl.*) VAR. LEHMANNI, *Rchb. f.*

ACTING on the suggestion that has been previously made as to the origin of this plant, I think a few notes may not be out of place. At the page cited it is stated that the Odontoglot in question is evidently a cross between O. Pescatorei and O. crispum, but this, for various reasons, cannot be. For one reason, the home of Odontoglossum Pescatorei is in the north-eastern parts of Columbia, while O. crispum var. Lehmanni is a native of the most southern parts of this country and the northern districts of Ecuador, the two plants being thus separated from each other by the wide range of over 300 miles—an occurrence quite unknown amongst the Odontoglossa. Although the colour of the flowers of O. crispum var. Lehmanni resembles that of O. crispum, I am of opinion that the Odontoglot in question is not a variety at all, but, on the contrary, a good species. Of this I felt sure sure when I first met with it in 1878, and after having made detailed studies of the entire plant in its natural habitat in 1880, I named it in a letter addressed to my excellent friend, Professor Dr. H. G. Reichenbach, in his honour, as a mark of warm admiration, Odontoglossum Reichenbachianum.

The characteristic features of the plant, which guided me in this direction, were: the far smaller but tougher development of all the organs of the plant; the branching out of the flower-spikes; the great profusion with which the flowers are produced (up to fifty-four on a spike were observed); the somewhat narrow but long perigone; and, *par excellence*, the large, rather broad, and always more or less panduriform labellum. The variations of colour, as well as form and size of the flowers, are just as great with this species as with O. crispum. Five such varieties were specially observed and prepared for the herbarium; these were evidently hybrids between O. crispum var. Lehmanni and O. atro-purpureum, and proved at first sight so distinct in their general structures that I nearly felt inclined to consider them as species.

If we consider the geographical distribution of each species and the transition from one species to another of the entire group of white-flowering Odontoglots which have their home in the Andes of Columbia and Ecuador, we observe a very peculiar disposition of the species according to certain laws. The Savana de Bogotá, full of historical interest and traditions, where Bochica and Huythaca figure as good and evil beings, the former with his miraculous cordon cleft the Cordillera, in order to deliver his adopted country from the deluge, thus forming the "Salto jigantesco de Tequendama;" this savana, which likewise is to be considered as the centre of a past great civilisation, also forms the centre of our contemplations. In its fascinatingly beautiful mountains thrives the pearl of South American Orchids—Odontoglossum crispum, Lindl. It is an Orchid with simple or very rarely branched flower-spikes: if branching take place, it is only in luxuriantly developed plants, such as were observed at the southern limit of the range of distribution—and very large flowers. The limits of the range of distribution lie between 3° 45′ and 5° 30 lat. N.; it is confined to the western slopes of the eastern Cordillera, provided that O. Reichenbachianum (O. crispum var. Lehmanni), is considered as a real species. Northwards to the zone of O. crispum we observe its next neighbour in the species of O. Pescatorei. It produces branched flower-spikes, and much smaller flowers than the previous species. The limits of the zone of distribution, which likewise is confined to the eastern Cordillera of Columbia, lie between 6° and 8° 15′ lat. N. To the southward of the zone of O. crispum we observe the parallel to O. Pescatorei in the shape of O. Reichenbachianum (O. crispum var. Lehmanni). It is a species with branched flower-spikes, and but slightly smaller flowers than O. crispum. Its zone of distribution is confined to the Columbian central and Ecuadorean eastern Cordillera. The latitudinal limits lie between 0° 30′ and 4° lat. N. The little known O. Murellianum, which is found northward of the zone of O. Pescatorei, is in the south, to the zone of O. Reichenbachianum (O. crispum var. Lehmanni), supplemented by a hitherto undescribed species, which bears fine large flowers, and branched spikes. On the slopes of the somewhat isolated mountain masses of the Sierra Nevada de Santa Marta, extending as far north as 11° 10′, the elegant O. nævium makes its appearance. In the south this is supplemented by O. cirrosum,

growing likewise isolated on the slopes of the western Cordillera. The limits of the latter lie between 4° lat. S. and 2° 15′ lat. N.

All these species form just as distinct and characteristic a group as O. Halli, Lindl., with its numerous congeners. The whole group inhabits a region of from 1500 to 2600 metres above the sea level, with an annual mean temperature ranging from 14° C. to 18°.5 C. (58°—60° F.). The region is moreover characterised by a comparatively high degree of humidity; it stands by far the larger period of the year near the point of saturation. The rays of the sun penetrate but little through the dense foliage of the woods in which these Orchids grow.

From the foregoing notes, which are based on careful observations and study, it will clearly be seen that there can be no talk about O. Reichenbachianum (O. crispum var. Lehmanni) being a hybrid between O. crispum and O. Pescatorei. It is quite inexplicable how the seeds, which would have resulted from the hybrid between the two latter plants, could have reached the field of its present habitat, as they are separated something like 600 kilometres (372 miles) aërial distance from the transition locality. *F. C. Lehmann, Cali, Columbia, August* 1.

GENTIANA ORNATA.

FOR our illustration (fig. 60) of this pretty species we are indebted to Mr. Scott Wilson, who further tells us that "it was planted at the foot of a mound in our wood at Wisley, exposed to the sun at the edge of a ditch where the black peaty soil is quite damp, a good-sized piece of sandstone having been pushed into the bank for it to root against; at first it did not grow much, but now it has made a fine plant, and has been much admired for its lovely pale blue flowers." As will be seen, it is a species of creeping or trailing habit, with linear glabrous leaves, and tubular funnel-shaped blue flowers. It is a native of the higher regions of the Eastern and Central Himalayas, and is fully described by Mr. C. B. Clarke in Hooker's *Flora of British India*, vol. iv., p. 116 (1883). It was also figured in the *Botanical Magazine*, t. 6514.

THE LAMBETH AMATEUR CHRYSANTHEMUM Society will hold its meeting for the current year on November 12, 13 and 14. Schedules and further information may be obtained from Mr. G. S. Addison, Hon. Sec., 22, Peckham Grove, S.E.

THE ROCK GARDEN.

THE WHITEHEADS ROCK GARDEN, BICKLEY.—A visit to this garden is always pleasurable. Among the most noteworthy plants observed some weeks since were a great clump of Epilobium roseum: the colour well harmonised by an equally large mass of Spiræa palmata. Growing near this, but not in it, Gillenia trifoliata was flowering finely; the distinct growth and peculiar blossoms of this kind strike one directly. Gunnera scabra was developing immense foliage just in this part of the rockery, so that its roots were most probably down in the saturated soil, although the plant itself seemed to grow on rather higher ground. Close by could be noticed a group of flower stems of Lilium dalmaticum, the roots not having been disturbed for years. A pretty little plant of Escallonia macrantha seemed quite at home on a sunny open space on the rocks, the foliage of a wonderful dark green, that set off a mass of rosy-pink tubes. Nestling at the foot of this plant were some diminutive clumps of an equally diminutive Harebell, Campanula pulla alba, certainly just in its proper place. Campanula garganica, of dwarf habit, and light blue in hue, contrasted well with a yellow Antennaria caudata. Further on one came on patches of Gentiana arvernensis in bloom, and also pretty patches of Campanula Rainerii, and that telling plant Mimulus cupreus: the brightness of this last always fixes the attention, and it seems more at home amongst rocks—in slightly damp situations—than in a bed. Above this plant grew a bush of Cytisus (Genista) floridus, a good late flowering Broom. Senecio speciosus was also in flower, and was apparently in excellent health on the limestone rocks. The Linum campanulatum, with golden-yellow blossoms, made a beautiful patch on these dark looking rocks. A dwarf-growing Gentian, G. ornata, was a pretty object close by (see fig. 60), and Thymus lanuginosus covered a large patch of flat rock with its pleasing grey growth.

On the granite rocks that form a distinct feature in the garden, and which are set apart for those plants that grow the best on this formation were—Triteleia laxa, a pretty, dark blue, saucer-like flower with slender foliage; and Asperula cynanchica, very dwarf, with white flowers; Sempervivum chrysanthum, Epilobium Fleischeri, a nice pink-flowering plant, much dwarfer in growth than the majority of this genus, being only about 9 inches in height here. Here on these rocks the Irish Heath was very conspicuous with its white bells. Corydalis ochroleuca, Dielytra eximia, a dwarf rosy-coloured species, and Aster alpinus, also of very humble growth, with pale blue petals surrounding a yellow eye. Making fine progress in what was apparently a bed of the ordinary soil of the place were some fine plants of Cypripedium calceolus, which certainly were making strong leaves, although they had not flowered very profusely this year. *M.*

CORYNOCARPUS LÆVIGATUS.

THIS, as ordinarily seen, is an evergreen greenhouse shrub with thick deep green leaves, but in the favoured climate of the Scilly Islands it not only thrives out-of-doors but produces its fruit, as may be seen from the sample figured at p. 397 (fig. 61), and for which we are indebted to Mr. Vallance, of Tresco Abbey Gardens. The flowers are white, in terminal clusters, but the fruits as here shown scarcely justify the epithet "club-fruit." According to Dr. George Bennett, the fruit is eaten and the seeds also, taking care to steam and soak the seeds before use, to eliminate the poisonous properties they possess. The genus is now included among Anacards, but was formerly referred to Myrsinads.

FIG. 60.—GENTIANA ORNATA: FLOWERS PALE BLUE.

Orchid Notes and Gleanings.

NOTES FROM TRENTHAM.—Amongst the very large number of select kinds of Orchids so well grown here, there is much to interest those who are fond of these plants. Some of the rarer kinds of Dendrobium are being propagated freely. Mr. Stevens got a plant of the fine hybrid D. Ainsworthii as soon as it was obtainable, this was subsequently made into several that have grown to a considerable size; one has fourteen strong leads. He has set to work to propagate five hundred plants of this variety, and it will not take many years to get them up strong at the present rate; the better part of a hundred are now well established with good bulbs, in many cases 9 or 10 inches long, and strong in proportion. The propagation is from bits of the back bulbs cut in lengths composed of a single joint in some cases, in others with

two or three joints; these were taken off last year and laid close together in little shallow earthenware pans on a little damp material, kept close up to the glass in a warm house, where they made bulbs about a couple of inches long. This year the young growths are from four to six times larger than those of last season; each plant is now in a little pan hung up near the roof. The propagation of Dendrobiums and other Orchids with jointed bulbs is not by any means new, having been practised most likely since Orchids of this description were first cultivated, and certainly more with Dendrobiums than with most other species, but few have attempted so much as Mr. Stevens has, or been so successful. Moreover, the result of his practice is instructive both with the variety named and others similarly operated on; in all cases if the last bulb formed the year before was used for propagation the cuttings made from it were found of little use, as they would not start into growth like those made of older bulbs, but lay for months alive, yet without moving. In every case the increase in the number of plants has been at a sacrifice in the strength of the old ones, for although all from which the cuttings were taken were as strong as they could be, and have since been as well treated as before, the growths since made are reduced in strength proportionate to the number of old bulbs removed. Plants that have had the penultimate bulbs cut away, leaving the leaders untouched, have this season made bulbs not more than two-thirds as large as those produced last summer. The results of the propagation of Dendrobiums does something to confute the mischievous nonsense that recently has been set afloat about Dendrobiums and other Orchids being benefited by cutting away their bulbs—a piece of inconsistency that does not seem to have any other object except trying to make it appear that a new discovery had been made, whereas the result of such work was long enough known to those who had already practised it with the object of increasing the number of their plants. There is here a very fine plant of Dendrobium Dominianum, a hybrid between D. nobile and D. moniliforme, with the habit of the latter, but much more highly coloured. Some of the plants of D. Jamesianum, kept always in the house where the Lapagerias are grown, have bulbs 2 feet long, with half-a-dozen leads to a plant. Some half dozen plants of Vanda cœrulea kept hung close up to the glass in a cool stove through the winter and until the end of May, and since then in a cold house along with Azaleas and Lapagerias, are in beautiful condition, all pushing up strong flower-spikes, one bearing two without a spot or an unhealthy leaf. With these are several large plants of Cymbidium eburneum, filling 12 or 14-inch pots, in equally good condition, with the stout deep green leaves this fine Orchid has when the treatment suits it. In another house is a grand lot of Lælia anceps, filling a number of baskets 2 feet square: one of the old plants before being broken up last winter had 176 flowers open at once. Of the pretty blue and white Vanda cœrulescens, so telling in bouquets, there is a nice lot, and a long row of large plants of Dendrobium filiforme, that were just going out of bloom. Of the variety of Phalænopsis grandiflora that bears very large flowers, there are some fifty plants, in excellent order. The collection of cool Orchids here, particularly Odontoglossums, is well known, and the plants were never in better condition; the old plants, comprising the best forms in cultivation, many of them extremely rare, keep getting larger and flowering more finely as they get older. Some idea of the unusually fine varieties of O. crispum may be formed from the fact that five bulbs of one plant were recently sold for forty-two guineas, and there are numbers worth, proportionately, quite as much. These cool species occupy several large houses, the principal of which was, even at this time of the year, when there is comparatively little in flower, a sheet of bloom. In Masdevallias the collection is equally rich: a number of distinct and beautiful forms of M. Harryana were in flower. Amongst a number of strong plants of Epidendrum vitellinum one was bearing a spike with forty-eight highly coloured blooms. Not the least desirable property in these cool Orchids is their autumn-flowering habit.

In the aquarium the different kinds of Nymphæa were

Fig. 61.—Fruits of Corynocarpus lævigatus. (see p. 396.)

flowering well. There is always much that is interesting in a house devoted to these water plants, which, from their distinct and quaint forms, afford a striking contrast to everything else. *T. B.*

MR. PHILLBRICK'S, BROMLEY.—Although getting late in the season for much to be observed in flower here yet the collection of kinds is such an extensive one that there is nearly always something of interest to be found. The number of kinds grown has been in some degree reduced since their removal from the neighbourhood of Regent's Park, the force being now concentrated chiefly on Cattleyas, Dendrobiums, Odontoglossums, Cypripediums, and Calanthes. Fairly carried out experiments are being superintended by Mr. Heims, than whom a more zealous orchidophile would be difficult to discover. Wisely contenting himself with progressing step by step he gradually inures individuals to more air, light, and sun, and so far with very marked results in the shape of firmer foliage and riper bulbs, which mean in all cases greater floriferousness. With plants accustomed, as most have been for years, to much shade, a saturated atmospbere, and but little ventilation, the first efforts to be made in the hardier treatment must extend over several seasons—the results being such that the management of those sorts that conform themselves to the hardier treatment will be much simplified, especially to those about to begin Orchid growing. Watering is a matter that will require less caution both as to time and quantity, and certainly more of it is required, especially when the plants are suspended in the air. Here we saw the following kinds of Cypripedium :—Hookeri, Stonei, lævigatum, Harrisianum, Lawrenceanum, carrying for the time of year abundance of bloom. Several strains of Lawrenceanum were to be observed, which showed distinctly in foliage and flower the marks of their parentage, which is very interesting to the Orchid hybridiser. A fine piece of Dendrochilum filiforme, a graceful thing, with its yellow-green blossoms, was growing in the Cypripedium-house. This Manillan kind is a very useful summer Orchid — compact, evergreen, and an abundant bloomer.

Plants and their Culture.

POTTING-UP OF WINTER AND SPRING-FLOWERING PLANTS.—Such plants as Richardias, Eupatoriums, Solanums, &c., which were planted-out in prepared soil last May and June, will now have become good-sized plants, and should, if not already done, be potted-up forthwith. The individual plants should be taken up with nice-sized balls of earth, and dropped into suitable-sized pots, which have been previously crocked, and a little fine soil, consisting of three-parts sandy loam and one of leaf-mould, worked round the ball so as to thoroughly fill up the space between the latter and the sides of the pot. Plants thus potted should then be stood in the shade for a few days until the roots have taken to the fresh soil, when they can be fully exposed to sunshine, and where they can have a little protection afforded them at night from the effects of frost. Especially will protection be necessary for Salvias, which should be sticked as soon as they have been potted and for Eupatoriums, as they are both liable to sustain injury from a degree or two of frost, which, by nipping the points of the shoots, would throw them back several weeks from their ordinary time of flowering. The case is different with Richardias and Solanums, as a few degrees of frost, though not desirable, will not hurt them providing the roots have pushed into the new soil. *W. H. W.*

STOVES. — During the next few weeks attention must be given to the rearrangement of the stove plants, preparatory to the setting in of chilly nights and the dull, sunless weather of the late autumn. If any tender exotics are at present (for the sake of convenience) scattered throughout the other houses, give an eye to them soon. Many a fine plant has been irretrievably injured, if not killed right off, by being left out in a cold house late in the autumn. Clerodendrons are very susceptible of the cold, and should not be allowed to remain in any house falling below 55° at night. These and other climbing or scandent stove plants that are gone out of flower may be advantageously pruned half back ; if on trellises they might be taken off and the plants tied into closer compass, thus making room during the next few months for more serviceable subjects for the time being. In rearranging the stove at this season the foliage and flowering sections should be harmoniously blended together to produce the best possible effect for the winter months. It is well, when we have courage to do it, to part with unwieldy specimens that are taking an undue proportion of the room at command. Those plants likewise that are become scrubby or unhealthy should be condemned at once, to give more room for vigorous young stock to extend themselves. Better results would follow if this last hint was regarded more than it is in many places. Whilst all this work is being done keep a sharp look after all insect pests, and follow the advice laid down in previous Calendars. Do not let the night temperature of the stove range much below 70° at banking-up time for the next few weeks. If found at 65° in the morning, that will be quite low enough, and will tend to keep in check any preponderance of damp, which would otherwise in all probability soon ensue with a lower temperature.

A few of the earliest Epiphyllum truncatum may now be introduced into heat ; they will come in useful towards the end of October before the Chrysanthemums are in force. The tuberous Gesneras, if hitherto grown in pits, may also be placed in the stove ; the extra heat thus afforded will help those that are developing their spikes of bloom. Achimenes, Tydæas, and Gloxinias, now past their best, may be stored away for the winter in a moderately warm place. Keep watch on them, however, for water occasionally, guarding against excessive drought. The Caladiums had better be kept in the stove proper, laying the pots on their sides for the resting season. Give abundance of water to small decorative Palms that are confined at the root, with occasional doses of liquid or artificial manure to aid in keeping up a healthy condition of things. Sponging the foliage of these should also be seen to as opportunity may occur, the more so if they are frequently used in decorations. Keep up the young stock of Pandanus Veitchii by propagating the small grass-like growth for table plants. P. graminifolius is the best green-leaved form, and easily increased by offsets. Tall plants of Aralias may with advantage be cut down, and fresh growths started from the base. Withhold water when this is done till a new growth commences.

GREENHOUSES.—The stock of Cape and New Holland plants should now be all safely housed, and thus be secured against any heavy downpour of rain. Look to the drainage, and wash all the pots as the plants are taken in. Give an eye also to any symptoms of mildew on the Cape Heaths ; a dusting with sulphur as a preventative will be an excellent plan to follow with dense growing kinds. Elevate all choice specimens on pots to bring them as near the glass as possible, and if the house be a lean-to, they should be partially turned round occasionally to keep all sides alike. Great care should be taken with the watering, especially with fresh potted plants ; when it is performed, see that enough is given to penetrate the entire ball. Soft-wooded Heaths and the Epacris that are now set for bloom will require more water ; do not let them suffer at the root, or yellow buds, that will not develope, will be found on the Heaths, and crippled blooms on the Epacris. Any fresh bought-in stock of these winter-flowering plants will require extra care at the first in this respect, large heads in small pots being the object generally had in view by the trade grower. With the Indian Azaleas keep a watchful eye for any symptoms of black thrips, and fumigate at once when seen. The greenhouse should be freely ventilated both night and day when the weather is favourable, and the watering performed in the early part of the day as much as is practicable. Some of the Lachenalias that are now starting into fresh growth may be placed on the shelves to bring them along gradually ; part of the stock can be retarded somewhat by keeping them in a cold frame for some weeks longer. If, through pressure from other quarters any plants are still left in the open, no further delay should be allowed in having such as Salvias, Solanums, Richardias and Libonias potted-up. We may now be soon visited with a slight frost in the morning, and the sooner all these plants are in safety the better for their future well-being. Unless the Chrysanthemums are extra early the major portion ought not to catch any harm for another fortnight. Thinning of the shoots or disbudding should now all be completed and stimulants liberally applied. Remove any decaying foliage when the plants are housed, and slightly dust with sulphur to check mildew and damp in the event of the plants having to be crowded together. Cinerarias in want of another shift should be looked after as soon as possible. For general uses, however, extra large sized pots of these plants are not desirable, these having a tendency to produce foliage in excess. Small sized Primulas now in 60's will make useful spring stuff by having a shift into 4-inch pots. Where these and the Cinerarias are kept in pits, guard against damp by abundant ventilation. Get the main lot of Dutch bulbs potted-up as quickly as possible, unless required for very late work. If ashes are used wherewith to cover them, be very careful not to use any from sources where other noxious ingredients can by any possibility have been cast with them. I believe Dutch bulbs have been frequently injured through this oversight alone. *James Hudson, Gunnersbury House Gardens, Acton, W., Sept. 25.*

Peaches and Nectarines.

THE time is now approaching when trees in early houses will be taking their annual rest, and losing their leaves. Where the trees have been exposed the heavy rain and wind we have recently had will have almost cleared them of foliage. Any root-pruning or lifting (if not already done according to directions given in former Calendars) may now be completed at once ; the sooner it is done in early houses the better. A little fire-heat may still be used in succession-houses to assist in ripening the wood. As trees in late houses become cleared of fruit cut out all wood not required for bearing fruit next year, and give them a thorough syringing to clear them of any insects with which they may have become infested. *J. Wallis, Keele Gardens, Sept. 25.*

The Flower Garden.

SELDOM do we experience in the autumn such a lengthened spell of fine weather as we have enjoyed during the present month. Its effect in the flower garden, and, indeed, on all vegetable life, has been very marked and beneficial. The beds, with few exceptions, continue as bright and gay as they were in the month of August ; as to the herbaceous and mixed borders they are simply charming. We must not, however, allow ourselves to be deceived by this exceptional weather, but take every necessary precaution against a sudden change, which we may reasonably soon expect. Every effort should be made to finish the propagation of the required stock of plants as early as possible where this work has not already been completed. It will also be well to take up and pot any tender subjects, as well as any other plants of which the stock may be limited as soon as the least change in the weather is perceptible. If this can be done without destroying the effect of a bed so much the better, but where this cannot be done the whole bed should be cleared, prepared, and replanted with spring plants and bulbs without delay. This will not only give the garden a neat appearance, but will also enable the plants to establish themselves thoroughly before the approach of winter. This is an excellent time to decide on the manner of planting, and also to select the plants for furnishing the spring garden, so that every detail may be duly prepared and every plant ready at hand immediately the summer plants are removed.

Whatever method of planting may be decided upon —and fortunately the treatment of spring plants admits of varied and endless ways—a few important points should on no account be overlooked. First, the design of the garden and its position on the lawn, and especially in respect to the mansion, should be fully considered before deciding what method to adopt, or what plants to use. To attempt to follow any method in a geometrical garden situated near the mansion, which is not strictly consistent with the immediate surroundings, must prove incongruous and unsatisfactory. On the other hand, to adopt the same method when the spring garden is situated, as it always should be, where Nature (not Art, except to a

very limited degree) lends her harmonious and appropriate charms to heighten the effect, would simply be intolerable. In such positions errors can scarcely be made if the operator will only copy as accurately as possible those choice examples which Nature so abundantly supplies, in almost every wood or forest of any reasonable age at springtide. If these examples are not sufficient, perhaps a visit to that most lovely woodland garden at Belvoir will sufficiently explain my meaning, and if once seen can never be forgotten.

Wherever the garden may be situated, and whatever the surroundings may be, such plants only should be employed and in such manner as to be perfectly suitable to its shape, size, and position. If massed beds of distinct colours are required, they should be of sufficient breadth of colour and depth of tone to indicate clearly the object desired, and great care should be exercised to make the colours in the adjoining beds as complementary as possible. As different shades of purple, blue, and yellow, largely predominate in spring plants, this, in geometrical gardens, is not always an easy task, and requires much more care than when treating summer plants.

Should lines, ribbons, or sectional methods of planting be desired, each line or section of colour should be of sufficient length or breadth to produce a decided effect, so as not to portray, when in bloom, a meagre, indefinite or patchy appearance. Nothing is perhaps so intolerable in the arrangement, whether in spring or summer, as meaningless mixtures of plants and colours, which give endless trouble in management and more frequently cause pain rather than pleasure to those who see them. Amongst the numerous plants suitable for furnishing the spring garden are the following. Most of them bloom sufficiently early so as not to interfere with the arrangement of the summer garden; they are comparatively cheap, easy of propagation, and exceedingly beautiful and effective:—Alysum saxatile, Arabis, Daisies, Wallflowers, Violets, Primroses, Violas, Myosotis, Polyanthus, Hepatica, Phlox verna and P. setacea, Adonis vernalis, Irispersica and reticulata, Anemones, Pulsatilla, nemorosa, and apennina; Helleborus niger, Aubrietia, Draba aizoides, Saxifraga oppositifolia, Collinsias, Nemophila, Saponaria, Silene pendula compacta, Iberis, Hesperis. In addition to these, an earlier, more lengthened, and most charming effect may be produced by the judicious use of the early flowering varieties of the different kinds of bulbs, which may, according to taste, be inserted at regular intervals between the plants or masses. Sometimes the dwarf kinds, such as the Aconites, Crocuses, and Snowdrops, are used to define edges, outlines, or sections of the different patterns; but this method is seldom pleasing, generally absurd, and never so simple and effective as the former plan. Whatever method is adopted, early flowering kinds only should be used, and should their time of blooming coincide with that of the plants with which they are associated, care being taken to select such colours as will blend perfectly; at the same time the aim should be to select a few well chosen and effective colours rather than attempt to introduce too many colours in a limited space.

Bulbous plants often suffer great injury by removal before their growth is completed; this injury may be considerably lessened by potting the more expensive and later kinds, such as Hyacinths, Narcissus, and late Tulips, into 3-inch pots, using very sandy rich soil, and placing moss only at the bottom of the pots. These can be easily plunged in the beds, between the other plants, when the roots will spread through the bottom and over the surface of the pots. When taken up after blooming they receive but a slight check, and if placed together in a partially shaded spot and kept watered, they will retain their foliage, ripen gradually, and remain serviceable bulbs for many years. Amongst the most suitable bulbs for the spring garden may be mentioned early and late Tulips, Narcissus, Hyacinths, Aconites, Jonquils, Snowdrops, Crocus, Bulbocodium vernum, Dodecatheon media, Erythronium Dens-canis, Muscari atrocœrulescens, M. monstrosum; Scilla amœna, bifolia, and sibirica; Trillium grandiflorum, Cyclamen Coum, Fritillaria imperialis, Sisyrinchium grandiflorum, Dodecatheon media. Most of these bloom sufficiently early to admit of their removal in time for the introduction of the summer plants, but where the means and space exist for giving these plants and bulbs their more natural and appropriate positions, either in sunny nooks, or isolated and partially shaded spots on the lawn, or far away in the woodlands, either in broad masses or irregular patches, then their numbers and varieties may be largely increased, and suitable positions chosen for each group or family. When so established they are very charming, requiring but little attention, and give additional grace and beauty to those delightful scenes which surround them, simply because Nature is embellished, not disfigured, by their presence. *T. S. C.*

Violets in Frames.—The present will be a good time to plant a few frames with Violets. Assuming that some runners or offsets had been planted out in May, for the purpose of transplanting in frames in the autumn, they should be taken up carefully, with a little soil adhering to their roots, and planted, not too closely together, in light soil, within about 6 inches of the glass, in frames placed under a south wall. Press the soil firmly about the roots in planting, water through a rose, to settle the soil among the roots, then put the sashes on and shade from bright sunshine for a few days until the plants have re-established themselves, after which the sashes should be drawn off on every favourable opportunity. Plants thus treated will produce abundance of flowers in early spring, and a few during the dull months of winter. The Marie Louise is the best variety for frame work. *W.*

The Kitchen Garden.

The fine autumn weather with which we have lately been favoured, may now, at any time, suddenly come to an end, therefore one must anticipate bad weather and be prepared. In many gardens (and it ought to be in all) there is a root-room for the storing of all kinds of roots for the winter's supply, where they are safe from frost, and where they can be attended to in inclement weather. Our store here is built with a north aspect, and is half underground. The walls are built hollow, with a loft overhead for the culinary Apples, then a good thick stuffing of straw between the ceiling and the slates, and into this room and loft no frost has ever entered, and the result is, that roots and fruits retain their plumpness till quite late in the year. Such places should now be washed over with quicklime, to destroy any insect and plant life which may be lurking in cosy corners till more favourable times. Let no time be lost in getting up the late Potatos, and as it will be impossible to find room indoors for the nine months' supply, it will be necessary to pit them in the way described in last week's Calendar, and during open weather in winter to replenish the root-room from time to time; it is too early to pull any of the roots yet, because their growth is not finished. Take advantage of every favourable opportunity to add more earth to the Celery; the earliest will now be fit to begin digging up for use, and the blanched outside leaves should be saved, and when clean washed are as good for flavouring soups, &c., as the best heads. Attention to this ekes out the supply. Attend to blanching the earliest Endive, covering it or tying it up when perfectly dry. In the herb garden Camomile is still very generally grown; on a fine day gather the blossoms and spread them out in some airy place to dry, when they can afterwards be put away in paper bags and kept in a dry place till required. Where the Cabbage planting has not been finished no time should be lost in getting it done, and the small plants left on the bed can be pricked out 3 inches apart until spring, when they can be planted out for a successional crop; but avoid large kinds for garden cultivation. The three-light boxes which are generally used for early Potatos should now be placed in some sheltered corner fully exposed to sun and light, so as to be ready to receive the winter supply of Lettuce and the August sown Cauliflower. Prick them out carefully, naming them, so that the earliest kind shall have the first attention in the spring. Where charcoal-dust can be had, it is an excellent thing sprinkled over the surface of the soil previous to pricking out; the next best is ashes, as helping to keep the soil dry during winter, and not affording shelter for slugs. Keep a sharp look-out for sparrows in the last sowing of Peas—they are valuable now and need watching; and as frost may come any night now some protection should be in readiness for the late French Beans. This is the finest month in all the year to spawn Mushroom beds, the spawn will run during the dull foggy days better than later on, therefore use diligence in getting a winter supply ready by daily collecting droppings from the stable-yard, and make a new bed every month, but on no account use fire-heat just yet, the house will be warm enough without it; and keep it damp by watering the paths, &c., with a very fine rose; the crop will thus be stronger and last longer than if pushed on rapidly. Make one more sowing of Williams' Matchless or some such kind of French Bean; this sowing will be the last of the season, and had better be sown in pots, so that they can be moved to some sunny shelf by-and-bye. A few spare mats ought to be thrown over the Vegetable Marrow bed when there is a likelihood of a frost, so as to prolong the season, or, rather, the crop. Any Tomatos which will not ripen on the walls may be gathered and placed over a flue or some such warm place, with as much stalk attached as can conveniently be got to ripen. *J. Rust, Eridge Castle.*

Melons and Cucumbers.

Melons.—Plants swelling their fruits must be pushed on with all possible despatch consistent with their treatment, though, as I have stated in my last Calendar, Melons, as a rule, are not worth much after September; but of course much depends on the condition of the weather in and during the month of October, as also on the palate of employers. However, they should be pushed on rapidly by shutting up early in the afternoon, and maintaining a night temperature of from 65° to 70° and 75° by fire during the day, running up to 90° with sun and plenty of atmospheric moisture. The plants should be kept well stopped, and the fruits fully exposed to light and sun. As the fruits approach maturity maintain a drier and more airy atmosphere, and a moderately high temperature to insure good flavour. Plants of Highcross Hybrid and Colston Bassett in our late house are now ripening a fine lot of fruit, and having just set several more fruit, and the house being a light one, with plenty of top and bottom heat at command, they are likely to yield us a good supply of fruit all through October and the early part of November; during those months water in any shape will have to be applied sparingly and with judgment, otherwise canker would be likely to attack the stems of the plants—a circumstance which would prove disastrous to the swelling and ripening of the fruit *H. W. Ward.*

Cucumbers.—The first batch of plants which were raised from seed early in August will by this time have covered the trellis with good short-jointed wood, which should be showing fruit freely. These fruits, however, providing the supply obtained from other sources be equal to the demand for the same, and that there is plenty of scope for root-action, should be removed at once to enable the plants to thoroughly establish and strengthen themselves for producing and maintaining a good supply of fruit later on. But on the other hand, where the roots of the plants are growing in a rather confined space, such, for instance, as pots and boxes which they have filled with roots, it will be advisable, under such circumstances, to allow each plant to swell off a few fruits, which will draw off the pent-up sap. Ventilate the houses in which these plants are growing freely on all favourable occasions, so that they may make a short-jointed and consolidated growth, which will, all other points being duly attended to, enable them to pass through the rigours of winter satisfactorily. Plants raised from seed at the end of the preceding or beginning of the present month should now, if not already done, be planted in the manner set forth in my Calendar in your number for August 18, p. 207. Should green or blackfly be troublesome fumigate lightly with tobacco-paper a couple of nights in succession, when the foliage of the plants and the house in general are dry, which will be better and safer than filling the house too full at one time. Syringe the plants well the succeeding mornings, and ventilate freely, weather permitting. Add some more soil to the hillocks as the roots protrude through the surface, and see that the plants receive water when necessary—those growing in pots and boxes will require a copious supply frequently. Let the necessary stopping, thinning, and tying of the shoots be attended to as occasion may arise. *H. W. Ward, Longford Castle, Wilts.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Oct. 1	Woolhope Club Fungus Foray Commences (four days). Sale of Bulbs from Holland, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms
TUESDAY,	Oct. 2	Sale of Nursery Stock at Young's Nursery, Balham, by Protheroe & Morris. Sale of Horses and Carriages at the Forest, Snaresbrook, by Protheroe & Morris. Sale of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Oct. 3	Sale of Bulbs from Holland, at Stevens' Rooms. Sale of Nursery Stock at the Abbey Wood Nurseries, by Protheroe & Morris. Sale of Nursery Stock at Steell's Nursery, Richmond, by Protheroe & Morris (two days).
THURSDAY,	Oct. 4	Sale of Imported Orchids from Mr. F. Sander, at Stevens' Rooms. Exhibition of Apples Opens at Chiswick. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
FRIDAY,	Oct. 5	Sale of Orchids at Protheroe & Morris' Rooms. Sale of Nursery Stock at Ponsford's Nursery, Brixton, by Protheroe & Morris (two days).
SATURDAY,	Oct. 6	Sale of Dutch Bulbs, at Protheroe & Morris' Rooms. Sale of Bulbs from Holland, at Stevens' Rooms.

FIRST among the many and various schemes intended for the benefit of the agricultural part of the IRISH population must be named that of AFFORESTATION—the planting of the more unfruitful portions of the country with timber trees. The poorer tenantry and cotters, no longer able to raise even a miserable subsistence from their patches of ground, would be enabled, by reason of the paid services they would render to the landed proprietor or capitalist, to live more in conformity with civilised conditions. The enclosing of forest ground with stone walls, roughly built, such as are commonly met with in Ireland, as well as in other parts of our country, as in Dorset, Devon, Cornwall, in Wales, Scotland, and in the northern counties; the draining and forming of conduits, trenching and planting, would afford regular employment to both sexes, and in many districts in considerable numbers. The small farmers themselves, who are always in want of wood for fencing and numerous other purposes, would also be benefited by having a small but adequate portion of their land set apart to be planted with quick growing useful trees, as Black Austrian and Scotch Fir, Spruce, Larch, Chestnut (Sweet), Ash, and the Walnut, the latter for the sake of its fruits, which are always a marketable item. This list might be much varied according to the suitability of certain sorts to height above the sea-level, soil, and the climate of a district.

This portion of timber-planted land should be well defined as to its main bulk, as it is invariably found that timber trees grow faster when associated together over good sized areas than as single trees or small groups; still, small groups in the pasture lands and trees for shade and for defining the line of road in snowstorms, are desirable. In all farmers' plots, good kinds of basket Willows should find a place, especially when near the coast, together with the common Hazel, both being much in demand for the manufacture of basket ware and fishing creels and lobster pots.

The system of helping the poorer sort of farmers and cotters, or the indication of means by which they could help themselves, is in operation in several parts of Germany and Moravia, more especially in those districts that were colonised by Croats during the reign of MARIA THERESA. These people, who are as completely agricultural in their habits and predilections as the majority of the Irish people, were introduced to cultivate a land that was rapidly degenerating into a wilderness, owing to constant depopulation by war and famine. They exist there to this day—a people apart in language, dress, and customs from their German, Bohemian, and Hannack compatriots, mainly existing by farming, wine growing, and forest labour. They mostly have small reservations of wood-land, which they manage as they think proper.

On land that has been under some sort of cultivation, when the soil and situation are suitable for Oak in its several varieties, there would be much saving of time and labour by sowing the seed instead of planting with seedlings raised in the nursery; the plants so raised, owing to the tap-root not being severed or injured, as is likely to be the case with transplanted stuff, are better able to withstand the wind when they arrive at a large size. The Black Walnut (Juglans nigra) can also be so manipulated on land that has been under crop, and is a quick-growing, useful tree, making frequently the first season after sowing 2 feet of growth, and reaching the height of 10 feet in four years. As in the case of all the Walnuts, the seed soon deteriorates, and should therefore be sown in October or November, or pitted till the spring in sand or loamy soil. This plant will be found nearly as useful as Ash by the waggon builder, being tough and elastic; and as material for the cabinet-maker its handsome dark mahogany-like wood is not to be despised.

Shelter plants should be frequently planted on the windy sides of woods, and these may consist of Black Poplar, Balsam Poplar, Alder, and common Willow, and the good sorts of Willow for cutting as pollards of 10 or 12 feet. It may not unfrequently happen that Alder and Willow stakes are to be got of sufficient stoutness to make, as it were, a ready-made plantation for the above purpose. These, if cut to 6 feet in length, sharpened at the butt end, and driven into the ground at 6 feet apart and 1½ deep, will take root, and thus form a good wind break in a very few years. These shelter trees could be thinned out when they get too much crowded, leaving the Willows at pollarding distances apart. This kind of shelter would in some localities take the place of stone walling, or turf banks, more particularly in spots destitute of stone, or good tough sods.

Pinus Laricio, the Corsican Pine, is the tree of the future in many places. For rapidity of growth and superiority of timber it is much in advance of Pinus sylvestris. Pinus austriaca, the Black Austrian Pine, is also an excellent tree, being a vigorous grower that soon comes into use—the wood being very resinous and durable.

If large woods were planted in Ireland, in course of time many industries would spring up around them to help the people in a great variety of ways. We may merely mention charcoal making, the fabrication of toys, matches, hats, paper, tar, turpentine, resin, bracket-work, sawing, to say nothing of the proper attention that must be paid to the growing plantations, and to the preparation of additional ground for forest purposes. It will be seen that with the gradual replacing of the forest that once covered the great part of the country, many more industries would naturally arise. The land would, owing to the presence of woods on the slopes and lowlands, not be so liable to floods and devastation from the overflowing of unembanked streams, and would, therefore, gain in salubrity, and the waters, instead of finding either a rapid exit to the sea or otherwise, would be retained to accelerate the growth of the timber trees planted.

The Tramway Act for Ireland, passed in the late session of Parliament, provides among other things for the planting of trees. Clause 20, as we learn from a communication of Dr. LYONS, enacts "that the planting of trees shall be included among the purposes for which money may be advanced by the Board of Works under the 31st section of the Land Law (Ireland) Act, 1883. Owners and occupiers of land are therefore exhorted to apply for loans to enable them to plant in waste land unsuitable for tillage or pasture. The Irish press warmly advocates planting operations on waste ground, railway embankments, and the like, and enforces its recommendations by a letter from Mr. LITTLE, who points out that Ireland possesses great advantages for the formation and development of its forests, and contrasts the state of things with that in Canada, where the destruction of forests is going on rapidly, and where the rate of interest for money is much too high to allow its employment for planting purposes. There can be no question as to the enormous benefit that might arise from a properly devised and carefully carried out scheme of planting. The remuneration from tree-planting is too slow in its growth to be suitable for individuals of straitened resources, but the matter is altogether different when Government or wealthy capitalists, not anxious for an immediate return, take the matter up. Thirty, forty, or fifty years is no long period in the history of a nation, but during that period the revenues from properly managed plantations become very large indeed. Forests and forest products give promise of much future benefit to Ireland, whose climate and soil are so unsuitable for the successful practice of many branches of agriculture.

—— THE APPLE CONGRESS AT CHISWICK.—A very extensive and remarkably fine display of Apples is anticipated on this occasion (October 4—18), the applications for space being numerous. Amongst others large collections will be exhibited by Messrs. Rivers & Son, Sawbridgeworth; The Cranston Nursery Company, Hereford; Saltmarsh & Sons, Chelmsford; Harrison & Sons, Leicester; Lee & Son, Hammersmith; Scott, Merriott; Wheeler & Son, Gloucester; Bunyard, Maidstone; Killick, Maldstone; Haycock, Barham Court; Britcher, Tonbridge; Veitch & Sons, Chelsea; Lane & Son, Great Berkhamstead; Dickson, Chester; Poynter, Taunton; Dunn, Dalkeith; Gilbert, Burghley; Stevens, Trentham; Selwood, Eaton Hall and district; Miles, Wycombe Abbey; Clayton, Grimston Park, &c. Extensive collections are also expected from Tweedside. There will be a meetiog of the general committee on October 4 at 2 P.M. Certificates will be awarded to approved new varieties, the sub-committee being entrusted with the preparation of a detailed report, &c.

—— INTERNATIONAL EXHIBITION AT NICE.—The authorities of the town of Nice announce their intention to hold an international exhibition of horticulture, agriculture, and objects of art or industry therewith connected. So far as horticulture is concerned there will be a permanent exhibition lasting from December 1, 1883, to May 1, 1884, and three periodic exhibitions, on December 15, 1883, February 10 and April 1, 1884. The latter exhibition is expected to be the most important of the series; and a horticultural congress, to be attended by representatives from all nations, will be convened on the occasion. Further information may be had from M. FELIX MARTIN, Nice.

—— Dr. BODDAERT'S ORCHIDS.—We are informed that the Compagnie Continentale d'Horticulture have acquired the celebrated collection of Orchids of Dr. BODDAERT, of Ghent. This collection is unique as regards the size of the specimens and selection of varieties. The new Orchid-houses of the company will be in order from October 10 next, and all amateurs are invited to pay them a visit from that date.

—— FORCE OF GROWTH.—The power exerted by plants in growth is something surprising. In the experiments by President CLARK upon the Squash, this fruit in growing was able to raise 4120 lb., and carried for ten days 5000 lb. without injury. The frequent displacement of flagging stones, and the injury often done to pavements by the roots of shade trees, make it evident that growing roots of firm wood exert, under suitable conditions, a tremendous mechanical force. The power exercised by an annual root is also exceedingly great, as shown in the case of a long Blood Beet planted at the New York Agricultural Experiment Station, in an inch drain-tile set up on end and buried in the soil. This drain tile was split lengthwise with the greatest ease as the root outgrew its accommodation. The lifting force of fungi often excites surprise. A correspondent from Braintree, Essex, has lately sent us a specimen of a fungus, identified by Mr. W. G. SMITH as Agaricus

FIG. 62.—CATTLEYA SANDERIANA: LIP DEEP MAGENTA-PURPLE. (SEE P. 404.)

arvensis, and which is reported to have upheaved a flagstone measuring some 2 feet 6 inches by 1 foot 10 inches. Such statements are sometimes received with incredulity, or rather the phenomenon observed is attributed to other causes, the growth of the fungus not being conceived to be adequate to produce such an effect. This, however, is a mistake. If not in the case of the fungus, at least in that of some other plants, the lifting force has been not only observed but carefully measured, as in the case of the Pumpkin above mentioned.

—— HYACINTHS. — The immense number of these favourite bulbs now offered make the selection perplexing to the majority of those who simply grow flowers for ordinary purposes, but do not go minutely into the differences of habit as to early or late flowering, adaptability for forcing, or other matters of a like description that at first sight may not seem of much importance, but which nevertheless go far to make up the difference between success and partial failure. Even in the matter of the length the leaves attain in different varieties a good deal depends upon the appearance the plants have when in flower. Again, the flowers may be fine individually, but naturally loose and far apart on the stem, or too much crowded. Either of these extremes will mar the effect. Bright decided colours appear equally essential; single kinds are grown for market almost exclusively. The growers have to make themselves acquainted with all these qualities before selecting a considerable quantity of any variety. To prove their suitability every variety at all likely and not too high in price is tried, and when found superior to any sort that has been before used it at once takes its place. There are comparatively few that will bear forcing so as to be in at the beginning of the year at the time required for market. The following are the sorts grown by one of the largest and most succeesful market growers, who each year has an immense quantity of these flowers:—Earliest: Homer, deepest red; Blanchard, white; Kroon Prince, white; Charles Dickens, light blue; Orondates, porcelain-blue. Second, to come in the beginning of February: Grand Vedette, white; Amy, dark red; Charles Dickens, blue; Grand Lilas, blue. Third lot, to come in the beginning of March: Madame Van der Hoop, white; Gertrude, red; Lord Macaulay, red; Marie, blue; Mimosa, purple; Charles Dickens, blue. The following are also remarkably fine varieties, but a little too dear to admit of their being grown for market:—L'Innocente, white; Lord Derby, porcelain-blue; King of the Blues, dark blue; Prince of Orange, pink; Von Schiller, salmon-pink. These are all distinct and effective in colour, of excellent habit, and throw large spikes of telling flowers; and though only very few as compared with the immense number of varieties in cultivation, will be found more satisfactory in most private gardens than if more sorts were used.

—— ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—Messrs. JAMES DICKSON, of Edinburgh, write that the correspondent who furnished the report of the show was in error in crediting the Lawson Company with the 1st prize for twelve Conifers in tubs, when, in point of fact, Messrs. DICKSON were 1st in that class.

—— "THE JERSEY GARDENER." — Under this name a monthly periodical devoted to gardening and rural economy has just been established. The present number contains, in addition to other matters, a report of the Royal Jersey Agricultural and Horticultural Society's Exhibition in August last. The Channel Islands are so favoured as to climate, that their horticultural productions contribute a very important item to the revenues of the islanders, so that we trust our young contemporary may have a useful and prosperous career.

—— PSIDIUM CATTLEYANUM, OR GUAVA. — This may be recommended as a suitable plant to clothe the walls of intermediate-plant-houses or conservatories, or for growing with Oranges and Shaddocks when cultivated for table use, and where consequently something higher than greenhouse temperature is kept up in winter and summer. The plant is an evergreen with neat Myrtle-like foliage, and whitish blooms, the fruits dark reddish-brown, and the size of the berries of Alicante Grapes. The preserve made from them fetches a high price in this country, but the raw fruits are seldom eaten here, possibly by reason of their not being properly ripened under the cultivation they usually have to endure in our greenhouses. It will grow in any sound mixture of loam, peat, and sand, and can be kept in health and fruitfulness by annual top-dressings of soil and manure, when planted in a properly made border: in tubs or pots, shifting may be made every second growing season, and the plants will under such conditions be benefited by the application of weak liquid manure-water at weekly intervals.

—— GLASS SHELTERS IN THE NORTH FOR THE FLOWER GARDEN.—These very necessary adjuncts to the successful cultivation of tender garden productions obtain at Sir W. ARMSTRONG's unique gardens at Cragside an uncommon application of the principle. The climate, being rough and unsuitable for the growth of the plants we grow in southern portions of the country in the open, the method has been adopted of enclosing parallelograms of various areas by glass walls. These are 9 feet high, and roofless, in the case of those standing independent of brick walls. Low stone or brick foundations are given to these on which the woodwork and glass are erected. Within these gardenettes, which are entered by glass doors, are great varieties of shrubs and herbaceous plants, Lilies, Fuchsias, subtropical subjects, and ordinary bedding plants. One of the divisions was actually set apart as a flower parterre, standing between two blocks of glasshouses, and protected on the open side by the glass wall. The shelter given to the tender plants was perfect, as could be seen in their vigorous and healthy look, and without which it would have been impossible to have had presentable specimens, or in some instances to have attempted their cultivation. Being roofless the needs of the enclosed inmates were very generally met by the rains that fall in that usually rainy district. The paths are of flagstones, and the beds are surrounded by a low kerbing of the same material. Another kind of shelter in use here, attached to brick or stone walls, is of the nature of an ordinary Peach wall case. These are fixed to the wall, and are fitted with lights in the front and on the roof. The front is removed during the fine season, and replaced in the winter. In these grow Clematises in variety, Andromedas, Berberis stenophylla as a wall plant, Himalayan Rhododendrons, Gladioli and Salvias. A beautiful Hypericum, about 4 feet high, was literally covered with pretty yellow blossoms; Tropæolum speciosum, and a host of things that everybody trusts out-of-doors without protection in more favoured parts are here grown under this form of shelter. Except in the parts of England but little visited by winds it is not possible to see the subjects that are grown here in such an uninjured condition as regards leaf and flower, as they are to be found in these sheltered areas.

—— WALL PLANTS FROM AN OLD GARDEN.—Ribes grossulariæfolium coccineum is a plant that has got rather scarce of late years. It is a prickly branched, coarsely-haired plant, too tender to grow as a bush, except in extreme southern or western counties. The flowers appear in April, are scarlet, very brilliant, and not unlike those of Mitraria. It requires some protection from straw and mats during the winter, and some little pruning and regulation when young. It will reach to the height of 12 feet. Edwardsia grandiflora, is a rather tender handsome yellow pea-shaped flower, which also requires some slight protection in winter. The blossoms, which are a fine shade of yellow, and of 3 inches in length, hanging in clusters, come before the leaves. It should be trained like a Plum, and pruned after flowering. Malva triloba is a very free-flowering Mallow-wort, of strong growth, soon covering a wall 12 feet high. The foliage is rather coarse in young plants, but much less so in old ones. The blooms are of the same hue as those of the Marsh Mallow, but with a dark spot on the petals, and are about 1½ inch broad. The general aspect resembles that of a pale variety of Hibiscus syriacus. This plant must be protected in winter, care being taken to protect the root-stock thoroughly from injury by frost.

—— UNDERGROUND ONIONS.—These are kinds but little grown now, but formerly scarcely any garden was without some one or more varieties. They could be relied on to produce good bulbs, when from ill-ripened seed, blight, disease, or adverse season, the spring-sown crop fell below the usual quantity. The main bulbs throw out bulbils from their base, which are the sets for the next year; these should be taken off when the bulbs are lifted and dried for storing, and should be separately stored. Most of the kinds are globular or spherical, but there are one or two pear-shaped varieties, which are much sweeter, and very much milder in taste than the others. The planting is usually done at the same period as Shallots, Garlic, &c., the after-culture being the same as with other kinds.

—— DARWIN'S LAST WORDS.—The recent brilliant but fanciful writings of would-be popular instructors lend additional point to the following remarks, concluding the preface to the translation of MÜLLER'S *Fertilisation of Flowers*, recently noticed by us. The words in question are among the last, if not the last, penned by the great master. After pointing out sundry matters in which our knowledge is still imperfect—matters, we may add, of great interest to practical horticulturists, and specially to hybridisers and raisers of new varieties—DARWIN proceeds to show how these imperfections may be remedied. His remarks, of course, were meant to apply to the particular subject in hand, and to the particular book under notice; but they are applicable to any and all departments of natural science. He counsels the observer to study MÜLLER's work, and "*then to observe for himself, giving full play to his imagination, but rigidly checking it by testing each notion experimentally.*" We have put these words in italics, but they should be hung up in the room of every student, and serve as the guiding principle in all his work. It is exactly what DARWIN did—he first made himself acquainted, so far as possible, with what his predecessors had done, then he observed for himself. Thus provided with a basis of experience and observation he proceeded to submit these observations to the test of practical experiment and verification. His imagination suggested the line of attack, his scientific method ensured the attainment of success—so far as the conditions allowed.

—— COVENT GARDEN.—Readers of the daily newspapers will have learnt that the much-abused Duke of BEDFORD has offered to the Corporation of the City of London an opportunity for acquiring and extending Covent Garden Market, and thus not only of obviating what has become a gigantic nuisance, but of greatly facilitating the work of all who have business there. The matter was also mentioned, if we remember rightly, last year at the dinner of the Gardeners' Benevolent Institution. It might puzzle astute lawyers to know what the City of London has to do with Covent Garden. By whom the desired improvements are to be made is, however, to most of us a matter of very secondary consideration. To displace an old market or establish a new one is as difficult a task as the uprooting of a popular error. The present market, therefore, should be extended and improved, the means of egress and ingress should be multiplied and enlarged and the wholesale department kept strictly apart from the retail. A large city like London, however, needs more markets, and in poorer neighbourhoods the interests of the hard-working "coster" might, with advantage to all parties, be more considered than they are. It was expected in some quarters that the establishment of the Parcels Post would facilitate dealings between the producer and consumer, and thus obviate, to some extent, the constant complaints about the low prices obtained by the growers, the large prices demanded by the salesmen and commission agents, and the still larger prices asked and obtained, too, by the local greengrocers. We do not hear, however, that the Parcels Post has yet had any effect in bringing consumer and producer into more direct communication.

—— VANDA SANDERIANA.—This wonderful new Orchid is now in flower in the Downside collection, Leatherhead; to Mr. LEE, therefore, belongs the honour of being the first to flower it under cultivation. For the credit of the plant it is only just to say that, much as it has been talked of and glowing as the description has been, it fully bears out all that has been said of it, as it proves itself to be the most striking and noble of recently introduced Orchids. It is difficult for pen or pencil to give anything like an adequate idea of its beauty—a beauty which presents new tints and fresh features with every change of light in which it is viewed; for example, when seen against a background the immense flat blooms have a waxlike and solid appearance; but when looked at

with the sunlight behind the flowers, they have an indescribably delicate and transparent appearance, and the markings and veinings appear like the delicate tracery in coloured glass, the lower segments seeming yellow, with scarlet-crimson veins; when seen with the sunlight shining on it also the whole of the blooms seem frosted or silvered over. Whenever Vanda Sanderiana has been spoken of by way of description Odontoglossum vexillarium has been brought in, and the aptness of the comparison now forcibly presents itself, the individual bloom being in outline very like that of a gigantic O. vexillarium, and the three upper segments much resemble those of Odontoglossum vexillarium in colour and shape, although the lower half of V. Sanderiana is made up of the two enlarged segments, instead of the large labellum, as in O. vexillarium. The Downside plant is a veritable monster, composed of seven or eight full grown pieces in one mass, and from these proceed three fine flower-spikes, each from 1 foot to 1 foot 6 inches in length. The largest spike has eleven flowers, the next has eight, and the third has nine buds, and they are arranged on the spike so that when fully expanded they just touch each other. The flowers are each 4 inches wide and 4½ inches long, and still exhibit a tendency to enlarge. The outline of the flower is oval, and it is made up of oval segments, and thus the true line of beauty is observed, and the flowers rendered very pleasing to the eye. The three upper segments are of a delicate pale rosy-lilac tint, the two side ones being tinged with yellow: and freckled with crimson near the column. The two lower segments are each 2 inches across, the ground colour a delicate fawn-tinted yellow, this is uniformly veined over with a crimson-maroon network, which gradually becomes finer towards the edge, leaving a clear margin of the yellowish ground, which is again bordered by a narrow white line. The column and the base of the labellum are greenish-yellow, and the lower half of the lip is of a peculiar dull crimson, which harmonises well with the rest of the flower. The whole of the flower exhibits startling changes and combinations of colour, yet Nature has so disposed and blended them that a thing of surpassing beauty is produced. May the run of ill-luck which has so persistently followed the importing of it soon change, so that we may find the plant more widely distributed than its rarity and costliness at present admits of.

—— LÆLIA ELEGANS.—A grand mass of this wonderful variety with pure white petals and white labellum, having the lower half of a beautiful velvety mauve, is now in flower at Downside. The plant has over one hundred pseudobulbs, and is more than 4 feet across. If the small bits of worse varieties are worth the five or ten guineas we so often see them fetch, what is this giant worth?

—— PELARGONIUM DISEASE.—In a garden south-east from London a disease has of late years appeared among the bedding Pelargoniums which has hitherto baffled all the attempts of the gardener to cure, and which makes the growing of these plants almost an impossibility, at least in so far as one particular bed of them is concerned. The sort is rather a robust one, not much grown for bedding purposes at the present time, being the old Commander-in-Chief. The disease makes its appearance at the ground level, the stems turning brown right through, while the roots remain to outward show quite healthy up to, and for a short time afterwards. Naturally with the decay or cankering of the stem, the leaves turn of a rusty-red colour, fall off, and the whole plant dies. Change of soil does not seem to make any diminution in the virulence or in the number of plants attacked, for as the summer advances the bed gets barer, till scarcely any of the first occupants remain. The gardener has been advised to get his cuttings for the next year's stock from a distant source, where the disease is known not to exist, and with the help of fresh soil he hopes to have his bed gay again with the Commander. Is the malady as here described known to any of the readers of this journal, and is there any cure for it?

—— MORUS ALBA.—This plant does not seem to be much in use as a hedge plant, and yet it is one of the best for cold climates, being perfectly hardy in higher latitudes than that of any part of this kingdom. It is easily raised from seed, like Quick, is a fast grower, somewhat spiny, bearing clipping or switching well, and is exceedingly stiff, so as to be able to stand against stock after a few years. The plant is not more particular as to soil than Whitethorn, and it is certainly a plant that makes a secure hedge in a shorter period of time. Nurserymen should try this plant. It would be a good plant for down sheep farms, where the benefits of stout and high hedge shelter are well known and appreciated.

—— SOME PUMPKINS!—They can grow Pumpkins in New Zealand! A correspondent sends us a note on one shown at the Hawkes Bay agricultural show weighing 240 lb., and measuring 7 feet 2 inches in diameter [? circumference].

—— OLEARIA HAASTII.—As a plant that will thrive and bloom well in London gardens Olearia Haastii can be highly recommended. Some large bushes of it in the gardens at the cottage in Kensington Gardens have been literally smothered with white bloom, so much so that no trace of foliage can be seen in the upper parts of them. The plants have evidently been in these beds for several years, as they now show signs of being crowded by the adjacent ones.]

—— PITCAIRNIA ALTA. — This for the genus rather tall growing plant is well worthy the attention of those possessing a hothouse, the slender growing flower-stalks bearing aloft loose panicles of lovely scarlet-coloured flowers, making it a very pretty and graceful plant. It is also equally suitable as a spray for the hair, or for a table bouquet. As seen at Mr. BULL'S, mixed up with his flowering Orchids, in the show house, it relieved the flatness and stiffness that would have been perceptible in parts in a very pleasing manner. Several of these Pitcairnias are deserving of more attention, as they are easily grown in a winter temperature of 60° and of 75° in summer; and they afford, with the minimum of attention, an abundant supply of scarlet tubular blooms that are useful in many ways, and the foliage being persistent and graceful the plants never show to a disadvantage.

—— A LARGE CYCAD CONE.—A fruiting strobilus of Macrozamia Denisoni ripened lately in the botanic garden of Brisbane, from whence it was forwarded by the Director, Mr. JAMES PINK, to Baron VON MUELLER. It measured 2 feet 2 inches in length, and fully 1 foot in diameter. When fresh, though externally dry, it weighed 40 lb. The number of nuts, all well developed, was 260; the weight of the largest about 1¼ ounce each, their greatest length 2¾ inches; the largest fruit-scales were 4 inches broad, 2½ inches long, 1¾ inch high. There is only a rudimentary stalk to cones of M. Denisoni.

—— PLANTS FOR THE ADORNMENT OF THE DWELLING are those valued by reason of their beauty and fragrance of blossom or gracefulness in habit of growth and ability to withstand for a considerable time the bad effects of the atmosphere in rooms and corridors. They are a very large class, especially when regard is had to those we use in the summer time only; but in the colder time of year the indoor decorations consist mainly of bulbs—Lily of the Valley, Spiræa, Azaleas, &c., non-flowering plants being but little grown, if we except Ferns and Crotons and Dracænas, these latter being hardly admissible, because of the brightness of their colouring, something is wanted which will serve as a counterfoil to the flowering plants and the vases of cut blooms beyond that which is furnished by the foliage of such plants and vases. Such green-leaved plants should be sufficiently hardy to withstand cold draughts, dry warmth, dust, and fumes from gas. For such we must look to the greenhouse, and not to the hothouse section of plants. The Ficuses yield us F. australis, F. caucasica, F. elastica; Aralias several kinds, such as A. Sieboldi and A. S. variegata; A. filicifolia, a handsome plant with much divided feathery foliage; and Gastonia lyrata, with handsome hand-like foliage. The common Laurustinus is useful when in flower, and also for its foliage afterwards. Pittosporum Tobira, P. T. variegata, P. undulata; Casuarina australis is a curious drooping evergreen that stands confinement very well; Aspidistra lurida and the variegated form of it must not be omitted, nor Astelia Banksii, which can be used instead of Dracæna indivisa, which it resembles, but is more gracefully pendulous. Other plants may be named—Palms, such as Chamærops humilis, C. Fortunei, Phœnix dactylifera, Ficus panduræformis, F. imperialis, both noble long-leaved kinds. We do not grow enough Myrtles for indoor work, nor the Australian Myrtle, Eugenia australis, which is handsomer than the common one in foliage and flower, but is scentless. There is thi to be said about the above selection—they are everybody's plants, cheap, easy to grow, and they may be plunged in the open borders to grow, and recruit themselves in the summer months.

—— VEGETATION OF THE COAL PERIOD.—This formed the subject of Prof. WILLIAMSON'S address to the Geological Section of the British Association. In it the learned Professor gave a general account of the fossil plants found in the coal measures, from the Peronosporites (figured in these columns by Mr. WORTHINGTON SMITH), and which is singularly like the existing Potato fungus, to the gigantic Ferns, Equiseta, and Lycopods which constituted the mass of the forests of those periods. Prof. WILLIAMSON was the first to indicate the existence of a secondary zone of vascular tissue in the stems of some of these plants such as does not exist in living representatives of this family. Prof. WILLIAMSON indicated briefly some of the more interesting Cycadeous and Coniferous types, and concluded a very interesting address by some remarks on the question of evolution. Cryptogams and Gymnosperms, he said, made their appearance on the earth long prior to the appearance of flowering plants. Of the genealogies of the Cryptogams and Gymnosperms, which doubtless were the ancestors of existing forms of like character, nothing is known. Again, while there is a general resemblance in the more conspicuous forms of carboniferous vegetation from the Arctic Circle to the extremitie of the Southern Hemisphere, each locality has special forms that flourished in it exclusively, or at least abundantly, while rare elsewhere. Alluding to the deficiencies in our knowledge and to the present tendency in some quarters to frame imaginary genealogies on very slender premises, Dr. WILLIAMSON concludes:—"Meanwhile, though far from wishing to check the construction of any legitimate hypothesis calculated to aid scientific enquiry, I would remind every too ambitious student that there is a haste that retards rather than promotes progress; that arouses opposition rather than produces conviction; and that injures the cause of science by descrediting its advocates."

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Sept. 24, issued by the Meteorological Office, London:—The weather during this week has been generally cloudy or dull, and very unsettled, with a good deal of rain in nearly all parts of the kingdom. Temperature has been a little below the mean in "Scotland, E.," but elsewhere it has ranged from 1° to 3° above it. The maxima were registered in most places during the first day of the period, and varied from 62° in "Scotland, E.," and 67° in "Ireland, S.," to between 75° and 77° over the greater part of England. The minima, which were generally recorded on the 23d, ranged from 45° in "England, S.W.," and "Ireland, S.," to 37° in the "Midland Counties," and to 33° in "Scotland, E." Rainfall has been about equal to the mean in "England, E.," and rather less in "Scotland, E.;" but in all other districts a decided excess is reported. Bright sunshine has been much less prevalent than during last week in all districts, the percentages of possible duration being as low as 14 in "England, N.E.," 17 in "England, N.W.," and between 18 and 31 elsewhere. Depressions observed. — Barometric pressure in our islands and their neighbourhood has oscillated considerably. At the commencement of the period it was high and uniform, but by the 20th a depression, which subsequently moved away north-north-westwards, had reach the south-west of Ireland from the Atlantic, causing the barometer to fall on all our coasts, and the wind to blow freshly or strongly from the south-west or southward in the south-west, and east or north-east in most other places. On the 21st and 22d the gradients were less steep, and the winds moderate or light; but over England some small subsidiary depressions were shown. On the 23d a temporary ridge of high pressure stretched over from France to the extreme north of Scotland, while a depression lay over southern Scandinavia, and comparatively low pressures were reported from Ireland. At the close of the period the barometer had again fallen at all our stations, some more subsidiary disturbances had appeared over England, and a large depression had appeared off our northern coasts, the winds being generally fresh or strong from the southward or south-westward.

—— GARDENING APPOINTMENT. — Mr. H. SYMES, late Foreman at Bystock Gardens, as Head Gardener to Lady ELLIOTT DRAKE, Nutwell Court, Exeter, Devon.

THE LARGE FLOWERED CATTLEYAS.—II.

(*Concluded from page* 372.)

C. gigas.—About this and its varieties many conflicting opinions have been expressed. As an unbiassed observer I will also give my views. In the first place Professor Reichenbach identifies the plant with C. labiata Warscewiczii, but I do not think the Professor gives an opinion on the matter, and he will, I have no doubt, drop the objectionable "labiata" in his own work, particularly as the plant in question differs in every point, from the root to the tip of the flower. If C. gigas be called a labiata nothing can exclude C. Dowiana, and its variety C. aurea, from the same category; they are all three very nearly related, as shown by their flowers, and by the soft texture of the plants, which differ in that respect very widely from C. labiata, or, indeed, any of the other Cattleyas. I can, however, after my own researches in herbaria, easily understand botanists confounding the one with the other, but I am sure that if they once had a turn at importing the species mentioned they would find another test; they would see that C. gigas and its varieties, and C. Dowiana and its variety aurea, from the soft nature of their leaves and bulbs, are the most difficult to import, while the hard Brazilian C. labiata will stand any amount of knocking about. C. gigas was originally imported from Medellin in Antioquia, New Grenada, and while the occasional plant which flowered made it eagerly sought after, it soon got a reputation for being shy-flowering (it being impossible to flower some of the plants), a characteristic which the plants from this locality always bore, and which was so evident that the Medellin ground was all but abandoned by collectors.

C. gigas Burfordiensis.—A grand variety, which flowered in Sir Trevor Lawrence's collection, and was figured in the *Florist and Pomologist* last year. It has immense purplish-rose flowers, with an intense amethyst lip.

C. gigas imperialis.—I had thought this name inadmissible, having lately seen two grand things flower which seem like crosses between C. gigas and C. aurea. To suppress it, however, I consider would be an injustice to the veteran collector Roezl, who discovered it fifteen years ago at Frontino with some hundreds of miles of rocky country and the River Canea between it and the Medellin gigas. At all events, it points forcibly to the fact that while wide difference of locality is no indication of difference of species it never fails to supply a wide difference in variety either in the difference of the flowers, the freeness or time of flowering, or the tallness of growth. In this case nothing could be more marked than the distinction between the obduracy of the Medellin variety and the freeness to flower of Roezl's. Growing as it does, too, in company with C. aurea, after what I have already seen, I expect to see some which bear yet more traces of relationship to C. aurea.

C. gigas Sanderiana (fig. 62).—Although variable, like all the other Cattleyas, this is the perfection of the C. gigas section even so far as we have yet seen it; but when it comes to bear the six to ten flowers on a spike as exhibited on some of the imported bulbs, it will be yet more prized than it is. It comes from near Bogota, which lies even further to the east than Frontino does to the west of the common C. gigas country, and is separated from it by mountain ranges and the River Magdalena. This variety is the freest flowering of all; I have seen many small bits with only two bulbs throwing up flowers with the young growth. At one time it was asserted by many that this plant was nothing but the common C. gigas, but I think this error arose from comparing it with the C. gigas so-named now in collections instead of with the original Medellin variety. [But very few of the common C. gigas have got into collections of late years, the plants so-named being for the greater part those which Mr. Butler collected for Messrs. Backhouse, of York, who, I believe, frequently sold them with Mr. Butler's descriptions, but with the hint that they would probably be C. gigas. From these plants (some of which were sold at Stevens' in 1876) being found in company with C. aurea, I conclude they are of precisely the same strain as C. gigas imperialis, which is free-flowering, and more like the C. gigas Sanderiana. Adverse critics, therefore, have not calmly judged the plant by comparison with the batch first named. It was certificated at the last summer show of the Royal Botanic Society. Among the many points which render the C. gigas section distinct from the Brazilian C. labiata, not the least pronounced is the manner in which all the gigas section flower out of the young growth.

C. regalis does not exist. The plant was only once catalogued, I believe, and the name was either a provisional one, which was never realised, or it was a clerical error in writing C. regalis for C. imperialis, as the plants of it which have flowered seem like Roezl's variety.

C. Dowiana. — A lovely yellow Cattleya with velvety crimson labellum. Messrs. Hugh Low & Co. got a grand importation of it from Costa Rica some years ago, and many of those plants, and also of the later importations, are getting at home with us, and are flowering freely. Hundreds of them have been killed by growing them in pots, which would have thriven well if they had been grown in baskets, and had been suspended near to the glass. C. Dowiana flowers about August on the growth of the current year, and it should be kept very moist from the time the roots start from the young growth, all through the flowering time (as at that time it has both flower and growth to keep up) and until the latter is fully formed. In November and December it should be sparingly watered; but at no time should the plant be allowed to shrivel.

C. Dowiana aurea is a New Grenadan form of the preceding. It is lighter in colour, and rather more robust in habit than that variety; as stout pieces of it grow well when treated like its ally, C. gigas; but small pieces are only safely treated by being grown in baskets, like C. Dowiana. The habit and manner of flowering of these two last-named proclaim them near of kin to C. gigas and very wide of C. labiata.

C. Mendelli.—This is one of our loveliest and most distinct summer-flowering Cattleyas, and a great favourite.

C. Trianæ is also a well known old friend, and perhaps the most variable of all Cattleyas.

C. Percivaliana.—This variety was advanced as a "labiata," but it is neither like C. labiata nor C. Mossiæ, as it was certainly new to collections; and as a good variety of it is a lovely thing it will always hold its place, simply bearing the name of the genial Birkdale Orchidist.

C. Gaskelliana is a most puzzling plant: sometimes one fancies one sees in it C. labiata, then it appears like C. Mendelii, again it has the mauve-veined throat only to be found in C. speciosissima, and always with a delightful odour. It was stated to be winter-flowering, but it appears to be perpetual blooming, as it was first flowered by Hugh J. Scott, Esq., of Belfast, in October last, and it has never been out of bloom in one collection or another since, although the quantity in bud at present seems to say that its proper time is early winter. Viewed from all points it is a very acceptable plant.

C. Eldorado, and its white variety, C. Wallisii, from a marked structural difference, I suppose, will not be called a labiata. It is a beautiful variety, with a delightful odour, and now that it is common it is not thought to be difficult to grow.

C. Warscewiczii (of English gardens).—This plant, if not quite lost, is yet very rare. It is not the C. Trianæ, although it has somewhat the appearance of it; but it does not flower at the same time of year. Old growers will know the plant I mean—it always flowered in early winter. When C. Trianæ came Warscewiczii gradually got lost sight of, and Trianæ had to do duty for it, a pale variety of C. Trianæ being named C. Warscewiczii delicata. I venture to say that no plant of any form of C. gigas was ever grown in this country as C. labiata Warscewiczii, and we hope to be spared the unmeaning repetition of C. labiata for widely dissimilar plants. We are anxious for reliable literature on the subject of Orchid names, but we wish, whoever gives it to us, to be consistent and to select well marked and unchangeable plants as species [Suppose they are not to be found? ED.], and to class the changeable ones under them, or to follow the course which has been pursued on so large a scale in Odontoglossums, and give each variety a distinguishing name without reference to the species. The one course or the other should be adopted—the two cannot be mixed with any show of reason. *J. O. B.*

FRUIT TREES IN THE LONDON NURSERIES.

MESSRS. VEITCH'S fruit tree nursery at Fulham, one of the very few of so large an area so near to, or, one may say, in London—is just at the present moment deserving of a visit, if for no other purpose than to see with what precocity Apples of all kinds bear that grow on the Paradise stock. The trees not only bear prodigiously, little mites as they are, of 3 or 4 feet high, but are wonderful examples of vigour and health. Many are so loaded with fruit that the branches lie prone to earth, although one sees here and there some kinds tenderly supported, which are, doubtless, meant for the show at Chiswick. Some sorts quite light up the large breadth with crimson or gold—the Cellini notably, and Worcester Pearmain, this latter sort being not only handsome in shape and high in colour, but also one of the best early autumn kinds for the dessert, as the Cellini is for the kitchen.

The Apple in its many varieties takes kindly to the dwarfing stock, and it is therefore no matter for surprise that so many thousands are annually disposed of. Coming into bearing frequently the first year after planting, and continuing to bear well on this stock for fifteen or twenty years, it is just the thing for a man to plant who wishes to eat his fruit while the sense of taste is left him. These dwarf trees, that one may grow on fences, walls, or as cordons in any way fancied, or as bush or column, are of just the height to escape the ravages of wind, which almost every year spoils the gardener's hopes, when he has to rely on the tall orchard trees to fill the Apple-room. It cannot be repeated too often, that on ground unfavourable to Apple growth, on hungry sandy soil, or where water is not far from the surface—the dwarf Apple can be grown, and will produce good crops. A little fresh loam, annual manuring of the surface, and transplanting when the vigour of the bush is not in accord with its bearing abilities—and always planting on slightly raised mounds—these are the secrets of successful Apple culture on bad soils. On better ones the cares of the grower are fewer—there his chief foe is too much wood, which must be corrected by transplanting biennially, or less often, as the case may require. Pears are very much grown here on Quince stocks; at least many sorts are, although, as most gardeners know, there are some kinds that do not favour that stock, and cannot be got to grow on it without working some congenial sort on it beforehand. The Pear on the Quince, in the open ground, is as prolific as the Apple after a very few years; but its precocity is not so noticeable in a nursery, excepting under pot culture, or annual transplanting.

The other fruits at this nursery are excellent. The trade in Figs seems to be an ever-increasing one. Here many hundreds are sold yearly, but of only a few kinds. These are Brown Turkey, Negro Largo, and White Marseilles, the stock of which is grown chiefly in pots of a large size, so that they are equally good for forcing without repotting or for planting out. The Fig is also grown as a fan espalier in the open, and capital specimens were seen in a warm nook by a tall fence.

Perhaps one of the prettiest sights in the place is a very long span-house filled with Nectarines and Peaches in pots, for fruiting under glass as pot plants. Combining all the best and most approved kinds, they are pictures of health and symmetry, giving one the idea also of great fruitfulness. With these, as with the entire stock out-of-doors, the manager, Mr. Morle, is very successful.

BUSH APPLE TREES. — The fine collection of Apples grown at Ealing Dean by Mr. George Cannon, the manager of Messrs. Charles Lee & Son's nursery, consisting of some 250 varieties, may now be seen to great advantage, especially in the case of bush trees. It is the practice of some writers to decry these, but they are undoubtedly most useful in the fruit garden; and if a line were planted along a mixed border, they would have two periods of decorative usefulness—when in flower in spring, and when in fruit in late summer and winter. There are two large plantations of these trees about six years old; one lot worked on the English Paradise, the other on the French Paradise. In regard to cropping, and to

the size of the fruit, there is little to choose between the two stocks; but the growth is rather freer on the French than on the English Paradise. For small gardens trees on the English Paradise are to be preferred, for larger gardens those on the French Paradise. It is interesting to note how large a quantity of Apples can be gathered from a few of these bush trees; many are only 3½ feet in height, others 4 to 5 feet, and some a little taller. The fruiting of the standard trees is as noticeable as in the case of the bush trees. The standards are mainly on the Crab stock, at any rate all free growers are worked on this stock. The soil at Ealing is eminently adapted for fruit trees; it is a stiff loam that has been well worked. The trees growing in it put forth plenty of fibrous roots, and they always move well from it into other soils. Judging from the appearance of these trees, it would appear that freedom in bearing corrects a tendency to growth; and in any case there appears to be a rare promise of fruit-buds for another season.

FRUIT NOTES.

Court Pendu-Plat.—An "Amateur" sends a fruit of this for naming. It is an excellent late sort, and, moreover, it blooms late, and thus escapes injury from late frosts. It often comes larger than the specimen sent. It is a good Apple for the amateur with only small space at command. (Fig. 63). The form is very characteristic, and the colour yellow streaked with deep reddish-brown.

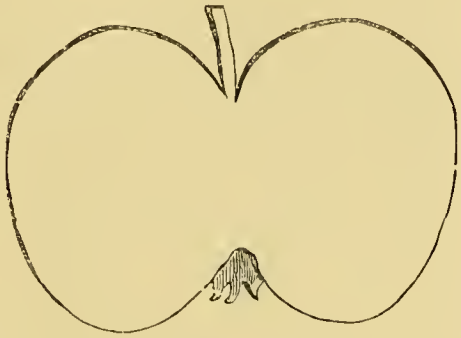

Fig. 63.—Apple Court Pendu-Plat.

Beurré Bosc.—This Pear is also well adapted for amateurs, as it is a safe cropper in most seasons; but like most other things pays for cultivation. Our illustration (fig. 64) shows the general outline. The general colour is a rich cinnamon-brown. The elongate form, long stalk, and long fruit-stalk are characteristic.

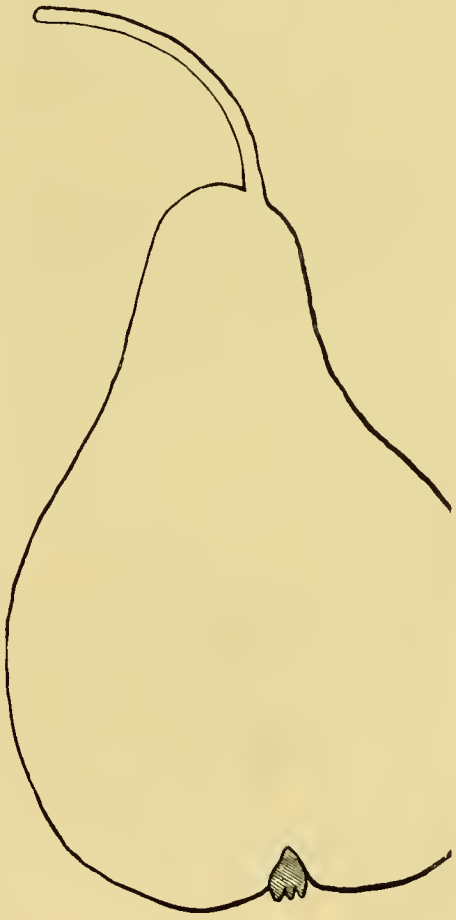

Fig. 64.—Beurré Bosc Pear.

Notes from Trentham: Grapes, &c.—The late-keeping Grapes that within comparatively recent years have been brought more generally under notice, have done much to assist those who have to provide this fruit all the year round, for although some object to them on account of their thick skins, hard flesh, and, in some varieties, deficient flavour, still they fill what would be a wide gap that in most places would otherwise occur in the winter and early spring. But at Trentham Grapes are forthcoming all the year round, without the help of the late-keeping sorts. So far as the requirements of the family go nothing but Black Hamburgh, Buckland Sweetwater, Duke of Buccleuch, Madresfield Court, and Muscats are cared for; and with these kinds Mr. Stevens has now for some time kept up an unbroken succession. I remember some one who had seen these early Trentham Grapes remarking that "Whatever their merits as new fruit were, they showed just a little too much, as they no doubt were the result of Vines that had started before they were wanted;" yet such was not the case, as a house is now each year started the beginning of September, so as to have the fruit ripe in February. Calling at Trentham on September 1, in a division of one of the long narrow houses the buds were far advanced and would soon burst. But those who have had much to do with Grape forcing know that this kind of early work will not last long with the same Vines, through the disposition they have to start again early in the summer, ripening such fruit as they bear long before it is wanted. On this account this very early forcing could not be continued except where there were enough houses devoted to Grape culture to admit of frequent renewal in some form, either by pulling out those that have been worked in this way and replanting, or by cutting them down and bringing up new canes, carrying on the forcing with others that in their turn are to be treated in the same way. This is Mr. Stevens' practice. If the Vines, after two years bearing a winter crop are right at the roots, theyare headed down during the spring and young canes taken up; these get strong through the summer, and with the help of fire-heat it takes them until late in the autumn to get the wood ripened. The following spring they are allowed to start without artificial aid. A house treated in this way two years ago has borne a fine crop this summer, the remains of which, in large, well-finished bunches, were still hanging. If not in condition worth keeping, the Vines are rooted out, a new border made, and young ones planted. This frequent renewal is more suited to a place like Trentham than some gardens, as every bit of soil the roots of Vines occupy has to be brought in, the natural soil of the garden not answering for them at all. After the first year's early forcing shading is used in the middle of summer to keep them from breaking too soon. One house is altogether filled with Duke of Buccleuch, stout young Vines in good bearing condition. The crop was all cleared, but I was informed it had been satisfactory in every way. This Grape is an especial favourite with the family—so much so that one of the big lean-to houses was this season filled with it. Strong pot Vines were planted early in spring. These were side-grafted just above the soil with the Duke, and have done unusually well, nearly the whole having long since reached the top of the rafters, and are proportionately strong. Of Madresfield Court, a house filled with this grand Grape alone is forced so as to ripen in May, and cracking is unknown. Several houses of Black Hamburgh, to keep up a supply until the new Grapes are in, were ripe, or about finishing, collectively bearing good crops of handsome bunches as black as coal, a condition in which, it is needless to say, they require to be to make them presentable in the new year. The principal Muscat-house is about to have the border re-made, the roots not being in good condition, which has resulted in a good deal of shanking. In the Cherry-house the trees have now a strange appearance, the plump flower-buds just beginning to burst the scales that enclose them, with the leaves still quite green, showing the disposition to start early, which long forcing had brought them into. In passing through this house I remarked that Cherries always had been done well at Trentham. Pointing to the pipes Mr. Stevens replied, "Yes; and the secret lies there: there are not pipes enough in the house to make it hot enough to lose the crop. The house is started early in December, and in severe weather, when in bloom, the thermometer has been down within a shade of the freezing-point without any mischief following." Plums.—Amongst the different sorts of Plums which the long house contains the Transparent Gage is best liked for quality, and Victoria for general usefulness. Peaches, Nectarines, and Apples.—In the very large extent of glass devoted to Peaches and Nectarines Lord Napier Nectarine is represented by dozens of beautiful healthy trees, being liked better than any other. In the long house of 600 feet, the back wall of which is mostly filled with Peaches and Nectarines standing along the front, there is a row of Calville Apples in pots bearing a uniformly even crop. This Apple is a favourite here, and thus managed gives a long supply. Bananas.—In the Banana-house most of the plants are bearing fine clusters of fruit in various stages. *T. B.*

Brown Turkey Fig at Penrhyn Castle.—On going through these large well-kept gardens lately, I was delighted to see such a grand Fig tree growing on a south-west aspect, covering a distance of 20 yards in length and a wall 14 feet high literally crowded with magnificent and well-formed fruit, and in various stages of ripening. Such a grand crop of outside Figs it never has been my lot to behold. But there is a secret attending the success which has been attained, and it may not be out of place to describe that for the benefit of others. That is, a wide trench was cut up to the centre of the tree, and all the old soil completely removed, this was found to be as hard and dry as bones, and impermeable to water. But when the new soil was added, and all the roots that could be obtained laid out carefully, it was found to be the one thing needful to ensure success. Mr. Speed, the talented gardener, told me for years the same tree used to promise a superb crop, but when they reached near the stage of maturity they would go rotten at the fruit, which was no doubt owing to the lack of moisture needed for maturity. But another plan Mr. Speed finds to answer well, and that is, not to overcrowd the wood, but to leave 6 and 8 inches between each bearing shoot, so as to allow the sun and air action to attain ripening properly. The extension system is also practised here, which seems in the right direction towards success, and many would not credit the existence of such a crop of fine flavoured Figs unless they saw them, but when seen it would be envied by many who have a Fig-house at their command. At the time of my visit it was worth going a hundred miles to see. *J. Clarke, late of Brynkinalt.*

Peach Tree Planting.—I got an ordinary sized Peach tree, Princess of Wales, from the nursery two years ago next November, for planting on a south wall, open. I had a place prepared for it, throwing out the ordinary soil at the bottom. I had tiles placed as on the roof of a building, lapping over each other, to prevent the roots from getting through; the roots of the tree were spread out on the tiles, and instead of putting back the soil that was taken out, loam taken from a Melon frame that had grown a crop of Melons was used instead, care being taken not to have any dung with the loam. After filling-in it was well trodden, and then mulched with good rotten dung, and the whole well watered. The following spring, instead of cutting back I had the shoots left the entire length: a vigorous growth took place, and I was careful to have shoots taken from the base of all leading branches. The tree made thoroughly good wood, which ripened well. This spring it flowered very profusely, and set a heavy crop; the number of fruit were reduced to thirty, when they were the size of Cob-nuts. I believe in early thinning. This number finished off well. I send you a fruit for your inspection. I call the fruit up to exhibition size.

No cutting-back has been resorted to, only disbudding. I need scarcely say the tree made a thoroughly good growth each year, including the one at the nursery; no insects troubled it. The tree was kept well watered during dry weather, and standing on a sound and warm bottom water could be given freely. I believe this practice is a little out of the ordinary kind, but it seems to answer well. It might set some thinking, and good may come out of it. This tree is covering a space on a wall 8 feet by 6 feet. *Robert Smith, Kenward Gardens, Yalding.*

MOVING A PEAR TREE.—I had occasion to move a Marie Louise Pear tree from a north to a south wall two years ago next November. The tree was about twelve years old, and about 18 feet long, with ten tiers of branches, and very healthy, but all the fruit became cracked and blistered every year; not a sound fruit was taken from the tree. It was removed without any preparation. I found the roots very healthy, but long and bare, with no fibres whatever. We carefully removed the tree to the south site, the place having been prepared before the tree was got out. The roots were carefully pruned and planted on tiles lapped over each other, as on a building. Instead of filling in with the soil taken out, I used loam from a Melon bed, care being taken not to have any dung with it. After filling in it was well trodden, and then mulched with well rotted dung and watered. The work was carried out thoroughly well, under my supervision. The following year the tree made no growth at all at the top, but the bark kept very bright, and the roots and top were watered when I thought necessary. Last spring I had nearly half the bloom-buds removed. The tree set a grand crop. I allowed twenty dozen to swell off, which were a grand sight ten days ago, just before it was gathered. Every fruit was perfect, and free from spot or blemish. I send you a few fruits. I gathered as good fruits from this tree as I did from a tree with only a few fruits on it, also on a south wall. I mention this to show that a heavy crop can be taken with full sized fruit providing the tree is not overloaded, and the tree or trees are healthy and well cared for. I much prefer preparing large Pear trees two years before moving them, cutting all the large roots, leaving only the small ones uncut till the second year, or the time for moving the tree. I find it a good plan to fill in after the operation on the roots with a sandy or light soil. All fresh soil is much preferable to that which is taken out in the operation, at least this is my experience. It gives encouragement to the young fibrous roots when they start into growth. Care should be taken in filling in that it should be well trodden, and the surface mulched and thoroughly watered, to wash the fine soil down amongst the roots. The person in charge of such operations should take an interest in such work, as success depends on how the work is done. *Robert Smith, Kenward Gardens, Yalding.* [The specimen of the fruit from the above-mentioned tree, kindly sent by our correspondent for inspection, fully bears out his remarks, the fruit being very fine samples, without blemish, and each weighing on an average 7 oz. ED.]

NOTES ON IRISES.

(*Concluded from p.* 374.)

HYBRIDS OF I. BALKANA WITH I. CENGIALTI.—In support of Dean Herbert's view, I may call attention to a hybridisation which I think I have carried out between two Irises much further apart from each other than the two discussed above.

I. balkana is a dwarf Iris from the Balkan mountains, introduced and named by Janka. It belongs to the pumila group; the short scape bears one, rarely two, somewhat large and handsome purplish-brown flowers marked with very bold veins.

I. cengialti is a curious Iris from Mount Cengialto in the Tyrol. It may briefly be described as a very dwarf pallida, with a branching scape hardly more han a foot high, and small pleasing sky-blue flowers. In general aspect at first sight it seems an absolutely different plant from I. pallida, and yet when you come to examine into its special features, it becomes very difficult to establish any satisfactory difference, and Mr. Baker regards it as a mere variety of I. pallida. I may here remark that there exists a series of low-growing Irises, almost exactly the dwarf reproductions of the commoner taller species. Just as this I. cengialti may be regarded as a dwarf I. pallida, so also is there a dwarf I. variegata, a dwarf I. neglecta, a dwarf I. amœna, and probably others. Whatever be the view taken of the exact nature of this I. cengialti, whether it be regarded as a definite species or a mere variety of I. pallida, it undoubtedly belongs to the division of Irises with a branching scape, and thus differs widely from I. balkana, with its one, or at most two, flowers on a stem.

In the spring of 1880 I placed the pollen of I. cengialti on the stigmas of a flower of I. balkana, the anthers of which I had previously removed, with the result that the ovary began to swell. I have not had sufficient experience with I. balkana to know if it seeds freely; but I have seen enough of I cengialti to be aware that its pollen, like that of I. pallida, has considerable potency. I took care that no pollen either of the same or of any other flower of I. balkana touched the stigma of the flower operated on. If the swelling of the ovary was not due to the cengialti-pollen it must have been due (parthenogenesis being excluded) to pollen of some other Iris brought by insects. This, as I have already urged, is unlikely; and the sequel, I think, shows that in this case also a cross was really effected.

While the pod thus fertilised, though well swollen, was still green and unripe, my gardener snicked the scape with his scythe, and soon after a friend broke the pod off altogether. Hardly hoping to be successful, I placed the pod in the greenhouse, with the broken end of the scape plunged in damp cocoa-fibre refuse. Happily the pod ripened and gave me seventeen fairly good seeds, which were sown at once. In the spring of 1881 two seeds germinated, but the seedlings soon damped off. In 1882 fifteen seedlings appeared and flourished; of these fourteen flowered this spring and summer, the remaining one being sickly.

In foliage these seedlings differ a good deal from each other, but, on the whole, are intermediate between the two parents. The leaves of I. cengialti are short, comparatively broad, straight, and yellowish-green; those of I. balkana are narrow, very pointed, markedly curved, and falcate, and their green has a more decided mixture of blue. The leaves of the seedlings are in some plants straight, in some falcate, in most cases broader than I. balkana, but narrower than I. cengialti; and though the greater number are of a yellowish-green colour, some are more distinctly blue-green than is I. cengialti.

As regards the inflorescence and flowers, since, as I believe, a real hybridisation was effected, perhaps I may be allowed to speak in detail, on account of the interest naturally attaching to the characters of hybrids as compared with those of their parents.

Whereas I. balkana bears a single terminal flower, very rarely two (so Janka), in eleven of the seedlings, besides the terminal flower, a lateral flower, on a short peduncle, sprang from a spathaceous bract about half way up the scape. In two plants (Nos. 4 and 9) there were two such lateral flowers, each pedunculated, and each springing from its own bract. In one plant (No. 10) each stem (and there were several on the same plant) was regularly branched, after the fashion of I. cengialti, and bore in all five flowers; in fact the plant was, for an Iris, extremely floriferous.

As regards colour, three plants only (Nos. 2, 3, 12) were blue or purple, the colour being not exactly like either parent, the conspicuous brown veining of I. balkana being absent, while the light sky-blue of I. cengialti was not taken on. In texture the segments were rather delicate, like those of I. cengialti, and not stout and firm like I. balkana. In one case (No. 10) the flowers were small, of a pleasing creamy-yellow, with a very bright orange beard. In one case (No. 8) the flowers were large and white, the lamina of the falls and standards being largely spotted and streaked with purple. In the remaining nine plants the flowers were white, with a somewhat conspicuous blue or purple veining, which gave the petals a sort of slatey hue, the colour of the beard varying from bright orange to dull yellow.

It may seem surprising that eleven out of the fourteen plants should be entirely, or almost entirely free from the blue colour which is so conspicuous a feature of both supposed parents. Nor would I venture to insist on this being a token of hybridisation having been effected, since for all I know natural seedlings of I. balkana might sport white or yellow as do seedlings of I. chamæiris, I. olbiensis, &c; but I do venture to insist on the beards of the seedlings as affording direct proof of mixed blood. The beard of I. balkana is white and blue, while that of I. cengialti (and in this it shows its pallida affinities) is orange. I take it that the possession by these white-flowered seedlings of an orange or yellow beard clearly shows the influence of the cengialti pollen.

One marked feature of I. balkana may be noted in the somewhat inflated, pointed and markedly keeled persistent spathe valves, while I. cengialti betrays most distinctly its pallida affinities in its delicate spathe valves early becoming scarious and silvery white. Now, of these seedlings the spathe valves were, in one case, most distinctly scarious like I. cengialti, in four cases somewhat scarious, and in six slightly scarious, that in three cases only could they be spoken of as thoroughly persistent like those of the parent I. balkana.

Taking these facts, and others with which I need not weary the reader, into consideration, there is I think ample evidence that I have really crossed the two above mentioned forms, that is to say that I have brought into union a member of the pumila group and a member of the pallida group—two groups of Iris separated by a long interval from each other; and have thus made a step towards verifying the speculations of Dean Herbert.

I may add that these hybrids are not sterile. It is true that they have not spontaneously produced seed, but I have attempted to fertilise them with another (and very different) Iris, and have obtained several pods with some apparently good well-formed seed. Of these, if I live and all goes well, I may have something to say in some future year.

5. ON A PROLIFEROUS IRIS.—As far as my experience and knowledge goes the following occurrence in an Iris is new and worth recording. The first of the hybrids between I. balkana and I. cengialti just described was grown in a pot and wintered in a greenhouse. It accordingly flowered early, and some time in May or June a second scape with a terminal flower and a lateral bract appeared. I cut off the terminal flower, and some time after was surprised to find that though no second flower appeared at the lateral bract the scape did not wither, but remained green. Early in August I noticed that the bract appeared swollen at its base, and, moreover, was splitting. On examination I found that the bud in the axil of the bract, instead of growing up into a flower, had become transformed into a bulb, and had already formed a tiny rhizome, from which a commencing root was already pushing. I cut off the stem below the node and planted it in a pot, so that the tiny root had access to the soil. So far it seems doing very well, and I shall watch its growth into a plant with great interest.

The formation of bulbs in the axils of the leaves and branches of branching bulbous Iridaceous plants, such as Freesia, Sparaxis, &c., is very common. [We have seen the same thing at Marica. ED.] None of the bulbous Irises (Xiphion) have branching stems, or perhaps we might see a similar occurrence in them. Its repetition in a rhizomatous Iris is rather curious, and I perhaps may claim this physiological freak as an additional proof of these seedlings being real hybrids. *M. Foster, Shelford, Aug.*, 1883.

The Rosery.

OLD AND NEW ROSES (*Continued from p.* 375).—The attention of hybridisers is now directed towards crossing varieties of Tea with hybrid perpetual Roses, and new sorts of great value may confidently be expected from the efforts which are being made in this line. To obtain a variety which shall, in a large degree, combine the hardiness of La Reine or Jacqueminot, with the fragrance and free-blooming qualities of Madame Bravy or Bon Silène, is surely worth striving for.

This leads us to a consideration of the Roses of the future, what they may be, and what they should be. Roses of the past have been the product of Nature unaided by the hand of man. Roses of the present also chiefly come from sowing the seeds of varieties which have not been crossed, except as the crossing has been a matter of chance by natural agencies. In some instances efforts at artificial hybridisation have been recorded that have given successful results. Roses of the future may and should come principally as the result of artifical fecundation and hybridisation.

There has been so much carelessness, not to say ignorance, with regard to [observing and recording] the parentage of the various varieties of Roses, that I do not think it would be possible to name fifty kinds and give the parentage on both sides. For the past twenty-five years Nature has been so lavish in producing variations of great beauty, that those who have raised new Roses have been content to gather the heps and sow the seed, depending on natural crosses to produce new and desirable kinds. Not only have they thus

entirely relied on Nature to accomplish what they wished; they have not even taken the pains, except in a few instances, to separate the seed of one variety from that of another, but have sowed them all promiscuously. To trace the peculiarities of each variety, learning just what influence each parent had in forming the qualities of the offspring, would be an interesting and profitable study. I hold it as an axiom, that, in the progeny of any Rose which has been crossed with another, the influence of both parents can be distinctly traced.

Artificial crossing and hybridisation of Roses is generally performed by removing with fine scissors the stamens of the flowers to be operated on, and then shaking over it the flower of that which contains the pollen to be used, or by gently dusting it on with a camel's-hair brush. In this manner it is supposed that the characteristics of each sort will be given in about equal measure to the progeny. It is not uncommon to cross varieties without removing the stamens, in which case the influence of the female parent is believed to preponderate; but neither of these methods has been accurately proved as to the results. An interesting question which arises in connection with the subject of artificial fertilisation is, how far removed from each other, in the habit of growth and in other pecularities, may be the varieties which are to be used as parents, without preventing a successful crossing of the two?

In crossing Roses we are most certain to attain satisfactory results by blending seed-bearing varieties which have several characteristic features in common; thus, varieties of the same type will nearly always effect good crosses, as Général Jacqueminot with Xavier Olibo, Madame Victor Verdier with E. Y. Teas; but, on account of a certain resemblance which must prevail among the kinds of one type, we are less likely to obtain new sorts of any marked individuality than would result from hybridising varieties of one group by those of another not too widely separated group; in other words we should avoid the extremes of crossing varieties too much alike, and of hydridising one kind by another so widely removed in characteristics that a successful, healthy progeny cannot result. Here is a vast field, still largely unexplored, in which to study and experiment. This is not a matter to be confined to scientists; all who truly love Roses, all that have some knowledge of their individual peculiarities, may engage in this fascinating pursuit with probabilities of success.

A common error committed by the beginner is in attempting to grow varieties that are of delicate habit and feeble constitution. Attracted by the great beauty or fragrance of a flower, he does not consider, or does not understand, that vigour of growth, perpetuity of bloom, and perfect hardiness, are very seldom combined with the qualities which have allured him.

A pleasing departure from the usual method of growing Roses is found in the pegging-down system. Grown in this way, the long shoots are carefully bent down and fastened to the ground by means of hooked sticks or pegs. Flower-buds will then push out all along the shoots, and a correspondingly large number of blooms be obtained. True, the individual flowers are apt to be of somewhat inferior quality to those produced in the ordinary way, but a mass of colour not otherwise obtainable can thus be had. I do not advocate this system to the exclusion of the one commonly pursued, but its occasional or alternate use is certainly capable of yielding most satisfactory results.

Besides planting Roses in beds, it is well to scatter them through the borders of our gardens, giving the favoured positions to the more delicate kinds. Among the best varieties which yet require some extra care are Eugène Verdier—the most beautiful of the Victor Verdier type—a Rose of very delicate colouring, silvery-pink, tinged with salmon; and Charles Lefebvre, which is beautiful in both flower and leaf, the colour of Général Jacqueminot deepened by a shade of satiny purple.

Among the Roses not sufficiently well known are Marguerite de St. Amand, a deep pink sort, which gives beautiful buds as well as fine flowers, and blossoms through the summer and autumn months; Baroness Rothschild, a blush-pink, with exquisite cup-shaped flowers freely produced; François Michelon, a striking variety, intermediate in character between its parent La Reine and Général Jacqueminot, thus uniting two rival dynasties. It has large, deep rose-coloured flowers, veined with lilac, and is of splendid globular form. It blooms late, the flowers not developing until most others of the same class are past their prime. Eliza Boelle is, perhaps, the best white Rose that we have. It blooms profusely all through the summer months; the flowers are full, of the most perfect globular form, the centre generally tinged with blush. It is not possible to imagine a flower of greater beauty. The best of the Moss Roses are Gracilis, common and crested. Not the least of the qualities we desire in a Rose is fragrance. In this regard, all varieties of all classes must do homage to La France, the sweetest of fragrant Roses. To be sure it is rather tender, but it is easily protected so as to winter safely. It does not always open well, but it is a simple matter to assist it, an operation not practicable with most varieties that open imperfectly. If the buds of La France show a tendency to remain closed, by gently pressing the point of the bloom with the fingers, and then blowing into the centre, the flower will almost invariably expand, and the pent-up fragrance escape.

Not enough attention is given to the Bourbon and Tea Roses. The hybrid perpetuals justly claim first attention when they are in perfection; but after the first blossoming is over, throughout July, August, and September, they are much less attractive than many of the monthly Roses. Varieties like Bougère, Homer, Madame de Vatry, and Marie Van Houtte, will give a continuous supply of flowers when the so-called hardy Roses are almost or altogether out of bloom. How faithfully the various varieties of Tea Roses reproduce the beautiful tints often painted in the sky at sunset and at sunrise! The many shades of rose, pink, lilac, white, salmon, yellow, &c., are found in both alike, and it would often puzzle us to decide whether the most beautiful combinations of these delicate shades are found in the illuminated clouds or in the petals of these Roses. Tea Roses are rather tender, but in truth they have, in this respect, been somewhat maligned.

Those sorts named above are, in reality, but little more tender than La France, the hybrid Noisettes, and all the Victor Verdier race of hybrid perpetuals. If earth be hilled up about the plants, and a slight covering of those materials, like branches of evergreens, be applied, the more robust sorts of monthly Roses will winter in safety. In giving protection care must be taken not to smother the plants by entirely excluding the air. This never occurs from the use of evergreen branches, but if straw or litter be taken, sticks or boards should be used to prevent the material matting together. This is one of the cases where it is possible to kill by mistaken kindness.

Home Correspondence.

The Chiswick Apple Show.—No doubt the term "congress," as applied to the proposed show of Apples, is quite inappropriate, because the mere commonplace term "exhibition" would have been so much more correct and expressive. Had the promoters have made proposals to hold a *bonâ fide* conference of Apple cultivators, as you advocate, and have used the gathering for the purpose of eliciting valuable information, and the free expression of opinion publicly of those who are well qualified to give it, on matters of so much importance as the best methods of Apple culture, the best kinds to cultivate in diverse localities, and, not least, how far Apple culture may be made a matter of profit—then some pretension to the appellation of conference or congress would have been made, and no doubt readily responded to. The chief work indicated seems to be that of correcting nomenclature, and to that end the show should prove very useful, but it will be materially hindered if the various collections sent are kept in collections as sent, the sorts higgledy-piggledy, and without any kind of systematic arrangement, as is usually the case. If growers who send fruits would permit the promoters to deal as they like with them, and arrange every sort alphabetically, each dish being labelled with its name, that of the grower, place where grown, and, not least, whether grown on Paradise or free stock, much useful information would be obtained, and, the seeker after correct nomenclature might find his corrections with ease. No doubt all our large growers, and trade growers especially, will desire to keep their collections intact, and, further, there will probably be some little natural anxiety on the part of each one to make the best display. These might do some good were they to arrange their various collections either alphabetically—the kitchen kinds together and the dessert kinds together—or else in sections of Codlins, Pippins, Pearmains and other types. It seems very probable that collections of this kind only will suffice to fill the conservatory. Some of them will be so large, but good service to nomenclature might be done were all these large growers to place in the hands of the committee, provided space can be found, duplicate samples of their varieties, and these not of the largest, for it is not always the biggest samples, but rather those of medium size that run most true to character, and, therefore, are the most useful to furnish seekers after correct names with the guide they require. Except Mr. Dancer there is not in the list the name of a single market grower in Middlesex. Still farther, the Covent Garden people have been entirely overlooked, whilst the evidence of such men as Mr. Skinner, Mr. Webber, Mr. Monro, or many others would have been invaluable on the subject of growing Apples for profit. *Apple Pip.* [We most earnestly hope that arrangements as to classification will be made in the spirit of our recent article, else the opportunity will be wasted. We are glad to learn that a report will ultimately be issued. Ed.]

—— I have read with much interest the circular in your columns announcing this most desirable event. Every confidence will justly be reposed in the strong committee appointed. I, however, as one of those who will gladly send samples of fruit, venture to submit that the time for holding the congress is too early, and that the proposed continuance of the congress is too short. 1. Will there from this day (September 22) to October 4 be time enough to gather, arrange, and pack the samples to be sent? In this neighbourhood (and I think we are not later than many others) winter Apples are seldom gathered before old Michaelmas Day (October 11), and often later. I therefore respectfully submit that the congress should not open before "St. Luke's little summer," October 18. 2. Autumn Apples, winter Apples, spring Apples, are all, no doubt, true Apples, but surely it would be as reasonable to judge a chicken before it is hatched as to judge of the merits of a December Apple in October—to say nothing of fruit which does not mature till January, February, or even later. I submit, therefore, with due deference, that the congress should hold at least three sessions: the first, as I have suggested, to adjudicate upon summer and autumn fruit; the second session soon after Christmas, for winter fruit; the third in February, for what will be allowed to be the best fruit of all; and if an extra session should be held in May or June, I shall probably be able to send contributions to it. One of the finest old Apples I grow, which acquires for dessert in February a peculiarly grateful aromatic flavour, before that month is so flavourless as to be disagreeable. The healthy tree was more than once threatened before (probably by chance) its excellencies became known. Every dog has its day, and every Apple too; and although I do not write as deeply learned in pomology (to use Evelyn's term), I submit that it will be impossible practically and usefully to study the respective merits of the Apples of the country in less than three (or perhaps four) sessions of the congress. Allow me, in conclusion, to suggest that where many samples are contributed, bags with labels attached should be used. The difficulty would be to procure bags small enough to hold no more than half-a-dozen Apples. *William H. Sewell, Yaxley Vicarage, Suffolk.*

—— Great advantage will without doubt accrue to fruit growers from this movement on the part of the Royal Horticultural Society, more particularly if the suggestions in your leading article at p. 368 are attended to, as will no doubt be the case, although it might possibly have been better if the idea had been put forth at an earlier period of the year, in order to have afforded more time for preparation, as not the least important item of information will be that of knowing the period of blooming of the various varieties of this most useful of all hardy fruits. The flowers of some varieties are no doubt more hardy than others, and more able to resist the effects of late spring frosts; still, late-flowering sorts are no doubt those most likely to furnish a steady annual crop. In many parts of the country, in gardens and orchards belonging to farmhouses and cottages, there are to be found varieties of the Apple which have probably never left the locality in which they originated, and which are known by mere local names, which are not to be found in trade or other lists of fruit trees; some o these are no doubt possessed of considerable merit, notably that of hardiness, as it is not unusual to hear the owners of such trees say that they have never known such and such a tree to miss a crop. Such varieties where they exist are necessarily valuable, and the projected display of fruit from all parts of the country will necessarily tend to bring the most valuable and useful kinds into more extensive cultivation, and will also lead to the discarding of comparatively worthless sorts. It will at the same time afford an excellent opportunity for the rectification of the nomenclature of this popular fruit, which is very desirable, as at present it will be found that the same variety exists in different parts of the country under totally different names. And there are possibly few garden establishments where the collection of Apples is quite correctly named, or where doubt does not exist as to the names of some of the varieties grown. If correct information is given by the various growers, who, it is to be hoped, may be induced to send collections of fruit to this congress, as to the character of the soil in which the tree has been grown, the climate of the locality, and other circumstances connected with them, such as the aspect, whether the trees have been trained in the form of espaliers or pyramids, or as ordinary standards or orchard trees—the information will necessarily be of great value to intending planters, enabling them to

select the varieties best suited to their circumstances, and thus to confer lasting benefits upon the community at large, the Apple being everybody's fruit. *P. Grieve, Bury St. Edmunds.*

The Proposed National Chrysanthemum Show.—It is unfortunate for the purpose of those who desire to establish a National Chrysanthemum Society, that the ground is already so well occupied that little or no room is left for it, and indeed as far as London and its neighbourhood are concerned, for instance, no national society could ever hope to do one tithe for the Chrysanthemum that the Borough of Hackney, Putney, Kingston, Lambeth, and dozens of other metropolitan shows are now doing. In the case of all other special societies there was the excuse for them that they were, as far as their respective *protegées* were concerned, real needs, and filled up real voids. The Chrysanthemum, however, is in no such position. It is the best patronised flower in cultivation, and through these myriads of shows lately has become the most popular. No national show could be held in London, for instance, without swamping several other good shows, for in this district the chief competitions must be limited to say ten days, and there is not a grower of plants or flowers who for those ten days has not already his hands full, so that to find him other competitions will be but to result in harm to some of the local shows, and thus the Chrysanthemum would far more suffer than gain. Then what can any society hope to accomplish that is not already being done at the Royal Aquarium or at Kingston?—the latter being without exception the most comprehensive and best display of Chrysanthemums held in the kingdom. To attempt a national show in London during the same week as the best shows are now held would be but to ruin all. This is a case in which it is well to let well alone. *D.*

Adiantum cuneatum.—I send you a few fronds of an Adiantum cuneatum inclined to be variegated. I have grown it for the last three years and it keeps its character, only it gets much whiter in the winter. I also find that it stands much better in a cut state than the other Adiantums. It is a seedling. *T. Jannoch, Dersingham.*

Eucharis.—I see that the cultivation of these, the finest of all bulbous flowering stove plants, is attracting some attention among your correspondents. This is not to be wondered at when we consider how useful and beautiful they are, adapted either for joyful or mournful occasions—appropriate for the bride's bouquet or the funeral wreath. My own experience of their cultivation and treatment is that when the bulbs attain a good size they may be made to flower at any season—in sunny June or dull December. We flower them thrice yearly here at least; as soon as a batch of them flower in the stove we bring them into a vinery we have 10° or 15° cooler. Here we rest them for two or three months, not letting them lose the foliage, and then bring to the stove again as we require them, give them plenty of heat and water, and we have them soon in bloom again. *A. Macdonald.* [See p. 395.]

Colchicum maximum.—I send you a very fine bloom of Colchicum maximum, which shows what a pretty autumn flower this kind is under good treatment. The bloom is quite twice as large as that of C. speciosum, and on that account alone it is worthy of more general cultivation; but it is also a much later bloomer, C. speciosum being now quite out of flower in the neighbourhood of Edinburgh. *C. M. O.*

The Cornucopia.—The Cheshire county show was held at Crewe this year, and amongst the exhibits were two collections which have suggested the heading for this communication. These were made in a class which seemed in a special manner to suit, and even to startle, the public taste—that of the exhibition of what the catalogue described as "farm produce." Mr. Whitaker, gardener to Lord Crewe, and Mr. Ward, gardener to Sir Philip Egerton, Bart., both had collected—collections reflecting not only credit upon the exhibitors themselves, but showing also to many beholders how—limitless, we had almost written—are the resources of Mother Earth if her children only treat her fairly. In Mr. Whitaker's collection, cereals, Turnips, Potatos, Cabbages, Carrots, and Onions, were supplemented by fruits—Grapes and Gooseberries, Figs and Melons, Pears, Plums, and orchard fruits in plenty. The larder yielded bread and honey, and all the delicacies contained in a country store-house. The fish-pond sent its pike, perch, and roach; the stream its trout; and the game covert its "feathers and fur." Mr. Ward, not in the least behind his compeer, brought together the spoils of the sickle and the spade in such profusion that the judges could only solve the problem by linking the exhibits equal 1st. Mr. Ward had his stages graced with every variety of fruit and vegetable that the daintiest epicure could desire, including a remarkable collection of Potatos. The showyard committee and the spectators generally owe Messrs. Ward and Whitaker—or Whitaker and Ward, to give seniority its place—their gratitude and thanks for showing what are the possibilities of proper culture. *Pomologist.*

Hybrid Geums.—On p. 373, Professor M. Foster in his notes on the Iris remarks that the pollen of some flowers far surpasses in potency that of others. Few flowers perhaps have more potent pollen than that common wild plant, Geum urbanum (Wood Avens). It has been observed that wherever Geum rivale and G. urbanum grow in the same neighbourhood, a hybrid form occurs called G. intermedium, which is variable in form. Four or five years ago some garden hybrid Geums were introduced, having large orange-coloured flowers. Their coarseness of growth prevents them, at least in this strong soil, from being good garden plants, but they are remarkable for their vigour of constitution. A single crown may be cut up at any period of growth, and if a piece of root is below each piece of crown, all will make flowering plants for a few weeks. It was generally thought that these were hybrids between G. coccineum and G. montanum, but Mr. Appleton, foreman in the nurseries of Messrs. Smith, of Worcester, informed me that he had raised many of them, and that the pollen parent was G. urbanum. In the last two years I have allowed many seedling Geums, coming up spontaneously in my garden, to flower, and though I cannot always say where the seed has come from, I have little doubt that the fertilising pollen has been that of G. urbanum, which nearly all the seedlings more or less resemble. The pollen is probably carried by insects from neighbouring lanes and hedgerows, as I have never seen Geum urbanum in or very near my garden. *C. Wolley Dod, Edge Hall, Malpas.*

Welford Park Kidney.—In your article on "Newer Kinds of Potatos" (p. 365) it is stated that Midsummer Kidney and Beauty of Eydon were the only varieties that were awarded double honours; but if you will look at your issue for the 8th of this month (p. 313) you will see that Welford Park Kidney is first on the list of seedlings that got First-class Certificates from the Royal Horticultural Society; so, instead of double, I claim that it is the only seedling Potato that is this year entitled to triple honours, as it had First-class Certificates both from the Fruit and Vegetable Committee of the Royal Horticultural Society and the committee of the International Potato Exhibition, and it was awarded by the judges of the latter the special prize for the best variety in its class, viz., white kidneys, no double certificated Potato in any of the other three seedling classes being awarded the same honour. I may mention that Welford Park Kidney is a seedling from Sutton's Woodstock Kidney. *Charles Ross.*

Peaches in Lancashire.—The Peaches sent with this are from trees on the open wall, without any other protection than double fishing netting, and a few mats projecting at right angles from the wall at intervals of 8 or 10 yards. The Peaches are the Alexandra Noblesse and Violette Hâtive. Both Peaches and Apricots are an abundant crop here this season. *William Fox, Holker Gardens, North Lancashire.* [The specimens sent were of good size and well ripened, far better than some we have lately had in sunny France. ED.]

Dendrobiums in Vineries.—On a recent visit to The Grange, Stretford, Manchester, the seat of John Heywood, Esq., my attention was drawn by Mr. Heywood to the very simple and successful method of cultivating Dendrobiums with Vines. There are three large span-roofed vineries in which are growing Dendrobiums in the most robust health. Mr. Heywood and his gardener were not satisfied with the cultivation of some of these plants, and determined to try the experiment of starting them into growth in the early spring with the Vines. There is no shade given beyond the foliage, and the result has proved far beyond their expectations. I do not mention this plan as the only way to success, but to suggest a way to those who have but limited space. Any one having only a vinery may determine upon the successful cultivation of numerous Dendrobiums, without the slightest fear of failure, if the same plan as adopted here is carried out with copious watering through the growing season. Some of the plants have been grown two seasons, and the growths are far in advance of what they have been in other houses. I here mention a few:—Dendrobium Wardianum (grand bulbs), D. densiflorum, D. primulinum (18 to 24 inches), D. eburneum, D. formosum giganteum (2 feet), D. Devonianum (very fine), D. clavatum, D. nobile and others. The Vines I would also mention bear good crops of well finished bunches of Black Hamburgh, Alicante, Lady Downe's, Muscat of Alexandria. I herewith send photo of Dendrobium Wardianum, as exhibited at the Manchester spring meeting, last March, which has been grown entirely in the vineries since imported into this country two years ago. [A fine sample.] Dendrobiums are not by any means the only Orchids grown here. There is a large house of Odontoglossums containing probably 700 or 800 plants. Also a fine lot of Lælias, Cattleyas, Vandas, and Saccolabiums, and others, all in splendid condition in other houses. *S. J., Ascot.*

Native Bread of Jamaica.—With reference to my former note (p. 76, vol. xx.), I find that the "growth" in the indented part of the tuber there spoken of has now developed into a strong branched mycelium or spawn. I have made a section of the tuber under observation, with the mycelium growth adhering, which with a few detached growths from other tubers I now forward for examination. A friend here to whom I showed the tubers, expressed the opinion that the mycelium growth was a natural result arising from the decay of tuber, but among those under observation only a few have exhibited signs of decay, and it was found that from these the mycelium has made least progress—the larger growths being produced from the largest and healthiest tubers. You will probably, on receipt of my specimens, be able to ascertain whether the mycelium is of external or internal origin — the latter conclusion appearing to me, to have at the present more arguments in its favour. *J. Hart, Superintendent, Government Cinchona Plantations, Jamaica, August 27.* [The specimen was destroyed in transit. ED.]

Lilium auratum.—What becomes of the tens of thousands of bulbs of this beautiful Lily that are annually imported into this country? Some of them, no doubt, are carefully cultivated, and are grown on year after year to the great enjoyment of their owners, but the largest proportion of them, I fancy, are sadly neglected. They are flowered in the greenhouse during the summer and autumn, and as soon as the flowering period is over they are turned out-of-doors; and here it is that the bulbs contract the seeds of decay which ultimately destroys them. They suffer from alternate drought and moisture, a continued cold wet period doing most mischief. Instead of the plants being turned out-of-doors they should be placed in an airy part of the greenhouse well exposed to the light, and just sufficient water should be given to keep the soil round the bulbs in a state of moisture. Early in October they may be turned out of the pots and be repotted, plunging them in cocoa-nut fibre in frames. *J. D.*

Anemone japonica, Honorine Jobert.—While agreeing with all you urge (page 338) as to the growth, beauty, and usefulness of this fine autumn flower, there is one circumstance worth notice I have not yet seen attention drawn to. After flowering last year I lifted a large bed of both the white and rose-coloured varieties, and manured it heavily before transplanting again. They had been planted about four years and I considered they had quite exhausted the soil; though by weakly applications of manure-water I had profuse blooms. This year, with every care, the blooming is only a fraction of what is has been in former years, though the growth and foliage are all that could be desired. The conclusion I have come to—with which I should like to know if others agree—is that after making a new bed this Anemone takes two or three years to fully establish itself before giving a maximum amount of bloom. Walking through Friars' Walk, Cork, with Mr. Saunders the other day, he told me after many years' experience, and growing it largely, he had arrived at the conclusion, that the less it is disturbed the better. *W. J. Murphy, Clonmel.* [We quite agree with Mr. Murphy's conclusion, which he has drawn from the consequences resulting on transplanting this Anemone. The less it is disturbed the better. The flowers are, if left unmanured, apt to become smaller, and the plant dwarfer with age, but by removing a circle of soil outside the extremities of the roots, replacing that with fresh rich mould, and by occasional top-dressings, its well-being is most properly conserved. ED.]

Apple Lane's Prince Albert.—In this year of plenty, when all kinds of Apples are bearing an abundant crop, and many sorts are winning favour that are very seldom seen, it is worth while to remember the genuine and good varieties that never or seldom fail us. Such a variety is Lane's Prince Albert. Year by year, in good seasons and in bad seasons, this splendid Apple produces an abundant crop. Were I asked to name the very best Apple for general use, and the one most to be depended on, my vote would go for Lane's Prince Albert; other sorts, such as Peasgood's Nonsuch, may surpass it for large size and handsome appearance; other sorts may equal it in cropping properties, such as Stirling Castle and Lord Suffield; but their season is of short duration, and in many soils they do not grow well. Lane's Prince Albert, on the contrary, succeeds everywhere, and is in season from October to March. This is not exactly a new Apple, having been raised some twenty-five years ago; but still it is not so well known or so

commonly to be met with as its high merits deserve. Its merits have been often during the last eight or ten years recognised in the columns of the *Gardeners' Chronicle*, and a beautiful coloured plate of it appeared in the *Florist and Pomologist* in 1875. The place to see it, however, in its greatest beauty is in Messrs. Lane's orchards at Berkhamsted; there it is planted in quantity, the trees heavily laden this season with bushels of fine fruit, as they were last year, and as they are every year. *A. F. B.*

Linum trigynum. — This old winter-flowering plant is well worthy of attention where flowers are required all through the winter. In the month of February, 1873, I raised seventy-eight plants. The plants were 2 feet through, and one mass of their golden flowers all through the winter. I shall be obliged to any one who could give or sell me a plant or plants, for I am sorry to say I have not got one. *W. C. L.*

New Melons. — Having grown High Cross Hybrid Melon for the past two years, I wish to add my mite of praise to what has been written in favour of it as a first-class Melon. It is one that may be thoroughly depended on, as it produces an abundance of female flowers, sets freely, and grows when not too heavily cropped to a considerable weight. I usually grow from four to six fruits on a plant. It is a melting and juicy variety, and highly appreciated at table here. Taking everything into consideration, it may be classed as an excellent sort. I take this opportunity also of drawing attention to the merits of William Tillery as a high-class Melon, even superior, I think, to the first-named variety, but it is somewhat shy in producing female blossoms, and consequently not so much to be depended upon, but the flavour is rich, and the flesh deliciously melting. *R. Blackstock, Golden Grove, King's County.*

Hardy Wall Shrubs.—There are one or two plants not named in the list given on p. 375, and which should, in my opinion, be added [which was limited by conditions]. For example, few other wall shrubs can equal the old scarlet Cydonia (Pyrus) japonica for blooming in February or March. Of this plant there is a very good white form, grown by Messrs. Veitch at Coombe Wood, and also a rose one named P. princeps. I should also recommend Mr. Sewell to procure the Exmouth variety of Magnolia grandiflora, and the large-flowered or grandiflora variety of Jasminum officinale. Then Clematis Jackmanni is very effective in August, September, or October, and for February or March, Forsythia suspensa is most suitable. At this season, or earlier, the lovely pale mauve Ceanothus Gloire de Versailles is grand, and in December and January, Clematis cirrosa is pretty, but not showy. In March or April, Clematis montana grandiflora is too good and distinct to be left out of the list, and after it the purplish-blue Solanum crispum comes into blossom. The common Almond is a picture very early in the year as a wall shrub. In sunny and sheltered positions on walls, the old China and crimson China Roses of many others deserve a place — the old "China" would fill up the gap of winter very prettily. *B.*

Reports of Societies.

Norfolk and Norwich.—This old-established horticultural Society held its autumn exhibition on Thursday in last week at Norwich, the place of exhibition being provided by J. J. Colman, Esq., M.P., the three spacious tents which the Society possess being erected in the grounds adjoining Carrow House. In the plant tent some noble specimens of foliage plants came from the gardens of G. F. Buxton, Esq., H. Bullard, Esq., H. Trevor, Esq., and others. There were also good seedling Begonias of the tuberous section, and some useful plants of Celosias.

Cut flowers, which came in for an especial share of attention from the ladies, consisted chiefly of Dahlias, Roses, and Gladioli. Stove and greenhouse flowers in distinct varieties.—Mr. G. Woodhouse, gr. to H. Trevor, Esq., took 1st for twelve bunches, with Clerodendron, Bougainvillea, Allamanda, Gloxinias, &c. Roses were exceedingly good for the season: the 1st prize, for twelve distinct, in trusses, was awarded to some that came from the gardens of that well-known rosarian, Miss Penrice, Wilton House; the 2d prize was awarded to another grower of fame, the Rev. C. Fellowes, of Shottesham. Dahlias were well shown by many well-known growers, and made an excellent display.

The great points of attraction in the fruit section were the collections. Eight dishes, distinct varieties. —The 1st prize, a Cup, value £5, presented by the Sheriff of Norwich (S. Newman, Esq.), was won by Mr. W. Allen, gr. to Lord Suffield, Gunton Hall. The collection contained excellently finished and large bunches of Madresfield Court Grapes, Duke of Buccleuch, fine in berry; a good dish of Vicomtesse Hérieart de Thury Strawberry, a superb dish of white Ischia Figs, Transparent Gage Plum, Williams' Bon Chrétien Pears, Lord Palmerston Peach, and Carmichael's Semper Fidelis Melon; 2d, Mr. Oclee, gr. to the Marchioness of Lothian, Blickling Hall; 3d, Colonel Rous (gr., Mr. Chettleburgh). In the competition for four dishes of Plums Mr. Allen was awarded 1st prize, having Golden Drop, Transparent Gage, Goliath, and Pond's Seedling; Mr. Chettleburgh taking 2d prize. Single bunch of any variety of Grapes. —1st, G. Baker, gr. to B. E. Fletcher, Esq., Marlingford Hall, with fine Alicantes; 2d, Mr. Allen, with Alnwick Seedling; 3d, Mr. J. Rose, with Muscat of Alexandria. Mr. Allen was also 1st for three bunches of black Grapes. Black Hamburgh Grapes, three bunches.—1st, Mr. K. F. Beales, Norwich. White Grapes, three bunches, Muscat.—1st, Mr. J. Rode, gr. to Viscount Canterbury. White Grapes, not Muscat, three bunches.—1st, Mr. Mitchell, gr. to Colonel Bulwer, Haydon Hall, with Buckland Sweetwater.—Melons were numerously shown. —1st, Mr. Warner, gr. to T. Berwell, Esq., Hoxton Hall, for a good fruit of Eastnor Castle. Some fine samples of Morello Cherries and Apples in abundance were shown.

Vegetables were staged in great quantities, Mr. Oclee being 1st for a collection of eight varieties. Some few dishes of Potatos were staged, but the majority appeared to aim at size rather than quality. The liberality of J. Colman, M.P., was not confined to permitting the exhibition to be held in his grounds, but was supplemented by throwing open the whole of his extensive gardens and plant-houses, together with the ruins of Carrow Abbey, to the public. *A Visitor.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, SEPTEMBER 26, 1883.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rainfall.
Sept.	In.	In.	°	°	°	°	°	°	°		In.
20	29.58	−0.23	62.0	54.0	8.0	57.1	+ 1.3	54.8	93	E.S.E.	0.09
21	29.55	−0.25	58.9	49.8	9.1	53.8	− 1.7	52.4	95	E.S.E. N.E.	0.18
22	29.57	−0.22	59.0	51.5	7.5	54.8	− 0.5	49.7	83	E.N.E. N.N.W.	0.00
23	29.88	+0.10	65.4	43.8	21.9	54.7	− 0.5	50.8	87	W.	0.00
24	29.52	−0.25	67.5	53.5	14.0	59.8	+ 4.8	55.0	84	W. W.S.W.	0.23
25	29.68	−0.08	69.0	55.1	13.9	60.6	+ 5.8	55.0	81	W. W.S.W.	0.03
26	29.53	−0.21	67.0	54.0	13.0	59.8	+ 5.1	53.8	82	W.S.W.	0.03
Mean	29.62	−0.16	64.1	51.6	12.5	57.2	+ 2.0	53.1	86	W.	0.56

Sept. 20.—Dull day; showers of rain frequently. Fine night, nearly overcast.
— 21.—Dull, rainy day; very foggy at times. Dull, foggy night.
— 22.—Fine day and night; overcast.
— 23.—Fine bright cloudless day. Fine night; overcast.
— 24.—Dull morning; raining heavily; fine at 3 P.M.; sun shining slightly. Fine dark night.
— 25.—Fine generally; occasional showers throughout the day. Fine night; cloudless.
— 26.—Very dull morning; rain; fine and bright from 1 P.M. Fine night; cloudless.

LONDON: *Atmospheric Pressure.*—During the week ending September 22 the reading of the barometer at the level of the sea increased from 30.10 inches at the beginning of the week to 30.23 inches by 9 A.M. on the 17th, decreased to 30.19 inches by 3 P.M., and increased to 30.25 inches by midnight on the same day, decreased to 30.18 inches by 3 P.M., and increased to 30.20 inches by midnight on the 18th, decreased to 29.73 inches by 3 P.M. on the 20th, increased to 29.76 inches by midnight on the 20th, decreased to 29.73 inches by 9 A.M. on the 21st, increased to 29.74 inches by 3 P.M. on the same day, and was 29.93 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.98 inches, being 0.15 inch lower than last week, and 0.02 inch lower than the average of the week.

Temperature. — The highest temperature in the shade in the week was 75°.2, on the 17th; the highest reached, on the 21st, was 58°.9. The mean of the seven high day temperatures was 68°.2.

The lowest temperature in the week was 48°.5, on the 17th; the lowest temperature, on the 20th, was 54°. The mean of the seven low night temperatures was 51°.

The greatest range of temperature in one day was 26°.7, on the 17th; and the smallest was 7°.5, on the 22d. The mean of the seven daily ranges was 17°.2.

The mean temperatures were—on the 16th, 58°.7; on the 17th, 60°; on the 18th, 61°.6; on the 19th, 61°.8; on the 20th, 57°.1; on the 21st, 53°.8; and on the 22d, 54°.8. Of these the first five were above their averages by 1°.8, 3°.4, 5°.2, 5°.7, and 1°.3 respectively; and the last two were below by 1°.7 and 0°.5 respectively.

The mean temperature of the week was 58°.3, being 0°.2 higher than last week, and 1°.7 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 128°, on the 17th. The mean of the seven readings was 106°.1.

The lowest reading of a minimum thermometer, with its bulb on short grass, and fully exposed to the sky, was 40°.1, on the 21st. The mean of the seven readings was 43°.5.

Rain.—Rain fell on the 20th and 21st, to the amount of 0.27 inch

ENGLAND: *Temperature.*—During the week ending September 22 the highest temperatures were 76°.8 at Cambridge, 75°.2 at Blackheath, and 73°.8 at Nottingham; the highest at Bradford was 68°.7, at Plymouth 68°.9, at Brighton and Preston 69°. The general mean was 71°.5.

The lowest temperatures in the week were 41°.8 at Nottingham, 42° at Hull, and 42°.3 at Wolverhampton; the lowest, at Preston, was 51°, at Brighton 50°, and at Bradford 49°.2. The general mean was 46°.8.

The greatest ranges of temperature in the week were 33°.6 at Cambridge, 32° at Nottingham, and 30° at Hull; the smallest ranges were 18° at Preston, 19° at Brighton, and 19°.5 at Bradford. The general mean was 24°.7.

The mean of the seven high day temperatures was highest at Cambridge, 70°.4, at Nottingham 68°.7, and at Blackheath 68°.2; and were lowest at Liverpool, 64°.2, and at Plymouth and Bolton 64°.4. The general mean was 66°.3.

The mean of the seven low night temperatures were highest at Preston, 54°.6, at Brighton 54°.1, and at Truro 53°.6; and were lowest at Cambridge, 47°.6, at Hull 48°.6, and at Wolverhampton 49°. The general mean was 51°.5.

The mean daily range of temperature was greatest at Cambridge, 22°.8, at Nottingham 18°.9, and at Blackheath 17°.2; and was least at Preston, 10°.6, at Plymouth 11°.3, and at Liverpool 11°.8. The general mean was 14°.8.

The mean temperature was highest at Truro, 59°.5, at Brighton 59°, and at Preston 58°.6; and was lowest at Wolverhampton, 55°.7, at Hull 55°.8, and at Sheffield and Bolton 56°.7. The general mean was 57°.6.

Rain.—The largest falls were 0.92 inch at Liverpool, 0.74 inch at Bolton, and 0.66 inch at Wolverhampton; the smallest falls were 0.03 inch at Cambridge, 0.27 inch at Blackheath, and 0.33 inch at Truro. The general mean fall was 0.51 inch.

SCOTLAND: *Temperature.*—During the week ending Sept. 22 the highest temperature was 71°.9, at Dundee; at Aberdeen the highest temperature was 63°. The general mean was 58°.3.

The lowest temperature in the week was 35°.3, at Aberdeen; at Glasgow the lowest temperature was 46°.8. The general mean was 41°.6.

The mean temperature was highest at Glasgow, 55°.1; and lowest at Aberdeen and Perth, 53°.1. The general mean was 54°.2.

Rain. — The largest fall was 1.15 inch, at Glasgow; and the smallest was 0.15 inch at Dundee. The general mean fall was 0.54 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—BACON.

ARTIFICIAL EDGING. — Can any one give particular of a good artificial edging for a kitchen garden othe than the ordinary tiles? *S. F.*

CUCUMBERS. — *A. B.* wishes to know what is the largest number of Cucumbers, fit for table or market, that have been cut from an average of ten plants? "A. B." says he has cut from twenty-four plants of a seedling of his own (between Blue Gown and Telegraph) 2500 fruits, the fruits being valued at £45, and is anxious to know how these figures compare with those of other growers.

Answers to Correspondents.

ALTERING PUBLIC FOOTPATH.—As your correspondent of last week (p. 379) speaks of "a public footpath," there is no difficulty in answering him, whether it be a so-called parish path or not. The process of altering, or diverting it, is a tedious and expensive one, and must be as follows:—Through the Vestry Clerk he must first call a Vestry meeting, or wait until one is called, when the subject may be placed or published in the notice among the agenda, specifying distinctly what it is desired to do. Your correspondent's lawyer had better instruct the Vestry Clerk. Plans will have

also to be deposited. Should it pass the Vestry, his lawyer will in due course have to publish the fact in the local paper, or papers, on three successive weeks, and printed papers must be placed at both ends of the path to be diverted, each and all to be signed by the surveyor. Following this the lawyer will have to carry the subject before the Justices of the Peace, and probably, ultimately, before a Court of Quarter Sessions. It will be well, however, to ascertain the views of the local Highway Surveyor on the subject, for, if he vetos it, the Vestry are not likely to pass it, no office being so despotic, or less under restraint, than his. *William Earley, Great Ilford.*

ASPHALTE : *Correspondent.* This can be obtained from any good builder in your neighbourhood, and he would also furnish you with the price, laid down or otherwise.

AUCUBA : *H. Rogers.* Fine samples of Aucuba foliage, but nothing very distinct.

BEGONIA : *Thomas Woodford.* The white Begonia is a very good one, regular, of fine substance, and pure in colour.

BOOKS : *T. J. L.* Thomson's *Gardeners' Assistant*, Paxton's *Botanical Dictionary*, Johnson's *Gardeners' Dictionary*, and *The Epitome of Gardening.* The two former are high-priced, the latter are less costly. —*B. & W.* Barron's *Vine and Vine Culture.*—*Cultivator. Plant Life*, by Dr. Masters (Bradbury, Agnew & Co.). The book you mention is out of date, and, indeed, out of print.—*S. T. The Gardeners' Monthly* (Philadelphia), *The American Garden* (New York), *The American Agriculturist* (New York).

EUCHARIS AMAZONICA : *Anxious.* See p. 395 in this number.

GARDENER'S DIARY : *A. G. B.* We do not know of any book that precisely meets your case, but either of the Year-books now published would partly meet your wants, especially if interleaved.

LILIUM AURATUM : *W.* Red banded forms are not uncommon. Yours is not so fine as many.

LOBELIA—PELARGONIUM : *John Roberts.* The Pelargonium blooms sent are fine and very distinct in hue; it should become a favourite amongst growers of this class of flowers. The Lobelia is similar in colour to a great many others in commerce, but if it is very dwarf it should be an acquisition to those who favour carpet bedding.

NAMES OF FRUIT : *Alfred Barker.* The Strawberry arrived; will be noticed next week.

NAMES OF PLANTS : *Enquirer.* 1, Cephalotaxus drupacea; 2, Sequoia (Wellingtonia) gigantea; 3, Dabeocia polifolia, white variety; 4, Symphoricarpus racemosus (the common Snowberry); 5, Escallonia macrantha; 6, Prunus Mahaleb (the Mahaleb Cherry).—*H. Morris, Kent.* Origanum Dictamnus.—*C. Sandford.* 1, Clethra alnifolia; 2, Halesia tetraptera; 3, Liquidambar styraciflua.—*M., Salop.* 2, Asplenium marinum; 3, Hibiscus rosa sinensis; 4, Mesembryanthemum acinaciforme. The others we do not recognise.—*W. T.* The shrub is Polygonum sachalinense. —*C. W.* Not Bryony, but Solanum dulcamara.—*J. N.* We believe your plant to be Psidium Cattleyanum, one of the Guavas; but, as in the case of all cultivated fruit trees, there are numerous varieties.—*John Morris.* The fungus which heaved up the pavement is Agaricus arvensis (the Horse Mushroom). —*H. J. C.* (should address Editor, not Publisher). Your plant is Cissus orientalis, figured in *Gardeners Chronicle*, 1871, p. 1615.—*J. McD.* 1, Polygonum cuspidatum; 2, Cotoneaster Simonsi; 3, a species of Ribes we are unable to name; 4, Spiræa ariæfolia; 5, Cotoneaster affinis.—*Broomford.* Gentiana bavarica (see *Gard. Chron.*, June 3, 1882, p. 736); cold frame. —*J. R. H.* Impossible to name the Orchid from the specimen sent. The specimens of Lilies were mislaid, but we believe they were forms of L. Thunbergianum. —*H. G. B.* Pyrus pinnatifida.—*C. W. D.* Hosackia Purshiana.—*E. G. C.* Buphthalmum salicifolium.—*An Amateur.* Maxillaria picta, a common species.—*H. H. D.* Hypericum Hookerianum.—*H. K.* The specimens are quite insufficient for determination.—*S. G.* 1, Pyrethrum uliginosum; 2, Helenium autumnale; 3, Helianthus multiflorus, so far as we can tell from the scrap sent.—*Rev. W. H. S.* Only a variety of the common Berberis.—*E. Z. N.* Send better specimen.—*C. E. F.* Not a Sedum, but Saxifraga aizoides.—*A. M.* Abelia rupestris.—*C. P.* The Pear and the Ferns next week. 1, Abelia rupestris; 2, one of the small-leaved forms of Phillyrea angustifolia; 3, Retinospora filicoides var.; 4, perhaps Retinospora pisifera; 5, not recognised; 6, Athrotaxis cupressoides.—*R. G.* 1, Odontoglossum læve; 2, we can only guess the plant to be Oncidium sculptum.

PEACH DISEASE : *D. D.* We regret we can throw no light on the matter. We should judge that the mischief, whatever it was, began in the roots, and is of comparatively recent origin, as the shoots are still healthy.

PEACH TREES : *J. M. P.* When the trees, that appear to be now in great vigour, turn a little yellow in the leaf you may lift them, laying them in carefully till the spring. The roots should be laid in some light material in which they will probably make rootlets, and should get a mulching to keep out frost.

PELARGONIUMS FADING : *Mrs. J., Eccles.* The blooms were all loose in the box, and the petals fallen from all the single kinds. The cause of their fading so soon is that possibly they are in full bloom when brought into the conservatory, therefore these blooms cannot last in a fresh condition for a lengthened period; or perhaps the house, or the particular part where the plants are placed, is too shady, or is liable to sudden fluctuations in temperature, or the water they get is unsuitable. Leaf-mould and pit sand are scarcely good materials for Pelargoniums without any admixture of loam.

PHYLLOXERA : *D.* This insect we have never met with in outside borders or heard of such a case.

TOMATO RAISING : *Jersey Red.* You are late in the year to begin with Tomato raising for very early work, but you may get cuttings rooted as quickly as possible now, or you can sow seed of such kinds as Hathaway's Excelsior, the Orangefield, or Green Gage, but not of the coarse-growing sorts. Let them be potted on into larger pots as soon as the roots touch the sides of the pots; but if you intend planting them out to fruit let them show flower first. Let them have all the light possible, train thinly, and rather than give too much soil it would be better to assist the plants with manure in some form. The old wood of vines will stand almost any degree of cold we get in this country if the roots are protected efficiently.

PEAR : *W. H. H., Ealing.* Your Pear is a moderate sized example of Easter Beurré. The short thick stalk and

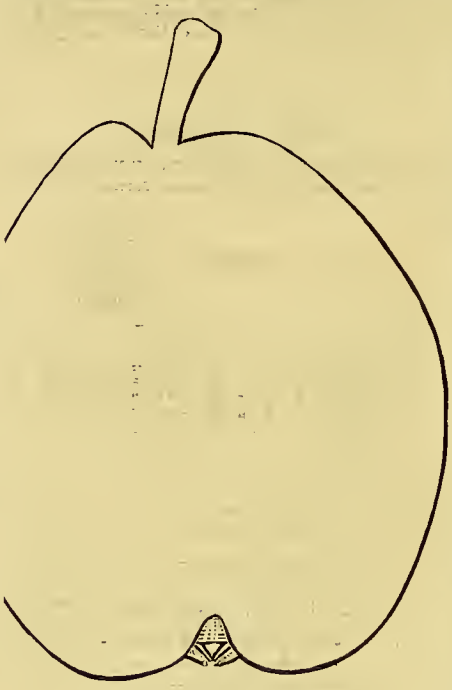

FIG. 65.—EASTER BEURRÉ.

incurved calyx-segments are characteristic. Quality first-rate—season January to March.

CATALOGUES RECEIVED.

W. TAIT & Co., Capel Street, Dublin—Dutch Bulbs and other Flower Roots.

W. M. PILLINGER & Co., Chepstow—Dutch Flower Roots and Spring Flowering Plants.

DAMMANN & Co., Portici, Naples—Wholesale Catalogue of Garden, Flower and Palm Tree and Agricultural Seeds.

CRANSTON'S NURSERY AND SEED Co., Hereford—Bulb and Flower Roots.

E. S. DODWELL, Stanley Road, Oxford—List of New and Old Carnations and Picotees.

HOGG & ROBERTSON, 22, Mary Street, Dublin—Hyacinths, Tulips and other Flowering Bulbs.

T. S. WARE, Hale Farm Nurseries, Tottenham, London—Bulb Guide.

J. SMITH & SONS, Darley Dale, Matlock—Trees, Shrubs, &c., Wholesale.

W. E. MARTIN, 61, Market Place, Hull—Bulb Catalogue.

W. GORDON, Twickenham—Lilies and other Bulbs and Plants.

ISAAC DAVIES & SONS, Ormskirk—Rhododendrons, Azaleas, &c.

BARR & SON, King Street, Covent Garden—Descriptive List of Daffodils and Hardy Plants.

JAMES YATES, Stockport—Illustrated Catalogue of Continental Bulbs.

RALPH CROSSLING, Penarth Nurseries—Cut Flowers, Bouquets, and Wreaths.

H. CANNELL & SONS, Home for Flowers, Swanley, Kent—New and General Soft-wood, Florists' Flowers, and Winter-flowering Plants, Roses, Bulbs, &c.

KANE, Nurseries, Kells, Co. Meath—Special Offer of Imported Bulbs, Flower Roots, &c.

JOHN K. KING, Coggeshall, Essex—Imported Bulbs.

ORMISTON & RENWICK, Melrose, N.B.—Dutch Flower Roots.

THE NEW PLANT AND BULB Co., Lion Walk, Colchester—Retail List of Lilies, Orchids, Bulbs, &c.

COMMUNICATIONS RECEIVED. — Baron Schrœder. — Messrs Veitch.—Messrs. Protheroe & Morris.—Mr. J. N. Fitch.—M. Correvon, Geneva.—J. L.—Cassell & Co.—A. L., Napier, N. Z.—J. B. Armstrong, New Zealand.—T. Christy & Co. (next week).—H. D.—A. B.—R. D.—E. J. B.—T. W.—H. H. D'O.—R. J. L.—F. v. M., Melbourne.—F. Kramer, Flottbeck (with thanks).—W. S., Leeds.—G. Heath.—N. E. Brown.—W. B. H.—J. M. P.—Taffy, North Wales.—F. Challis.—W. B. M.—F. & Arthur Dickson & Sons.—John Stewart.—W. J. Royle.—Wild Rose.—C. Wolley Dod.—A. D.—W. Watson.—C. Tocock.—Woolhope Club.—Chadborn & Co.—H. D.—D. B. C.—J. J. T.—W. H.—G. M.—J. B.—J. S.

Markets.

COVENT GARDEN, September 27.

TRADE quiet, with full supplies. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 6– 2 6	Melons, each ..	1 0– 3 0
Cobs, per 100 lb. ..	100 0–116 0	Peaches, per doz. ..	2 0–12 0
Figs, per dozen ..	1 0– ..	Pine-apples, Eng., lb.	2 0– 4 0
Grapes, per lb. ..	1 0– 2 0	Plums, ½-sieve ..	7 0–10 0
Lemons, per case ..	20 0– 30 0		

VEGETABLES—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz. ..	3 0– 5 0	Lettuces, Cabbage, per dozen ..	1 0– ..
Beans, French, lb. ..	0 4– ..	— Cos, per dozen ..	1 6– ..
— Scarlet, per lb. ..	0 3– ..	Mint, green, bunch ..	0 6– ..
Beet, per doz. ..	1 0– ..	Mushrooms, p. baskt.	1 0– 2 0
Cabbages, per doz. ..	1 0– 2 0	Onions, per bunch ..	0 6– ..
Carrots, new, p. bun.	0 4– 0 6	— Spring, per bun.	0 6– ..
Cauliflowers, English, dozen ..	2 0– 3 0	Parsley, per bunch ..	0 4– ..
Celery, per bundle ..	1 6– ..	Peas, English, quart	1 0– ..
Cucumbers, each ..	0 4– 0 8	Radishes, per doz. ..	1 6– ..
Endive, English, per dozen ..	1 0– ..	Small salading, pun.	0 4– ..
Garlic, per lb. ..	1 0– ..	Spinach, per bushel	2 6– ..
Herbs, per bunch ..	0 2– 0 4	Tomatos, per lb. ..	0 6– 0 9
Horse Radish, bund.	3 0– 4 0	Turnips, new, bun.	0 4– ..
		Vegt. Marrows, each	0 2– 0 4

POTATOS.—Kent Kidneys, £3 to £4 per ton; do., Regents, £3*s.* to £4 per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, doz.	12 0–24 0	Ferns, in variety, per dozen ..	4 0–18 0
Arbor-vitæ (golden), per dozen ..	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each ..	2 0–10 0
Asters, per doz. ..	4 0– 9 0	Fuchsias, per dozen	4 0– 9 0
Begonias, per doz. ..	6 0–12 0	Hydrangea, per. doz.	9 0–24 0
Bouvardia, doz. ..	12 0–18 0	Liliums, various, per dozen ..	12 0–30 0
Caladiums, per doz.	6 0–24 0	Marguerite Daisy, per dozen ..	8 0–12 0
Cockscombs, doz. ..	3 0– 6 0	Mignonnette, doz. ..	4 0– 6 0
Coleus, doz. ..	2 0– 6 0	Myrtles, per doz. ..	6 0–12 0
Dracæna term. doz.	30 0–60 0	Palms in variety, each	2 6–21 0
—viridis, per doz. ..	12 0–24 0	Pelargoniums, scarlet, per dozen ..	2 0– 6 0
Erica, various, doz.	9 0–18 0		
Euonymus, various, per dozen ..	9 0–18 0		
Evergreens, in var., per dozen ..	6 0–24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Mignonette, 12 bun.	2 0– 6 0
Asters, 12 bunches ..	2 0– 9 0	Marigolds, 12 bun. ..	2 0– 4 0
— French, per bun.	3 0– 4 0	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 0
Bouvardias, per bun.	1 0– 1 6	Paonies, 12 bunches	0 9– 1 6
Carnations, 12 blms.	1 0– 3 0	Pelargoniums, 12 spr.	1 0– 1 6
— 12 bunches ..	3 0– 6 0	— zonal, 12 sprays	0 3– 0 6
Cornflower, 12 bun. ..	1 6– 4 0	Picotees, 12 bun. ..	2 0– 6 0
Dahlias, 12 bun. ..	3 0– 6 0	Primula, double, bun.	1 0– 1 6
Eucharis, per doz. ..	3 0– 6 0	Roses (indoor), doz.	2 0– 6 0
Gardenias, 12 blms. ..	3 0– 6 0	— (outdoor), 12 bun.	3 0– 6 0
Gladioli, 12 spikes ..	1 0– 3 0	— coloured, doz. ..	3 0– 8 0
Heliotropes, 12 sp. ..	0 6– 1 0	Stephanotis, 12 spr.	4 0– 6 0
Lapageria, white, 12 blooms ..	3 0– 6 0	Sweet Peas, 12 bun.	2 0– 4 0
— red, 12 blooms ..	1 0– 3 0	Tropæolum, 12 bun.	1 0– 2 0
Liliums, 12 blooms ..	0 6– 1 6	White Jasmine, bun.	0 6– 1 0
Marguerites, 12 bun.	6 0– 9 0		

SEEDS.

LONDON : *Sept.* 26.—There was a poor attendance on the seed market to-day, and transactions were limited. Clover seeds at present excite no attention, there being a complete absence of all speculative inquiry for the same this season. There is a diminished sale for Trifolium; winter Vetches continue cheap and good. The trade for Rye is without alteration. Same rates prevail for Canary seed. Moderate prices are asked for the fine new English blue Peas now offering. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

HAY.

Tuesday's Whitechapel Market report states that there were moderate supplies and a dull trade. Quotations :—Prime Clover, 100*s.* to 115*s.*; inferior, 60*s.* to 75*s.*; prime second cut, 90*s.* to 108*s.*; best meadow hay, 80*s.* to 90*s.*; inferior, 40*s.* to 65*s.*; and straw, 29*s.* to 38*s.* per load. — On Thursday there was a large supply. The trade was quiet, and Clover prices were lower. — Cumberland Market quotations :—Superior meadow hay, 78*s.* to 90*s.*; inferior, 63*s.* to 72*s.*; superior Clover, 110*s.* to 120*s.*; inferior, 70*s.* to 95*s.*; and straw, 35*s.* to 40*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that supplies were large, but the demand slow. Quotations :—Magnum Bonums, 60*s.* to 80*s.*; Kent Regents, 80*s.*; Essex Regents, 70*s.*; Champions, 60*s.*; and Roses, 60*s.* per ton.—The imports into London last week consisted of 3510 bags from Hamburgh, 2 from Antwerp, and 52 bags from Harlingen.

HERBACEOUS and ALPINE PLANTS.

CATALOGUE, of fifty pages, containing full information as to colour, height, situation, time of flowering, &c., free on application.

A CAPITAL COLLECTION for Rocks, Stumps, and Borders, from 25*s.* per 100, or 4*s.* per dozen.

Most of the plants being in pots may be despatched at any time, or by Parcels Post when fit.

RICHARD SMITH & CO.,
NURSERYMEN AND SEED MERCHANTS,
WORCESTER.

TO THE TRADE.

FRUIT TREES, ROSES and VINES.

DWARF MAIDEN PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, APPLES, PEARS.

DWARF-TRAINED PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES.

STANDARD, HALF-STANDARD, and DWARF ROSES, also ROSES in pots.

GRAPE VINES for Forcing and Planting.

DEUTZIA GRACILIS, fine, for Potting for Forcing.

HUGH LOW & CO. have to offer the above in quantity, clean and healthy, growing at Bush Hill Park Nursery, Enfield, ten minutes' walk from the Bush Hill Park Station, Great Eastern Railway. Inspection invited.

CLAPTON NURSERY, LONDON, E.

TO THE TRADE ONLY.

SPECIAL CASH OFFER OF OVER 20,000 PALMS,

including Kentias, Arecas, Seaforthias, Latanias, Geonomas, Corypha, Phœnix, Cocos Weddelliana, Caryotas, &c.; FERNS, in 48's and 60's; ARUM LILIES, for flowering this season; PANDANUS, CROTONS, FICUS, JASMINUM GRACILLIMUM (new), STEPHANOTIS, and various CLIMBING PLANTS; Tuberous and Foliage BEGONIAS, Tree CARNATIONS, and many other useful plants.

Price Lists free on application.

AN INSPECTION IS INVITED.

W. M. CROWE,
BOLEYN NURSERY, UPTON, ESSEX.

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AMERICAN SEEDS.

2½*d.* Postage on a Letter of Inquiry will secure you by return Mail our PRICES—Wholesale or Retail.

SEEDS of MAIZE for Field or Garden, PEAS, BEANS, CUCUMBERS, PUMPKINS, SQUASH, CANTALOUPES, WATER MELONS, TOMATOS, OKRA or GUMBO, COTTON SEED, TOBACCO, OSAGE ORANGE or MACLURA, TREE SEEDS, AMERICAN GARDEN TOOLS, BOOKS, &c.

All offered by the *oldest and ever the most extensive* Seed Farmers in America.

Founded in 1784.

ADDRESS:—

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PHILADELPHIA.

1883—A B C BULB GUIDE—1883.

THIS very complete CATALOGUE, which has been prepared with my customary care, is now ready, and includes, in addition to a most EXTENSIVE Selection of General MISCELLANEOUS BULBS, very extensive and complete collections of NARCISSUS, LILIUMS (perhaps the finest collection of these ever offered), GLADIOLUS, IRIS, HELLEBORUS, TRILLIUMS, PÆONIES, the leading and most distinct varieties of HYACINTHS, TULIPS, CROCUS, &c., and a List of CHOICE HARDY PERENNIALS adapted for Autumn Planting.

Copies had gratis and post-free upon application to

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HALE FARM NURSERIES,
TOTTENHAM, LONDON.

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DUTCH FLOWER ROOTS

CARRIAGE FREE

BY RAIL OR PARCELS POST.

EXTRA QUALITY.

		s.	d.
HYACINTHS, choice named sorts	.. per doz.	6	0
,, Early White Roman ..	.. ,,	3	0
TULIPS, best show varieties ..	.. ,,	1	6
CROCUS, ten best distinct sorts	.. per 100	2	6
JONQUILS, sweet-scented ..	.. per doz.	0	8
POLYANTHUS NARCISSUS, named	,,	2	6
BORDER NARCISSUS, in variety	.. per 100	4	6
ANEMONES, fine French varieties	.. ,,	7	0
RANUNCULUS, Double French	.. ,,	7	0
SNOWDROPS, extra large roots	.. ,,	2	6
IRIS, German, in best mixture ..	.. per doz.	2	0
SCILLA SIBIRICA, large size	.. per 100	6	0
SPIRÆA JAPONICA, for forcing	.. per doz.	5	0
CHRISTMAS ROSE, strong flowering roots	,,	6	0

LILIUMS, EARLY GLADIOLUS, AMARYLLIS, WINTER ACONITE, BEGONIAS, TUBEROSES, CROWN IMPERIALS, IXIAS, &c.

CATALOGUES FREE.

CRANSTON'S
NURSERY & SEED COMPANY (Limited),
HEREFORD.

NARCISSUS.

THOMAS S. WARE begs to announce that he has prepared a SPECIAL OFFER of Leading Varieties of the above, which may be had upon application.

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FERNS A SPECIALITY.

EXOTIC and BRITISH FERNS and SELAGINELLAS,

Suitable for STOVE and GREENHOUSE Cultivation, for OUTDOOR FERNERIES, and other purposes, in immense number and variety. SPECIAL LISTS, issued at intervals during the year, giving extremely low quotations, may be had FREE on application.

W. & J. BIRKENHEAD,
FERN NURSERY, SALE, MANCHESTER.

Hooper's—
The Covent Garden Seed Warehouse

Send Four Stamps for New Catalogue of **BULBS,** Richly illustrated in colours, correctly after Nature.

The Fourpence will be returned in the first purchase.

NEW LILIUM HARRISI.—We were the introducers of this distinct and floriferous variety of L. eximium last year.

Extract from *Gardeners' Chronicle*:—"Lilium Harrisi.—We have received a two-flowered stem of this Lily from Messrs. Watkins & Simpson, who introduced it into the London market, and which is the second flower-stem produced this season in the manner described by Mr. Clausen, at p. 53, by a second-sized bulb in the possession of Mr. Walker, of Whitton, near Hounslow. The flowers are very fine, and evidence seems to be accumulating that it is distinct from L. longiflorum, or at least a well-marked variety of that species. It does not appear to do well out-of-doors, preferring the shelter of a cool greenhouse; and it stands forcing well. We understand that one of the most extensive growers of plants for market has given a large order for bulbs for forcing next spring."

Price of Bulbs of the above and many other Lilies on application to

WATKINS AND SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, W.C.

CALCEOLARIAS (Herbaceous).—Fine healthy transplanted Seedlings, from a splendid strain of beautifully spotted and tigred flowers, 1*s.* 6*d.* per dozen, post-free. Extra strong plants, 2*s.* 6*d.* per dozen, post-free.

DANIELS BROS.,
TOWN CLOSE NURSERIES, NORWICH.

CINERARIAS.—Fine healthy transplanted Seedlings, from a grand strain of large and brilliantly coloured flowers, 1*s.* 6*d.* per dozen, post-free. Extra strong plants, 2*s.* 6*d.* per dozen, post-free. Beautifully Illustrated CATALOGUE of Dutch Flower Roots free on application.

DANIELS BROS.,
Royal Norfolk Seed Establishment, Norwich.

ROSES IN POTS,

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

These World-famed ROSES cannot fail to give the greatest satisfaction.

DESCRIPTIVE LISTS on application.

RICHARD SMITH & CO.,
WORCESTER.

The Largest Rose Grounds in England

CRANSTON'S NURSERIES
(ESTABLISHED 1785).

THE PLANTING SEASON.

Order Early and Plant in October and November.

CRANSTON'S
NURSERY & SEED COMPANY

Beg to draw the attention of Amateurs and Rose Growers generally to their immense Stock of

DWARF and STANDARD

ROSES,

which are unusually fine this season. The plants, having made very early growth, are now well ripened, and will be in excellent condition for transplanting. Plants are grown in every variety of form, and upon Stocks best adapted to the habit or constitution of the Rose.

Selections will be supplied at the following prices, less 5 per Cent. discount for Cash with Order:—

STANDARDS and HALF-STANDARDS, superior varieties, 21*s.* to 24*s.* per dozen.

DWARFS on MANETTI, superior varieties, 9*s.* to 10*s.* per dozen.

DWARFS on SEEDLING BRIER and BRIER CUTTINGS, superior varieties, 10*s.* to 12*s.* per dozen.

DWARF TEA-SCENTED and NOISETTES, on Seedling Brier, superior varieties, 15*s.* to 18*s.* per dozen.

DWARF HYBRID PERPETUALS, on own roots, 15*s.* to 18*s.* per dozen.

CLIMBING ROSES, 9*s.* to 12*s.* per dozen.

NEW FRENCH ROSES for 1883, 36*s.* per dozen.

TEA-SCENTED HYBRID PERPETUALS, &c., in 8-inch pots, specially grown for Forcing, 24*s.*, 30*s.*, to 42*s.* per dozen.

GARDEN ROSES, suitable for Bedding or Massing, 60*s.* per 100.

Special Quotations will be given to Buyers of Large Quantities.

Descriptive Catalogue on application.

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

BAUMFORTH'S SEEDLING RASPBERRY.

From the great reputation this New Raspberry has attained for size, quality, and heavy cropping, I fully anticipate again a very large demand for Canes.

I recommend Orders to be sent in at once, to secure a supply.

PRICES:—

Planting Canes .. .. 25*s.* per 100, 4*s.* per dozen.
Fruiting Canes, extra strong, 35*s.* per 100, 6*s.* per dozen.

Special Prices to the Trade on application.

EDMUND PHILIP DIXON,
SEED MERCHANT and NURSERYMAN,
HULL.

TREE CARNATIONS.

HEATH & SON

Have a magnificent stock of the above, in 4 and 5-inch pots, just setting with Flower Buds, of the following varieties:—

METEOR, MODEL, LUCIFER, WHITE SWAN, ALLEGATIÉRE, ANDALUSIA, LA BELLE, MINERVA, NONPAREIL, VESTAL, VULCAN, MISS JOLIFFE, GARIBALDI.

18s. per dozen, £5 per 100.

EXOTIC NURSERIES, CHELTENHAM.

GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE.

4*d.* per bushel; 100 for 25*s.*; truck (loose, about 2 tons), 40*s*; 4-bushel bags, 4*d.* each.
LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s*; sacks, 4*d.* each.
BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks 22*s.*; sacks, 4*d.* each.
COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* per half ton, 26*s.* per ton; in 2 bushel bags, 4*d.* each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1*s.* per bushel.
SPHAGNUM MOSS. 8*s.* 6*d.* per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Free Price LIST.—**H. G. SMYTH**, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

Thomson's Vine and Plant Manure.

Manufactured by the

LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), LIMITED,

The Vineyard and Nurseries, Garston, near Liverpool,

and Sold by them and all Nurserymen and Seedsmen.

This is the Manure used to produce the splendid Grapes grown by Messrs. WM. THOMSON & SON, Clovenfords.

For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

GARDEN REQUISITES.

PEAT, LOAM, SILVER SAND, PREPARED COMPOST, RAFFIA FIBRE, TOBACCO CLOTH, &c.

Quality **equal to any** in the Market.
(All Sacks included.)

PEAT, best brown fibrous .. 4*s.* 6*d.* per sack; 5 sacks for 20*s.*
,, best black fibrous .. 3*s.* 6*d.* per sack; 5 sacks for 15*s.*
,, extra selected Orchid .. .. 5*s.* 0*d.* ,,
LOAM, best yellow fibrous .. ..
PREPARED COMPOST, best .. } 1*s.* per bushel (sacks
LEAF MOULD .. .. .. } included).
PEAT MOULD .. ..
SILVER SAND (coarse) .. .. 1*s.* 3*d.* per bushel.
RAFFIA FIBRE, best only .. .. 10*d.* per lb.
TOBACCO CLOTH, finest imported.. 8*d.* per lb., 28 lb. 18*s.*
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COCOA-NUT FIBRE REFUSE (see special advertisement).
Terms, strictly Cash with order.

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

12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6*s.* per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15*s.* per ton per Truck. Sample Bag, 5*s.*; 5 Bags, 22*s.* 6*d.*; 10 Bags, 45*s.* Bags included. Fresh SPHAGNUM, 10*s.* 6*d.* per Bag. SILVER SAND, Coarse or Fine, 52*s.* per Truck of 4 tons. Red Sandstone ROCKWORK, £5 per Truck of 4 tons. GRAVEL, good colour, 25*s.* per Truck of 6 tons.
WALKER AND CO., Farnborough Station, Hants.

PEAT, for Rhododendrons, &c., of excellent quality, also the finest Yellow Fibrous LOAM, Light or Close, from rich forest pasture land, in trucks of 4 tons, 48*s.* each. Selected PEAT, 3*s.* per sack. SILVER SAND and LEAF MOULD, 8*d.* per bushel. Sacks, 6*d.* each. Remittance with order. B. LAMBERT, Ringwood.

COCOA NUT FIBRE REFUSE, newly made, as supplied to the Royal Horticultural Society and principal Nurserymen in England, in sacks at 1*s.* 3*d.* each, or 15 sacks, 18*s.*; 30 sacks, £1 5*s.*, sacks included. Truck-load, loose, 33*s.*; fifteen bags or more and truck-load free on to rail. Post-office order or cheque with all orders will oblige. Established 1872.—J. STEVENS AND CO., "Greyhound" Yard, and 132, High Street, Battersea, S.W.

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Superior quality, at exceptionally low prices.
PEAT, best Black Fibrous, from 4*s.* 6*d.* per sack.
PEAT, best Brown Fibrous, from 5*s.* per sack.
PEAT, specially selected for Orchids, from 6*s.* per sack.
LOAM, Yellow Fibrous, 1*s.* per bushel.
LEAF MOULD, best, 1*s.* per bushel.
PEAT MOULD, 1*s.* per bushel.
SILVER SAND, Coarse, 1*s.* 6*d.* per bushel.
RAFFIA FIBRE, best, 9*d.* per pound.
TOBACCO PAPER, CLOTH, and ROPE, from 6*d.* per pound.
COCOA-NUT FIBRE REFUSE, 1*s.* 3*d.* per bag; per truck-load of about 2 tons, 30*s.*
SPHAGNUM MOSS, 4*s.* 6*d.* per bag.
VIRGIN CORK, 18*s.* per cwt.
The Trade supplied on Wholesale terms.
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A SPECIALITY.

BEESON'S ROSE, VINE, and PLANT MANURE.

To be had of all Nurserymen, Seedsmen, and Florists.
For all particulars please apply to
W. H. BEESON, Carbrook Bone Mills,
SHEFFIELD.
Also GROUND BONES for Vine Borders, Potting, &c.

To Her Most Gracious Majesty Queen Victoria.

SILVER MEDAL-1881. BRONZE MEDAL-1881.

To His Royal Highness the Prince of Wales.

For Beautiful Flowers and Fruits
USE CHUBB, ROUND AND CO.'S PATENT

COCOA-NUT FIBRE REFUSE

By CHUBB'S PATENT PROCESS,

As supplied to all the Royal Gardens and Principal Nurseries of Europe.

GUARANTEED ABSOLUTELY PURE. FREE FROM ANY FOREIGN INTERMIXTURE. Manufactured on the premises from the famous "Laguna" Cocoa-Nut Husks, and can only be obtained from us direct. This article is not to be confused with so-called Cocoa-Nut Fibre Refuse, sold by dealers and others at ridiculously low prices, and dear in the end. Amongst numerous Testimonials and extracts from scientific writers, to be seen at our works, we hold the following:—From Mr. CHARLES PENNY, Head Gardener to H.R.H. the Prince of Wales: "The Gardens, Sandringham, February 28, 1883.—I must say your Cocoa-Nut Fibre Refuse is far superior to any I have ever tried; in fact, it is simply perfection; and the use of your Fibre for so many purposes in Horticulture is a thorough boon. Make what use you like of this letter." Useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bulbs, Mushrooms, Bedding-out Plants, &c.

DESTROYS ALL SLUGS AND INSECTS.

An elegant Bordering to Flower Beds. Combines warmth and cleanliness with valuable antiseptic and deodorising properties.

MOISTENS IN HEAT. HOLDS HEAT IN COLD WEATHER.

Terms, strictly cash with order. Prices as follows:—Sacks, 1*s.* 6*d.* each; 10 sacks, 13*s.*; 15 sacks, 18*s.*; 20 sacks, 23*s.*; 30 sacks, 30*s.* (all sacks included). Truck-load, free on rail, £2. Limited quantities of SPECIAL QUALITY, Granulated, in sacks only, 2*s.* 6*d.* each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from the Manufacturers, **CHUBB, ROUND & CO.,**
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Amortiser.—Amortiser.—Amortiser.
To HOP and FRUIT GROWERS, FLORISTS, MARKET GARDENERS and OTHERS.

STEVENS AND CO.'S AMORTISER INSTANTLY DESTROYS Hop Flea, Greenfly, Caterpillar, and every kind of Blight. Fruit Growers, Florists, more especially Rose Growers, will find this preparation invaluable, as one application causes INSTANT DESTRUCTION of all INSECT PESTS. For Hothouse, Greenhouse, and other Plants it is equally valuable, and is guaranteed not to injure the most delicate bloom or foliage. We have a Special Preparation of the Amortiser for Watering the Ground which Instantly Destroys Slugs, Wireworms, Caterpillars, Grubs, &c. When ordering state which preparation is required. Sample Cans, 4½ gallons, 3*s.* 6*d.*, tin included. Special Quotations for Large Quantities.
Orders received at 67, High Street, Borough, London, S.E.

SOLUBLE FIR TREE OIL INSECTICIDE.
For destroying ALL INSECTS and PARASITES that infest Trees and Plants, whether at the Roots or on the Foliage. Kills all Vegetable Grubs, Turnip Fly, &c. Cures Mildew and Blight. Cleans Grapes from Mealy Bug, &c., and makes a good Winter Dressing. Of all Seedsmen and Chemists, 1*s.* 6*d.*, 2*s.* 6*d.*, 4*s.* 6*d.* a bottle. Per gallon 12*s.* 6*d.*, or less in larger quantities. Maker, E. GRIFFITHS HUGHES, Manchester. Wholesale from all the London Seed Merchants and Wholesale Druggists. New York: RÖLKER & SONS.

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CORRY, SOPER, FOWLER & CO.

(*LIMITED*),
Horticultural Sundries Merchants,
and Manufacturers of all kinds of
INSECTICIDES and MANURES, GRASS and DRIED FLOWER BOUQUETS, WREATHS and CROSSES,
in every Material and Pattern.
IMPORTERS OF
DRIED FLOWERS and GRASSES, VIRGIN CORK, RAFFIA MATS, &c.

Every Horticultural Requisite required for a shop kept in stock. Show Rooms now complete with every novelty for autumn use, and special attention given to any visiting customers.
CATALOGUES Free to the Trade on application.
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EUREKA!!! INSECTICIDE, prepared by WILLIAM SMITH, Chemist, Stockbridge, Edinburgh. The only Insecticide worth using. Once used always used.

DIRECTIONS.—For Syringing purposes, one part of the Insecticide to 100 parts of water. For Greenfly on Roses, &c., from 1 to 20, to 1 to 40 parts. For Thrip and Scale, 1 to 20 parts. For Bug, 1 to 15 parts.

N.B.—*Very tender plants should be well syringed after using the Insecticide.*

In Bottles, 1*s.*, 2*s.*, and 3*s.* 6*d.* each. 7*s.* 6*d.* per Gallon. Special quotations for large quantities.

Wholesale Agents—IRELAND AND THOMSON, 20, Waterloo Place, Edinburgh.

Important Discovery.

For Cleansing Plants from Aphides, and all Parasites. To prevent American Blight, all kinds of Scale, &c., and for Washing all Hard-wooded Plants, always use

HUDSON'S EXTRACT OF SOAP.

A ¼ lb. Packet to 3 Gallons of Water.
A strong solution thickened with clay makes an effective Winter Dressing.

Testimonials.

"Coton Hall Nursery, Shrewsbury, July 28, 1880.

"We find Hudson's Soap a very useful Winter Dressing for all kinds of Fruit Trees; both as a preventive and cure against American Blight and all kinds of Scales. We also use it for Camellias, Azaleas, Rhododendrons, and all kinds of Hard-wooded Plants. We have much pleasure in presenting you with this testimonial, and remain, yours truly,
(Signed) "JOHN JONES AND CO"

"201, Broad Street, Birmingham, August 15, 1883.

"DEAR SIR,—I have lately tried Hudson's Extract of Soap for the mildew on my Rose trees in the greenhouse, and I find that with one syringing it completely cures it instantly. I should say I tried it some time ago with the same result. Yours truly,
(Signed) "W. JAMES."

SOLD EVERYWHERE.

REMARKABLE DISAPPEARANCE!
of all DIRT from EVERYTHING
BY USING
HUDSON'S EXTRACT OF SOAP.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1*s.*, 3*s.*, & 10*s.* 6*d.*

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

GISHURSTINE, for dry feet and boot comfort, is much used by Gardeners, Farmers, Ladies, Sportsmen, and Shore-waders; is sold by Nurserymen and Oilmen, with testimonials and directions for use, in boxes, 6*d.* and 1*s.* each. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), London.

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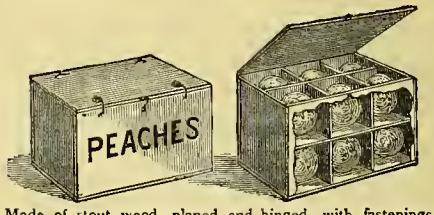
INDIAN MUSLIN, for Garden Shading.—100 yards for 10*s.*, delivered at Burnley Station; or 85 yards for 10*s.*, delivered free per Parcels Post. Very useful pure Cotton for Curtains, Blinds, Draperies, &c.; cream colour. Postal Order to be sent with each Order. Send stamped envelope for Pattern.
J. KAY AND SONS, Burnley Wood Mills, Burnley.

FRUIT BOXES.



Made of stout wood, planed and hinged, with fastenings and holes, through which a string can be passed and sealed on the top to prevent all tampering or pilfering. Movable wooden divisions keep each Peach or Bunch of Grapes in its place. Wrapped in wool or tissue paper the Peaches fit in firmly and never bruise.

Boxes for 12 Peaches, 1s. each, or 11s. 6d. per doz.
,, 24 ,, 2s. ,, 23s. ,,
,, for Grapes, 8 divisions, 10 in. × 4 in. × 4 in., **4s. each.**

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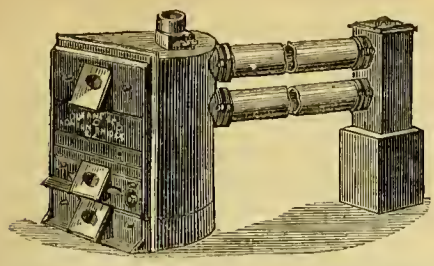
MANUFACTURERS OF HYDRO-INCUBATORS.



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Price, as engraving, with boiler, open feed syphon, 12 feet of 4-inch hot-water pipe, and patent joints complete, £4 4s. Delivered free to any station. Discount for cash.

Cost of apparatus for houses of any size on application.

This is the simplest, cheapest, and most powerful apparatus made. It requires no brick setting, no stokehole, and no hot-water fitter for fixing. The boiler stands in the greenhouse, the front only being outside and flush with the outer wall, so that the whole of the heat from the boiler itself is utilised. It burns over twelve hours without attention, at a nominal cost.

Illustrated LIST with full particulars post-free.

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STOVES.

Terra-Cotta! Portable! For Coal!

ROBERTS'S PATENT.

Pure and ample Heat 24 hours or longer for about 1*d.*, without attention. For Greenhouses, Bedrooms, or almost any purpose. Pamphlet and authenticated Testimonials sent. In use daily at Patentee's—THOMAS ROBERTS,

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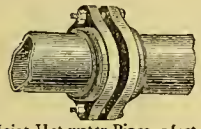
The "Expansion Joint."



The Best and Quickest Made.

4-in Expansion Joint Hot-water Pipes, 9 feet long, 4*s.* 3*d.* each.
4-in. Socket Hot-water Pipes, 9 feet long, 4*s.* 6*d.* each.
Price List on application.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, The Vineyard and Nurseries, Garston, near Liverpool, HORTICULTURAL BUILDINGS and HOT-WATER APPARATUS MANUFACTURERS.

Plans and Estimates free.

CARSON'S PAINT.

Patronised by

HER MAJESTY,

HIS ROYAL HIGHNESS THE PRINCE OF WALES, 15,000 OF THE NOBILITY, GENTRY, AND CLERGY.

Is extensively used for all kinds of

OUTDOOR WORK, CONSERVATORIES, Greenhouses, Frames.

CAN BE LAID ON BY UNSKILLED LABOUR.

1 *Cwt., and Oil Mixture, Free to all Stations, Prices, Patterns, and Testimonials, Post-free.*

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LA BELLE SAUVAGE YARD, LUDGATE HILL, LONDON, E.C.;
BACHELOR'S WALK, DUBLIN;
and 55, ROYAL AVENUE, BELFAST.
Discount for Cash.

UNDER SPECIAL ROYAL PATRONAGE

DAY, SON & HEWITT,

Inventors and Sole Proprietors of the "ORIGINAL"

STOCK-BREEDERS' MEDICINE CHESTS,

For all Disorders in Horses, Cattle, Calves, Sheep and Lambs,

And Inventors of the First Animal Medicines ever known as "Day's."

Price of Chest complete, including "Key to Farriery," £2 16*s.* 6*d.*, sent carriage paid throughout Great Britain.

CAUTION.—Beware of imitations, and see that the name, DAY, SON & HEWITT, is on all Bottles and Packets.

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AND WANTAGE, BERKS.

REIGATE SILVER SAND.—Coarse and fine, on rail at 7*s.* 6*d.* per ton—not less than 4-ton trucks. Terms cash.—Apply to H. SIMS, The Priory, Reigate.

ARCHANGEL and PETERSBURG MAT MERCHANTS and IMPORTERS.—All the usual kinds at reduced rates. Sacks and Seed Bags, new and second-hand, of every description. Raffia Fibre, Netting and Tiffany, Tarpaulins, Rick-covers, Horse-cloths, Ropes, Lines, and Twines. Price LIST on application to J. BLACKBURN AND SONS, 4 and 5, Wormwood Street, London, E.C.

RUSSIA MATS,
Archangel, Taganrog, Petersburg, and Dunnage.
SACKS and SEED BAGS. ROPES, LINES and TWINES.
RAFFIA FIBRE.
TOBACCO PAPER, PEAT and SILVER SAND.
BEST COCOA-NUT FIBRE REFUSE, 1*s.* 3*d.* per sack (sacks included). Descriptive CATALOGUE on application.
JAMES T. ANDERSON,
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HORTICULTURAL SHEET GLASS,

21 oz. Foreign, of the following sizes, in boxes of 100 and 200 feet, 3ds and 4ths qualities always kept in stock:—

14×12	20×12	20×14	20×16	20×18
16×12	16×14	20×15	22×16	22×18
18×12	18×14	18×16	24×16	24×18

Stock Lists and Prices on application.

All descriptions of British and Foreign Glass can be obtained from

GEORGE FARMILOE & SONS,
GLASS, LEAD, OIL and COLOUR MERCHANTS,
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TEN SILVER MEDALS AWARDED TO

JOHN MATTHEWS, THE ROYAL POTTERY, WESTON-SUPER-MARE, Manufacturer of TERRA-COTTA VASES, FOUNTAINS, ITALIAN BASKETS, BORDER TILES, GARDEN POTS of superior quality, from 1 to 30 inches diameter, stand the frosts, and seldom turn green; ORCHID, FERN, SEED and STRIKING PANS, RHUBARB and SEAKALE POTS, &c. Price LIST post-free. Sheet of Designs, 6*d.* Book of Designs, 1*s.*

BELGIAN GLASS for GREENHOUSES, &c.

Can be obtained in all sizes and qualities of

BETHAM & SON,
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B. & Son have always a large stock in London of 20 in. by 12 in., 20 in. by 14 in., 20 in. by 16 in., 20 in. by 18 in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200-ft. and 300-ft. cases.

SPECIAL BRITISH 21-OZ. SHEET GLASS,

HORTICULTURAL SIZES.

20 Boxes, 20×12	10 Boxes, 20×13	10 Boxes, 20×14
10 ,, 20×15	10 ,, 20×16	20 ,, 20×18
	20 ,, 24×18	

In 200 feet Boxes, at 2¼*d.* per foot net for not less than 1000 feet. BOXES FREE.

GEORGE FARMILOE & SONS,
GLASS, LEAD, OIL and COLOUR MERCHANTS,
34, St. John's Street, West Smithfield, London, E.C.

Rosher's Garden Edging Tiles.

THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price LISTS Free by Post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.

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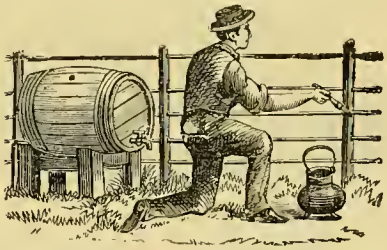

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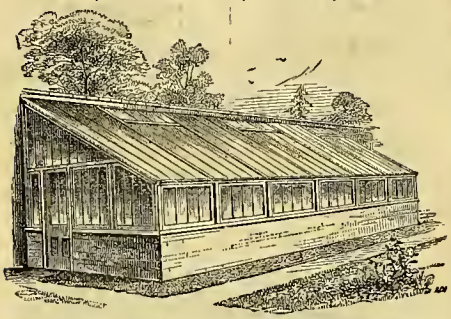

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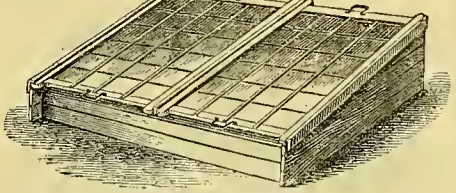

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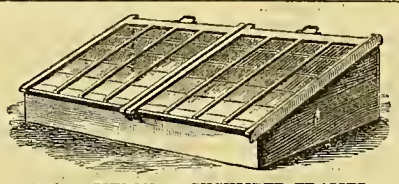

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BIOLOGY.—Professor Huxley will begin a course of lectures on October 1.

CHEMISTRY.—Professor Frankland will begin a course of lectures on October 1.

PHYSICS.—Professor Guthrie will begin a course of lectures on October 3.

METALLURGY.—Professor Chandler Roberts will begin a course of lectures on October 1.

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Further particulars may be obtained from the Registrar.

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PARTNER in, or MANAGER of a Florist's. An energetic man REQUIRED, who would take the absolute superintendence of the business. Married preferred if the Wife could take the Management of the Shop. Good dwelling-house, and every convenience for an improving trade. —S. Y., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

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WANTED, a WORKING GARDENER and Wife, as LAUNDRESS for a family. Man's wages, £1, and cottage. A lad kept.—Hon. and Rev. W. PORTMAN, Coston Rectory, Sherborne.

WANTED, a SINGLE-HANDED GARDENER.—One who understands his business thoroughly, and whose Wife can Assist in the House. Good wages. Good character indispensable.—E. WARD, The Mount, Shortlands, Kent.

WANTED, A SINGLE-HANDED GARDENER, between 25 and 30 years of age; married, without encumbrance. Thoroughly experienced in the Flower and Kitchen Garden; sober and industrious. Stove and Greenhouse, about ¾ of an acre in all; work close together. Wages, 20s. per week, with cottage in the garden. Wife to look after Poultry.—Apply by letter, or personally, to the HOUSEKEEPER, Tweed Bank, Sevenoaks Common.

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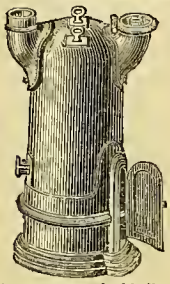

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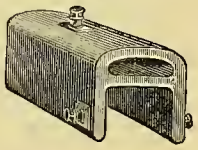

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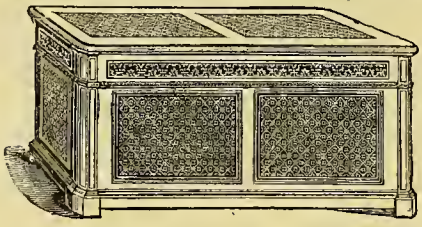

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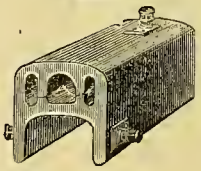

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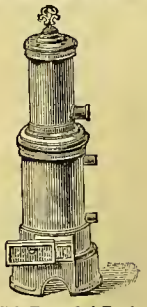

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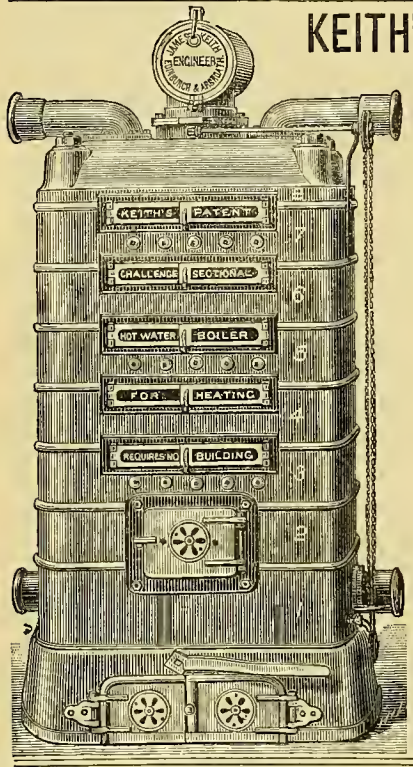

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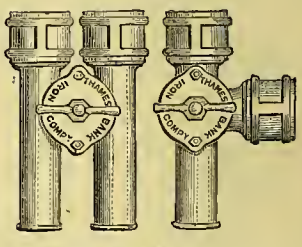

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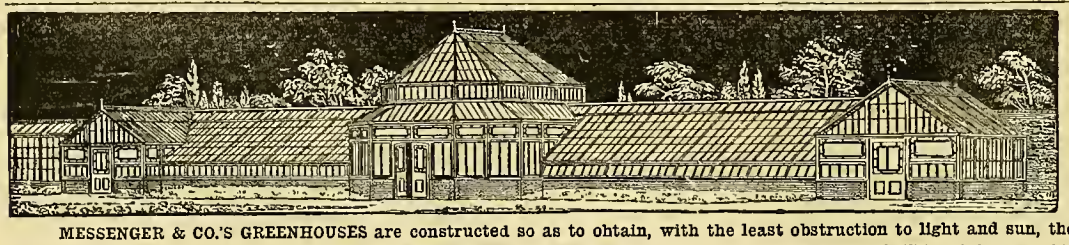

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THE

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Monday Next.—(Sale No. 6481.)
IMPORTED and ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Messrs. Shuttleworth, Carder & Co., on MONDAY NEXT, October 8, at half-past 12 o'Clock precisely, IMPORTED and ESTABLISHED ORCHIDS in the best of condition, comprising the following varieties:—Odontoglossum crispum (Alexandræ), O. Pescatorei, O. Phalænopsis, O. vexillarium, Paphinia cristata, Cattleya Dowiana, C. aurea, Masdevallia Harryana, M. Shuttlewerthii, M. cucullata (new and rare), M. Macrura, Batemannia Burtii, Bollea sp., Oncidiums, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6485.)
IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Messrs. F. Horsman & Co., on THURSDAY NEXT, October 11, a consignment of unusually large masses of LÆLIA ANCEPS, L. AUTUMNALIS, L. ALBIDA, EPIDENDRUM VITELLINUM MAJUS, ODONTOGLOSSUM CERVANTESI, O. NEBULOSUM; also a fine lot of CATTLEYA ELDORADO SPLENDENS.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6485.)
CYPRIPEDIUM MAULEI (true).

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October 11, eighteen good established plants of the true CYPRIPEDIUM MAULEI, from Bristol.

On view morning of Sale, and Catalogues had.

Specimen Orchids in Flower.

MR. J. C. STEVENS will include in his SALE at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 11, 12 splendid specimen plants of ODONTOGLOSSUM PESCATOREI in bloom, some with ninety-four flowers on one bulb; 1 grand spotted variety of O. ALEXANDRÆ, and a fine specimen O. ALEXANDRÆ with fifty flowers.

On view the morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6485.)
VANDA SANDERIANA.
PHALÆNOPSIS INTERMEDIA PORTEI.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October 11, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., a grand lot of VANDA SANDERIANA, of various sizes, amongst them a marvellous mass with eight growths and ninety leaves, measuring 2 feet 10 inches across. The splendid specimen in flower in the collection of William Lee, Esq., Downside, Leatherhead, formed a part of the same importation as the plant now offered, every one of which has sound, healthy roots made in this country, and leaves which would not be easily surpassed in established collections. It would not be easy to form a conception of the great beauty of this splendid species as seen in its native habitat, but one of the plants offered, with six old flower-spikes, will give amateurs an idea of what it must be when in perfection. Collector saw upwards of seventy flowers on small plants. At same time will be offered two AERIDES found growing in the locality of Vanda Sanderiana, not seen in flower by Collector; an establishe plant of PHALÆNOPSIS INTERMEDIA PORTEI, VANDA CŒRULEA, in flower and bud.

On view morning of Sale, and Catalogues had.

Important Sale of Established Orchids.

MR. J. C. STEVENS has received instructions from Charles Dorman, Esq., of The Firs, Lawrie Park, Sydenham, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 11, at half-past 12 o'Clock precisely, about 200 lots of CHOICE ESTABLISHED ORCHIDS from his well-known collections, comprising, amongst other fine things, good plants of:—

Angræcum eburneum	Odontoglossum Krameri
Cattleya aurea	Odontoglossum Ruckerianum
Cattleya Alexandræ	Odontoglossum Wilckeanum
Cattleya exoniensis	Phaius tuberculosus
Cattleya Sanderiana	Epidendrum Wallisii
Cattleya Skinueri alba	Miltonia Warscewiczella æthe-rea
Cattleya Triianæ Backhousiana	Cypripedium Schlimii
Cattleya ditto eboracensis	Cypripedium Spicerianum
Cattleya ditto Dodgsoni	Lælia anceps rosea
Cœlogyne Cummingii	Lælia anceps alba
Cœlogyne Massangeana	Lælia anceps Dawsoni
Oncidium curtum	Lælia elegans alba
Lycaste Skinneri alba	Masdevallia Harryana grandi-flora
Masdevallia Harryana Marshalli	Dendrobium Brymerianum; and Dendrobium Nobile Nobilius, &c.
Dendrobium Ainsworthii	
Odontoglossum Andersonianum	

On view morning of Sale, and Catalogues had.

Established Orchids from a Private Collection.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 11, about 50 lots of good ESTABLISHED ORCHIDS from a private Collection, including Odontoglossums, Lycastes, Masdevallias, Cypripediums, Lælias, and Cattleyas in variety, &c.

On view morning of Sale, and Catalogues had.

Highly Important Sale of Specimen Camellias, AZALEAS, PALMS, &c.

MR. J. C. STEVENS has been favoured with instructions from Hermann Rucker, Esq., to offer for SALE by AUCTION, without reserve, on the Premises, West Hill, Wandsworth, on TUESDAY, October 16, and following days, at half-past 12 o'Clock precisely, the entire COLLECTION of PLANTS formed by the late Sigismund Rucker, Esq. The collection is general, and comprises about 200 of the finest Camellias in the country, all beautifully set with bloom; about 200 Azaleas, fine Palms, Tree and other Ferns; a fine collection of Neiines, large Myrtles in tubs, Stove Plants, and a few good ORCHIDS; also GARDEN SEATS and CHAIRS, VASES, and PEDESTALS, CHINA POTS and STANDS, SLATE TUBS, BELL GLASSES, GARDEN TOOLS, &c.

On view the day prior and mornings of Sale, and Catalogues had on the Premises, and of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, W.C.

Alteration of Date, from October 11 to October 18.
STOVE and GREENHOUSE PLANTS, the Property of a NOBLEMAN.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, OCTOBER 18, instead of October 11, as previously announced, a small COLLECTION of STOVE and GREENHOUSE PLANTS, including a few specimen Azaleas, Dracænas, Pandanus, Euphorbias, Adiantums, Ficus elastica, &c., all clean and well-grown, the property of a Nobleman.

On view morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS has received instructions from J. Grimshaw, Esq., of Leeds, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 25, at half-past 12 o'Clock precisely, his entire COLLECTION of ESTABLISHED ORCHIDS, comprising about 800 plants, including specimen Vandas, Dendrobiums, Cœlogynes, and Cattleyas; Stanhopea Wardianum, in bloom: Phalænopsis amabilis, with spikes; some of the finest Cattleya Mossiæ and Trianæ ever flowered, C. speciosissima in sheath, &c.

On view morning of Sale, and Catalogues had.

Dutch Bulbs.—Great Unreserved Sales,
Every MONDAY, THURSDAY, and SATURDAY.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every MONDAY, THURSDAY, and SATURDAY, at half-past 11 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other ROOTS from Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Tuesday Next.
Unreserved Sale of a small but well-grown COLLECTION of CHOICE ESTABLISHED ORCHIDS, the stock of a Gentleman who is giving up their cultivation.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE, to take place at the Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, October 9, to commence sharp at half-past 12 o'Clock. The collection includes some fine species of PHALÆNOPSIS AMABILIS, SCHILLERIANA and GRANDIFLORA; also CATTLEYA DOWIANA, C. AUREA, C. SCHILLERIANA, C. MAXIMA, C. TRIANÆ, C. ELDORADO, C. MENDELII, C. SUPERBA SPLENDENS, C. GIGAS IMPERIALIS, a magnificent variety; MASDEVALLIA DAVISII, VEITCHII, AMABILIS, LÆLIA HARPOPHYLLA, AUTUMNALIS, and PURPURATA; several fine pieces and superb varieties of ODONTOGLOSSUM ALEXANDRÆ, O. TRIUMPHANS, O. HALLI, O. RADIATUM, O. MADRENSE, CŒLOGYNE CRISTATA, VANDA GIGANTEA and TERES, LYCASTE FULVESCENS, ONCIDIUM FORBESII, &c.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Weybridge.
About a mile from Weybridge or Walton Stations.
GREAT UNRESERVED CLEARANCE SALE of well-grown NURSERY STOCK, the Land being required for Building Purposes.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Oatlands Park Nursery, Weybridge, Surrey, on TUESDAY and WEDNESDAY, October 9 and 10, at 12 o'Clock precisely each day, by order of Mr. Henry Chapman, about 6 Acres of unusually well-grown NURSERY STOCK, lotted to suit the Trade and other large Buyers, including 9000 Portugal Laurels, 1 to 5 feet; 8300 Laurels, 4 inches to 3 feet; 1100 Green Hollies; 2000 Weymouth Pines, 1 to 7 feet; 1500 English Yews, 1 to 4 feet; large quantities of Cupressus, Thuias, and Thuiopsis of sorts; thousands of small Coniferæ for growing-on, comprising 6000 Retinosporas of sorts, 4000 green and variegated Euonymus, 7000 seedling Hollies, 2-yr. transplanted; 15,000 Spruce Firs, 6 inches to 3 feet; 5000 Privet, 6 inches to 4 feet; 3000 Limes, 3 to 10 feet; an assortment of specimen Coniferæ and Evergreen Shrubs in the borders; 1400 Forest Trees of sorts; and large quantities of other Stock, too numerous to mention. Also a variety of GREENHOUSE PLANTS, including 400 Maidenhair Ferns in 48-pots, and 50 specimen Azalea indica, 1½ to 3 feet.

The Stock may now be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B.—Goods may be transmitted from Weybridge station to all parts. Purchasers may arrange with Mr. Chapman to have their lots taken up and conveyed to the station at the cost of labour and time incurred.

Lower Norwood, S.E.
ANNUAL SALE of choice established ORCHIDS, CAMELLIAS, STOVE and GREENHOUSE PLANTS, and NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Castle Nursery, Lower Norwood, S.E., close to the Station, on THURSDAY NEXT, October 11, at 12 o'Clock precisely, by order of Mr. Henry James, a selection of beautifully-grown ESTABLISHED ORCHIDS, including a fine lot of Odontoglossums and rare Masdevallias, Cattleyas, Phalænopsis, Dendrobiums, Cypripediums, Oncidiums, and amongst them will be found several specially fine pieces and varieties; an assortment of young and clean grown STOVE and GREENHOUSE PLANTS, specimen Azaleas and Camellias to name, specimen Ferns, Crotons, and Dracænas, and a variety of ORNAMENTAL TREES and SHRUBS, FRUIT TREES, &c.

May now be viewed. Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Tuesday Next.
ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will include in their SALE, at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, by order of Mr. F. Sander, a SELECTION of ESTABLISHED ORCHIDS, amongst which will be found several very fine and valuable species.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Friday Next.
CATTLEYA SANDERIANA.
ONCIDIUM ORIENTALE.
ODONTOGLOSSUM BREVIFOLIUM.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, at half-past 12 o'Clock, a magnificent importation of CATTLEYA SANDERIANA, figured in last week's *Gardeners' Chronicle*; also a splendid lot of ODONTOGLOSSUM ALEXANDRÆ, the lovely ONCIDIUM ORIENTALE, a fine lot of ODONTOGLOSSUM BREVIFOLIUM, and other ORCHIDS.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Westbourne Nursery, Harrow Road, W.
ENTIRELY WITHOUT RESERVE.
CLEARANCE SALE of WINTER and SPRING BLOOMING PLANTS, PALMS, &c., in consequence of Messrs. Woodroffe & Sons being about to Let the Land for Building Purposes.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises as above, about five minutes' walk from Westbourne Park Station, on FRIDAY NEXT, October 12, at 12 o'Clock precisely, 10,000 GENISTAS, 3000 Double PRIMULAS, 1000 CHRYSANTHEMUMS, 1000 HYDRANGEAS, fine ADIANTUM CUNEATUM, Red and White BOUVARDIAS, AZALEAS well set, a quantity of DRACÆNA CONGESTA and RUBRA, FICUS ELASTICA, CYCLAMEN, LATANIA BORBONICA, and other PALMS; 500 CALLA ÆTHIOPICA, 4000 ALOYSIAS, Golden and Green EUONYMUS, in pots; extra large GARDENIA INTERMEDIA, and other stock.

May be viewed. Catalogues may be had on the Premises, of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B.—The whole of the GREENHOUSES, PITS, FRAMES, CARTS, and numerous Effects will be SOLD by AUCTION, on the Premises, on THURSDAY, October 25, full particulars of which will be duly advertised.

Lewisham, S.E.
GREAT ANNUAL TRADE SALE of FERNS and WINTER-FLOWERING PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Richard Biggs to SELL by AUCTION, on the Premises, The Nursery, Lewisham, S.E., a few minutes' walk from Ladywell and Lewisham Stations, on TUESDAY, October 16, at 12 o'Clock precisely (in consequence of the large number of lots), 50,000 Maidenhair FERNS, 2000 ditto in 24 and 32-pots, 4000 in 48-pots, many thousands of PTERIS ARGYREA, ARISTATA ALBO-LINEATA, 5000 LOMARIA GIBBA (best variety); also ADIANTUM FARLEYENSE, BAUSEI, SCUTUM, INSIGNIS, GRACILLIMUM, &c.; GYMNOGRAMMAS of sorts, TODEAS, &c., grown and lotted especially for the Trade; also 500 CAMELLIAS, mostly white; 500 AZALEAS, including several large specimen whites; BOUVARDIAS, HYEMALIS and other HEATHS, EUCHARIS AMAZONICA and CANDIDA, PALMS, DRACÆNAS, FICUS, 2000 Winter-flowering CARNATIONS, 2000 CINERARIAS, 1000 specimen CHRYSANTHEMUMS, PRIMULAS, Border SHRUBS, and other Stock.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, and 67 and 68, Cheapside, E.C.

Ealing, W.—Highly Important Sale, without Reserve.
EXTENSIVE CLEARANCE SALE of exceptionally well-grown NURSERY STOCK and FRUIT TREES, by order of Messrs. Charles Lee & Son.
Important to Noblemen, Gentlemen, Nurserymen, and others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Nursery, Ealing, Middlesex, W., about a mile from the station, on TUESDAY, October 16, and following days, at 12 o'Clock precisely each day, without reserve, several acres of beautifully grown NURSERY STOCK, the whole of which has been carefully prepared for transplanting. Amongst the Stock will be found a variety of Coniferæ, Evergreen Shrubs, but by far the larger portion will consist of about 18,000 trained Fruit Trees, offering an opportunity seldom met with of securing fine and clean grown trees. They comprise 3000 Pyramid Pears, very fine large fruiting trees, 6 to 7 feet; 2000 Standard Pears, 2000 Standard Apples, 3000 Pyramid Apples, fine fruiting trees, in bearing; 2000 Horizontal and Fan-trained Pears, very fine large fruiting trees; 2000 ditto Apples, 1000 Dwarf-trained Peaches and Nectarines, very fine; 2000 ditto Plums, 1000 ditto Cherries, 300 Standard Quinces, 2000 Limes and other Forest Trees, 2000 fine Standard Roses, 300 Yucca gloriosa, and other Stock.

May be viewed. Catalogues may be had on the Premises; of Messrs. LEE AND SON, Royal Vineyard Nursery, Hammersmith, W.; and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and 67 and 68, Cheapside, E.C.

Lea Bridge Road, E.
UNRESERVED SALE of fine WINTER FLOWERING HEATHS and GREENHOUSE PLANTS.
Expiration of Lease.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser to SELL by AUCTION, on the Premises, at Lea Bridge Nurseries, Leyton, E. (close to New Street Station), on WEDNESDAY, October 17, at 12 o'Clock precisely, without reserve, many thousands of Winter Blooming and other HEATHS, remarkably well grown, and including HYEMALIS, WILMOREA, PERSOLUTA ALBA, and others; 1000 EPACRIS of the choicest kinds; 2000 CYCLAMEN PERSICUM, 1000 GENISTA FRAGRANS, 1000 PRIMULA SINENSIS, red, white, and double white; 500 Greenhouse FERNS, Tea-scented and Noisette ROSES, SOLANUMS in berry, a quantity of miscellaneous STOVE and GREENHOUSE PLANTS, several hundreds of English-grown CAMELLIAS, well set with bloom; 300 early flowering and other CHRYSANTHEMUMS; 400 fine double white PRIMULAS in 48-pots, 200 Maréchal Niel and other ROSES, from 7 to 10 feet; a large quantity of fine plants of AMPELOPSIS VEITCHII, CLEMATIS JACKMANNI; also a healthy lot of Seedling CONIFERÆ, including CUPRESSUS, ABIES, CEDRUS, WELLINGTONIA, and other stock.

May now be viewed. Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Preliminary Notice of
FORTHCOMING SALES of NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS beg to announce the following Sales:—

OCT. 23.—SALE of GLASS ERECTIONS and STOCK-in-TRADE, at the Stone Grove Nursery, Edgware.
OCT. 23 and 24.—SALE of NURSERY STOCK at Eves' Nursery, Gravesend, by order of the Executrix of the late Mr. Thomas Eves.
OCT. 25.—SALE of GLASS ERECTIONS at the Westbourne Nursery, Harrow Road.
OCT. 30.—CLEARANCE SALE of beautifully grown NURSERY STOCK, at the Nursery, Coventry, including a splendid lot of variegated Hollies.
NOV. 6.—SALE of NURSERY STOCK at the Manor Road Nursery, Lee, by order of Mr. North
NOV. 6 to 9.—GREAT SALE of NURSERY STOCK, at the Milford Nurseries, Godalming, by order of Mr. Maurice Young.
NOV. 7 and 8.—IMPORTANT CLEARANCE SALE of NURSERY STOCK, at the Eaton Nurseries, Norwich, by order of Messrs. Ewing & Co., who are giving up the Nursery.

Catalogues may be had when ready of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Messrs. P. and M. beg to call the special attention of intending planters to these important sales, and will be pleased to enter names on the Permanent List for a regular Supply of Catalogues.

TO INTENDING PLANTERS.

EXPIRY OF LEASE.

GREAT CLEARING SALE

OF ABOUT 70 ACRES OF

SEEDLING and TRANSPLANTED FOREST TREES,

FRUIT TREE STOCKS,

Large Ornamental Trees for Immediate Effect,

FRUIT TREES, &c.

THE LAWSON SEED and NURSERY COMPANY (Limited), Edinburgh, have resolved to CLEAR the ENTIRE STOCK contained in the Windlestrawlee Nursery, Granton Road, as they do not intend to Renew the Lease, which expires next year. Their other Nurseries, however, will be carried on as usual. All the Stock not previously disposed of privately will be

EXPOSED BY PUBLIC AUCTION,

on October 10 and 11, each day at 11 o'Clock, by

Mr. DAVID MITCHELL, Auctioneer.

The plants are of superior quality, and in excellent condition, the Larches not having been damaged by spring frosts. The following are the principal items to be Sold, and Catalogues may be had upon application:—

LARCH, 1-yr. Seedling, extra fine.
" 2-yr. " "
" 1-yr. " 1-yr. transplanted.
" 1-yr. " 2-yr. "
" 2-yr. " 1-yr. "
PINE, Black Austrian, several sizes.
" Cembra, or Swiss Stone, fine plants, recently removed, 2 to 4 feet.
" Corsican, several sizes.
" Mountain, various sizes.
FIR, Scotch, true Native, seedlings and transplanted.
" Silver, Common, several sizes.
SPRUCE, Norway, several sizes.
" Black American, true, several sizes.

And the following, both seedling and transplanted, viz.:—

Thorn ACACIA, Common ALDER, Hoary-leaved ALDER, Common and Mountain ASH, BEECH, BIRCH, SWEET BRIER, SEA BUCKTHORN, Spanish and Horse CHESTNUT, ELDER, ELM, HAZEL, HORNBEAM, LABURNUM, LIME, MAPLE, OAK, POPLAR, SYCAMORE, THORN, WHIN or GORSE, and WILLOWS.

FRUIT TREE STOCKS—
APPLE, CHERRY, PEAR and PLUM, seedling and transplanted.

Also a large quantity of RHUBARB ROOTS—Johnstone's St. Martin's, Victoria, Prince Albert, Early Red, &c.

When not convenient to attend the Sale orders will be carefully attended to by the LAWSON SEED and NURSERY COMPANY, or by the Auctioneer, 6, Comely Bank, Edinburgh.

Wonersh Nurseries, Guildford, Surrey.
THREE DAYS' NURSERY SALE.

MR. H. W. COPUS is instructed by Mr. W. Virgo to SELL by AUCTION, on WEDNESDAY, THURSDAY, and FRIDAY, October 31, and November 1 and 2, a very fine assortment of NURSERY STOCK, comprising Dwarf Standard and Climbing Roses, Portugal and common Laurel, Cupressus Lawsoniana, Retinospora, Thuias, Abies Douglasii, Euonymus, Deutzia gracilis, Cotoneaster Simmonsi, Pinus austriaca, green and variegated Hollies, Manetti Stocks, Privet, Sweet Briers, English Yews, Gueldres Roses, bedded Quicks, Virginian Creepers, 100,000 transplanted Forest Trees, Mountain and Weeping Ash, Birch, Purple and common Beech, Horse Chestnut, English Elm, Limes, Balm of Gilead Fir, Laburnum, Norway Maple, Sumach, Sycamore, Walnut, Poplar, Black Italian and Abele; Scarlet Oak, Alder, Hazel, Larch, English Oak, Spruce and Scotch Fir, Withy; extra strong Black Currants, Red Currants, and Gooseberries, Standard and Pyramid Apples, Plums, Medlars, Quince, and others.

Catalogues in due course, of the Auctioneer, 16, Friary Street, Guildford, Surrey.

SURPLUS STOCK OF GREENHOUSES, &c.,

comprising Ornamental Octagon Conservatory, 16 feet diameter; two Ranges of Lean-to Greenhouses, 45 feet by 30 feet long; three Summer-houses; two Wall-tree Covers, 44 feet and 24 feet long; one Galvanised Iron Lean-to Greenhouse, 12 feet by 8 feet; one Lean-to Wood-framed Greenhouse, 20 feet by 10 feet; one ditto, 12 feet by 10 feet; one ditto, 8 feet by 8 feet; several 10 feet by 5 feet; one Span Conservatory, 12 feet by 8 feet 6 inches; various Plant Frames, a large quantity of Hand Lights and Sashes, various Second-hand Boilers, a small Steam Boiler, &c., will be

SOLD BY AUCTION,

on TUESDAY, October 9, at 2 o'clock precisely, at the Anchor Works, Queen Street, Chelmsford. *May be viewed for a week prior to Sale.*

Catalogues on application to T. H. P. DENNIS AND CO., Chelmsford, and Mansion House Buildings, London, E.C.

Trains from Liverpool Street Station to Chelmsford at 10 A.M., 11.12 A.M., and 12.15 P.M. Return fares:—1st class, 8s. 6d.; 2d, 6s. 10d.; 3d, 5s. 6d.

Tansley Old Nursery, near Matlock, Derbyshire.

SECOND CLEARANCE SALE of NURSERY STOCK, comprising large quantities of Seedling Forest Trees and Shrubs, Gorse, Broom, &c., for Covert; hardy Shrubs, Herbaceous Plants, and other Stock.

MR. WM. SHUTES will SELL by AUCTION, unreservedly, on the grounds of the Tansley Old Nursery, in the occupation of Mr. Stephen Smith, about 2½ miles from Matlock Bridge Station, Midland Railway, on TUESDAY, October 16. Sale to commence at 11 o'Clock.

For Catalogues apply to the Auctioneer, or to Mr. STEPHEN SMITH, Tansley Old Nursery, Matlock. The lots may be viewed on Monday, October 15, also early on morning of Sale.

Auctioneer and Valuer's Office, Matlock Bridge.

Green Lane Nurseries,

Opposite the "Chequers Inn," Horley, Surrey, only a few minutes' walk from the Railway Station; 4 miles from Redhill and Reigate, and 5 from Crawley, on the road from London to Brighton.

To NURSERYMEN, FLORISTS, and PRIVATE GROWERS.

MESSRS. W. and H. STACEY are instructed to SELL by AUCTION, in the above Nurseries (the Land being wanted for other purposes), on WEDNESDAY, October 17, at 11 for 12 o'Clock, in consequence of the number of Lots, a large quantity of transplanted FOREST TREES, CONIFERÆ, DECIDUOUS ORNAMENTAL TREES, and ORNAMENTAL CONIFEROUS TREES; EVERGREEN, DECIDUOUS and FLOWERING SHRUBS; Hardy CLIMBERS; HEDGE and FENCE PLANTS; APPLES, PEARS, PLUMS, CHERRIES; HYBRID PERPETUAL ROSES, Tea-scented, Noisette, Bourbon, Standards and in Pots; CLEMATIS, and a large quantity of SEEDLING STOCK.

Catalogues may be had ten days prior to the Sale at the principal Hotels and Inns in the district; at the place of Sale, or of Messrs. W. and H. STACEY, Auctioneers and Land Agents, Redhill, Surrey.

Tansley Nurseries, near Matlock, Derbyshire.

To NOBLEMEN, GENTLEMEN, NURSERYMEN, and OTHERS.

MR. G. MARSDEN respectfully announces that he is instructed by Messrs. Samuel and James Smith to SELL by AUCTION, on the Premises, at Tansley Nurseries, near Matlock, on WEDNESDAY, THURSDAY, and FRIDAY, October 17, 18, and 19, commencing punctually at 11 o'Clock each day, about 1300 lots of choice and highly valuable NURSERY STOCK, consisting of about 300,000 transplanted Rhododendrons of the choicest specimens, growth, and quality, in upwards of 350 named and common hybrids; 20,000 Ivies and Laurels, immense lots of Retinospora plumosa and aurea, in sizes suitable for all purposes; Cupressus Lawsoniana aurea, Golden Yews, Gold, Silver, and Green Hollies (some thousands of singly grown specimens, many of large size); choice specimens of Yew elegantissima, 6 to 10 feet; Cedrus Deodara, Araucarias in good condition, having been removed within the past two and three years; 250,000 Spruce and Larch, immense quantities of Poplar, Limes, Beech, Chestnut, Ash, Oak, and other Forest Trees, in great variety.

Catalogues will be ready fourteen days prior to the Sale, and may be had on application to Messrs. SAMUEL and JAMES SMITH, Tansley Nurseries, Matlock; or the Auctioneer, Wirksworth.

On view Monday and Tuesday, October 15 and 16.

TO BE DISPOSED OF, a genuine good going NURSERY, SEED and FLORIST BUSINESS, in one of the most fashionable Spaing places in England. Four acres of Nursery, 8 acres of Meadow, to break up when required, and about 8000 feet of Glass; large House, and the usual Outbuildings, with a good large Shop in one of the principal streets in town. Good connection. Such an opportunity seldom met with. Satisfactory reason given for giving up.

For full particulars apply to R. HUTCHINSON, Nurseryman, Harrogate.

To Seedsmen, Florists, Fruiterers, Greengrocers, &c.

TO BE DISPOSED OF, a genuine and very successful BUSINESS as above. In present hands fourteen years. Doing a good class trade in all the above branches.

Address, FLORIST, *Kent Argus* Office, Ramsgate.

Great Bargain.

FOR SALE, owing to the ill-health of the proprietor, RUSTIC and FLORIST'S BUSINESS. Fashionable suburb 8 miles S.E. Many years established.

BETTS AND JOHNSON, Estate Agents, Streatham Common, S.W.

TO LET, a small NURSERY, comprising about an Acre, 6 Greenhouses, Pits, and Lights; also a Cottage on same Premises. Also for SALE, a quantity of LEAF-MOULD.

Apply P. E. BURREE, High Street, Barnes, S.W.

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

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 8, New Broad Street, E.C.

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

STRAWBERRY PLANTS.—Good plants, President, Sir Joseph Paxton, Eleanor, Elton Pine, £1 per 1000. For cash put on rail.
JOHNSON, Paddock Wood, Kent.

FOR SALE, 4 dozen Rivers' Prolific PLUM, and 4 dozen Belgium Purple, 4 years old.
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EUONYMUS PLANTS.—3000 to offer, cheap, 1 foot high, bushy stuff.
G. AMBLER, 36, South Hill Park, Hampstead, N.W.

SEAKALE for forcing, 1½ acre.
J. V. READING, Springfield Farm, Garret Lane, Lower Tooting, S.W.

To the Trade.

HOME GROWN VEGETABLE and FIELD SEEDS.

H. AND F. SHARPE are prepared to make special offers of all the varieties of VEGETABLE and AGRICULTUAL SEEDS they have grown this season from choice selected stocks. The quality of the seeds is excellent, and the prices are very low.
Seed Growing Establishment, Wisbech.

W. AND J. BROWN offer the following at per 100 for cash:—AMPELOPSIS VEITCHII, 2 feet, in pots, fit for immediate sale, 30s.; CUPRESSUS MACROCARPA, 18 inches, 12s.; WELLINGTONIA, 18 inches, 50s.; do., 2 to 2½ feet, 100s.; BOX, Tree, 2 to 3 feet, 35s.; CEDARS, Red, 3 feet, 50s.; RASPBERRY, Baumforth's Seedling, 20s.
Stamford.

ADIANTUM CUNEATUM.—Special offer of Maidenhair and other Ferns, in 48-size pots, splendid stuff, at 40s. per 100; in thumbs, ready for potting, 16s per 100.
E. DENSON AND CO., Nurserymen, Brockley, S.E.

To the Trade only.

E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, Holland. The Wholesale CATALOGUE (No. 36½A) of Dutch Flower Roots and Miscellaneous Bulbous and Tuberous rooted Plants for 1883-84 is now ready, and may be had free on prepaid application by Nurserymen, Florists, and Seedsmen.

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300 000 FRUIT TREES in 600 varieties.

GEORGE BUNYARD AND CO. beg to intimate that their stock was never finer, and intending purchasers are invited to come, and see for themselves. The New Illustrated Descriptive CATALOGUE of Fruits for 3 stamps. Reference LIST free.
The Kent Roses do Live.
Extra well-rooted stuff, very good, very cheap.
Descriptive Rose CATALOGUE Free.
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FOR SALE, magnificent Specimen Hybrid RHODODENDRONS, of great size, and fine sorts; lift with splendid roots. For particulars apply to
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SPECIAL CHEAP OFFER.
ARBOR VITÆ, American, 2 to 3 feet, 30s. per 100; 3 to 4 feet, 40s. per 100.
THUIA LOBBII, 3 to 4 ft., 80s. per 100; 4 to 5 ft., 120s per 100.
HOLLIES, Green, 1 to 1½ foot, 20s per 100; 1½ to 2 feet, 4s. per 100; 2 to 2½ feet, 80s. per 100.
The above have splendid roots and are well grown.
JNO. JEFFERIES AND SONS, Royal Nurseries, Cirencester.

CALCEOLARIAS (Herbaceous).—Fine healthy transplanted Seedlings, from a splendid strain of beautifully spotted and tigred flowers, 1s. 6d. per dozen, post-free. Extra strong plants, 2s. 6d. per dozen, post-free.
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TOWN CLOSE NURSERIES, NORWICH.

CINERARIAS.—Fine healthy transplanted Seedlings, from a grand strain of large and brilliantly coloured flowers, 1s. 6d. per dozen, post-free. Extra strong plants, 2s. 6d. per dozen, post-free. Beautifully Illustrated CATALOGUE of Dutch Flower Roots free on application.
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SPECIAL CHEAP OFFER of HARDY PERENNIALS, SUITABLE for PRESENT PLANTING,

CONSISTING of most Useful and Effective Varieties, principally strong plants from Ground.
Priced LIST Gratis and Post-free upon application.
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FOR SALE, 12 CALANTHE VEITCHII, 12 PHAIUS GRANDIFOLIUS, 1 large STEPHANOTIS.
S. DAMIL, Gardener, Elsham House, Grantham.

Show Pinks.

MR. THURSTAN, Merridale, Wolverhampton, offers his six superb Seedling PINKS for 10s. the six plants, provided he obtains forty subscribers immediately. He can also supply, on moderate terms, several selected old varieties, including Mrs. Thurstan and Boiard. For description see p. 542, *Gardeners' Magazine*, October 7, 1882.

FOR SALE, about 20 Large CAMELLIAS, height 6 to 10 feet, all good varieties, and in excellent health.
E. COOPER, The Gardens, Gopsall, Atherstone, Leicestershire

The Largest Rose Grounds in England

CRANSTON'S NURSERIES

(ESTABLISHED 1785).

THE PLANTING SEASON.

Order Early and Plant in October and November.

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Beg to draw the attention of Amateurs and Rose Growers generally to their immense Stock of

DWARF and STANDARD

ROSES,

which are unusually fine this season. The plants, having made very early growth, are now well ripened, and will be in excellent condition for transplanting. Plants are grown in every variety of form, and upon Stocks best adapted to the habit or constitution of the Rose.

Selections will be supplied at the following prices, less 5 per Cent. discount for Cash with Order:—

STANDARDS and HALF-STANDARDS, superior varieties, 21*s.* to 24*s.* per dozen.
DWARFS on MANETTI, superior varieties, 9*s.* to 10*s.* per dozen.
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DWARF TEA-SCENTED and NOISETTES, on Seedling Brier, superior varieties, 15*s.* to 18*s.* per dozen.
DWARF HYBRID PERPETUALS, on own roots, 15*s.* to 18*s.* per dozen.
CLIMBING ROSES, 9*s.* to 12*s.* per dozen.
NEW FRENCH ROSES for 1883, 36*s.* per dozen.
TEA-SCENTED HYBRID PERPETUALS, &c., in 8-inch pots, specially grown for Forcing, 24*s.*, 30*s.*, to 42*s.* per dozen.
GARDEN ROSES, suitable for Bedding or Massing, 60*s.* per 100.

Special Quotations will be given to Buyers of Large Quantities.

Descriptive Catalogue on application.

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(LIMITED),
KING'S ACRE, near HEREFORD.

1883—A B C BULB GUIDE—1883.

THIS very complete CATALOGUE, which has been prepared with my customary care, is now ready, and includes, in addition to a most EXTENSIVE Selection of General MISCELLANEOUS BULBS, very extensive and complete collections of NARCISSUS, LILIUMS (perhaps the finest collection of these ever offered), GLADIOLUS, IRIS, HELLEBORUS, TRILLIUMS, PÆONIES, the leading and most distinct varieties of HYACINTHS, TULIPS, CROCUS, &c., and a List of CHOICE HARDY PERENNIALS adapted for Autumn Planting.

Copies had gratis and post-free upon application to

THOMAS S. WARE,
HALE FARM NURSERIES,
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ROSES IN POTS,

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

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Suitable for STOVE and GREENHOUSE Cultivation, for OUTDOOR FERNERIES, and other purposes, in immense number and variety. SPECIAL LISTS, issued at intervals during the year, giving extremely low quotations, may be had FREE on application.

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BULBOUS FLOWER ROOTS

A VERY EXTENSIVE & VERY SUPERIOR STOCK

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HYACINTHS LILIES CROCUS TULIPS &c

IN MOST CASES

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AMERICAN SEEDS.

2½*d.* Postage on a Letter of Inquiry will secure you by return Mail our PRICES—Wholesale or Retail.

SEEDS of MAIZE for Field or Garden, PEAS, BEANS, CUCUMBERS, PUMPKINS, SQUASH, CANTALOUPES, WATER MELONS, TOMATOS, OKRA or GUMBO, COTTON SEED, TOBACCO, OSAGE ORANGE or MACLURA, TREE SEEDS, AMERICAN GARDEN TOOLS, BOOKS, &c.

All offered by the *oldest and ever the most extensive* Seed Farmers in America.

Founded in 1784.

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TREE CARNATIONS.

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Have a magnificent stock of the above, in 4 and 5-inch pots, just setting with Flower Buds, of the following varieties:—

METEOR, MODEL, LUCIFER, WHITE SWAN, ALLEGATIÈRE, ANDALUSIA, LA BELLE, MINERVA, NONPAREIL, VESTAL, VULCAN, MISS JOLIFFE, GARIBALDI.

18s. per dozen, £5 per 100.

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THOMAS S. WARE begs to announce that he has prepared a SPECIAL OFFER of Leading Varieties of the above, which may be had upon application.

Hale Farm Nurseries, Tottenham, London.

HERBACEOUS and ALPINE PLANTS.

CATALOGUE, of fifty pages, containing full information as to colour, height, situation, time of flowering, &c., free on application.

A CAPITAL COLLECTION for Rocks, Stumps, and Borders, from 25*s.* per 100, or 4*s.* per dozen.

Most of the plants being in pots may be despatched at any time, or by Parcels Post when fit.

RICHARD SMITH & CO.,
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The Covent Garden Seed Warehouse

Send Four Stamps for New Catalogue of **BULBS,** Richly illustrated in colours, correctly after Nature.

The Fourpence will be returned in the first purchase.

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ISAAC DAVIES & SON

Have the following Plants, in which they abound, to offer at reduced prices:—

RHODODENDRONS, Hybrid Seedlings, fine plants, a large proportion well set with buds, 2 feet high, 12*s.* per dozen; 2½ to 3 feet, 18*s.*; larger, very fine, 24*s.*, 36*s.*, to 42*s.* per dozen.
,, Seedlings from the best late scarlet and other varieties, and also from early-blooming kinds, in fair proportions of each, good bushy plants, lately transplanted, 12 to 15 inches, 7*s.* per dozen, 50*s.* per 100.
,, Suitable for Potting, Hybrid Seedlings from the choicest varieties, 15 to 20 inches, bushy, five to ten buds on each, 12*s.* per dozen, including in each dozen three Rhododendron præcox, well budded.
AZALEA PONTICA, about 18 inches high, bushy, well set with buds, 6*s.* per dozen; larger, 9*s.*, 12*s.*, to 18*s.* per dozen.
,, MOLLIS Seedlings, of various colours, nice plants, two to six buds on each, 9*s.* per dozen.
,, MOLLIS Seedlings, about 10 inches, bushy, twice transplanted, from the three following varieties, each kept distinct—viz., Comte de Gomer, Consul Pécher, and Isabelle Van Houtte, in equal quantities of each, 30*s.* per 100.

Our choice named RHODODENDRONS and AZALEAS are this season remarkably fine and well budded.

For Description and Prices of these and other Nursery Stock see our new CATALOGUE, which will be sent to any address on application.

Brook Lane Nursery, Ormskirk, Lancashire.

DUTCH BULBS,

DIRECT FROM THE GROWERS.

ANT. ROOZEN & SON'S

CHOICE FLOWER ROOTS.

OUR GUINEA PACKAGE

Of Choice Hardy Flower Roots for Spring Gardening, contains the following well selected first-class sound Bulbs, viz.:—

36 HYACINTHS, mixed, in distinct colours.
50 TULIPS, single, early, best mixed.
50 ,, double ,, ,, ,,
30 NARCISSUS, POLYANTHUS, best mixed.
30 ,, Incomparable, yellow, double.
50 ANEMONES, double best mixed.
50 RANUNCULUS, double, best mixed.
400 CROCUS, in 4 distinct colours.
36 GLADIOLUS, best mixed.
50 SNOWDROPS, single.
Half this quantity for 10*s.* 6*d.* } 782 Bulbs in all.

Other Collections for Indoor and Spring Gardening at 10*s.* 6*d.*, 21*s.*, 27*s.* 6*d.*, 50*s.*, 55*s.*, and 100*s.*

The above-named Collections may be had from our Agents, Messrs. MERTENS AND CO., 5, Billiter Square, London, E.C., during the season, against cash payment.

Our complete and revised CATALOGUE for 1883 may be had Free on application to our Agents or ourselves direct. Early Orders respectfully requested.

ANT. ROOZEN & SON,
NURSERYMEN, OVERVEEN, near HAARLEM, HOLLAND.

ALL ORDERS FOR

DUTCH FLOWER ROOTS

CARRIAGE FREE

BY RAIL OR PARCELS POST.

EXTRA QUALITY.

		s.	d.
HYACINTHS, choice named sorts	.. per doz.	6	0
,, Early White Roman	,,	3	0
TULIPS, best show varieties	,,	1	6
CROCUS, ten best distinct sorts ..	per 100	2	6
JONQUILS, sweet-scented	per doz.	0	8
POLYANTHUS NARCISSUS, named	,,		6
BORDER NARCISSUS, in variety ..	per 100	4	6
ANEMONES, fine French varieties ..	,,	7	0
RANUNCULUS, Double French ..	,,	7	0
SNOWDROPS, extra large roots ..	,,	2	6
IRIS, German, in best mixture	per doz.	2	0
SCILLA SIBIRICA, large size ..	per 100	6	0
SPIRÆA JAPONICA, for forcing ..	per doz.	5	0
CHRISTMAS ROSE, strong flowering roots	,,	6	0

LILIUMS, EARLY GLADIOLUS, AMARYLLIS, WINTER ACONITE, BEGONIAS, TUBEROSES, CROWN IMPERIALS, IXIAS, &c.

CATALOGUES FREE.

CRANSTON'S
NURSERY & SEED COMPANY (Limited),
HEREFORD.

LILIUM HARRISSI

Strong Bulb in Open Ground.

THE BERMUDA EASTER LILY.

Medium-sized Bulb in Pot.

THIS is one of the most valuable introductions of late years for Florists. The above representations are taken from Photographs, and prove the statement of the raiser that thirty to sixty flowers can be produced on one spike. It only requires to be known to be taken up largely by all who grow flowers for sale. One Florist in the United States, to our knowledge, will force 5000 bulbs this winter for cut flowers alone. It has been intimated to us that there are dealers who are sending the common longiflorum to Bermuda and then re-shipping them as the Bermuda Lily. What we offer, however, are *guaranteed true*. Our Bulbs run of good size, and will *all* produce from three to six flowers, and give two or three crops from the same bulb. The plant overflows with vitality. Note that in forcing it should never become pot-bound. The stock increases easily, and at our exceptional low price will be an excellent investment.

Wholesale Price, per 100 or 1000, by correspondence.

HOOPER & CO., COVENT GARDEN, LONDON, W.C.

THURSDAY NEXT.—(Sale No. 6485.)

VANDA SANDERIANA. PHALÆNOPSIS INTERMEDIA PORTEI.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October 11, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., a grand lot of VANDA SANDERIANA, of various sizes, amongst them a marvellous mass with eight growths and ninety leaves, measuring 2 feet 10 inches across. The splendid specimen in flower in the collection of William Lee, Esq., Downside, Leatherhead, formed a part of the same importation as the plants now offered, every one of which has sound healthy roots made in this country, and leaves which could not be easily surpassed in an established collection. It would not be easy to form a conception of the great beauty of this splendid species as seen in its native habitat, but one of the plants offered with six old flower-spikes will give amateurs an idea of what it must be when in perfection. Collector saw upwards of seventy flowers on small plants. At same time will be offered two AËRIDES, found growing in the locality of Vanda Sanderiana, not seen in flower by Collector; an established plant of PHALÆNOPSIS INTERMEDIA PORTEI, VANDA CŒRULEA in flower and bud.

On view morning of Sale, and Catalogues had.

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

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS,

ROYAL EXOTIC NURSERY,
CHELSEA, S.W.

HYACINTHS, TULIPS, CROCUS,

and other Bulbs of superior quality.

VEITCH'S CHOICE

EXHIBITION HYACINTHS,

Selected from J. V. & Sons' Magnificent Prize Groups.

12 Finest Varieties	.. .. ..	18s.
18 " "	.. .. ..	27s.
24 " "	.. .. ..	36s.

Royal Horticultural Society's Exhibition, March 27, 1883.

"Messrs. J. Veitch & Sons staged a magnificent collection of Hyacinths. The plants were in excellent condition, the spikes very massive, the bells large, and the colours clear, bright, and rich. A silver-gilt Banksian Medal was awarded."—Vide the *Journal of Horticulture*, March 29, 1883.

VEITCH'S

CHOICE NAMED HYACINTHS,

FOR POTS AND GLASSES.

J. V. & Sons' Selections of the finest and most distinct free-blooming varieties.

8s., 10s., and 12s. per dozen.

Royal Horticultural Society's Exhibition.

"There were many large collections of Hyacinths, but **Messrs. Veitch's surpassed all others.** A Gold Medal was given for these flowers."—Vide *The Times*

HYACINTHS FOR BEDDING,

IN DISTINCT SHADES OF COLOUR.

Specially selected varieties to flower at the same time, producing large trusses of bloom.

30s. per 100, 4s. per dozen.

NARCISSUS.

THE FINEST AND MOST BEAUTIFUL VARIETIES,

2s. 6d. to 7s. 6d. per dozen.

VEITCH'S

CHOICE EXHIBITION TULIPS,

J. V. & Sons' Selection of the 12 best varieties.

Six of each for 12s. 6d. Twelve of each for 25s.

EARLY TULIPS.

(SINGLE and DOUBLE VARIETIES),

For Forcing, Pot Culture, or Planting.

From 5s. 6d. to 10s. 6d. per 100.

CHOICE NAMED CROCUS,

IN DISTINCT SHADES OF COLOUR,

From 2s. 6d. to 3s. 6d. per 100.

BULBS FOR SPRING GARDENING.

Large Quantities at Low Prices.

J. V. & SONS have pleasure in stating that Her Majesty's Commissioners of Works have again accepted their tenders, in open competition, for the supply of Bulbs for the decoration of Hyde Park, Kensington Gardens, Regent's Park, Battersea Park, St. James's Park, Kensington Park, Hampton Court Gardens, &c., &c.

J. V. and SONS will be pleased to give Special Quotations for Bulbs of similar quality, where large quantities are required for Spring Gardening.

☞ *For particulars of above and other BULBS see CATALOGUE, forwarded Gratis and Post Free on application.*

ROYAL EXOTIC NURSERY,

CHELSEA, S.W.

CHOICE PLANTS.

CASH PRICES.

The following are offered at exceptionally low cash prices, to save booking accounts. All the plants are clean, healthy, and well-grown, in varieties of first quality, selected by

HENDERSON & SON,

PINE-APPLE NURSERY, MAIDA VALE, LONDON, W.

Less Quantities may be had at the same rate.

ORCHIDS.

	s.	d.
12 choice free flowering sorts for..	21	0
12 " " extra size	30	0
12 " " very choice selected	42	0
100 in 50 sorts for	200	0
100 in 100 sorts for	400	0
12 Masdevallias, in 12 sorts	36	0
12 Odontoglossums, in 12 sorts	36	0
12 Oncidiums, in 12 sorts	30	0
12 Dendrobiums, in 12 sorts	30	0

Selected from a large magnificent collection.

PALMS.

100 of the most useful and ornamental kinds, in great variety, including Cocos Weddelliana, Geonoma gracilis, Areca lutescens, &c.	40	0
12 ditto ditto	6	0
12 ditto, stronger sized plants	18	0
12 ditto, for immediate effect, per dozen 24s., 30s. and	42	0

FLOWERING & ORNAMENTAL PLANTS.

100 Stove and Hardy Greenhouse Plants, 100 varieties	42	0
12 " " " 12 varieties	6	0
100 Hardy Greenhouse Plants, or Stove Plants, separate or mixed, strong plants for effective display, including Azaleas, Camellias, Ericas, Epacris, Rhododendrons, Passiflora, &c.	100	0
12 Climbers, distinct, 6s. extra strong, 12s. and	21	0
12 Ixoras, 12 sorts, including the newest	9	0
12 Passion Flowers, in 12 varieties, strong	18	0
12 Camellias, 12 choice varieties .. 21s., 30s. and	42	0
12 Begonias, 12 sorts, winter-blooming varieties, 6s. or	12	0
12 Bouvardias, 12 distinct varieties .. .. 4s. or	6	0

GREENHOUSE RHODODENDRONS.

12 sorts, to include Princess Royal, jasminiflora, Princess Alexandra and other sweet-scented varieties	18	0
12 ditto, extra strong plants .. .. 30s. and	42	0

FERNS.

12 choice varieties, for decoration	6	0
12 Adiantum farleyense	6	0
12 Maidenhair Ferns, in various sorts	6	0
12 strong, suited for window and hall decoration ..	10	6
12 Mosses (Selaginella) in 12 varieties	4	0

ORNAMENTAL FOLIAGED PLANTS.

12 Dracænas, in 12 choice varieties	6	0
12 Marantas, in 12 varieties, beautiful foliage.. ..	6	0
12 Alocasias, in 6 varieties	9	0
12 Crotons, in 12 varieties, very distinct	6	0
12 Graceful habited plants for table decoration, 12s. &	18	0
12 Dieffenbachia, 12 sorts, including new varieties:—splendens, amazonica and Shuttleworthii (splendid foliage)	10	6
12 of either of the above, grown on strong for immediate effect .. .. .. 21s., 30s. and	42	0

HARDY PERENNIALS—HERBACEOUS.

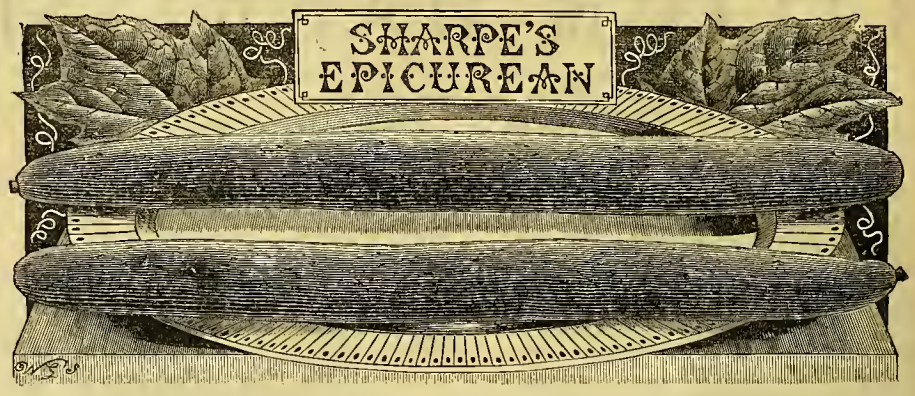
100 distinct, in 50 sorts, strong plants	21	0
100 " 100 "	30	0
100 in variety, selected to bloom equally throughout the year, every month being well represented with the most gay and choice	40	0
100 selected for covering walls and rockeries	20	0
12 specially selected, to give cut flowers for vases, church decorations for either month in the year, from April to November	6	0
*12 Pyrethrums, 12 sorts, choice double-flowered ..	4	0
*12 Potentilla, 12 sorts, double-flowered..	6	0
*12 Pentstemons, choicest, 12 sorts	4	0
*12 Phloxes, 12 sorts, strong, beautiful colours.. ..	6	0
*12 Delphiniums, 12 sorts, beautiful	6	0
*12 Veronicas, shrubby varieties, 12 sorts	4	0
*12 Japanese Iris, the most magnificent section, 12 sorts	9	0
*12 " " mixed varieties	5	0
*12 Aquatic or Water Plants, 12 hardy sorts	9	0

Larger sized plants of many of the above may be had.
See priced CATALOGUE, post-free for 2d.
* *These free per Parcels Post.*

NEW, RARE, or CHOICE BULBS.

Anemone fulgens, brilliant scarlet, large roots, 4s. per dozen; small, 2s. 6d.
*6 Anemone fulgens, double flowered, true, beautiful, 9d each.
*Anemone Robinsoniana, 9d. each.
*Chionodoxa Luciliæ (Glory of the Snow), open salver-like flower, rich Nemonhila blue, white centre, the most beautiful hardy early flowering plant, 2s. 6d. per dozen.
Crinum Powelli, 3s. 6d. See Catalogue.
*Dahlia, single flowered, 12 varieties, 6s.
*Gladiolus Marie Lemoine, hardy, 2s 6d. each.
*Anthericum Liliastrum major, true, beautiful Lily, 1s. each.
*12 Snowdrop Elwesi, the largest and most beautiful, 2s.
*Fritillaria armena, a beautiful soft clear yellow, 3d. each.
*Eucharis candida, smaller flower than Eucharis amazonica, a beautiful plant for bouquets, 2s. 6d. each.
*Eucharis Sandersi, a lovely species, distinct and beautiful for cutting, 3s. 6d., 5s.
*12 Allium neapolitanum, pretty white flower for cutting, 1s.
*Lachenalia aurea, golden orange, 1s. each.
*Lachenalia Nelsoni, 1s. 6d. each.

THE PERFECTION OF CUCUMBERS.



CUCUMBERS ALL THE YEAR ROUND.

This variety is large, handsome in form, of a lovely colour, and of exquisite flavour. It is marvellously productive, as many as 400 fruit having been cut from 12 plants in a 3-light pit.

For succession it is unequalled, bearing as abundantly at Christmas as at *Midsummer*.

Price, 2s. 6d. per Packet.

CHARLES SHARPE & CO., SLEAFORD.

THURSDAY NEXT.—(Sale No. 6485.)

IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Messrs. F. Horsman & Co., on THURSDAY NEXT, October 11, a consignment of unusually large masses of LÆLIA ANCEPS, L. AUTUMNALIS, L. ALBIDA, EPIDENDRUM VITELLINUM MAJUS, ODONTOGLOSSUM CERVANTESII, ODONTOGLOSSUM NEBULOSUM; also a fine lot of CATTLEYA ELDORADO SPLENDENS.

On view morning of Sale, and Catalogues had.

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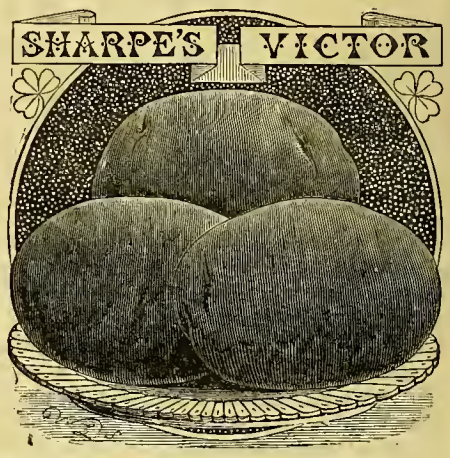

Sharpe's Victor is a seedling raised from the Alma Kidney and the old early short-top round Potato. It is earlier than any present variety, and having a very short top is especially suitable for frame cultivation, and there is no difficulty in **securing new Potatos for the Table every day in the year.** Victor is a flattened roundish oval in shape, with a beautiful clear skin and extremely shallow eyes, being one of the handsomest as well as the heaviest croppers of any variety adapted for frame-work, or for a first early crop outdoors. It is dry and mealy when cooked, and the flavour and quality of the flesh are superior to nearly every other variety at present in use.

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100 Tulips, in 10 varieties	15	0
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THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 6, 1883.

CHISWICK AS IT IS.

IT was in the year 1821 that the Horticultural Gardens at Chiswick were opened, and for a period of some thirty years they enjoyed a reputation that was world-wide, not only in regard to the exhibitions of plants, &c., held in them, but also because there were associated with these gardens men of prominent horticultural merit, whose names will long endure in garden annals. The last of the old Chiswick shows, resumed after a short abeyance, was held in 1857, and then these gatherings, with their prestige and fashion, went to the aristocratic quarter of South Kensington, with a fortune that has been varying, but of late not very encouraging. With the cessation at Chiswick of the exhibitions and their patrician associations, a new era may be said to have begun—an era of good, sound, quiet work and genuine usefulness—the subdued glory of which has been for a long time overshadowed by the greater South Kensington luminary, but which at length is being appreciated for its unquestioned merits. Whatsover may be the fortunes of the Royal Horticultural Society as far as South Kensington is concerned, at least as long as Chiswick exists it will never want a habitation, and one of which it may well be proud, for the gardens there, if much curtailed in size, and not ostentatious in appearance, are none the less extremely useful, and truly may be said amongst all gardens in this country to be of their kind unique.

The Apple Congress, so-called, which opened at Chiswick on Thursday last, and which will be on view for several days, may almost be said to mark a new starting-point in the history of a place that already has had an interesting career. It is the first time since the accession to the perilous heritage of South Kensington that the Council has invited its Fellows and the horticultural public to attend an exhibition within Chiswick's classic walls, and even now this particular event seems to have been handled half-heartedly, just as though the Council felt ill assured as to whether it was or was not departing from its dignity in allying itself with an exhibition of Apples, even in its own gardens. Whatever sentiments may have actuated the governing body of the Society towards the new enterprise—and they are of little moment—at least we can chronicle in this Apple show a decided success as a display of our chief hardy fruit, such a one indeed as the previous generation could hardly have dreamt of, and which only the coming generation can hope to excel. When we say that space was needed for about 7000 plates of Apples, from various growers and from many diverse parts of the kingdom, that the samples generally are as fine as have ever been seen, that the collection is a truly grand one, and such as can hardly be seen again in a lifetime, we have said enough to show that not only is Chiswick *redivivus* in fame and in attractiveness, but also that gardeners from all parts of the kingdom must feel

anxious to see not only this collection of our national fruit, but also the historic gardens, the usefulness and purposes of which form our theme to-day.

Strangers entering the splendid glass structure in the gardens known as the old conservatory, and in which the larger portion of the Apples is displayed, will for the moment feel that they stand within the portals of a real temple of Pomona. No longer a conservatory for decorative plants in the ordinary acceptation of the term, the building is devoted to the growth of Grapes (see fig. 66, p. 425), and although there is no pretence whatever to display in so lofty and unsuitable a house evidences of high-class Grape culture, yet those who look upon the ripened bunches of luscious fruits which hang overhead, happily so high out of reach, will admit that the crop, if not a grand one, is a good one, and such as few gardeners would not be delighted to possess. The house contains some twenty kinds of Grapes, the major portion of which are black. The Vines having been planted in 1857 are now verging upon thirty years of age, and as the Herculean task of lifting the roots, remaking the borders, and replanting has not so far been possible, they have been fed from above as best they could, and the result is seen in the pleasing and profitable crop hanging so luxuriantly from the lofty curvilinear roof.

Visitors to the Apple show—and especially strangers coming from London—will do well to travel by the District Railway, and, if possible, to alight at the Acton Green Station, which will place them within a few minutes direct walk across Turnham Green to the gardens. Turnham Green Station just above, and Gunnersbury Station just below, are both within easy walking distance. The former gateway having now been closed, visitors will find a broad new road opening from the green and running by the west side of the large Chiswick Vestry Hall; on turning up this road the entrance to the gardens may be seen at once. But admirers of beautiful trees, and especially of lines of trees in our streets, will not fail to pause and admire the singularly even and beautiful specimens of Robinia Bessoniana that line either side of Sutton Court Road, which skirts the gardens, and admiring will not fail to pay a warm tribute of respect to the judgment of Mr. Barron, who both selected and planted these trees, and now keeps them in such excellent condition. These were planted some four or five years since, all being worked on tall, clean stems of the common Acacia. They have needed pruning but once, yet the heads are all dense, handsome masses of wood and foliage, and seem to be the very ideal of town or street trees. The variety of Robinia is one that needs but to be well known to be as generally planted.

It may be as well to warn visitors, and specially those numerous provincial gardeners who have not yet seen Chiswick Gardens, that they are greatly shorn of their former proportions, and that of course just now they are far from being at their best. If those who visit the Apple show could drop in many a time and oft throughout the year, and specially during the open period of the year, they would then realise not only how extensive is the work here accomplished, but how well it is done. Chiswick is essentially a trial garden, and to it is sent continually from all parts something of everything which is to be tested or grown or done something with. So liberal are the contributions of this kind that the gardens are taxed far beyond their capacity and power of consumption. Then it performs a remarkable work towards or for the Fellows of the Society in dispersing amongst them some 30,000 plants yearly—an enormous number, showing perhaps an anxious desire on the part of some of these members to have their pound of flesh, but none the less illustrating the gardens' exceeding usefulness. If it be said that much of the work done at Chiswick, and done so well, remains publicly unrecorded the fault lies not with Mr. Barron or his very able staff of assistants, but rather with the poverty of the Society which refuses to permit that body to become publishers. On the other hand the gardens and all the operations are freely open to the representatives of the horticultural papers, and thus from time to time readers learn of much useful work done that is not done so well elsewhere, if done at all.

Of fruits visitors may see even now what is being done in relation to them. They can see in the large and eminently representative collection of Apples, shown in the fruit room, as well as growing so abundantly on the dwarf trees in the gardens, the great uses which it furnishes in establishing correct nomenclature. Pears are represented by one of the finest lots of pyramid trees in the kingdom, including all the best known, and not a few of the least known kinds in cultivation. It is true that, well as these pyramid trees do, and handsome as they are, they far too seldom produce large crops of fruit, but the locality of Chiswick is not a good one for the Pear, and especially for early blooming kinds. How well Pears will do, however, when conditions favour, may be seen on a tree of the little known Deux Sœurs, which is laden with fine handsome fruits not unlike those of Marie Louise in form and flesh, but rather smoother and greener, and a better keeper; close by is an equally fine tree of the better known Maréchal de la Cour, which is an early bloomer, and hence seldom or never carries a fair crop. The Deux Sœurs seems to owe its grand lot of fruit entirely to its later blooming period, and consequent immunity from frost. A long row of upright cordon Pears in couples of a sort, should attract notice, as these not only fruit very well generally, but enable many kinds to be grown on a limited area.

Cherries do not thrive, but Plums do fairly well, and a large collection is grown, as also of Peaches and Nectarines, all these being in the form of oblique cordons, and doing as well on the walls as soil and seasons will permit.

Of bush fruits, again, there is a large collection, including every known kind of Currant, all the best Gooseberries and Raspberries, and even Strawberries, the latter extensively; whilst Rhubarb is represented by all the kinds that have got into commerce.

Within the houses, from time to time, almost every known kind of Grape vine has been proved; and during the past season, a low span house, once devoted to the growth of Figs, has been planted not only with our hardiest Vines, but also with not a few of the less known American sorts — the which may, in time, solve the mildew and Phylloxera problems, or they may not; but in any case, testing them with our own sorts will prove an exceedingly interesting work, and may be productive of great good. The chief attraction in the matter of Grapes, just now, is seen in the long saddle-roofed corridor house, which is planted throughout with Gros Colmar and Black Alicante, with just a couple of the Alnwick Seedling thrown in to show its many excellences, for here it seems to beat the Alicante in free setting, size of bunch, and, if possible, depth of colour. Both these kinds are first-rate here, but the Gros Colmar seems to have coqueted with the spider, and in fumigating its leaves have suffered and its berries will not colour well. That defect, however, seems to be an exceptional fault, as in previous years its berries have coloured well. If not good again next year the Gros Colmar, in spite of its big berries, will give place to other kinds.

Vegetables have long been important features in the Chiswick trials, and severely have the capacities of the gardens and the practical knowledge of Mr. Barron and his aids been tested, not only by anxious raisers but also by not a few persons who have striven to make new kinds out of old sorts. Peas, for instance, one of our most useful and widely grown vegetables, are legion, and new kinds or new names are ever cropping up. Not a year passes in which a good breadth is not grown, and whilst some impostors are exposed, some others are found to be really useful novelties. Potatos, too, are of that class of vegetables that admit only too readily of frequent resurrections; whilst, as the past year has shown, real novelties and good ones too, seem to be endless. The valuable aid rendered to the committee of the International Potato Show in testing the seedling varieties committed to its care must be acknowleded here, whilst the Fruit Committee have found even more largely ample work in the kinds grown so well for its adjudication. Beans of all kinds, Cabbages, Cauliflowers, Lettuces, Onions, Celery, and indeed almost every useful vegetable, has had its respective merits tested and nomenclature revised from time to time, although perhaps from so much good and practical work the outside public has hardly gained the benefit desirable.

Very interesting also during the past and preceding years have been the trials both in pots under glass and outdoors of that hybrid plant, half fruit, half vegetable, the Tomato. So well are these tested that Certificates of Merit are granted only to kinds grown at Chiswick, because samples of fruits alone do not always prove that the kind shown is distinct. During the past year forty assumed sorts were tried, and of these the nett result is that only about one-third are really distinct.

Flowers of many kinds are well represented at Chiswick in their various seasons. The collection of bedding, show, and Cape Pelargoniums is a remarkable one, and presents during the summer a singularly attractive study. The beds of the former section can hardly be showy at this time of the year, but during the summer they offer valuable aid to those who may be seeking for the best outdoor decorative kinds. The Pelargonium Society finds great assistance rendered to its work in the Chiswick trials. Begonias are always in the summer a fine feature, Gloxinias are invariably beautiful and well grown, Achimenes of many kinds form a valuable collection, and of other allied plants there may just now be seen in one house a lot of Gesneras that are exceedingly beautiful, whilst the group of Begonia Moonlight exhibits the great value of that, otherwise insignificant kind, for winter decoration. Fuchsias have been and are widely represented here, so also are Lantanas and many other capital decorative plants.

Outdoors the variety found in flowering plants is almost endless. The rockwork and mixed borders are during the year rich in beautiful objects, and in the summer months are always full of attraction.

Many kinds of good annuals are grown in masses; so also of the best biennials—for if space can be found, all kinds of seeds, sent from wherever they may be, are always grown. The trial of Sweet Peas during the past summer has been one of singular interest, and well illustrates the useful yet unobtrusive good work done from year to year. Bedding Violas have always been largely grown here; and the fine border of those popular autumn decorative flowers, bouquet and single Dahlias, shows that the prevailing tastes in flowers are studied. The rarely seen Sunflower, known as Helianthus argyrophyllus, an annual that grows some 4 feet in height, with silvery woolly foliage and medium-sized flowers, both double and single, shows a kind that may well attract the attention of the æsthetic. Phloxes, Pentstemons, and other fine border flowers, are well grown, and in quantity; and visitors must not fail to notice the beautiful shrubby forms of the half-hardy French Ceanothuses in beds here, and especially the large flowered Sceptre d'Azur and Gloire de Versailles, both lavender-blue; the pink Marie Lemoine, and the white Le Géant. These plants stood out all last winter, but would not withstand severe frost. Abutilons, Cannas, and the early or summer Chrysanthemums are also bedded out, though now in all cases past their best. Lovers of showy things in hardy foliage plants will do well to note the rich yellow leafage of the golden Catalpa in one of the mixed borders. In the long rows of cool pits will be seen a fine collection of semi-tender and hardy plants in pots, which include many very interesting things that may not be seen every day. Seekers after bedding novelties in foliage will not fail to note the pretty white cut-leaved Achillea clavennæ in one frame, as a probable charming dot plant on a green ground for carpet beds.

We cannot enumerate one half of the things grown at Chiswick, or describe as it merits one half the work there accomplished. Much of it is of an unobtrusive nature, quietly and efficiently performed, while the officials in charge always show courtesy and consideration to all concerned. What may be the

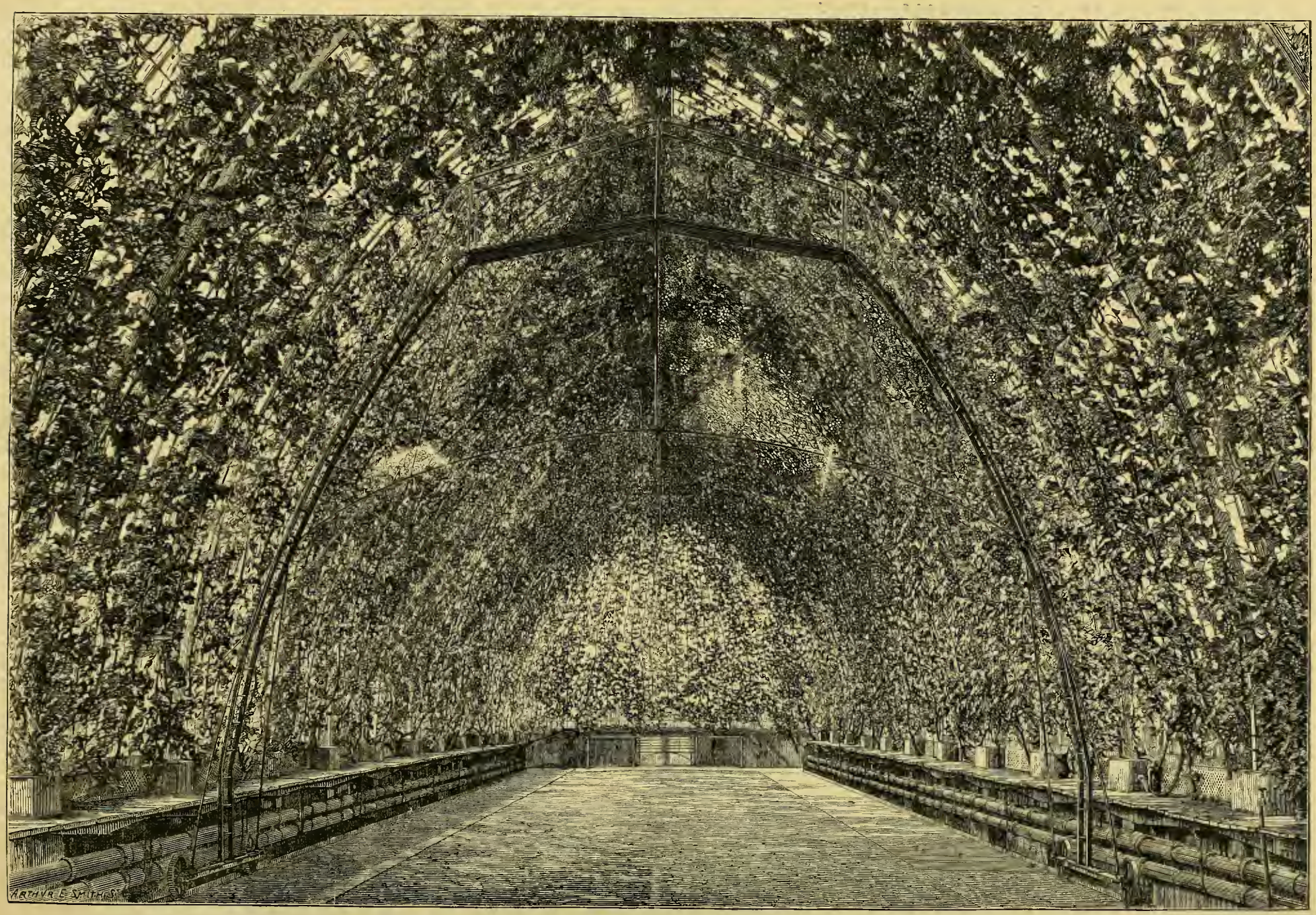


FIG. 66.—THE GREAT VINERY AT CHISWICK. (SEE P. 423.)

future of these gardens it would be difficult to say, but their severance from the great horticultural work they now are instrumental in carrying out is not to be thought of. Such a misfortune, if it had to be encountered, would be borne only with feelings of humiliation and sorrow. Such considerations, however, must not be permitted to obtrude unpleasant feelings into our present hearty congratulations to all concerned, that Chiswick again seems to be entering upon a career of popular usefulness. An Apple show, grand as it may be, will hardly attract the fashionable flutterers around our summer floral exhibitions, but it should bring together numbers of the practical gardeners and horticultural workers of the kingdom. These, becoming more familiarised with Chiswick, may learn in the future to partake of its usefulness, and assist in its greater development. The governing body of the Society may do much to that end; the gardeners of the kingdom may do even more; and let us hope that for that object both will heartily work.

New Garden Plants.

PTERIS SERRULATA VAR. POCOCKII.

Mr. C. Pocock, nurseryman, of Wincanton, sends a seedling crested Pteris, which does not appear to correspond with any of the many forms of this useful Fern already in cultivation. To distinguish it from others it may be called P. serrulata var. Pocockii. It is one of the slender, long-pinnuled, drooping series of forms which have sprung from P. serrulata angustata, and is a very elegant evergreen Fern for greenhouse decoration. The ramification of the frond is quite normal, and so are the long, narrow pinnules and segments as far as to just below the apex, when they all become developed into a shortish, dense, tassel-like tuft, which is sufficiently heavy to give the fronds a graceful, pendulous character. The peculiar feature of the variety is the short, dense, well-furnished tassel which terminates each division of the frond. *T. Moore.*

Lælia Wyattiana, *nov. hybr. nat.*

This lovely Orchid came in a set of Lælia purpurata (short bulbed variety) imported by Mr. Wills. It is now possessed by Mr. G. Nevile Wyatt, Lake House, Cheltenham, who has a magnificent collection of Orchids. It is but justice to call the fine plant by his name.

Mr. Heath regards it a natural hybrid between Lælia purpurata and L. elegans. I am not sure of this being right. The quite equal pollinia and the very membranous texture of the flowers prevent me being of that opinion. If Lælia crispa or L. Boothiana were to be seen in the neighbourhood of the locality where the stock of Messrs. Heath & Sons has been gathered, I would think of those as possible parents of the present form. So much is certain, that the plant is none of those doubtful species I have established: Lælia Schilleriana, Stelzneriana, eupatha, Casparyana. I call them doubtful, as they cannot be regarded equal to such species as Lælia crispa, Boothiana, or purpurata, which are to be found in masses, and which bear excellent characters. It would appear to be just as with Odontoglossums. We are exceedingly ignorant as to the geographical area of Orchids in Brazil, and it would be very much better to give us light about this subject than to publish abominable descriptions for would-be species with such a state of ignorance that Elleanthuses (Evelynes) are called Glomeras. (! !)

The flowers are equal to those of Lælia crispa. Petals very acute, white, as well as the sepals. The lip has nearly the general shape of that of Lælia crispa, and not at all that of Lælia purpurata. One may almost call it rhomboid. There are some undulations in the anterior part, but it is nothing when compared to the frequent undulations and torsions of Lælia crispa. The nervings of the disc are dark purple, the median ones are coloured their whole length, the most exterior ones only at their base. The side lobes are light yellow outside, the anterior lobe is of fine light purple. The column has some purple spots.

It would be very desirable to learn whether other plants of this kind appear the stock of Mr. Wills' importation. *H. G. Rchb. f.*

Ligustrum ovalifolium.—This vigorous growing Privet makes an excellent hedge, owing to its dense solid growth. It can be cut back very hard, but will break freely into leaf again. The best time to cut it back is early in August; it then gets clothed again with green leaves by autumn.

FRUIT TREES IN SUBURBAN NURSERIES.

Sawbridgeworth is a household word among lovers of fruits, and the visitor is not likely to come away from it with a feeling of having seen an overrated place, but, on the contrary, may always calculate on having seen much that is new, and interesting as well. Experiments with and hybridisation of fruits, deviations from the beaten track in their cultivation, with the object of discovering more certain ways to promote productiveness, and also to cheapen their production, so as to render fruit a necessity for the many, instead of being a luxury for the few—these are some of the objects that have been pursued here for more than a generation past. Many and various have been the experiments in Orange, Grape, Peach, and Vine culture. There was once a large hole dug out and covered with a rough glass roof that stood on Larch posts, the whole merely resting on the ground; side ventilation was abundant and constant, but roof ventilation there was none. The Grapes—Black Hamburgh—were planted just outside at the lower edge of the roof, and were trained up under the glass. The crops that these Vines bore were an annual wonder; they were fine in colour, berry, and bunch, and were never afflicted with red-spider or any other insect plagues. The roof having fallen in many years ago, the hole was filled in, but the legend of the wonderful Grapes which grew in that hole remains fresh in the memory of the old workmen. This was an ocular proof to the gardening fraternity that Grapes could be grown cheaply. Grapes are grown in abundance by Mr. Rivers, and grown well, in several large houses, without any more preparation than that of digging up the soil, and adding some rotten manure. Vines of all kinds are planted out, and the only kind out of many which can be said to be a failure at this period is the Black Muscat; but as this is a Grape which disappoints those most proficient in the art of Grape growing, it will not be a matter for much surprise that it should fail under the treatment adopted here; and this is the only kind which does not respond to this system of Grape-growing, for other varieties of Muscats, Alicante, Madresfield Court, Lady Downe's Seedling, Black Hamburgh, Gros Colmar, and Gros Maroc were in capital order and bearing heavily, so much so that nervous friends predict their complete exhaustion in a season or two: but then they have predicted something similar for years past, though the collapse has not yet come. Vines in immense numbers are grown here for the trade, and fill many houses. They are short-jointed, long, well ripened, two-year-old canes, and very thrifty looking.

In a narrow house there are some nice-looking new kinds of Apples in pots that are awaiting final decision. Amongst those still having fruits on them were Archduke Antoine, a small golden-coloured fruit, evidently ripe, or nearly so; Buckingham, a green and yellow sort, also nearly ripe; Wagner, Bailey's Sweet, Beck's Pleasant, King of Tomkins County, many fruits from pot-grown trees of which have weighed quite a pound each; Belle du Bois is a new French culinary kind, of no promising appearance. The Apples cultivated in the open quarters are of the usual kinds, with an admixture of sorts foreign to other nurseries, but are grown and trained in the various ways commonly to be found in fruit nurseries. If there is a preference shown to any particular form for this and other fruits that adapt themselves to the severities of summer pinchings and prunings it is that of the oblique cordon.

The notable feature is, as it has been for many years, with some material modifications from the earliest methods pursued, the cultivation and ripening of Pears, Apples, Cherries, Plums, and Figs grown in pots, and which has been attended with perfect success. The Peaches and Nectarines, owing to their not ripening their fruits or maturing their wood away from the protection of a wall or a glasshouse, are not amenable to this system of growing fruit trees. With these exceptions this method, if carefully carried out, will satisfy the wants of the amateur and private gardener who have but little room or no fruit walls at command, in so far as it will enable them to supply their dessert table with really first-class specimens of the above-named fruits.

There were some fine examples of this simple pot culture in some little Pear trees in 8-inch pots, that were carrying from six to ten fruits, of such sorts as Doyenné du Comice, Pitmaston Duchesse, Duchesse d'Angoulême, Knight's Monarch, and others. These plants were plunged in a bed a foot deep of half-rotten manure, stood on a hard impervious bottom, top-dressed with some rich material, and watered with clear water. With the exception of the six weeks in spring, when there is danger to bloom and young growth from frost, these plants are the whole year out-of-doors. Hundreds of such miniature Pears, Apples, Cherries, Plums, &c., take up but little room at any season, produce fruit with the greatest certainty, and cost but little attention—less than that on walls, which, containing many big trees, produce in many instances nothing more than quantities of almost worthless fruits. The Peaches and Nectarines are treated much in the same way, excepting that fruiting trees remain always under glass in airy houses. Cherries, of which fine fruits are obtained, are grown in the same manner as Pears; but the pots are larger, as are also the trees. During frosty weather all are efficiently protected with litter, whether they are under glass or in the open air. Oranges are grown in pots in a small open roofed-house, along with some planted-out Vines of Frontignac in variety; the former grow in pots under the Vines, producing fruits through the winter fit for dessert. We understand that the flavour is delicious, size everything that could be wished; but it is not an economical way of getting Oranges for the table.

After giving a fleeting glance over the many quarters filled with fruit trees of all kinds, and at the Roses in pots on hotbeds in the open without glass protection, and at the arcades of Maréchal Niels and Gloire de Dijons in the narrow houses, and lastly, in semi-darkness, inspecting some of the Apples that were intended to appear at the great Apple show at Chiswick, the homeward journey was taken with a feeling that the visit had not been a profitless one, but that the time spent there was very short of what was necessary to inspect minutely so large a place.

Messrs. Paul & Son, The Old Nurseries, Cheshunt, have a great extent of land under fruit cultivation at the present time, and are intending to plant still more largely to meet the increased demand for fruit trees of all varieties. Here the Apple fruits on Crab stocks just as freely in the young state of the tree as it is observed to do on the Paradise. Whether their fruitfulness on this stock is due to any peculiarity in the soil here that is conducive to precocity is not known for certain, although there is a tendency towards that belief. The growth of the trees is compact, hard, and quite free from that luxuriance usually associated with youthfulness, this condition having been maintained through a series of years. The soil is a medium heavy loam, which was not many years since under ordinary farm cultivation.

Growing on bushes, worked on the Crab, was the round Winter Nonsuch, a largish fruit, bright red in colour and showy. It is round in form, and keeps till late in the winter. Another late-keeping sort is Betty Geeson, large and green. It was bearing equally well on Crab and Paradise, the fruits being large on each. The Worcester Pearmain, Cox's Orange Pippin, Cheshunt Pippin, a seedling from the old Nonsuch, and bearing an excellent character, Warner's King, Prince Lippo, very much in form and colouring like Hoary Morning, were all to be found in abundance on trees worked on the Crab, as quite small bushes or pyramids. A new Russet named Van Mons, but having small fruits, was pointed out as being a dessert fruit of considerable excellence, free bearing, and keeping well. The Galloway Pippin, large in size, greenish-yellow, with russetty markings, is a sort the cultivation of which ought to be much extended. It is a good keeper. Reinette de Caux very much resembles Dutch Mignonne, but bears much more freely than that variety. The fruit was of medium size. Duhalder is a new kitchen fruit, of a green colour, medium in size, and of a conical form. That well-known kind, Fearn's Pippin, was splendid in colour, and very abundant on Crab stocks, as well as on Paradise. Mabbot's Pearmain, an old but less well-known kind, and Claygate Pearmain are sorts every one should possess, being very superior fruits for the dessert. A pretty kind is the Summer Strawberry, good either for culinary or dessert purposes, bright crimson, early, yet keeping good till Christmas. Mère de Ménage, a very showy crimson fruit of middle size, was bearing in great quantity; this kind is a good keeper, and should be generally grown. Small's Admirable was bearing well as a bush, and crops equally well as a standard; it is of large size, green, smooth, with a crisp, sweet,

juicy flesh. We found here all the well-known favourites in Apples, and all other kinds of fruits.

Of the few Pears bearing this season on bushes the best seemed to be a Marie Dugal, early, and said to be a pretty certain bearer, probably from its habit of flowering later than many others. Beurré Baltet Père is a fine large Pear, and one of the best fruits of recent introduction; it is in all respects equal to Beurré Superfin. Fondante Thirriot was also another kind, carrying a very fair crop; the fruit is handsome, and of excellent quality. These three Pears ripen during October and November. The whole stock of fruit trees in these nurseries have made the healthiest growth this year, and are remarkably free from insects or blight.

Messrs. W. Paul & Son, Waltham Cross.—These nurseries, so well known and celebrated in the Rose world, are devoted, not only to the cultivation of Roses, but have a considerable portion under fruit trees of all kinds, growing in all the varied forms which are required by cultivators. Amongst those which are receiving much attention, both here and elsewhere the Pears on Quince stocks take the first place, for under no other system of cultivation in this country can really first-class fruit be obtained year by year. The ease, as well as the certainty with which the crop can be assured, together with the possibility of growing a great many kinds on a given space of wall as diagonal cordons, will cause the Pear on the Quince stock to become more generally adopted than it is even at the present time. Great quarters of these miniature trees are to be found here, as well as numbers of bearing trees of larger growth in pyramidal form, and in cordon and espalier style. From the absence of wall protection here, the crop of Pears in the open was very poor.

With the Apples on Paradise or dwarfing stocks, and on the Crab, the results this year are astounding, little trees and larger ones being quite weighed down in many instances by the fruits. These are trained in all the above-mentioned forms, but Apples, being less liable to injury, and ripening their fruits without the aid of a wall, the major portion is grown as either cordon, bush, pyramid, or standard, the espalier form taking the lowest rank. The abundance of fruit of most sorts enabled us to see several of those lesser known kinds, such as the handsome culinary Apples Golden Spire, a sort coming into use in September and October; Maltster, a winter kind, hardy in character, and an abundant bearer; Lord Derby, a capital early winter kind; Councillor, a fruit very similar to Wellington, but ripening earlier; and Dr. Hogg, a good melting-fleshed sort, looking very like a White Calville, but larger and handsomer. The sort Annie Elizabeth is of great value, large, and excellent in quality, and coming into use from December to March. The much valued American Apple, Baldwin, was also to be seen in fruit, but, like many American productions, it does not give promise of its estimable qualities under cultivation in this country. The dessert kinds of Apples are so very numerous that it will better suit our purpose to mention only a few of those that are conspicuous for their novelty or excellence. Baumann's Red Pearmain, which is an extraordinary bearer generally, and is also a handsome fruit, was seen on quite small trees of one year old, in numbers of from six to eight fruits. Lady Henniker, a sort with very tender flesh, and of excellent flavour, good also for culinary purposes, coming in during the winter months, was conspicuous by its size. Dutch Mignonne, a handsome large fruit, of pleasing shape, the season of which is from December to April; Golden Noble, a fine large dessert fruit; Golden Harvey, a fruit coming into use from the beginning of the year, and lasting till May; Mabbit's Pearmain, a medium-sized fruit, fit for use for several weeks in midwinter, and of rich flavour. Of better known kinds, bearing beautiful fruits this year, may be mentioned Scarlet Admirable, a very showy, highly coloured fruit, said to be synonymous with the Hollambury; Reinette du Canada, a large kind equally adapted for cooking or dessert; Pitmaston Golden Pippin, a well known sort, and generally grown; and Hormead Pearmain, with tender white flesh, a sort that is in use during early winter. The kind indifferently called Wyken or Warwickshire Pippin is a kind worthy of more extended cultivation, the flavour being good, the size medium, and its keeping properties of the best. Claygate Pearmain is another good kind with smallish fruit; Court of Wick, Margil, and Pearson's Plate are all medium-sized kinds of acknowledged excellence, which are this season producing abundance of perfect fruits on stocks of both descriptions—Crab and Paradise. One of the handsomest fruits seen was Paradise Pippin, all crimson and gold—a real ornament to any dessert.

Messrs. Bunyard, Maidstone.—From Fulham to Maidstone is not, as times go, a far cry, but between fruit tree manufacture at Messrs. Veitch's, at Southfields, commented on in our last issue, and at Allington, Messrs. George Bunyard & Co.'s fine fruit nursery, there is no inconsiderable difference, for whilst in the first-named place the chief object is to create for the retail purchaser, and specially the private gardener, at Maidstone Mr. Bunyard is surrounded by a large *clientèle* of market growers, though not in Kent only does he find customers, but, as his big planting job at Cheltenham and many others show, his trade is not less a national one amongst big cultivators of fruits. The town establishment of this firm seems to be an admirably placed focus for the several small nurseries scattered about Maidstone, all of which have their special uses in producing plants and cut flowers for home consumption, and also in the production of such things as Camellias and Azaleas in pots, of which there is a big stock of capital stuff. In one part we see as fine a lot of Aucubas as may be seen in a week's march; in another, Nuts of all kinds, and specially Cobs and Filberts, being produced from layers by thousands. Elsewhere there are a dozen kinds of the charming Hibiscus, of diverse hues, all blooming most luxuriantly; and in some other spot we light amongst other notable objects upon a lot of the Stephanotis-like Bouvardia Humboldtii, planted out and blooming superbly. Gardeners who have warm corners should make a note of that fact.

There are, too, here and there in these diverse town gardens to be seen some interesting things—such, for instance, as a lot of standard Mulberries growing where the strong summer heat ripens the wood so as to induce very early fruiting. Then we note some standard Pear trees—Bishop's Thumb, Louise Bonne of Jersey, Marie Louise, and Ashton Town, towering up to a great height, all some sixty to eighty years old, and yet full of health and vigour, cropping wonderfully well in good seasons. There is a curious growth on a tree of Reine Claude Violet Plum that should interest plant physiologists. The stock of the tree is the Myrobolan, and some way up the tree, and considerably above the point of union with the graft, a stout branch of the stock has burst out from the Plum stem. It is a curious and unusual case of reversion, though only to a partial extent. On a large tree of the Crimson Quoining Apple fruit was seen grown from the big hard stem without any leaf growth—also a curious circumstance. On large standard trees Dr. Harvey, Lord Derby, Pitmaston, Pine-apple, and Sturmer Pippin Apples, were fruiting finely, showing how well these kinds like the limestone subsoil. Durondeau Pear was fruiting well on the walls. These detached places are most useful for local work, and owing to their many varied sites and positions enable the firm to adapt them to many uses that would not perhaps be possible were they restricted to one site and one aspect.

But the special object of attraction to us was the fine tree nursery at Allington, which lies about 2 miles out on the London road, and is delightfully placed where a glorious country opens up many noble and lovely views. It is at Allington that Messrs. Bunyard create the tens of thousands of fine fruit stuff they have to supply all comers with, indeed, the stock of fruit trees alone at the time of our visit was said to exceed 300,000, and that such was exact it is not possible to doubt after a walk over the nursery. The most noticeable features of the place are, first, the remarkable way in which every inch of ground is utilised; second, the robust healthy appearance of the stock throughout; third, the neatness and precision of the planting in every direction, and specially in the long lines of standards; and fourth, the neatness and tidiness seen throughout the whole of the 50 acres which this nursery covers. The paths and cart roads are all of grass, run over with a scythe about three times in the year, and the verges are cut and put into the ruts made by the cart wheels in the winter. Not a little of the neatness which pervades the quarters, the loose pulverised condition of the surface-soil, and certainly the general good health and excellence of the stock, arise from the free use of "cultivators" drawn by patient donkeys between the rows of trees, which in this way save an immense amount of manual labour. We can scarcely hope to see these good elements of nursery work more thoroughly displayed anywhere than they are at Allington.

Here, as perchance in most nurseries this year, the Apple, because of its fruitfulness, occupies the pride of place. But it is also the most largely grown of fruit stock, for in perambulating the grounds we come upon breadths of thousands and thousands, and by far the larger portion standards. These are clean, even, and vigorous, the *beau ideal* of stuff for the market grower who wishes to lay down his 10 or 20 acres with fruit at once. There are no smaller numbers, too, as pyramids and trained trees, and vast quantities of dwarfs on the Paradise, Nonsuch, and broad-leaved stocks, of which kinds large numbers are grown in the nursery for home use. That starving French Paradise, which has done so much to injure the reputation of dwarf Apple trees, is totally ignored, and only those kinds are used which long experience has shown to be most satisfactory. Of kinds in fine fruit as dwarf trees we noted Grenadier, showing stout, short jointed growth; the fruit large, flattish in form, and produced in great abundance. It should make a fine market kind. The new early dessert Apple, Mr. Gladstone, is being very largely grown, both on dwarfs and standards. It is richly coloured and handsome, and must presently be universally grown for market use. A new kind, of which Mr. Bunyard speaks highly, is Bielingheimer; it has fine leafage, and the fruits are large and richly coloured. Lane's capital new Apple, Prince Albert, was fruiting well, as also was the now popular Stirling Castle, both on dwarfs and trained trees. Little trees of Lord Derby, 2 feet in height, were fruiting finely, so also was the Eclinville, that grand Irish Apple, that seems more worthy of culture than Lord Suffield. The new or winter Hawthornden was carrying good samples of fruit, so also was Smart's Prince Arthur, the fruits conical and covered with red stripes; this is a fine free-cropping kitchen kind. Worcester Pearmain, rich in its glow of colour, was fruiting well. It is indeed a beautiful Apple, and may well displace many early inferior sorts. The pretty yellow Ingestre, the favourite market dessert Apple, is grown in great bulk, but, because of its peculiar habit, chiefly on standards. Saltmarsh's Queen is also a good Apple that is being largely grown here and fruiting finely. It is a valuable addition to our handsome kitchen kinds and should be widely grown. But we might enumerate a list of Apples a column in length of the kinds grown at Allington, and the numbers of which seem almost fabulous. Special market sorts of course occupy the largest place, but every kind seems to be in quantity.

As becomes a market fruit district, Plums seem almost to precede Pears in the enormous quantity grown, and the growth of these from the bud is truly marvellous. Breadth after breadth, by thousands, of Rivers' Prolific, Pershore, Czar, Victoria, Pond's Seedling, and Farleigh's Prolific, and Frogmore Prolific Damsons; the one season's growth of which, like splendid whip-handles, had gone up from 8 to 10 feet in height, making maidens of a most robust order. Trained Plums are also in great bulk, beautiful trees full of fine hard wood, that will produce fruiting buds in plenty this season, so well has the growth been ripened. The fine open hillside position of the nursery, with unstinted sunshine, free winds, and good drainage, serves admirably to produce good growth on all trees, and that well matured. Of Pears, Rivers' Fertility, not unlike Williams' Bon Chrétien, but better, is well spoken of, whilst the popular Williams is represented in huge quantities, so also are all the best market Pears. Doctor Jules Guyot, Souvenir du Congrès, and Triomphe de Vienne, a grand Pear, as big as Brockworth Park, but better, and all on the Quince, are wonderfully fine. Of horizontal trained trees there are fine samples, fit almost to cover a wall at once; in fact, throughout the stock is excellent. Cherries again are in great force, whether Morellos trained and on standards, or of sweet kinds; indeed, there are some 15,000 of the latter free of growth, and all beautifully even stuff. Turn which way we will, fruit trees in breadths alternate with shrubs, though the former largely predominate, and it would not be possible to doubt for a single moment that the figures given are pretty exact. We have almost forgotten to allude to Peaches and Nectarines here, fine trained trees in large quantities,

and maidens in thousands making marvellous growth. Allington seems specially to be the place for the production of firm-wooded Peaches, as the soil is warm and dry, and the needed sunshine abundant. Amongst shrubs, Rhododendrons, Hollies—and of the variegated kinds there are hundreds of splendid pyramids—Laurels, hardy Heaths—these latter, with Hydrangea paniculata, blooming beautifully; and, indeed, with bush fruit, Nuts, forest trees, Conifers, and myriads of ordinary nursery stuff, there seems to be no end, and all as clean, healthy, and good as can well be found in any similar nursery in the kingdom.]

FLOWERS IN SEASON.

Lisianthus Russellianus. — Notwithstanding the imposing appearance of this grand old Gentianwort, it is surpassed by some of its congeners of evergreen shrubby habit, and requiring stove temperature. This one is annual or biennial in its nature according to treatment, and can be successfully cultivated in greenhouse temperature. If raised from seeds it requires to be sown very early or else treated as a biennial; but a stock can always be kept up to flower every year by propagating from cuttings. As seen in flowering condition in the conservatory at Kew, an idea can be gleaned of its decorative value, especially at this season when everthing begins to assume a commonplace appearance. The flowers, of a deep violet-purple colour, are produced in the axils of the upper leaves, and have a short tube with a great spreading limb measuring from 2½ to 3 inches across. They assume an upright position, and bear some resemblance at a distance to some of the large-flowered Godetias, with the exception of the colour and of course the opposite glaucous leaves. The plant is figured in the *Botanical Magazine*, t. 3626.

Goethea strictiflora.—This Brazilian shrub is worthy a place in a collection of stove plants, not from the showiness of its corolla, which is generally a predominant feature in this order, but from the large crimson reticulated bracts or epicalyx which encloses and conceals both the true calyx and corolla, somewhat of the same colour, but much paler. Save from the long protruding brush-like bunch of stamens and the lobes of the divided style one would scarcely notice that the plant was actually in full bloom. It has been flowering for weeks in the Palm-house at Kew, the flowers being aggregated in axillary clusters, as well as on the old naked stems. There is a figure of it in the *Botanical Magazine*, t. 4677. G. multiflora, also flowering in the same house, is generally referred to the genus Pavonia, and is known in gardens under the names of P. multiflora and P. Wioti. The flowers of this are produced in an umbel from the axils of the upper leaves, and is distinguishable as belonging to the genus Pavonia by the many-leaved epicalyx, whereas in Goethea proper the epicalyx is only four or six-leaved.

Pleroma Benthamianum.—The greatest drawback with many plants of this genus is the short duration of the individual flowers, but being generally produced in abundance they do not all expand at once, as a successional display is maintained for some time. They are borne at the extremities of the shoots, and vary in size and number; but the colour, in various shades of purple, violet, and white, is so decided as to constitute them a valuable class of plants. P. Benthamianum is a dwarf branching shrub, well furnished with foliage, and producing pale purple flowers as large as the showy and popular P. macranthum, otherwise known as Lasiandra macrantha. The latter genus, moreover, with one or two more, are now included in the present one. The subject of this note is now flowering in the Water-Lily-house at Kew, and there is a figure of it in the *Botanic Magazine*, t. 4007.

Gentiana Andrewsi.—It is alike remarkable and disappointing that so few species of this genus are to be seen in gardens, notwithstanding the number of them known to science, all more or less ornamental and worthy of cultivation. Being for the most part natives of mountainous regions, like many species of Primula, they are hardy enough to withstand the severities of our winters, provided the cold were continous, thereby ensuring them from being started into growth prematurely, as the fluctuations of our variable climate are prone to, when a sudden lowering of the temperature, accompanied with a heavy moisture-laden atmosphere, causes them to damp off. The species under notice is known as the closed Gentian, inasmuch as the flowers never expand, as most of them do, but taper somewhat to each end with a shortly five-lobed mouth. These flowers are of a pleasing bright blue, and being produced so late in the season, when most others are over, acquire a double value for horticultural purposes. They are borne in a dense terminal sessile umbel, surrounded by a leafy involucre, much in the same way as G. cruciata, but far superior to that in every respect.

Aristolochia labiosa. — In a genus altogether remarkable for the construction of its flowers, few present so singular an appearance, and still fewer have more conspicuous or larger flowers. Although it cannot be described as particularly attractive or showy, on account of its want of bright colours, yet it is in the last degree provocative of interest from its resemblance to the markings of some venomous reptile. In a house where the twining stems have full scope to develope their length, the flowers, from being produced in the axils of the leaves towards the extremities of the shoots, lose much of their effect, owing to their distance from the eye of the spectator; but this could be obviated by training in a horizontal direction or on trellis-work. The plant is figured in the *Botanical Register*, 689, and a large, well-flowered specimen is to be seen in the Palm-house at Kew. When fully expanded the limb of one of the lips into which the flower is divided measures from 6 to 9 inches in breadth. The colour is straw-yellow, closely reticulated with dull purple, and diversified on the inflated tube by larger meshes of a brighter hue.

Single Dahlias in great variety come from Mr. Ware, Tottenham; some were old, others new, but all very suitable for borders and beds. We note a few which are among the best to our fancy:—A rich crimson, Victor Standish; purplish-rose, magenta centre, Cherry; fine reddish-orange, Orangeman; crimson-purple, In Memoriam; lilac, Mauve Queen Improved; pure yellow, Lutea grandiflora; the large, well-formed White Queen; white, suffused faint pink, with crimson stripes, The Clown; dark purple, with a lighter-coloured margin, Falcon; purple self, Mrs. Burbidge; rosy-crimson, with purplish-cerise tips, Lucy Ireland; sulphur, Sulphur Queen.

Ophiopogon jaburan fol. aureo var.—This plant is now in charming form in the New Holland house at Gunnersbury Park. The foliage is brightly variegated, and the plants are throwing up numerous spikes of deep blue flowers something resembling those of the feathered Hyacinth. It is pretty nearly hardy, for Mr. Roberts states that it will stand 18° of frost. It is certainly a most useful pot plant at this season of the year, and very effective for decorative purposes.

Amaryllis Bella Donna.—This is now flowering in grand form at Gunnersbury Park. A few years since Mr. Roberts made a permanent bed, 2 feet in width, along the south front of one of his plant houses. This house is in two divisions, and the east portion is kept somewhat warmer than the other. This fact has a singular, though, perhaps, not altogether unexpected effect on these plants, for at the warm end they are earlier, stronger in growth, and nearly every plant is throwing from two to five flower-stems. At the cooler end of the house the growth is later, less regular, not so robust, and the flowers are somewhat sparingly produced. The nature of the border is the same throughout; the position is similar, and it must be the greater amount of warmth finding its way into the ground which accounts for the difference in development.

Nerines.—A collection of these is now flowering at Gunnersbury Park, and it is pleasant to find this very showy autumn-flowering plant so well cared for by Mr. Roberts. There is a fairly good representation of the different forms. One of the most showy appears to be N. flexuosa; this has large trusses of rich deep scarlet flowers. The plants are in 48-sized and 32-sized pots, and occupy a cold frame on a southern aspect.

Crocus speciosus. — This beautiful autumnal Crocus is now blooming in fine form—large flowers of a rich pale blue, pencilled with bright blue lines in the interior. A few bulbs put into the open border two or three years ago are flowering finely, and there is no variety of C. vernus can vie with it in beauty. It need scarcely be stated that it deserves a place in every garden.

Messrs. Veitch sends us specimens of some very beautiful autumn-flowering shrubs, which amply deserve notice:—

Caryopteris mastacanthus is a Japanese shrub of the Verbena family, with purplish downy stems, opposite stalked leaves of lanceolate form, coarsely toothed, deep green above, hoary beneath; the numerous flowers are borne in stalked axillary clusters, each about half an inch long with a tubular calyx, and a two-lipped pale blue corolla beyond which the stamens protrude. As we hope soon to figure the plant we defer further particulars, contenting ourselves now by saying that is one of the best and most showy of hardy flowering shrubs.

Clerodendrum trichotomum is a shrub with bold foliage, the leaves large, stalked, ovate-acute, downy on both surfaces. The numerous flowers are borne in terminal panicles, each having a five-angled ventricose calyx of a purplish tint, about half an inch long. From this protrudes the slender tube of the corolla, which ends in a flat five-lobed whitish limb about an inch across, the narrow blunt lobes diverging like the rays of a star. As in others of the genus, the stamens protrude far beyond the corolla.

CROPPING FRUIT TREE BORDERS.

Apple and other fruit trees would undoubtedly be more free from canker and other evils to which they are liable if the practice of cropping, and the consequent digging of the soil in which they are growing, were entirely discontinued. The repeated disturbance of the surface soil naturally compels, as it were, the feeding roots to take refuge in the subsoil, and when this is of an unfavourable nature, as is frequently the case, canker is almost certain to be the result, together with an unhealthy and unfruitful condition of the trees. This is more particularly the case when the soil happens to be of a light character, and the subsoil composed of sand or gravel. Of whatever character, however, the soil may be, it is always advisable to encourage the roots towards the surface, and this may generally be accomplished by the judicious application of surface-dressings or mulchings; while digging and cropping has invariably a contrary effect, viz., that of driving them into the crude and uncongenial subsoil, remote from the beneficial influences of sun and air. In most gardens land is valuable, or, at least, can ill be spared; but, generally speaking little or nothing is gained by cropping close up to the stems of fruit trees; although this is just the practice which is most commonly pursued. While, on the contrary, it might be adopted as a rule, and that with advantage, to avoid digging or cropping nearer to the stem of a fruit tree than the radius or extent of its branches, this portion of soil to be regarded as sacred to the roots of the tree whose boughs shade or over hang it. At the same time this portion of soil should be by no means neglected, but should from time to time be surface-dressed or mulched when considered necessary, but no spade should be allowed to enter it; and if found desirable to occasionally slightly stir the surface, this operation can always be performed with a fork.

In the case of fruit trees trained to walls it is equally essential, or even more so than in the case of standard trees, that the roots should not be disturbed or mutilated by the operation of digging, or the soil which ought to be allowed them as feeding ground exhausted by the gross feeding roots of culinary vegetables. But this is too frequently the case, and, being so, why should it appear at all wonderful that such trees are short-lived, or soon become unhealthy and unfruitful? It hardly appears reasonable to think that in the case of such valuable and highly appreciated fruits as the Apricot, the Peach, and even the Plum and the Pear, the necessary portion of land required as feeding ground for the roots of the trees which produce the same should be begrudged or denied. It might be accepted as a *sine quâ non* that the breadth of land allowed for the exclusive use of the roots of trees trained to walls should not be less than two-thirds of the height of the walls to which they are trained. If even more than this were allowed to established trees which had covered and

reached the top of the walls, so much the better; and the space thus assigned to the use of the roots should also have the necessary attention of watering, occasional surface-dressing and mulching during dry weather. Various materials may, of course, be used for the latter purpose, such as stable-manure, tree leaves, and the mowings of lawns, &c.; and if the first-mentioned, which is decidedly the best, should be considered unsightly, this may easily be remedied by slightly covering it with a portion of the latter.

But to revert to the case of standard fruit trees—which, by-the-bye, are far from being desirable in vegetable gardens, their presence being highly injurious to culinary crops of all kinds, for it may truly be said that fruit trees, or at all events large standard trees and culinary vegetables inflict serious injury upon each other. The orchard is the proper place for the former, and it is there where they are generally found to succeed best: orchards being in most cases laid down in grass the trees are consequently benefited by having their roots undisturbed. As corroborative of the great advantage of immunity in this respect may be mentioned the circumstance of our having many years ago planted with standard Apple trees a large piece of ground which had during many years been used as a nursery ground for the raising of forest trees, &c. The soil was exceedingly light and thin, and the subsoil was anything but congenial, being composed of a soft barren sand.

Stations were duly formed for the reception of the trees, by adding to the original soil a considerable portion of what was considered as soil of better quality. The trees were carefully planted, and duly attended to in the way of watering and mulching, and for a time they appeared to thrive tolerably well, the land around them being annually dressed with such light fertilising materials as could be obtained, and annually producing fair crops of Potatos or Carrots alternately, but in the course of a few years most of the trees became unhealthy, and some of them died. The roots appeared to have exhausted the portion of good soil which had been supplied to them, and had passed into the very inferior subsoil—and it appeared evident that most, if not all, of them would come to a premature end. The experiment of laying down the land around them in grass was tried, and this proved to be in all respects a most effective remedy, for soon after this had been done the trees began to improve in health, and up to the present time they continue in a healthy and fruitful condition, while on examination their roots are found to be close to the surface, or just under the greensward. *P. Grieve.*

BAMBOOS.

In looking through one of the London parks some short time since we were rather struck by the paucity of the efforts that had been made with the genus Bambusa in the decoration of those parts of the place called the subtropical garden, for with the solitary exception of one large group, and one or more small solitary groups standing near the water, there was nothing more to be seen. This is the rather to be wondered at, as many kinds are hardy enough to stand out with but little protection in the latitude of London. They are also so perfectly foreign-looking, and so totally different from the plant forms of northern climes, that they always form beautiful contrasts with our foliage, and with that of the tropics equally so. The fact of being classed among the hardier plants should render them more popular for garden embellishment than those tender things that need winter protection indoors, adding thereby much to the cost of the garden and to the cares of the gardener. A few combinations of Bamboos with flowering plants can be recommended as being very effective, such as with Clematis Jackmanni, allowed to cling and ramble over it. According to fancy other kinds of Clematis can be chosen, the more rampant the better, as well as Tropæolums of the tall growing kinds, or such kinds as T. speciosum, T. peregrinum, or Everlasting Peas in their several varieties. Some of the lighter growing climbing Roses might also be employed, using light rods to support them at intervals.

The Bamboos are capital centre pieces for sunny courts, formally arranged with some distinct large leaved plant, as Gunnera scabra, or G. manicata, Aralia papyrifera, cut down to a low height, not left with bare crooked legs of 6 feet or more, as they are sometimes seen; Polygonum cuspidatum, Bocconia cordata, or coloured leaved Cannas, and Gladioli with bright flowers, or dwarf Ricinus, like Gibsoni. The above are all capital margin plants for a group. It need hardly be said that any of the Palms, hardy enough to endure our cool summers, will assort beautifully with the Bamboos—especially when the specimen is tall enough to show up from out of a dense thicket of the other. Aletris (Dracæna) fragrans, when grown to 5 or 6 feet high, and Costus imperialis go well together with it. Panicum sulcatum is an effective plant to work in with Bamboos that attain a height of 7 feet or more, being capable of forming a foreground undergrowth—or surrounding belt—the pendulous foliage of the one contrasting well with the slender erect growth of the other. Among the sorts which are useful to plant in this country are B. metake, which will grow, when well established in good soil, from 7 to 9 feet; B. aurea striata, smaller; B. Fortunei, quite a miniature kind.

Foreign Correspondence.

A Portuguese Garden: Pereira, Almada.—As wild flowers are coming to the front at flower shows, why should they not appear in the garden also, where they are calculated to produce an excellent effect? Indeed, a perfectly wild garden may be made with them alone, and a very glowing one, too. Of course I do not suppose that persons keeping gardens (?) for furnishing, or "cutting and coming again," will care about them. Bouquetists are not gardeners who love their plants—it is not their business to do that; their flower-stands are very pleasing, their grounds are awful. This would seem to be the modern English garden *par excellence*. Plants are valued for the persistence of their flowers in water; even the beautiful Ferns seem to be only valued in proportion as they are good for cutting! I always fight shy of plants which are only praised for their furnishing qualities until I know more of them. Bouquetists raise many plants for their purposes which are not quite suitable to make a garden showy; and this is no doubt the reason why some beautiful and splendid flowers are now not to be obtained in the trade. They are not raised, because they are not fit for a bouquet. There are plenty of cut Masdevallias, Roses, &c., to be had in the market-place to decorate the whole house fresh every morning, but if you send the gardener out every morning to divest the garden of flowers, where is the pleasure when you turn out yourself after breakfast or in the cool of the evening? The owner of the Buckinghamshire Garden loves his garden, and I sympathise with him, although I have not the pleasure of knowing him.

My garden is really twofold. I have *my* garden, which my dear better half does not like, though she admits I have many fine things in it. Well, perhaps she is right. Drosophyllums and such-like have no flowers in the ordinary sense. My wife's garden is all flowers, variegated-leaved plants, and some Ferns. She had seen a group in one of our friends' gardens formed thus:—A Musa paradisiaca, the hardiest and tallest in the centre; then a circle of Canna isiodes; next a circle of Colocasia esculenta, with its fine leaves; next Æthiopian Callas; then variegated Ribbon-grass; after this the blue-flowered Spider-plant, edged with a very dark Pansy or Viola. A splendid group, no doubt, and the more rain the finer. I made the following group, consisting of wild flowers:—In the centre I placed some of the tall Asphodels, much finer than the Hyacinthus candicans for effect; then a circle of what we call here the Snake-plant, an Arum with white stems spotted dark. I am not sure that it is indigenous, but it grows wild close by. Next, Ornithogalum arabicum, intermixed with the beautiful snow-white Allium, of about the same height; then a circle of the blue large-trussed Squill—some call it Scilla peruviana, I don't know why, as it grows in plenty in the sands hereabouts [named in error by the original describer]. Then I got some Pancratiums, which grow so plentifully on the shore hereabouts. I was sorry afterwards, as their smell was too overpowering in the evening; I then placed, to strike off the group, a circle of Lachenalia tricolor—not a wild plant, though a pest in my garden: they will turn up where you do not want them; and as an edging (a broad one) a mixture of the low-growing Squills (country people here call them Hyacinths), the double burnt-yellow Oxalis, in plenty on a cliff here—I have never been able to find the single form. They grow in company with the large King's Yellow species. Perhaps its double form, the charming little Narcissus montanus, and a pink or mauve-coloured cormous plant; they will have it it is a Crocus, but it is not exactly like the wild Crocus on the sands, or like the garden Crocus; it grows on the rather swampy ground in the south-east of the Palmetta Mountains—they struck me for the splendid effect a large extent of them produced; and as an edging, some Ice-plants—they grow up the Tagus, on some dry mounds. This group had a fine effect until June; I then had them cast away, and grouped a large batch of Cistus which I had potted in winter, the large white Gum Cistus and the quinquemaculatus in the centre, and the charming rose-coloured and yellows next. I edged this group with Portulacas though not a wild plant, but they glow and glow the more sun they get. An extraordinary mass of flower this group has been. A friend of mine is getting up a shady walk formed only of indigenous wild trees and shrubs, and it will end in being as fine as any other. There are innumerable wild flowers worth a place in the garden; they only require collecting in the rainy season, or a little before, when bulbs, marking the spots when in flower. There are beautiful ground Orchids, and as for bulbs any quantity, especially along the seaside shores and rocks. *Chev. de Monteiro.*

Florists' Flowers.

Seasonable Notes: The Auricula.—So far as I have been able to visit other growers and inspect their collections it seems that the plants are exceptionally good this year. Mr. Charles Turner's collection at Slough is not only larger than usual and contains many finer varieties, but it is in capital condition, scarcely any of the small plants show for bloom, and not a great many of the large specimens. The plants are freely aired night and day, and well shaded from the sun by a dense growth of Poplars. Where the plants are in very shady summer quarters they ought to be moved out into the open ground before the middle of this month. Any plants that still persist in throwing up trusses should have the flower-buds removed as soon as they can be pinched out with the fingers. These plants must have rather more water applied to the roots than those that have not flowered this autumn. Seedlings must be grown on freely, to get them up to a flowering size before the winter sets in; but at all times they require plenty of air, and to be kept quite free from greenfly.

Carnations and Picotees.—No time should now be lost in getting all the young plants potted up into large and small 60-sized pots. We pot two layers into a large 60 and one into the small size. When the layers are potted up we place them into frames, plunged in cocoa-nut fibre, and the lights are kept rather close until the plants have drawn roots. The operation of potting must be carefully performed, as many of the layers have but few roots, and they are easily injured. Allusion was made to some of the pipings which were put in at the time of layering (see p. 302). These have rooted well, and most of them are now potted off. Perpetual Carnations must now be well looked after. The flowers open very well in a greenhouse temperature at present, but in a few weeks they will not do so, and the plants must be placed with Bouvardias, zonal Pelargoniums, &c., in a warmer temperature.

Dahlias.—These are still looking very well. The weather has not been at all cold, and the flowers open as well as they have ever done at any other season of the year. This will not last very long, as the time for sudden frosts is at hand. Some people hasten to take up the Dahlia roots as soon as they are cut down, but there need be no hurry to do this; it will be time enough early in November. The pot-roots, when they have been allowed to become dry, should be stored away where they will be safe for the winter. Those who are saving seeds should do so in dry weather. It is to be had in plenty from the single forms. These are more easily raised from seeds annually than by cuttings.

Gladioli.—There will still be a few spikes in bloom from the latest plants, and the seeds may not all be saved. Gather the pods as soon as they open,

and lay them up in a dry place. About the end of the month the bulbs must be lifted; there are some who recommend lifting the whole of the plant at once, and laying them in under glass in cocoa-nut fibre or some similar material. I have done this, but never found it answer so well as cutting the plants over close to the crown of the bulbs at once. It is best to dig them up in dry weather, and they must also be laid out in a dry airy room to be well dried before they are stored away.

Hollyhocks. — We will not put in any more cuttings now. Those that have been put in have rooted very well, and they have been all potted off with few exceptions into the pots in which they will pass the winter. We are gathering seeds as we can get them dry, but the recent heavy rains have not been favourable to the saving of seeds. As soon as the seeds are gathered the tall flower-stems may be cut over near the base, and a convenient opportunity may be taken to dig up the plants and plant them out in a cold frame for the winter; or they may be potted up, and the pots be placed on a shelf near the glass in a greenhouse or vinery. The cuttings can be obtained from these sooner than from the plants in the frame.

Pansies.—If the plants propagated from cuttings in August are now strong enough, they should be planted out in beds about a foot apart. There will yet be time for them to become well established before the winter. The inexperienced grower says, "It is not worth while to dig the ground deep for Pansies, as the roots are of a small fibrous nature, and do not run far from the plants." In this they are greatly mistaken; the roots will penetrate to a depth of 2 feet, and if the nature of the soil admits of it we would trench it to that depth, working in plenty of rotten cow manure. This manure retains moisture well during the hot dry days of summer. Those who cannot afford the luxury of a heated greenhouse will find the best varieties well adapted for frame culture; they produce very beautiful blooms early in the year when frosts are intense and the snow lies on the ground. The plants for pot-culture ought to be propagated in July.

Pinks.—The ground whereon the beds of these are to be planted should be prepared very much the same as for the Pansy. The plants should be put out now without any delay; they will root into the new soil at once. If they are not established before the winter, they are thrown out of the ground by the first frosts, and it requires a person to be constantly looking over them, as frost and thaw alternate, in order to press the plants firmly into the ground. Large worms also burrow under some of the plants; they will even draw a small specimen into their holes. Slugs will eat the leaves; they come out to feed at dusk. Soot sprinkled round the plants will kill the slugs and annoy the worms. The leather-coated grub also feeds at night; a large specimen of this voracious garden pest will eat up a plant in a night—sprinkling with soot does not seem to make much difference; the best way is to watch for them at night when they are feeding, and pick them off with the fingers, and so destroy them. The forcing Pinks should now be potted up into the pots in which they are to bloom. We pot large clumps into 6-inch pots. These have been produced by putting in cuttings early in May, or even in April; they are grown on for a few weeks in frames, and are inured to the open air in June. They are planted out a foot apart early in that month. Mrs. Sinkins has been much extolled as a good white, but the mass of petals, which usually burst the pods, sadly lack the refinement of Lady Blanche; Lord Lyons is by far the best of the purple type; Mrs. Moore and Mrs. Pettifer are good purple and white varieties.

The Polyanthus. — The growers are now anxiously looking out for certain varieties to replenish their stock. It is quite time they were potted up from the open ground; we prefer to pot them in August, but this year were not able to do so until the middle of September. It was necessary to dip the leaves in a solution of nicotine soap to kill greenfly and also red-spider. Some of the best growers, instead of potting their plants, plant them out in frames. The best lot of Polyanthus I ever saw were grown in this way in Mr. Brockbank's garden at Brockhurst, Didsbury, near Manchester. One would like to know the system of mangement that produced such strong healthy flowering examples. *J. Douglas.*

FRUIT NOTES.

Strawberries. — The *Florist* for September contains a coloured figure and descriptions of two new Strawberries raised by Mr. Laxton. King of the Earlies was raised from flowers of Vicomtesse Héricart de Thury fertilised with pollen from Black Prince. It has the fruit of Vicomtesse and the foliage of Black Prince, and is very fertile. Mr. Laxton's object was to obtain a first early market Strawberry, in which he believes he has been successful. The Captain was raised from Crown Prince crossed with Forman's Excelsior. The fruit is large, fine-flavoured, and of a bright scarlet throughout. It is a second early.

Lane's Prince Albert Apple.—The note published at p. 408 induced me to go and see this splendid Apple "in its greatest beauty" at Messrs. Lane & Son's, at Berkhamsted. I was well rewarded for doing so, for certainly never before have I seen such an Apple-picture. I am a *connoisseur* in Apples, and not only greatly esteem really good sorts, but greatly admire the trees when laden with well-swelled well-coloured fruit. I may say that I have seen this variety in some former seasons, growing in the same positions as those now referred to, but never before have I seen the fruit in such abundance, such beauty, and such perfection. In the immense orchard planted by Mr. Lane some nine or ten years since may be seen row after row of well-established bushy trees having the branches literally bowed down with the weight of fruit upon them, the fruit being this season exceptionally large, and when favourably placed in sunny exposures having the skin deep dyed with crimson, this rich colour being in many cases handsomely streaked with lines of deeper crimson. The finest selected samples were indeed pictures of beauty. The young trees in the nursery quarters are perfectly astounding for the quantity and quality of the fruit they are bearing. The home trees—young nursery stock—which were last year, as I was told, referred to in your columns as presenting such an overwhelming crop, are this year a size larger, but equally furnished throughout with Apples of the largest size and richest colouring. This high colour is a feature I was not prepared to see, and is I presume attributable to the increased vigour of the trees, to the genial summer we have had, which has favoured free and unchecked development, and especially to the bright sunshine which greeted them during the period when they were taking their last swelling, and which has literally dyed their cheeks with crimson blushes. That such a constant bearing sort should have borne well in the present season is not to be wondered at, seeing that the Apple crop is so universally good; still it is only fair to state that in this respect Prince Albert has not been a source of disappointment, seeing that bushels upon bushels already occupy the fruit-room shelves; but it is even more to the point to add that even in the worst of seasons, during the period these trees have been known to me, they have never failed to produce a fairly good crop when other sorts have been barren and unfruitful. *Pro bono publico.*

SPRING BULBS FOR COOL GREENHOUSES.

(*Concluded from page* 394.)

Puschkinia scilloides.—A very pretty little bulbous plant, producing umbels of Scilla-like flowers of a silvery-white colour, with the divisions of the perianth each marked with a medial band of azure-blue, which is very pleasing. It is a rare little gem, and rather variable, a fact which has given rise to the names of P. libanotica and compacta, but Mr. Baker, of Kew, informs me they are nothing more than varieties of scilloides. This is an extremely interesting and pretty plant.

Sisyrinchium grandiflorum.—A lovely little gem, producing grass-like foliage and pendulous bell-shaped flowers of a rich plum-purple, and there is a white-flowered variety named alba, which is also extremely pretty; one of the prettiest pots I had last spring was plants of each variety mixed together in the same pot, and when in flower they were simply fascinating.

Scilla bifolia and Varieties.—The typical form produces erect racemes of rich blue flowers very early in the year. Alba, as its name implies, has white flowers, and purely white they are too—very lovely. Rosea produces pink flowers all about the same form and size, and good. Pots of bulbs are very showy, especially the white and blue varieties, the pink not being so pronounced.

Scilla sibirica.—This is almost too well known to require any description, but it is not so much used for cool house decoration as it deserves to be, as it can be purchased very cheaply. Several pots can be made up at a nominal cost, and the bright blue flowers materially help to light up the front row of plants in the greenhouse or conservatory, and the flowers are very serviceable in a cut state.

Trillium grandiflorum (the American Wood Lily). —The pure white flowers are nestled in the three deep green leaflets at the top of the stems, and they last a much longer time under glass than they do outside, and when the tubers are fully developed very large flowers are produced, measuring 4 inches or more across. It may easily be had in flower in March and onward till the end of May, and how unique it is in appearance.

Tritelia uniflora.—A very free-growing bulbous plant, sending up solitary white flowers about 1 inch across, and there is a variety named violacea which produces purplish flowers. Both forms are very desirable, and the bulbs should be placed thickly in the pots to make a good display. This you can afford to do, as they are very cheap, and the pots of star-like blooms will well repay you for the outlay and trouble.

Tulipa Greigi. — One of the most brilliant and earliest of all Tulips, with glaucous spotted foliage, and large crimson-scarlet flowers with large black blotches inside. A blaze of colour, and managed with the least degree of trouble. Without doubt one of the finest bulbs in cultivation.

T. triphylla.—Another gem, coming in about the same time as the last, with bright canary-yellow flowers not so large as those of T. Greigi, but very showy. One of the very prettiest species of Tulipa.

T. retroflexa.—A very fine thing, producing large soft yellow flowers, 5 or 6 inches across, or even more. When fully expanded the tips of the perianth segments turn backwards, when the flowers have a very striking and distinctive appearance; indeed, they are so unlike anything else in flower that they are singled out as special favourites.

I might enumerate many other species, and in making out this list I do not wish it to be understood that the numerous and beautiful varieties of Tulips, Hyacinths, &c., are depreciated; on the contrary, one would encourage them as well. *Bulbophile.*

COLONIAL NOTES.

New Zealand Plants.—The following are some plants of New Zealand worthy of cultivation. The Veronicas are very pretty, and in great variety; sixty species are recorded as being found in the colony which are not found in any other part of the world. Here they assume such a variety of forms that some appear as mimics of other classes of plants: some of them resemble the Willow, the Cypress, and the Box; one is like a variety of Lycopodium, some form a neat mat of Nertera depressa-like growth; others are beautifully arranged in shoots and foliage; and, again, there is one variety, which, when it attains five or six years' growth, resembles a half globe of beautiful pea-green foliage, thickly studded with flowers on every shoot. One variety resembles the red-tinted leaved Epacris, others have a frosted silvery appearance. As a whole, the Veronicas are a very pretty class, ranging from a few inches high to fine shrubs and trees. They bloom almost perpetually, and may be increased by cuttings as easily as the Laurel. Their culture is so simple that almost any one can manage them. Some of the more compact forms of growth would be highly appreciated by gardeners for balcony decoration, even when not in bloom. Of the Senecios there are many varieties, some of them being large shrubs; and the alpine forms of the genus have leaves not unlike those of Indian Rhododendrons; some are clothed with brown hairs, while others have a silvery-white down; others, again, have leaves like Saxifraga crassifolia: one of these with white tomentum is named Senecio saxifragoides, a sort that grows near the sea-shore, thriving on rocky ledges fully exposed to the sun and winds, and is a fine rock plant. The flower (yellow) is nearly two inches across. The climbing Senecio, when found growing in shady places, sends out a wirelike growth of shoots 6 to 10 feet long, clothed their whole length with pretty green leaves about the size of a penny

piece, resembling Linaria cymbalaria in form; it would make a splendid basket plant, or for other purposes, if grown in the shade. This plant when found exposed to the sun is quite a different looking plant, being smaller in leaf and having a starved appearance, thus proving it to be a shade-loving plant. The Tea tree of the settlers, a Leptospermum, is a very pretty Heath-like plant with flowers like the Myrtle, white with a dark centre, that appear in early summer. Clematis indivisa blooms in early summer, and occasionally clothes the giants of the forest as with a white mantle, or climbing over smaller shrubs, displays, on nearer view, the chaste flowers which hang in graceful festoons of several yards in length. The Astelias are curious Pine-apple-like plants, with leaves 3 inches broad; one variety, named A. grandis, is found in moist places amongst scrub. Some old specimens have a dozen crowns, and attain to 4 or 5 feet in height. Usually their leaves are green, but occasionally a variety is seen, having them curiously stained and blotched with a port-wine tint; this and the green-leaved variety would be useful table plants, or for grouping with Ferns, flourishing under the same treatment as these. The flowers are not attractive, but in autumn the flower-spike bears a number of scarlet pulpy berries, like Asparagus seeds. There are several varieties, but the one just noticed is the most attractive. Astelia nervosa has a rusty silvery appearance, but being an alpine variety it is rarely seen in gardens.

Our alpine plants, when better known, should meet with much attention, they being exceedingly curious; but little notice has been taken of them up to the present time. It is singular that none of the Primulas have been found here indigenous to New Zealand, the nearest to them being Samolus litoralis, a trailing plant, its white flowers being in shape and size like those of a Nemophila. The native Ferns are well known to most cultivators, but they are best seen in their native habitats assembled as it were in little kingdoms of various classes bearing their distinctive plumes as badges of their orders, making some parts of the forest scenery very grand—a view of a long stretch of undulating hill-side clothed with dwarf and beautifully tinted shrubs, while here and there above their heads peep out conspicuously Cordyline australis, the Nikau Palm, Areca sapida, Dicksonias, Cyatheas—these nobles of vegetation appearing to rejoice in the protection afforded them. *John Dutton, Christ Church, New Zealand.*

Orchid Notes and Gleanings.

Work in the Houses.—The active season of growth among these plants will now be nearly over, and a reduction in the temperature of the warm and intermediate houses will be necessary, as any growth made under undue excitement after this date by the plants in the East Indian-house would be sure to get attacked with "spot" or other disease. Safe temperatures for another month in the East India-house will be 68° at night and 75° by day, with a rise of a few degrees on sunny days. The Cattleya-house should stand about 63° at night and 68° by day. The temperature of the cool-house will be easily regulated at the present season, as the natural conditions of the atmosphere are just now most suitable to these plants. Should a sudden change to cold occur, or the wind remain easterly for any length of time, the airing of the latter house must be done cautiously. With reduced temperatures less atmospheric moisture will be needed, more especially if the weather be such that pretty liberal ventilation cannot be indulged in with safety. All watering should be got through early in the day, reducing the supply slightly to all continuous growing plants such as Aërides and Vandas. Phalænopsis that have completed their growth, should be kept slightly drier to prevent them making a fresh attempt at growth; any that may be now pushing out young leaves or others with their leaves half-formed should be placed together in the warmest part of the house, so as to encourage them forward while a moderate amount of daylight remains. Shadings should now be dispensed with except on the very hottest days for another week or so, or when a hot day occurs after a spell of dull weather. In the Cattleya-house the Oncidium ornithorrynchum and O. incurvum will require potting, as these will soon be starting into renewed growth. Pleiones commencing to flower should be placed in a dry corner of this house and a little moisture at the root will be beneficial to them during their flowering season. Plants of Odontoglossom vexillarium growing in this house should now be put on shelves, or elevated so as to be near the glass, as this species makes most of its growth during the winter season. Any that are in right condition for potting should be looked over without delay. Give thorough drainage to this plant, and use nothing about its roots except the best fibrous peat and sphagnum moss—two parts of the former to one of the latter. Pot it as firm as the material will allow, and water carefully at all times, as this plant should never be soddened at any time, nor ever be allowed to feel the effects of drought. Other Odontoglots in this house, such as O. hastilabium, O. nævium, and O. citrosmum, will be making up their growths, and after this is completed less water will be needed by these than plants of the same genus that will stand the temperature of the cool-house. The most careful attention must be bestowed in the watering of the Cattleyas after this date, as any slopping of water about carelessly, if allowed to get into the sheaths of the half-developed bulbs will soon cause irreparable mischief by causing the bulbs to rot. Plants of C. Trianæ, C. chocoensis, and other winter flowering kinds that may have completed their growth will only need sufficient water to keep them from shrivelling. Others just starting, such as C. crispa and Lælia purpurata, must be kept just damp, while any that have their bulbs half developed may be kept moist, but allow them to get moderately dry at this season of the year before giving them a fresh supply. The atmospheric conditions of this house must be watched closely during the autumn and winter, as anything approaching a close stuffy condition must be avoided. All pots and other surfaces on which conferva generally grows should be thoroughly cleansed before winter, as it is impossible to keep a dry atmosphere in this house where conferva abounds. *J. Roberts, Gunnersbury Park Gardens.*

Masdevallia Davisii.—This very distinct Peruvian species is now in bloom in the Odontoglossum house at Gunnersbury Park. Mr. Roberts states that it is the only one that flowers in autumn. The flowers are solitary, and of a rich golden-yellow. It is in marked contrast to the brilliant forms like M. Lindeni, M. Harryana, M. Veitchii, &c.

Grapes and Vineries.

The earliest house will now be ready for pruning, and must not be pruned back too hard; but where very early pruning is required for early forcing it is always best to prune back to a good eye, for very often the earliest eyes are made when the sun and light are very feeble, and are in consequence not so prominent as those made later. The Vines, if so pruned, will not have so neat an appearance, but will show better bunches. After pruning dress the cuts over with styptic to prevent bleeding, and if the border is dry water with clear cold water a few days after pruning. Cover over the outside borders with shutters, to throw off the autumn rains. If the borders are in a bad state the present is a good time to top-dress or renew them, taking out all the old soil as deep as can be done without damaging the roots and using for a top-dressing good turfy loam with half-inch bones and charcoal. Afterwards press the soil firmly round the roots, and give the border a good watering. Houses from which all the fruit has been removed must have plenty of air on the front and back ventilators night and day, and plenty of water at the roots to keep them healthy. The decayed leaves must be gathered up as they fall, to keep the houses tidy. Houses in which ripe fruit is hanging must be kept as advised in my last Calendar. All Muscats will now be ripe, and the temperature can be kept at night at 55° for the next week, and be reduced a few degrees afterwards, for Muscats will always keep better with a little fire-heat used cautiously. Give sufficient water at the roots to keep the berries plump and healthy, and give air on the front and back ventilators according to the external atmosphere, for Muscats will not keep well if subject to cold draughts. All late varieties of Grapes will now be ripe, and must have the temperature lowered to 50° at night, and plenty of air on the front and back ventilators on all favourable occasions, for if the external atmosphere is damp it is better to keep the house closed and use very little fire-heat, than to open the ventilators and use fire-heat; but on bright days open the front and back ventilators and use a little fire-heat until mid-day, when it must be turned off before the air is reduced for the evening. Give the inside border sufficient water to keep the berries plump and healthy, and the outside border will now be better protected with shutters to throw off the autumn rains. All newly-planted vineries must have the front and back ventilators left open night and day until they are pruned and ready for starting, and have clear cold water at the roots when the inside border is dry. All pot Vines will now have their wood ripened, and can be placed outside, plunging the pots in cocoa-nut fibre refuse, and tying the growths up to prevent them being damaged by the wind. Do not let them suffer for water at the roots, for when the wood is hard and well ripened they will still require plenty of water to keep them healthy. *Joshua Atkins.*

The Hardy Fruit Garden.

The gathering and storing of Apples and Pears must now be proceeded with, selecting, if possible, fine and dry weather for the operation. The frost and high winds usually experienced in October, and the readiness with which most kinds now separate from the tree, are indications sufficient to gather and store. The fruit should be handled as little and as carefully as possible; the baskets used for gathering them in, and the hampers or boxes for conveying them to the fruit-room should be lined with straw, hay, or any other material of a similar description. Early varieties of Apples, which are generally soft, should be laid out singly on shelves in the fruit-room; but late keeping kinds, which are of a harder and firmer texture, if kept in the hampers until the usual sweating has taken place, and then stored in boxes, large drawers, or even small barrels, first of all lining them with straw or dry bracken Fern, will keep much better, and do not shrivel, than if, as generally practised, laid out singly on shelves; besides, they keep for a much longer period. The fruit-room should be so situated and ventilated that an even, dry and cool temperature can be maintained. Ventilation should be given only when the external air corresponds with the internal. When storing late keeping kinds all bruised or damaged and spotted fruit, the results of canker, should be rejected, and if culinary kinds, may be used at once.

The Root-Pruning and Planting of Fruit Trees should now be commenced, both operations being attended with the best results if performed early in the season. Trees requiring root-pruning are usually those which retain their foliage in a green state. After the operation is performed the foliage should be frequently syringed, to prevent the leaves and growth shrivelling up. The roots of these and newly planted trees should be well mulched with stable litter, and the latter secured to stakes with tar cord if pyramids or standards, say three to each, about 2 feet from the stem; this allows the settling of the soil and the roots of the tree with it, which cannot take place so perfectly if the stake is driven in close to the stem and made secure to it.

Peaches and Nectarines should occupy walls with southern aspects, both early and late varieties requiring the full benefit of all the sun possible. Plums of early and late kinds can be obtained from east or western aspects, and to extend the season of late kinds a north wall will suffice. Pears should occupy positions on each wall, and not confining one variety, especially the mid-season ones, to one wall, but plant on each if possible; the season for use will thus be considerably extended. Apples of some kinds, especially the Ribston Pippin, the best of all dessert Apples, are greatly improved by training against a wall.

For gardens of small dimensions, in the open quarters or borders espaliers or cordons should be planted, as they can be confined to a small space, and do not injure or cause inconvenience to crops of vegetables; but for large gardens nothing looks so handsome as well-trained pyramids, which can be made fruitful by pinching and stopping and root-pruning, so that the shape and appearance of the tree shall not be had at the expense of a crop of fruit. Plantations of Raspberries, Gooseberries, and Currants can now be made, first of all trenching and well manuring the ground. Cuttings of the two latter fruits, if taken and put in now, before the foliage has entirely left them, will soon emit roots, and be better prepared for a good start in spring, than if deferred till late in the season. A mulching of manure may now be given to Strawberries, which serves not only for stimulating and perfecting the growth and crown, but also protects the roots which are near the surface, during severe and frosty weather.

Cob-nuts and Filberts should be taken in and placed in a dry room until the husks are perfectly dry, when they may be stored away. Walnuts, when thoroughly dried, should be stored in boxes in dry sand, to keep the kernel from drying and shrivelling up. *D. C. Powell, Powderham, Devon.*

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Oct. 8	Sale of Imported Orchids and Dutch Bulbs, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
Tuesday,	Oct. 9	Royal Horticultural Society's Meeting of Fruit and Floral Committees. Sale of Natural History Specimens, at Stevens' Rooms. Sale of Nursery Stock at Weybridge, by Protheroe & Morris. Sale of Established Orchids, at Protheroe & Morris' Rooms.
Wednesday,	Oct. 10	Sale of Dutch Bulbs, at Stevens' Rooms. Sale of Freehold Properties at Stratford, at the Mart, by Protheroe & Morris. Sale of Nursery Stock at Weybridge, by Protheroe & Morris.
Thursday,	Oct. 11	Sale of Imported and Established Orchids, at Stevens' Rooms. Sale of Orchids and Greenhouse Plants at James' Nursery, Norwood, by Protheroe & Morris. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
Friday,	Oct. 12	Sale of Miscellaneous Property, at Stevens' Rooms. Sale of Imported Orchids, at Protheroe & Morris' Rooms. Sale of Greenhouse Plants, at the Westbourne Nursery, Harrow Road, by Protheroe & Morris.
Saturday,	Oct. 13	Sale of Dutch Bulbs, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.

THE expectations that have been raised as to the display of APPLES AT CHISWICK will assuredly not be disappointed, either as to number or quality; some seven thousand dishes are in process of staging as we write, and these will not exhaust the list. They come from HER MAJESTY THE QUEEN, they come from almost every county and almost every dependency. They fill the great vinery, they occupy two other ranges cleared for the purpose—the shelves and benches of the fruit-room are packed with them. For the present, the arrangement is simply into counties, but even that is very striking, the same variety having often quite a different look according as it is grown in Haddington or Devon. Some of the exhibitors (and we are glad to note the Society itself as one of them), have adopted the very serviceable plan of writing on their tickets not only the name of the fruit, but an indication of the conditions under which it has been grown. As the exhibition will remain on view for a fortnight at least, there will be an opportunity for partial rearrangement according to uses, for kitchen or dessert, according to form or otherwise. There will also be a grand opportunity for determining unknown varieties, eliminating useless synonyms, ascertaining the merits of new varieties and the conditions under which old ones thrive best; in fact, of obtaining a mass of varied information such as by no other means could be obtained.

The burden of the work so far has mainly fallen on Mr. BARRON and Mr. KILLICK. We most earnestly press on the Society or the committee, or whoever is really responsible, the desirability of preparing a thorough and exhaustive report. With the material before them, the *Fruit Manual* to guide, and the publications of the American Pomological Society as an example, nothing seems wanting but hard work and judgment on the part of the reporters. Those engaged in preparing the exhibition clearly lack neither of these qualities. Let them be carried into the work of reporting, and the end will be attained, to the credit of all concerned and to the advantage of the gardening fraternity.

While awaiting the detailed reports which prolonged and leisurely inspection alone can secure, we may be excused for calling attention to a few points, not of so much practical value perhaps, but certainly not devoid of interest.

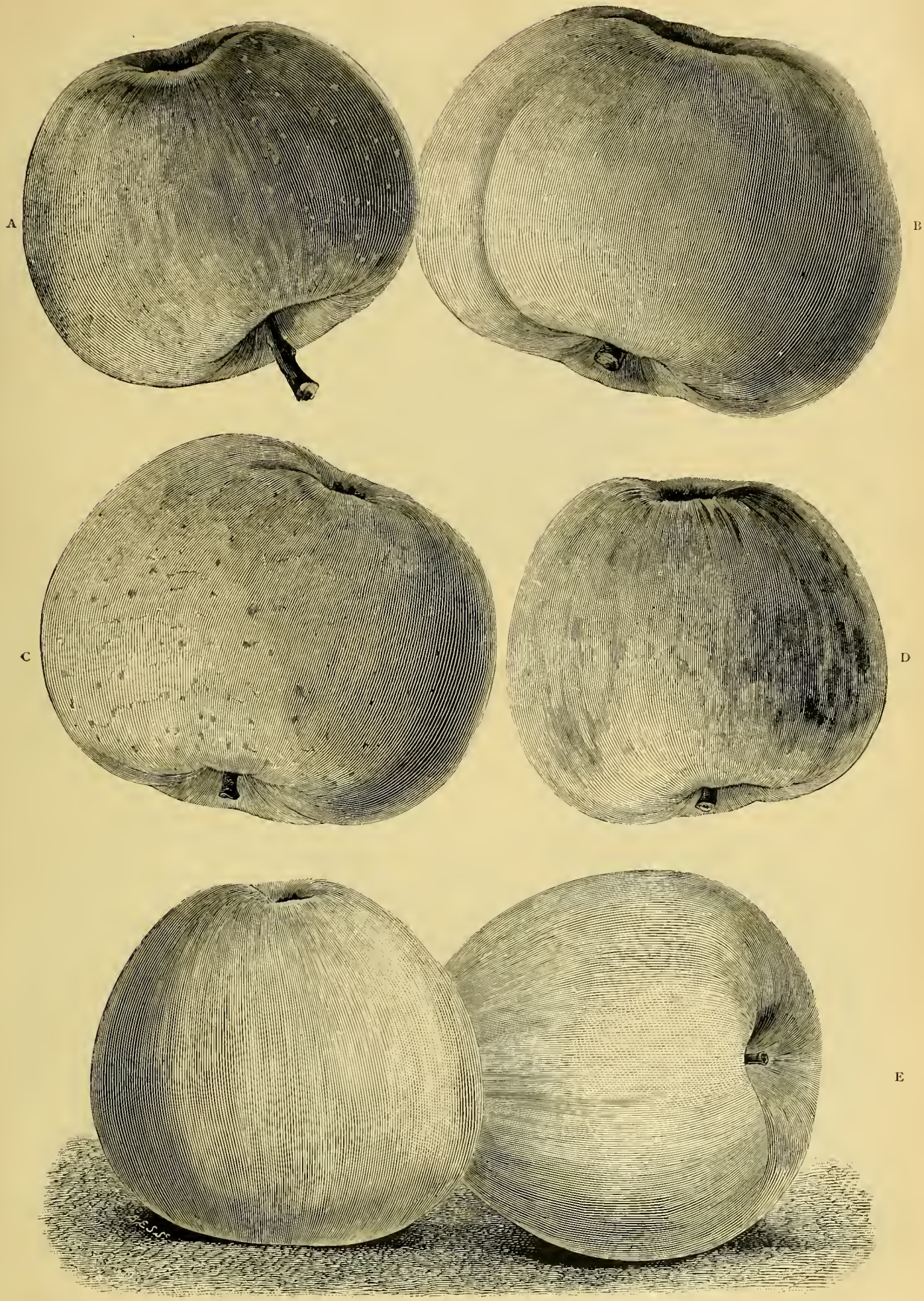
A letter before us speaks of the Apple as the "first fruits of POMONA." Without going so far back as that, indeed without being at all certain whether POMONA may not be as mythical as Mrs. 'ARRIS, we may say that the origin of the Apple, as we now know it, dates back beyond all historic record. How far beyond historical record the inhabitants of the Swiss lake dwellings cultivated Apples it is impossible to say, but it was before the time of TUBAL CAIN, and before the use of metals. Suffice it to say that they laid by stores of Apples in what we should now call their fruit rooms. HEER, the principal investigator of these ancient dwellings, so far as plants are concerned, mentions two varieties, differing in size, as being found; and he infers that they were cultivated owing to the great numbers in which they exist. As a further proof of the great antiquity of the Apple, philologists tell us that the root or germ of the word exists in all or most of the languages derived, like our own, from a primitive Aryan stock. Botanists infer that the original home of the Apple was in the district near Trebizonde, whence it has spread throughout Europe, extending very far north even. With such an antiquity and such a wide dispersal, the variability of the Apple is no matter of wonderment. The Apple, like every other living thing, is acted on by a hereditary endowment, by virtue of which it remains an Apple; and at the same time by a tendency to vary, which is the source of the profound differences we now meet with. Those variations, which enable the tree the better to withstand the adverse conditions under which it may be placed, naturally tend to increase, and to be enhanced as well as perpetuated, by hereditary descent. We gardeners have continuously selected for our purposes those variations which have appeared to be most useful to us, and have propagated them by grafting. Propagation by seed, as every one knows, cannot in this case be depended on; the seedling will grow, it is true, but it will not reproduce for a certainty the characteristics that render the parent useful to us, and hence we are obliged to resort to grafting. The reasons for this variation have been already in part alluded to; another reason may be found in the fact that the flowers now, whatever may have been the case once, are specially adapted for cross-fertilisation by insect agency. The showy petals attract the insects, and the disc provides them with food. How, then, is it that the insects do not secure self-fertilisation or the impregnation of the germ by the pollen of the same flower? The reason is that the time at which the stigma on which the pollen has to fall and the time at which the pollen is ripe are not synchronous. In any given Apple flower (as a rule, subject to exceptions) the stigma ripens first, before the anthers are ready to shed their pollen. Such a flower, then, must be fertilised by pollen from some other flower. This being so, variation of necessity arises, and this variation may be perpetuated by the means already cited. It is probable that the main primary variations in the habit and forms of Apple trees arise in this way; but there are numerous other secondary variations which are, as it were, mere accidents of growth. Growth at one time, or at one particular part of the fruit, is more active than at another. An obstacle may arise at a particular stage of growth, or the rate of growth may be affected by differences of soil, climate, or exposure. Great and important as are those differences from a practical point of view, such diversities are not very important to the physiologist. A little more or a little less activity of growth (from his point of view) explains the matter. There is no very great organic change—no very marked stage of development or evolution, but simply, as we have said, more or less growth at this or that part, the tendency to grow or to stop growing, and at a particular time and place, being handed down by hereditary descent.

To make this plainer we have only to call attention to the structure of the Apple flower. The end of the flower-stalk, instead of remaining cylindrical and woody, swells out into a fleshy mass, encircling and embedding the core, and bearing at its edge the five green calyx-lobes, which ultimately form the "eye" of the Apple. Within these calyx-lobes come the five petals which encircle the numerous stamens; while in the middle, embedded in the swollen end of the flower-stalk, are the five carpels or pistils which constitute the core, and which are surmounted by five threads or styles, each of which is capped by a stigma. As the flower ripens into fruit the calyx withers, the petals fall, the stamens and styles dry up, but the cartilaginous carpels, with their contained seeds, and specially the succulent end of the flower-stalk, increase. The really important part of the flower, from a physiological point of view—from the point of view, that is, of the plant itself—is the core and the contained seeds. The part we prize most, and which we loosely call the fruit, is really the least important as regards the plant, and, strictly speaking, it is not the fruit at all, but a mere accessory to it. The tempting looking fruit (using the word in its ordinary sense) affords food for birds and other creatures, and who, while subserving their own purposes, contribute to the dispersal of the seed.

Hence, whether we consider such Apples as the tiny Pomme d'Api or the Siberian Crab, or such giants as Belle du Bois or Peasgood's Nonsuch—whether we look at the globular form of the Kerry Pippin, the elongated shape of the Lady's Finger, or the conical form of the true Pearmains—whether we consider the smooth unbroken surface of some, or the strongly marked ribs of others—it is easy to recognise that all these forms depend merely on more or less growth, at particular portions of the succulent end of the flower-stalk. The structure is in no wise altered, save in the extra development of the fleshy portion. Such Apples as Northern Greening and Lemon Pippin very often show this process by developing one side of their stalks to a greater extent than the other, thus furnishing just those links and clues which give a true botanist more delight than all the Apple puddings in the world.

Botanists very properly lay much stress on the different value or importance of some characters as contrasted with others. We cannot dilate on this subject now, but its significance will have been gleaned from what has already been said. We may, however, give another illustration. One great difficulty in all attempts at classification arises from the fact that different shapes of Apples are so very common on the same tree. Of course, if one is looking at the tree as it stands, this is not a matter of much consequence, for three-fourths or more are pretty sure to be right, and those that vary from the type are but few in number; and so we take the majority as indicating the type, and disregard the exceptional fruits. But in the specimens too often sent to us to name—in isolated specimens always—there is no such clue. How valuable it would have been if exhibitors on this occasion had not only picked out their best samples, but sent all the variations in form they could pick from one and the same tree. We should then have been able to see the range of variation, and to form an opinion just as a botanist does of the "value of characters." Some specimens of "Washington," for instance, exhibited on this occasion are in form and colour surprisingly different, so much so that at first glance the most experienced pomologists would consider them as of different kinds; nevertheless the "closed eye" and the short thick stalk are present in all the varieties. In this case, then, the closed eye and the short thick stalk are better and more reliable characters than the mere form of the fruit, which, as we have seen, is more variable.

From limited experience we are sure to gain limited ideas and incorrect impressions; the larger our experience and the better the use we make of it, the more correct our judgment. Let us hope that the present occasion may serve to render clearer what are the important distinguishing characteristics of Apples, what are the correct names, and which are the most suitable sorts to grow for particular purposes.



CHOICE APPLES:—A, REINETTE DE CAUX; B, STIRLING CASTLE; C, SMALL'S ADMIRABLE; D, CELLINI; E, MELA CARLA.

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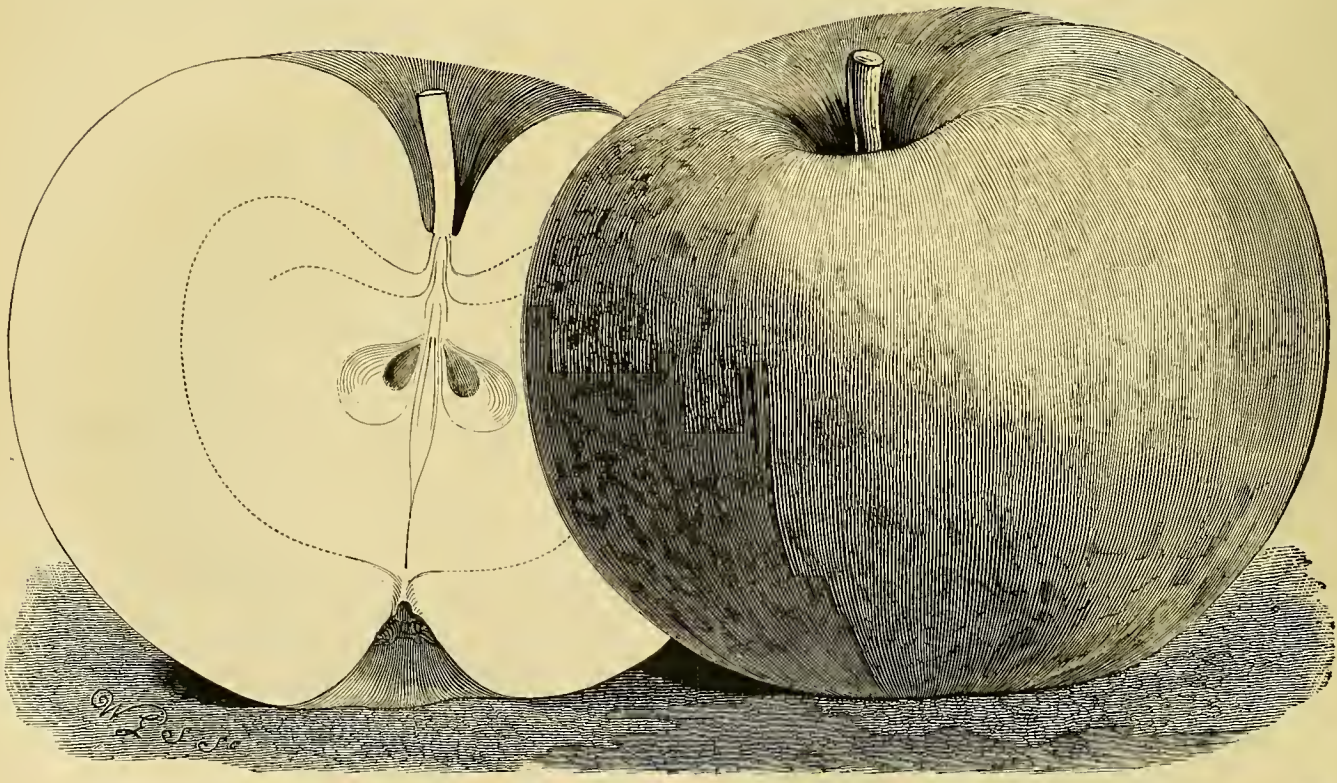
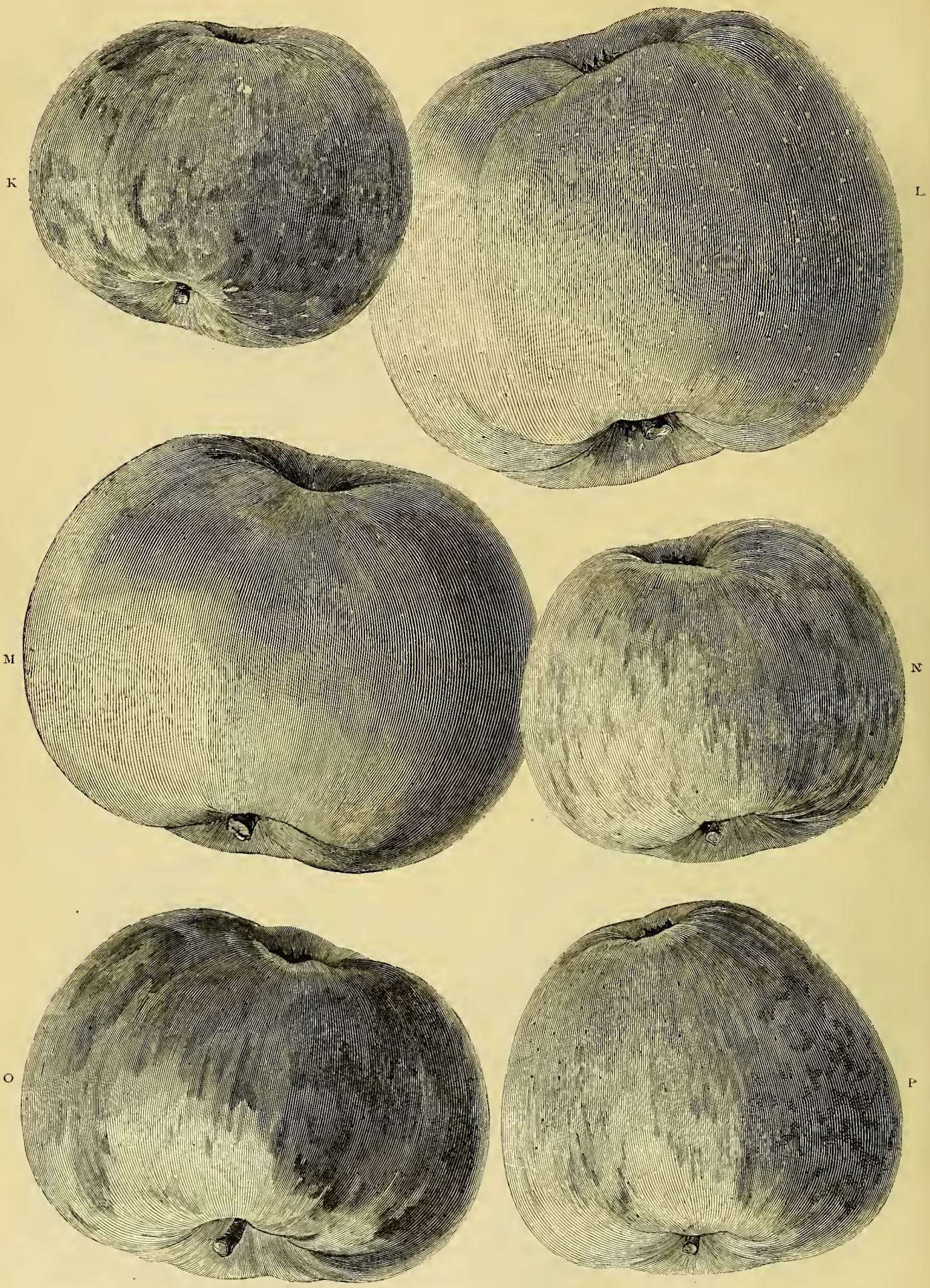
F



G

CHOICE APPLES:—F, STONE'S APPLE, OR LODDINGTON SEEDLING; G, PEASGOOD'S NONSUCH.

CHOICE APPLES:—H, GOLDEN NOBLE; I, COX'S ORANGE PIPPIN; J, LANE'S PRINCE ALBERT.



CHOICE APPLES:—K, BRABANT BELLEFLEUR; L, GLORIA MUNDI; M, WARNER'S KING; N, BARCHARD'S SEEDLING; O, COX'S POMONA; P, EMPEROR ALEXANDER.

—— International Exhibition at Nice.—In addition to the particulars previously given we are now informed that applications for space will be received up to October 20, and that a Prize of Honour, consisting of a medal given by the Minister of Agriculture, in addition to a sum of 1000 fr. (£40), will be given to the exhibitor who shall, in the opinion of the jury, have contributed most to the splendour of the exhibition by his exhibits of plants. A second prize of honour, consists of a medal given by the town of Nice, in addition to a sum of 500 fr. (£20), to the exhibitor who shall have contributed most to the success of the exhibition by displays of cut flowers. A third prize, consists of a medal with a sum of £20, will be given by the Principality of Monaco to the exhibitor who shall have shown the best collections of fruit and vegetables. Lastly, the committee of the exhibition offer a medal and a sum of £20 to the exhibitor who shall most highly distinguish himself by his exhibition of greenhouse and garden apparatus, &c. Mr. A. E. Mazel, of Nice, is the secretary of the horticultural department.

—— Acacia dealbata.—This is a native of East Australia, where it flowers in June, the winter season. Introduced into the Nilgirris, Dr. Brandis relates that it flowered in October for some ten years after its introduction. In 1860 it was noticed that it flowered in September; ten years later in August; in 1878 in July; and lastly, in 1882, in June, as in its native country.

—— International Forestry Exhibition.—This exhibition which will be held next year in Edinburgh is intended to include everything connected with, or illustrative of, the forest products of the world, and will be open to exhibitors from all countries. The committee will endeavour to obtain from the various British railway companies special terms for the conveyance of exhibits to and from the exhibition. Arrangements will be made by the committee for the reception of exhibits, at a date to be afterwards fixed. Exhibitors of machinery requiring the use of water, gas, or steam, must state, on making their entries, the quantity of water, gas, or steam which will be required. Medals, money prizes, and diplomas for exhibits and essays will be awarded by competent jurors. Contributors to the Loan Department are requested to communicate with the Secretary, who will supply special forms to be filled up by them. Free space will be given for workmen's approved models. To ensure uniformity of decoration and general effect, no exhibitor will be allowed to put up any sign, flag, banner, or other kind of decoration, without the approval of the committee. A notable feature of the machinery section, says the *Scotsman*, is expected to be the display of pulping-machines, of recent invention, for making paper from wood; while scarcely less interesting will be the models of sawmills, weirs, dams, and illustrations of the methods of transporting timber down the fjords in Norway. Specimens will be shown of the various kinds of axes used for felling trees, as also of the different descriptions of machines for preparing the timber for constructive purposes. There will also be on view examples of textile fabrics manufactured from bark. The literature of the subject is likely to be illustrated by reports of the schools of forestry in all parts of the world; and in this connection occasion will be taken to show the strong claims which Edinburgh has for the establishment of such a school, the Chairs necessary for the purpose being all ready to hand, with the exception of one for what may be called the "clinical" teaching of forestry; while abundant material for the practical education of students is to be found all over the country. Closely allied to this branch of the subject is the preparation of plans showing the age of trees and the stage of growth at which cutting should be, or has been, resorted to—a mode of procedure which is said to be confined in Scotland to the Grantown estate of the Earl of Seafield, under the management of Mr. John Grant Thomson, though the practice is said to be largely and advantageously pursued in other parts of the world. By the preparation of such plans the proprietors of forests are said to have been led to take a greater interest in the woods on their estates, and so to have been enabled the better to direct their management, preventing over-felling in some seasons, guarding against overcrowding at other times, and thus rendering the plantations less liable to the ravages of such a gale as that of October 14, 1881, which levelled the famous Binning Wood. The loan section of the Exhibition will, it is anticipated, prove one of the most attractive of all, including as it will do notable specimens of carving, wood engraving, and the like.

—— The Phylloxera Laws.—We have so often called attention to these vexatious enactments that we have little further to say on the matter, the more so as those whom we supposed would have been most interested have hitherto been so apathetic in the matter that our labour seemed to be thrown away. At our instigation the Royal Horticultural Society took up the matter, and representations were made to our Government, but without any success. Since that time the German Goverment has increased the stringency of its regulations, apparently oblivious of the utter inefficacy of their prohibitions to effect the desired object, and oblivious also, as it would seem, that the Phylloxera had already obtained a footing in their country prior to the enactment of these laws. Belgium and most other countries have assented to the Treaty of Berne, which prescribes certain regulations as to the transit of plants, and the restrictions have been considerably lessened in the case of those countries. It becomes now a question whether or no it would be worth while for this country also to give in its adhesion to the Treaty of Berne. We are not sure, however, whether Germany would even then admit living plants. At the late Congress at Ghent it was agreed that the best thing to be done was to obey loyally the provisions of that treaty, and hope for better things. In the meantime we cannot but think that unnecessary alarm has been given as to the extent to which the Phylloxera exists in our own country. M. Planchon made use at Ghent, of course unwittingly, of what we believe were very exaggerated statements, and which may have alarmed foreign Governments and caused them to close their doors against us. Among ourselves, too, persons learning of the evil for the first time have rushed to the conclusion that the insect is much more abundant in this country than it really is. If we may judge from the number of specimens sent to us, and the inquiries that reach us, which are much fewer and at longer intervals than they were some few years ago, the plague is decreasing. At any rate, if the proper radical measures be taken, the pest does not spread. Constant watchfulness and instant action where the disease is detected are our best safeguards. We append a letter just received from one of our nurserymen, merely adding that we have received complaints from others as well:—

"I have seen no comment on the Treaty of Berne dating from July last, because Holland, Spain, ourselves, and Italy, not being represented, are prohibited sending any plants into Germany. Could you bring your influence to bear on the matter? Thousands of packages are lying on the frontier waiting instructions. I had one returned with contents perfectly useless, after being sent off a month, and was charged 8*s*. 6*d*. The Phylloxera certificates, duly and properly filled in as before, have no weight in the matter; yet we are importing hundreds of pounds worth of Lily of the Valley and other plants, and having a traveller just finished his journey, I have £100 to £200 worth of orders, which are valueless until we can get them through. The Dutch and German bulb people have petitioned, and Prince Bismarck has granted them the privilege of sending on a great number of parcels that have been lying at the stations for weeks."

—— "The Conservatory."—This is the name of a new horticultural periodical, published monthly at New York at a low price.

—— Autumn Fruiting Strawberries.—A large number of plants of Vicomtesse Héricart de Thury in pots are now fruiting freely and finely at Gunnersbury. They represent plants of this variety that were forced into fruit early in the present year; and when they had finished their yield the plants were turned out of pots, about 1 inch of the balls of earth cut off all round, repotted into 32-sized pots, and then stood out-of-doors plunged in cocoa-fibre, and well cared for. Mr. Roberts treated about 1000 plants in this way, and they are now fruiting in successional batches, and he confidently anticipates that he will be able to keep up a supply of fruit right up to the time that the potted plants of the present season furnish their quota of fruit. This seems to be a much better and safer practice than planting out for a second crop. The plants now fruiting are robust; they have bloomed freely, set their fruit liberally, and every day an acceptable dish can be gathered. Mr. Roberts' experiments with this variety are in the highest degree satisfactory, and his lead can be followed by others. The young plants of the present year, represented by from 6000 to 7000 plants, look in splendid condition, as if the season had been favourable in every respect.

—— Rhododendron Marchioness.—This is a new hybrid variety, raised and now being distributed by Messrs. Isaac Davies & Sons, of Brook Lane Nursery, Ormskirk. The parentage of this new hybrid is not given. It produces bell-shaped flowers measuring about 2½ inches across, colour bluish tinted with rose; the outer part of the corolla distinctly striped with deep rose. The flowers are produced in trusses of four or five flowers each. It has a good habit of growth and bushy foliage.

—— Pure Science.—We take the following remarks from a lecture by Professor Rowland, of Baltimore, as reported in *Nature*. After alluding to the confusion between science proper and the applications of science, such as telegraphs, electric lights, and such conveniences, frequently called by the name of science, he says:—"I do not wish to underrate the value of all these things; the progress of the world depends upon them, and he is to be honoured who cultivates them successfully. So also the cook who invents a new and palatable dish for the table benefits the world to a certain degree; and yet we do not dignify him by the name of a chemist . . . and some obscure American who steals the ideas of some great mind of the past and enriches himself by the application of the same to domestic uses is often lauded above the great originator of the idea. . . . I have often been asked which was the more important to the world—pure or applied science. To have the application of a science the science itself must exist. Should we stop its progress and attend only to its applications we should soon degenerate into a people like the Chinese, who have made no progress for generations, because they have been satisfied with the applications of science, and have never sought for reasons in what they have done. The reasons constitute pure science."

—— Convolvulus minor.—Many persons who grow these pretty annuals sow the seeds in patches, and then leave them to fate to be beaten about by rain and blown about by the wind. A thoughtful gardener who had sown some little patches along his flower-border, took the precaution of putting three sprays from the tops of Pea-sticks round each, triangle fashion; the result was that the plants grew quite upright, filling up the space between the branches, and throwing their flowers outwards, and so forming nice compact cones of bloom. This was a happy thought, and answered its application admirably.

—— Oncidium varicosum and its varieties are better grown by Mr. Lee at Downside than they are anywhere we have seen them, and the secret seems to be the cool temperature and the manner in which they are grown. At present they are expanding the blooms on scores of stout flower-spikes, each as thick as an ordinary penholder, while the bulbs, old and new, are as fat and sleek as possible. The plants are fastened to narrow strips of Teak wood, without moss or any other material, and these are fastened near to the glass after the manner of shelves; and thus they are kept until their spikes are well advanced, when they are taken down and arranged as required. They are kept all the year round in the Lycaste-house, which ranges only 5° Fahr. warmer than the cold Odontoglossum-house, and are liberally supplied with water. Treated thus they bloom without injury, while in most collections where they are grown warm they bloom well once, and then dwindle.

—— Potato Show Statistics.—It was found in the count of dishes of Potatos shown in the various classes at the recent International Potato Show that these numbered 1813, but inasmuch as a considerable number included eighteen tubers, it is necessary for the purpose of getting some correct estimate of the bulk of tubers shown to make two of all such; and thus the number, inclusive of those which were composed of six large tubers, was 2016. These included in actual numbers just 17,802 tubers, and a fair estimate showed that these averaged 7 oz. and a fraction each, or putting each dish at 4 lb., we get an exact total of 8064 lb., or 3 tons 12 cwt. Again, this means 144 bushels. If to this estimate we add for the

exhibits of the trade houses 30 cwt. more, we shall make the total amount of Potatos shown on the occasion to exceed 5 tons, and upwards of 200 bushels. This is, it must be admitted, an immense bulk, and serves fully to show how great was the competition. It was remarked by several competent observers at the show that the trade collections were generally far below the average found in the competing collections in quality and beauty. There was at least one prominent exception to that remark, but it is very evident that the trade still seems to think, in spite of the example shown them in the competing classes, that size and bulk are the great elements of attraction for the public. In this respect they make a huge mistake. Big coarse tubers have had their day, and quality only will now secure public approval.

—— Silos.—Mr. Christy sends us the following communication, which will be of interest to many of our readers :—

"Much is being written about silos and the preservation of fodder, and as I have now worked at this process for many years in England, I think it would interest your readers to hear the report of some work that has lately been done in America.

"In some parts of the United States it was found almost impossible to keep vegetables and fruit during the winter without their being frozen, and seeing the account of the successful working of silos, it occurred to some of my friends to try what the effect would be upon Apples and different sorts of vegetables. They therefore constructed a silo about 12 feet below the surface of the ground, leaving only a small opening in the centre at the top: they cemented the inside and arched up the roof. Into this were placed in layers carefully selected Apples, free from bruise and also quite dry: they were prevented from pressing against one another by straw in some instances, and in others by thick cardboard well dried, and in other instances by wood.

"The vegetables were also placed in the silo after being carefully cleaned and dried, and the aperture of the silo, when filled as nearly as possible, was sealed over with cement, and earth placed upon it to a considerable depth, and then on the top of this a good coating of straw to keep out the frost.

"The first silo that was opened three months after being filled proved such a success, the vegetables coming out so deliciously fresh, the fruit plump and full as if it had only just been picked, that it was determined next season to try another experiment, and open one silo at Christmas, and other silos as they were required right up to the end of the long winter, when fruit always becomes valuable.

"This experiment succeeded as well as the first, and there was very little difference found in the quality of the fruit.

"In recounting these particulars to my friend, Mr. Wm. Simpson, who is so well known to all readers of the *Illustrated London News* from his instructive pictures, he informed me that when travelling in Northern India and Afghanistan he several times entered the large cisterns that are constructed throughout that country for the preservation of grain, and it is supposed that the grain, if carefully excluded from the air by sealing the aperture, remains perfectly fresh for years.

"The system of storing fruit and vegetables, &c., in silos must not be confounded with the system of ensilaging fodder plants, because this difference occurs:—In the one case the temperature is hardly raised, as the air does not change in the silo. On the other hand, when fodder is ensilaged, if the proper action takes place, the temperature, as shown by Mr. G. Fry, F.L.S., rises to at least 155° Fahr., and at this stage the germs are destroyed, and they do not again exert a force until the air is let into the silo.

"In the case of fruit the plumpness and firmness remain without change for several months. In a tightly packed silo fermentation sets up, and the whole character of the fodder is changed owing to the heat having risen to 150°, as explained by Mr. G. Fry in a recent number of the *Agricultural Gazette*.

"It is as well also to record the successful preservation of medicinal herbs by Professor Quinlan, M.D., M.R.I.A. He places the herbs in bottles, seals them with wax, and then buries the bottles underground. By this plan chemists can utilise medicinal herbs throughout the winter, and obtain fresh extracts from them without sacrificing the aromatic properties of the herb, which would be the case generally speaking if the foliage had been dried in the sun."

—— Tydæas at Chiswick.—Mr. B. S. Williams has well described the representatives of this genus as "very handsome winter and early spring flowering plants, deserving every attention on account of the manner in which they enliven the hothouse during the dreary winter months." They deserve all this high praise. And there is now a considerable group of Tydæas, for the few introduced species have widened out into many garden varieties, mainly of Continental origin. A collection of the newer forms was made by Mr. A. F. Barron at the Royal Horticultural Society's Gardens at Chiswick during the past year, and when examined by the Floral Committee First-class Certificates of Merit were awarded to the following:—Podalyre, dull salmon-red, heavily spotted with mauve; large and finely formed flowers, handsome foliage, and somewhat tall growth. Robert le Diable, rich maroon, almost black, with a distinct and striking crimson edge; a very fine and distinct variety, forming a stately plant. Venosa, a variety having bold Gloxinia-like flowers, the ground colour carmine-purple, profusely spotted and slightly lined with deep purple; somewhat tall growth. Æsculape, bright scarlet, the throat and lower lobes spotted yellow and orange; a fine and showy variety. Lastly Arlequin, pale ground, heavily spotted with purple, very distinct in the marking; fine and striking. In addition were several other varieties scarcely less valuable, and all very useful, viz., Charm, bright red, mottled with black; Magician, rich vermilion marked with dark lines; Corneville, dull crimson, with slight flakes of vermilion; Superintendent, white with purple lines, distinct and pretty; and Homère, crimson-purple markings on a pale rosy-purple ground: good form. In regard to the treatment of Tydæas, they require much the same mode of culture as Achimenes; but, as Mr. B. S. Williams points out, they "will not suffer drying off like Achimenes, as they only make slender underground stems, and not scaly tubers as the Achimenes do." It is simply necessary that they be cut down and allowed a short rest, then started into growth again. Indeed, it would not be difficult to have some plants in flower almost the entire year by starting successive batches into growth; and the foliage of the plants has a certain decorative value at the time of year when they are putting forth their growths.

—— Wire Structures for Gardens.—These are frequently met with in gardens, but seldom have we seen any so artistically made as some that were lately on view at Mr. Thomas', in the Edgware Road. Intended, as they are, to be shipped by this enterprising firm to the Calcutta Exhibition, the colouring of the various objects was generally of that high vivid kind that is most appreciated by the natives of India; and yet there was an absence of gaudiness throughout. Instead of green, white, or brown, as our structures are too generally painted, these are vermilion, grey, bronze, gold, with a smaller quantity of umber. Two of the objects seen were pavilions or summer-houses of an octagonal form, 14 feet wide and 20 feet in height. The style is generally Moorish or Oriental, with variations in detail and colouring. In the larger openings were suspended ornamental bird-cages, in groups of three. A magnificent bird-cage, divided into three divisions, with movable wirework partitions, was also on show. The mountings and fittings of this object were in cast brass, the wire being of drawn tubular brass. Everything about it was exceeding artistic, and of good proportion. The dimensions were 4 feet deep, 5 feet in width, and 7 feet in height. The centre part was domed, and the annexes had arched roofs. Many other objects for Indian gardens in wire were lying about, or in process of packing—articles for domestic use as well not having been forgotten; so that Mr. Thomas' venture will show to the Hindoo many objects of whose existence and use he has hitherto been a stranger.

—— Nicotiana affinis.—This has been very fine in gardens during the summer, especially in rich and rather light soils. It is best to sow the seed in March, and to plant out in May, giving the plants sufficient space in which to develope themselves. Where ample room is afforded the plants grow to a height of from 3 to 4 feet, and become much branched. It is astonishing what a number of flowers a plant will produce.

—— Arundo conspicua.—Why this bold and ornamental grass is not more extensively planted it would be difficult to say. Probably not a few are of opinion that it is not sufficiently hardy to withstand our winters; but given an open position in a well drained soil, and after allowing it to get established, there is every probability of satisfactory results. In general appearance it greatly resembles the Pampas-grass, but on close examination there is a remarkable difference, both botanically and for horticultural purposes. For garden or pleasure-ground decoration it is invaluable, sending up its great feather-like plumes early in the season, and lasting till autumn, when the Pampas-grass also flowers and prolongs the display. The former has hermaphrodite flowers, and the whole plume of 12 to 15 inches in length is of a silvery hue from the first, and assumes a drooping one-sided habit; while the flowers of the latter are diœcious, or the stamens and pistils on different plants. The plumes of the male plant, in habit that of the Arundo, are decidedly of a purple tinge at first; but those of the female white, with the branches of the panicle assuming a close erect and rather stiff habit. Moreover, the two plants are readily distinguishable by the leaves alone. Those of the Pampas-grass are narrow, channeled above, strongly keeled below, and sharply serrulated on the margins and keel; whereas in the Arundo they are broader, flatter, with scattered pili beneath, and five equidistant nearly equally strong nerves, which, with the margins, are more or less serrulated also. The latter has been very conspicuous for weeks on the new rockery at Kew, in the background, where the flower-stems attain a height of from 6 to 9 feet.

—— Publications Received. — *Pitman's Musical Monthly*, twelve pages, including six of music and four of letterpress, with a large woodcut. If that is not enough for 1*d.*, we do not know what can be so deemed.—*The Lark* (1*d.*): *Songs, Ballads, and Poems for the People.*

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Oct. 1, issued by the Meteorological Office, London:—The weather during this week, though fine and bright in most places at intervals, has been generally cloudy, or dull and very rainy. At the north-western stations on the 28th, and in the south-east on the 29th, the rainfall was exceptionally heavy; on the former day as much as 2.84 inches was measured at Douglas, Isle of Man, and on the latter 2.35 inches, at Hillington. The temperature has been slightly above the mean in Scotland and the south and north-east of England, but a little below it in the south of Ireland, and about equal to its normal value elsewhere. The maxima, which were registered on the 25th, varied from 63° in "England, N.W.," and 64° in "Ireland, S.," to 69° in "England, E.," and "England, S." The minima were generally recorded either on September 30 or October 1, and ranged from 34° in "Scotland, W.," to 41° in "Scotland, E.," and "England, S.W." The rainfall has been more than the mean in all districts, the excess in "England, E.," being very considerable. Bright sunshine shows an increase in duration in all places, the percentages varying from 21 in "England, N.E.," to 42 in "England, E.," and 43 in "England, S." Depressions observed:—Barometric pressure over our islands and their neighbourhood has again been in a disturbed and changeable condition. Several depressions have reached our coasts from the Atlantic, and generally travelled north-eastwards or eastwards. The deepest and most important of these appeared over Ireland on the 26th, and after moving quickly to the north-east of Scotland, travelled very slowly eastward to the south of Norway. During its passage over our islands the wind increased to a gale on all our coasts, from the southward in most parts of England and Ireland and from south-east in the east and north of Scotland. In Ireland and the north-west of England the south-westerly gale was of unusual violence. As the depression passed away the wind veered to the north-westward and northward, and on the the 30th, in the rear of an area of low pressure which had passed across England on the previous day, a strong gale was experienced on the east coast of England.

—— Gardening Appointments.—Mr. George Miles, Foreman to Mr. W. J. Clarke, Spring Grove, Bewdley, has been engaged as Gardener to W. H. Anderson, Esq., The Firs, Kidderminster. —Mr. John Dale, late Foreman to Mr. Reid, Possingworth Gardens, Hawkhurst, as Gardener to W. Gibbs, Esq., Clevelands, Shanklin, Isle of Wight. —Mr. John Harding, for the last two years and nine months Foreman in the Gardens at Powerscourt, Co. Wicklow, has been appointed to succeed Mr. Jack as Gardener at Longford Hall, who goes to Hampton Court.

Home Correspondence.

Resting-spores of the Lilac Fungus.—In the *Gardeners' Chronicle* for November 19, 1881, p. 665, will be seen a description of the new fungus of Lilacs, closely allied to the fungus of the Potato disease, and named Ovularia syringæ. We are indebted to Mr. A. Stephen Wilson, who has done so much original and practical work in the elucidation of the structure and habits of fungi, for the discovery of this remarkable parasite. No resting-spores are illustrated, or alluded to in the original description, but as the fungus is almost the same as Peronospora it was only to be expected that it would produce resting-spores after the manner of the Peronosporeæ. Last summer Mr. Wilson kindly forwarded me slides of the resting-spores, dated January, 1882, and June, 1882; the latter examples were from Lilac leaves kept in water all winter. It is to be hoped that Mr. Wilson will speedily publish an account of his experiments, with illustrations. In the meantime I send the following brief notes of my own experience. Ovularia syringæ does not grow round London, or if it does I have not seen it. I never saw the fungus alive till the 1st of last month (September) when Mr. Wilson kindly sent me six infected leaves. There were no resting-spores in these leaves, so, remembering my success with Potato leaves and having Mr. Wilson's results in view, I placed the leaves carefully, one on the other like the leaves of a book. I then put them in a plate, with a tablespoonful of water, the plate being tilted, so that the ends of the leaves touched the water, and could naturally and gradually absorb it. The plate was then covered with a bell-glass, the bell-glass with a duster to exclude light, and the whole kept in a warm room. A very small amount of water was continually supplied. On September 21, I made an examination of the material, and to my surprise the Ovularia mycelium had run in a profuse manner, both inside and between the decaying leaves, and on this mycelium an enormous crop of resting-spores was growing. The resting-spores (oogonia) are large, half as large again as the resting-spores of the Potato fungus, and highly lustrous. They shine like mirrors, and exactly agree in structure with the oospores of other Peronosporeæ. It seems quite probable that the resting-spores of other species of the Peronosporeæ, where they are at present unknown, may be artificially produced by the simple treatment above described. The statement found in text-books that Peronospora is so sensible to decay that it always perishes with the death of the host plant, is a very incorrect one, and doubtless this erroneous statement has prevented observers from looking for resting-spores in the decaying remains of plants destroyed by Peronospora. *W. G. Smith.*

Travelling Notes. — We can quite confirm "Rambler's" opinion of the Botanic Garden at Geneva, which much disappointed us on our late visit (August 6). As he says, after those of Kew, Edinburgh, Cambridge and Dublin, it does seem very meagre: but there is always much to be learned by half-instructed amateurs; and if the parallelograms called the rock gardens are forbiddingly formal to the eye, there is abundance to interest and instruct the mind, in observing the difference of the flora on the various sites adapted to each. The lovers of the limestone were here more beautiful, we thought, than the denizens of either the granite or the tufa. The Cape Chestnut seemed a most provoking interpolation, and, indeed, had the effect of a *mauvaise plaisanterie*, for it is so near the entrance we thought we had reached the wrong place. There was a fine Colletia horrida, which made one envious; sheltered by the high wall two charming oval beds of succulents, and some other noteworthy trees and shrubs. Speaking of the latter, is there no possibility of getting female plants of the Hippophaë rhamnoides in England? We procured what we fondly hoped was one, three years ago, and planted it close to the proposed husband, but now we are sure they are both bachelors, and we never see a berry even hinted at. The valley of Chamounix alone would supply many of the nurserymen of England with female plants, and Oh! how richly fruited they were this season. [There are plenty to be had nearer home, as in the Warren at Folkstone. Ed.] Nothing but a Spartan integrity saved us from digging them up then and there, and sending them home in their fruitful beauty. Subsequently we saw large beds of the Sea Buckthorn in Dauphiné, near the junction of the Drac and the Romanche, smothered with berries and with white dust, for the thermometer, Centigrade, marked 34° or 35° at Grenoble (95° or 96° Fahrenheit) in the shade during our stay. While on the subject, what a curious difference of structure between the Alps of Dauphiné and those of Switzerland. Is it wholly owing to the one being limestone and the other granite?—the former so fantastic in outline that one feels inclined to agree with Arthur Young, who considered them "more picturesque than the Swiss mountains." Is the Lily that bears St. Bruno's holy name (Anthericum liliastrum) a native of the wild woods of La Grande Chartreuse? It was curious to note the way the little Ferns had entered the tunnel of Les Echelles, but not penetrated further than 12 yards into the darkness beyond the entrance. But by far the finest approach to the Desert of St. Bruno is from Grenoble, by way of Voreppe, and over the mountain, La Placette, to St. Laurent-du-Pont, where the ascent to the monastery begins; the whole journey is grand in the extreme. Between Aix-les-Bains or "Aches and Pains" (as one unlucky patient called it) the country is quite idyllic, suggestive of Pan's pipes and shepherdesses, and with fruitful Vines climbing from tree to tree, as in Italy. The shores of the Lac de Bourget, described more fancifully than faithfully by Lamartine in his *Raphael*, have on one side a long bog garden of tepid water under the baking ramparts of rock that bound the way to Chambery. The road divides this backwater from the lake, and thus forms a natural pond for many miles. Here are all sorts of flowering plants that love the marsh and pool. Bulrushes with their brown and seedy panicles waving in the breeze, and other grasses, yellow Water Lilies, Bog Bean, Frogbit, Water Plantain in bloom, and the loveliest Lythrum Salicaria—such compound spikes of rosy-purple as never deck the watercourses in England; and the old Codlins and Cream (Epilobium hirsutum), and many other aquatic plants. Opposite, on the far side of the lake, stands the ruined castle at Chatellan, where Pope Celestin IV. was born; it is close to the edge of the water. But this digression has taken us too suddenly from those delightful days of plant hunting in the Jura Mountains and the treasures we found there. Four sorts of Campanula, and one of them from its tiny bells and violet hue we fondly hoped was a near relation of C. pulla; quantities of the scarlet-fruited Elder (Sambucus racemosa), Service, and many other beautiful berries; two kinds of Hellebore, fœtidus and viridis—some of it in bloom still, so much the worse for those who like Swiss honey. Leaves of the Hepatica and Aquilegia, and a charming home friend, Genista sagittalis, in a clearing, with Pines around it—near Chaumoise. But time would fail me to tell of fleeting hours and lasting treasures, the *embarras de richesses* one meets with in those strongholds of Nature who is not too much occupied with the material cares of life, but can also find time for its embellishment. The sight of those unexpected haunts of beauty in her hidden places sends the traveller refreshed on his way, with many a fairy picture to beguile its lowering cares, and cheat life of its drudgery. But, "as every white must have its black, and every sweet its sour," our *couleur de rose* was chastened by "Mons. le Courrier," who preferred being *gris* on various occasions! One suggestion to conclude with: if the botanically-minded traveller has leisure to inspect that curious "Eifel" district between Trèves and Coblentz, he would probably be repaid. The lovely valleys of the Moselle are as promising as they are tempting, and the impress of extinct commotion is here as legible as it is in Auvergne, though the volcanic cones are not so red and rusty in colour. At Trèves the Roman remains are interesting, though the masonry is not so superbly finished as at Nismes, and the Pont du Gard, tapestried in its solitude by the Smilax and the shrubby Jessamine springing from its crannies. *H. M. E., Sept.* 30.

Snails and the Fertilisation of Plants.—Being much troubled with snails this year, a more than ordinary supply having found their way to our Kale-yard, I was wondering if, save for food for birds and a trial to the temper and a security for watchfulness in gardeners, they had any place in the Creation! Whilst thinking of this I saw one covered with pollen. A start of surprise at what seemed an immediate reply, followed all too quickly by a feeling of humiliation when I saw another of what seemed, at least to me, the same species, eating the very same flower—one, I think, if I remember aright, of the soft Thistle. The subject has been more or less in my thoughts since, so you may guess I was glad to find other peoples' thoughts taken up with what must be a matter of interest and a puzzle to many. Is the yellow Azalea a fly-eater? For years I have watched it and noticed that its flowers are always covered with a small fly larger than a midge. That they are drowned in the gummy fluid which covers the petals I know—that they also seem to decrease I believe. *Isabel Smith.* [We are under the impression that the gummy exudation from the Azalea is intended as a fly-trap to keep away unwelcome visitors. We do not think it has any digestive action. Ed.]

Late Peaches and Nectarines.—These are turning in grandly this year, the warm sunny weather we have been favoured with being just the thing to aid their swelling and colouring; and they are therefore not only large, but have handsome, rosy cheeks, and most of them first-rate in quality and flavour. The best with us in these latter respects is Princess of Wales, which is an improved Walburton Admirable, and is evidently a seedling from it, as it possesses all the characteristics of that fine old variety, which is nearly equal to a Noblesse, and when that is stated nothing else need be said in its favour. Lord Palmerston is a very large showy kind, but is too much of a clingstone, and lacks the sweetness and richness of juice of the Princess or Walburton, and is therefore not nearly so valuable as either. The Barrington is an established favourite, and is a Peach I should be sorry to be without, as it comes in so well between the summer and late autumn kinds, and keeps the supply till the October sorts ripen. Late Admirable is one of the best of these; like the noble Barrington, it always colours well, and is a hardy free-bearing sort, quite worthy of being planted either indoors or out. All these late Peaches require good aspects, and they should not only be planted on nice sunny walls, but should have copings over them, which are necessary to keep off the fogs, heavy night dews, and rains, which do so much damage to the tender skins and soft ripe fruit as to cause it to rot. Among Nectarines the best late varieties are Pitmaston Pine-apple and Humboldt, the trees presenting a close family likeness, as they are all yellow-fleshed, about the same size, and rich and high coloured as well. Of the three I prefer the Humboldt, for if there is any difference it is, perhaps, later and hardier; but no one can go wrong in planting either, as they are first-class, and in anything like fair seasons always bear well. *J. Shepherd.*

Open-Air Mushrooms. — The above mode of growing this very useful esculent has not been so generally adopted by gardeners and people resident in the country as it undoubtedly deserves to be. Some short time since a bed of Mushrooms came under my notice, in the course of peregrinations among the craft, that goes a good way towards proving to the unbelievers in the certainty of out-of-doors methods during the winter season, that the thing can be well done. I must confess I was myself rather sceptical on that head, and have only quite lately succumbed to the potency of facts. The bed in question was made up in October, 1882, of the manure from a stable where only hard food is given to the animals, and from whence it is removed daily. This had been shaken out, removing the long straw only; had then been thrown up into a square heap like a hotbed in form; had at intervals of a day or so, according to the weather, been turned over and knocked about, so that it was thoroughly mixed. In the course of a week or thereabouts it had been conveyed to a sheltered spot amongst big trees, made into long heaps about 3 feet high, by the same width at the base, about 9 inches wide at the apex; the length of the bed may have been 24 feet. The spawn had been shoved in at the sides, without making holes; these are dangerous, as they leave space round the spawn lump, gases are generated and confined, and the mycelium does not "run." Of course, previous to spawning the bed had been allowed to get warm, its temperature had been watched, and when it had receded to about 95° the spawning had been done. Covering up with sound loam, made fine and slightly damp, followed this operation. Holes were left open for a few days in case that, owing to the soiling up, the heat should rise to a dangerous height. Hurdles were afterwards placed at the sides, and about 1 foot of litter laid over them. As the hurdles were of iron, gathering could be done without disturbing them. When the weather was severe more covering was added. The bed commenced to bear about two months after spawning, and was not quite finished at the end of May. The produce had been very large, and the quality the best. *M.*

Staking of Specimen Plants.—It is no doubt necessary, in the forming of specimens of some kinds of plants for the purpose of exhibition or otherwise, to use, for the purpose of training, stakes, or supports of some kind. In many instances, however, these can be altogether dispensed with, and in cases where they are used they should be always carefully concealed, as it greatly detracts from the beauty of a specimen, however well formed, healthy, and profusely bloomed it may be, if unsightly supports are conspicuous. The exhibitions of the Bury and West Suffolk Horticultural Society have long been remarkable on account of their display of well grown plants of various species, more particularly as regards the Fuchsia and the Pelargonium, and more recently of the tuberous-rooted Begonias. I enclose a photograph (which does not, however, convey a very good idea of the plant) of a variety of the zonal Pelargonium known as Mrs. William Paul, shown by Mr. Ager, gr. to G. A. Partridge, Esq., of Bury St. Edmunds, at the show held at Barton in June last. This was certainly an extraordinary specimen, being fully 5 feet in diameter, and bore upwards of 300 trusses of flowers, and not a single stake appeared to have been used in its formation, or if such had ever been used they were all removed before it was placed in the exhibition. A circular wire, however, surrounded the pot, to which some of the branches were secured, and which with the pot itself was thoroughly concealed.

It was said to have been the sixth time this plant had been annually exhibited, and taken 1st prize in its class. Much credit is certainly due to the grower for his skill in being able to keep this plant for so many years in such healthy and vigorous condition. At this show, as well as that held in the early part of September, were several sets of six varieties of the nicest zonals ever shown; not quite so large as the specimens alluded to, but equally well known and profusely bloomed, and in no instance was a stake or support to be seen. The Fuchsias shown at these shows are generally grown in the form of free and graceful pyramids some 7 or 8 feet high, a strong stake of wood or iron supporting the main or central stem, which is, of course, quite concealed. *P. G., Bury St. Edmunds.*

Pentas carnea. — This old winter-flowering plant is well worthy of extensive cultivation to come in through the autumn and winter months. It will answer the same purpose nearly as the white Bouvardia, but has a larger truss, and stands well in a cut state. Cuttings struck in the spring, and grown on in a warm house, will bloom profusely through the winter, and well repay the grower. *R. M.*

Darlingtonia californica.—This quaint and not inelegant plant has been grown in many gardens since it was introduced from the Sacramento River, in California, in 1860. Its extreme height has been stated to be 18 inches. This has, however, been greatly exceeded by a specimen grown by Mr. Welsh, the gardener at Mount Merrion, near Dublin; several of the hollow leaves, with their terminal hood-like arrangement and leafy appendage, are 3 feet long, and much more substantial than usual. The plant is grown in a very plain lean-to structure and in a north aspect. It gets little sun even in summer, being much shaded with evergreen shrubs. Mr. Welsh has reason to be proud of his success in producing such a marvellous specimen as this. *J. D.*

Diseased Pelargoniums.—Will the gardener who had the misfortune to lose so many bedding Pelargoniums (p. 403) state if there is a stokehole in his potting-shed, or one near where he stores his potting soil during the winter, and in which the plants were potted in spring? Perhaps then I could offer a suggestion as to where the apparent disease comes from. I noticed, to my great sorrow, for several years, exactly the same symptoms in some of our plants—not with Commander-in-Chief, but with other popular bedding kinds. *C. F. B.*

Fruit Tree Transplanting. — This operation, when it is found to be necessary in consequence of the continued infertility of the tree, should be taken in hand as soon as the foliage shows signs of getting ripe. Tree lifting must not be confused with root-pruning, which is an operation that should find scarcely any place inside a fruit garden, the trees wanting all their roots to bring their fruits to perfection; but these roots must be under the more direct influence of the sun, and in a thoroughly congenial soil. Care must be taken that all roots, big and small, are dug out with as little damage or loss as possible, and those portions of them that are very much infested with wood or suckers must be cut off, as well as those deep descending ones that possess few or no fibres or rootlets. The workmen must begin far enough away from the stem, so that they reach the tips of the greater portion of the roots: the spread of the tree may generally be taken to be about equal to that of branches. In commencing the work the earth must be thrown out to the depth of 2 feet and a width of about the same, parallel to the wall or espalier, or in the case of a free standing tree, all round, or halfway round, whichever is most convenient. The mass of earth in which the roots are must then be carefully undermined, and the soil constantly thrown out of the trench for some little distance, till space is gained in which to work freely, then it will be sufficient to throw it back in the ground already explored. The five-tined steel digging-fork will be found in most soils the proper tool to use, and the shovel the best for throwing aside the loosened earth. As the roots are dug out they should be wrapped in damp materials, such as wet straw, rushes, or old mats, and should be bundled up when this is done, tying them up to short stakes conveniently out of the way of the operators. The trees should be completely loosened from all nails, ties, or other fastenings, for should this not be done when the soil sink, the roots would be partially drawn out of it. In old gardens it is generally advisable to incorporate good, sound loam with the staple, and for stone fruits lime rubbish; manure in such gardens is better applied as a mulch, put on as soon as the work is done; but in new ground, not naturally rich, one-sixth might be mixed up with new and old materials. Whatever is made use of must be well decayed, and free from rank stuff, such as that from kennels, dovecotes, piggeries, and poultry-houses. When the site has been made for the tree, with the new and old soil, this should stand not more than 9 inches below the surrounding ground level for kernel, and less for stone fruits; the tree should be put into position, the roots carefully laid out, and as straight as possible, pruning at the same time all damaged portions. The soil is best thrown on, with a sweeping motion of the tool, from the stem to the outer circumference of the hole, in small portions at first, till the roots are covered an inch or two. When this point has been reached, the soil should be watered with a coarse-rosed pot, to wash the earth into every crevice about the roots. More can then be thrown in till the soil stands somewhat higher than the rest of the ground. The tree can then be loosely fastened to prevent rocking, the mulch put on, and all left till the spring, when the usual training and tying can be done. *M.*

☞ **Vanda Sanderiana.**—At. p. 588 of our number for May 6, 1882, Professor Reichenbach spoke of this plant as "the grandest novelty introduced for years," and proceeded *more suo* to give a detailed description of it. This description, coupled with the note we gave last week when calling attention to the fact of the plant being in bloom with Mr. Lee, of Leatherhead, precludes the necessity of our doing anything more now than lay before our readers an illustration, taken by Mr. Worthington Smith from Mr. Lee's plant (see p. 441). This "grandest novelty" deserves all the eulogium passed on it, and while heartily tendering our congratulations to Mr. Lee we may express our hope that he may be enabled to exhibit it at the next meeting of the Floral Committee on the 9th inst.

Fig. 67.—Vanda Sanderiana: to show habit.

Belladonna Lilies.—By far the most showy and handsomest things in the garden just now are Belladonna Lilies, the flowers of which are lovely in their delicate colouring, and quite unrivalled for cutting to place in single specimen glasses, where, if kept well supplied with water, they continue to expand and last a long time in perfection. The best place to grow this charming Lily is close along the front wall of a stove or other plant-house facing south, as the situation cannot well be too sunny and warm, the solar heat being necessary for the bulbs to ripen thoroughly, on which their blooming freely in a great measure depends. What prevents this very often is the injury the leaves suffer during early spring through frost, which injures the tender foliage and frequently kills it quite back to the ground. To prevent this it is a good plan to mulch the surface with half rotten leaves, cocoa-nut fibre, or other light non-conducting material of that kind, and to stick a few evergreen branches in front of the row, so as to afford the plants protection, and thus render them safe from all harm. Should the weather set in dry during the fore part of the summer it will be a great help to the bulbs to give the border a good soaking of water, which will assist them in making free growth, after forming their bloom, which they do before the leaves die away in the autumn. The proper way to prepare the border for the planting is to dig it out a yard or so deep, and to drain the bottom with a 6-inch layer of broken bricks, on which some long litter should be scattered, to prevent the earth running between the interstices and filling them up. The kind of soil that suits the Belladonna Lily best is that which is light, open, and rich, and if not naturally sharp a good dressing of sand should be added, to secure and maintain its porosity. As to planting, the best time perhaps is August, a season when the bulbs are ripe and are imported in great quantity; but I have found them always do well when put in during the early months of the year, or immediately after the flowering season is past, when clumps may be pulled apart and separated without causing much check, as the bulbs are then at rest and have but few, if any, live roots. The right depth to plant is about 6 inches, for if nearer the surface the bulbs are liable to injury from frost, to prevent which a mulching should be applied at the beginning of winter. *J. S.*

Cut Flowers in Store.—I saw a few days ago in one of the houses in the gardens at Haydon Hall (a span-roof about 30 by 18 feet) an astonishing display of bloom for cutting. The end walls and rafters, about 3 feet 6 inches apart, were entirely covered with bloom from plants in surrounding borders. They were chiefly of the commoner kind of climbers, but it may nevertheless be useful to mention them. Tropæolum Fireball on the southern end, Habrothamnus on the west, then on the rafters Lapagerias scarlet and white, Plumbago capensis, Passiflora racemosa, Abutilon rosifolium and Boule de Neige, Trachelospermum jasminoides, Tacsonia Van Volxemi, and two or three kinds of Ipomœa. The plants were in excellent health, and bore bloom enough to cut and come again from for a long time. They were, of course, kept within bounds, so as not to monopolise the stages below to the detriment of a fine collection of specimen Azaleas. It was too late to see the great cool orchard-house in its glory, but there were still a few magnificent late Peaches on the pyramids in the borders. *T. W., Harrow.*

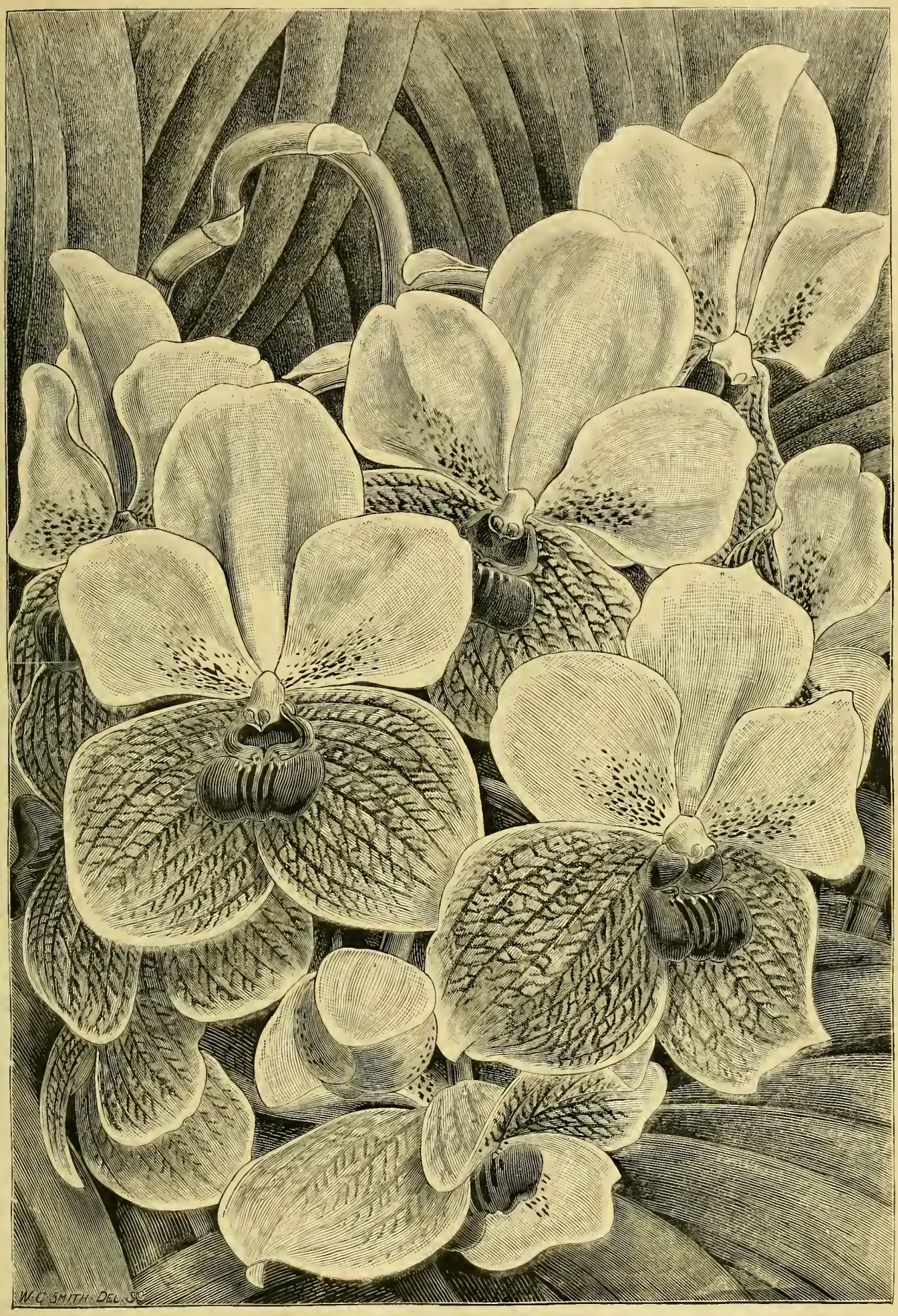


FIG. 68.—VANDA SANDERIANA. (SEE P. 440.)

THE APPLE SHOW AT CHISWICK.

If it be true that numbers lead to success, then the Apple show opened at Chiswick on Thursday is a success of the most marked description, the number of dishes of fruit staged—about 7500, from about 170 exhibitors—far exceeding the most sanguine expectations of the promoters, and heavily taxing the resources of Mr. Barron to find for all a dry and easily accessible habitation. When the Council gave permission for the use of the large vinery, it was generally thought that space would be found in that structure for all the Apples likely to be sent, but the anticipators counted without their host, collections having been sent in from most counties in England, several from Scotland, and a few from Wales, with the result that, first, the two Paxton-houses were requisitioned; then the old orchard-house had to be cleared out to make room for the invading pomological hosts; and finally much of the staging in the long lean-to Pelargonium house had to share a similar fate. By utilising the permanent wide stone shelves in the large vinery, and erecting two wide tables the entire length of the house, room was made for about 3800 dishes. The collections in every case are arranged in counties, each collection being staged in the space devoted to the county whence it came—an arrangement which as far as it goes serves to reduce the legions into something like order, though through the usual circumstances of late entry, some bringing more dishes than they had entered, and others not coming at all, the arrangement of the counties into districts could not at once be carried out. In the large vinery will be found the contributions of Kent, Middlesex, and Hertfordshire, which between them share the honours of exhibiting the greatest bulk of fruit, and the highest quality too. With these are associated the counties of Sussex and Surrey, Bucks, Berks, and Essex. In the old orchard-house will be found collections from Devon, Dorset, Wilts, Gloucester, Lincoln, Durham, and Huntingdon; from two counties in Wales—Pembroke and Glamorgan; and a handsome collection of Apples and Pears from Sweden—a contribution from the orchard-houses of Oscar Dickson, Esq., of Gothenburg (Mr. Loney, gr.). In the Paxton-houses are the collections from several counties in Scotland; from Westmoreland, Yorkshire, Lancashire, Stafford, Cheshire, Shropshire, and Worcester; while in the Pelargonium-house are located the contributions from Leicester, Northampton, Oxford, Hereford, and Somerset. Inclusive, perhaps, of nearly every sort mentioned in the *Fruit Manual*, these collections besides contain a vast number of sorts whose names have never appeared in that or any other list. A few of the best are illustrated in our centre pages.

Never before, it may be said without fear of contradiction, has such an extensive assortment of Apples been brought together—never before has such a magficent lot of fruit been seen—and that notwithstanding the fact that though the crop is an abundant one, size runs smaller than usual, and except in specially favoured places the colour is not so high as usual. It is doubtful, indeed, if any one has ever seen a grander collection of Apples than that staged for the honour of the "Garden of England" by Mr. Haycock, gr. to Roger Leigh, Esq., M.P., Barham Court, Maidstone, and which, bulk for bulk, beats any other collection of its size in the show, to say nothing of the superiority of the samples, from, other points of view, over any other similar number. It is indeed a noble group, exhibiting the results of cultivation, which reflects the highest credit on the grower. Passing from collections to individual examples, it may also be safely remarked that a more handsome dish of Apples has never been seen than one of the new American variety, Washington, which was figured in the *Florist and Pomologist* last year, and which has been grown in the orchard-house of T. Moillett, Esq., Hawkhurst, though exhibited in the collection of Messrs. G. Bunyard & Co., of Maidstone. Specially worthy of mention here are the very fine collections staged by Mr. Barron's co-labourer in organising the affair, Mr. Lewis A. Killick of Langley, Maidstone; by Mr. Jones, gr. to Her Majesty the Queen, Frogmore; Messrs. Cheal & Sons, Crawley; Messrs. Rivers & Son, Sawbridgeworth; the Messrs. Paul & Son, of Cheshunt; and Messrs. Wm. Paul & Son, of Waltham Cross; Messrs. Veitch & Sons, of Chelsea; Messrs. Lane & Son, Berkhamsted; Messrs. Saltmarsh & Son, of Chelmsford; Mr. Ford, gr. to W. E. Hubbard, Esq., Leonardslee, Horsham; Mr. Turner, Slough, and the Society's own collection of 274 correctly named varieties.

For the purpose of this general summary (time not permitting us to go into greater detail until next week) we shall classify the counties into districts, following the plan carried out in our annual fruit crop reports. Thus of the

Northern Counties

there are no contributions from Northumberland or Cumberland, but from Westmoreland comes one collection of thirty-four varieties, exhibited by Mr. C. Crossland, of Beechwood, Armside, and which are stated to have been gathered from trees planted in 1776 on the seashore, and in an average quality loam, only 12 inches deep, on a wet clay sub-soil. From Durham, which has a smaller acreage under orchard cultivation than Westmoreland, comes a large and most creditable collection, exhibited by the authorities and members of the Darlington Gardeners' Institute. The large county of York contributes only two or three collections, two of which were in their place on Thursday. Of these by far the finest lot comes from Mr. McIndoe, gr., Hutton Hall, Guisborough—a nice lot of clean samples, gathered, we suspect, from orchard-house trees. The other exhibitor—Mr. Bourne, gr. to Admiral Challoner, Guisborough—sends a dozen dishes, mostly for names. The county of Lancaster is only represented by two exhibitors—Mr. Maries, nurseryman, of Lytham, who shows fourteen sorts, all gathered from standards growing within half a mile of the sea, and Mr. J. Hathaway, gr. to the Earl of Latham, Latham House, Ormskirk, who shows sixty varieties.

Midland Counties.

Cheshire, which has nearly 2000 acres under orchard cultivation, is very creditably represented by large contributions from Messrs. F. & A. Dickson & Sons, and Messrs. James Dickson & Sons, of Chester, who each contribute about one hundred varieties—a fine, cleanly-grown lot of fruit, especially that from the Upton Nurseries; and smaller, but none the less interesting, groups from Mr. Selwood, gr. to the Duke of Westminster, Eaton Hall; and Mr. Maddock, Oakfield, Chester. From Derby and Notts we could not find any consignments, but from Salop, Mr. Kemp, gr., Haughton Hall, Shifnall, sends a representative collection, two fruits of a sort. Stafford, perhaps one of the poorest counties in England for outdoor fruit cultivation, is represented only by Mr. Stevens, gr. to the Duke of Sutherland, Trentham, who exhibits a few choice varieties grown on the Paradise stock. From Leicester Messrs. Harrison & Son send a collection of over one hundred varieties, some of which are represented by fine examples, while the bulk are of fair quality. Rutland and Warwick are, so far as we could ascertain, unrepresented; but for the small county of Northampton, Mr. Gilbert, gr. to the Marquis of Exeter, Burghley Park, Stamford, and Mr. J. Harlock, gr. to Lord Lilford, Lilford Hall, Oundle, do yeoman's service—Mr. Gilbert staging over one hundred sorts, all represented by fruits of fine quality, and including a number of seedling varieties collected from various gardens in the neighbourhood of Stamford, which seems to be a prolific spot for novelties of this kind. Mr. Harlock has only a small collection, but his fruits possesses the merit of being cleanly grown, and highly coloured. Oxfordshire is well represented by a large collection from Messrs. John Jefferies & Co., of Oxford, and smaller consignments from Mr. Pease, gr. to W. M. Foster Mellear, Esq., North Aston Hall, Deddington; and Mr. Finlay, gr. to Col. North, Wroxton Abbey, Banbury; while for Bucks, Mr. G. T. Miles, gr., Wycombe Abbey, sends ninety dishes, arranged in three groups—viz, fruits from trees on Paradise stock, grown as dwarf bushes; from another set on the same stock, grown as cordons on walls; and from old trees on the Crab stock grown in the table form in the marginal borders of the kitchen garden. Mr. Turner, of Slough, contributes 150 sorts from his own nurseries, and collected in the district. Mr. A. G. Bridgman, Great Marlow, sends thirty-five varieties; and Mr. Cakebread, The Gardens, Raynor's Park, Penn, two dozen sorts; and, we believe, a collection will also be staged from Mentmore. The last county in this section—Herts—is one of the three best represented counties in the exhibition—four large trade collections and one from a private garden being on exhibition. The Messrs. Rivers send from Sawbridgeworth a collection of 150 varieties, arranged in three divisions, one being devoted to American, French, and Russian varieties, and the other two to dessert and culinary kinds, arranged in the order of their seasons of ripening—a clean and well-grown lot. Messrs. Paul & Son, of Cheshunt, contribute 140 varieties, also a well-grown lot, including all the leading varieties, and some not so well known, represented by excellent specimens. Messrs. W. Paul & Son send from Waltham Cross a collection of over 200 varieties, including a very nice lot of fruit from their branch nursery at Framfield in Sussex—an extensive assortment altogether, which will well repay examination. Messrs. H. Lane & Son, of Berkhamsted, also have a large collection, in which the leading large growing sorts are represented by remarkably fine fruits, somewhat overshadowed it may be by the abundant display of that truly grand Apple, Lane's Prince Albert. Mr. J. C. Mundell, gr. to Lord Ebury, Moor Park, Rickmansworth, has a collection of forty sorts.

Eastern Counties.

The four Eastern Counties—Lincoln, Norfolk, Suffolk, and Essex—which have between them over 6000 acres of land under orchard cultivation, are very poorly represented, if we except Essex. From Norfolk and Suffolk we were unable to find any, and from Lincolnshire only one collection, and that a poor one as to quality. From Essex, however, there are two collections—one of about 120 sorts from the Messrs. Saltmarsh & Son, of Chelmsford, a well-grown lot of fruit, including two splendid dishes of their very fine new variety, The Queen, which comes out well, as also in other collections. The other lot, a most interesting one, of 112 sorts, comes from the most eastern part of England—Michelstowe, Ramsey, near Harwich, the exhibitor being a market gardener, Mr. W. O. Ward.

Southern Counties.

The seven counties included in this division have "come out strong," as Mark Tapley would say, if we except perhaps Hants and Wilts. Berkshire very appropriately leads the way with a very good collection of clean, well grown examples of eighty-six dessert and sixty-seven culinary varieties, and nine seedlings from the Royal gardens at Frogmore. Seventy-two sorts, represented by exceedingly well developed fruits, come from Mr. C. Ross, gr., Welford Park, Newbury; and from Purley Park, near Reading, Mr. Mortimer sends some forty-two sorts, somewhat smaller in size. Middlesex has some doughty champions in Messrs. Veitch & Sons, who contribute a remarkably fine collection of 180 sorts, all from young trees growing in their nursery at Southfields, alluded to in our last number, and specially notable for their clean, well-developed appearance, and good colour, where that is a characteristic. Messrs. Charles Lee & Son of Hammersmith, have also a large collection, consisting of about 150 varieties, represented by samples large in size for the most part, and good in quality; their nurseries also were alluded to in our last issue. Private growers are well represented by Mr. Wright, gr. to — Watts, Esq., Chiswick, who sends fifty varieties, a first-rate lot, grown near the Gardens, if not on a portion of the Arboretum that once was a feature at Chiswick. Mr. Roberts, of Gunnersbury sends a neat collection of forty sorts, and his neighbour, Mr. Hudson, gr. to H. J. Atkinson, Esq. Gunnersbury House, a similar collection of about thirty sorts. Mr. Woodbridge has a very nice lot of about fourty sorts from the Syon House collection. A small collection, but extra fine in quality, comes from Mr. G. Thompson, Croxby House, Hounslow; and Mr. Bray, of Bedfont, sends a few very pretty samples. Here also should be again mentioned the large Chiswick collection, which, on account of the great care bestowed by Mr. Barron on the nomenclature of the trees under his charge, will be of great value to any one seeking correct names.

For quantity and quality combined, Kent undoubtedly takes the lead, as from her favoured geographical position she might well be expected to do. In her honour and glory Mr. Haycock shows the magnificent collection previously alluded to; Messrs. G. Bunyard & Co., Maidstone, a very fine lot of about 150 sorts, including the remarkably handsome sample of Washington

above mentioned, and one of the largest examples we have seen of the new Queen. This collection is admirably labelled, each card stating the use of the sort, dessert or culinary, its season of usefulness, and its special suitability for either orchard, pyramidal, bush, espalier, or cordon system of cultivation. Mr. Killick has about 120 sorts, all very finely developed and highly coloured fruits. Mr. Chisholm, of Tunbridge, sends a small lot, also of very superior quality; Mr. G. Goldsmith, gr., Hollanden, Tonbridge, has also an excellent collection of seventy varieties; and Mr. Goodwin, gr., Mereworth Castle, sends a few sorts, which are also extra fine in quality. The Messrs. Frost, of the Bower Nursery, Maidstone, send a collection; and Mr. G. White, of the same fplace, has about fifty sorts, grown at East Farleigh. Mr. C. Langley, Crabbe House, River, near Dover, sends a collection, best described as small and good; Mr. G. Britcher, Tonbridge, has twenty-five varieties; and Mr. Neighbour, gr., Bickley Park, and Mr. J. Beaton, Yoles Court, near Maidstone, both show large and meritorious lots.

Sussex is also very strongly represented, the Messrs. Cheal & Sons, of Crawley, alone putting up an immense collection, numbering about 250 sorts, and of which any county might be proud, the quality being superior and the samples well named. A small lot comes from another Sussex nurseryman, Mr. R. Miller, of Shoreham; and the private growers are represented by Mr. Sidney Ford, gr. Leonardslee, who has 150 varieties, a first-class lot of samples, with many good local varieties among them.

Surrey, strange to say, is represented only by private growers, but we are bound to say that these make a great and excellent display. Mr. Cummings, gr. to A. H. Smee, Esq., The Grange, Hackbridge, sends from "My Garden" some 200 sorts—a very pretty lot of fruit. Mr. J. Bunnett, gr., The Deepdene, Dorking, has 100 sorts, mostly excellent. J. B. Hayward, Esq., Reigate, sends 140 varieties; while smaller collections are shown by Mr. Coombes, gr., Sheen House, Mortlake; Mr. H. Matthews, Bletchworth; Mr. T. Taylor, gr., Duneevan, Oatlands Park; Mr. Day, Titsey; and Mr. Barclay, gr., The Durdans, Epsom. Hants is unrepresented, but from Wilts Mr. Horsefield, gr. to Lord Heytesbury, sends a dozen sorts grown in the Wylye Valley, about 17 miles north-west of Salisbury.

Western Counties.

The seven counties in this division, considering the reputation of most of them as fruit-growing centres, are very poorly represented, Monmouth and Cornwall sending none at all, while of the others, Worcester, which has over 16,000 acres of orchards, and boasts one of the largest fruit tree nurseries in the kingdom, is represented only by about fifty sorts, Messrs. R. Smith & Co. showing four varieties, Mr. Edward Cockbill, Bryn Issa, Pershore, about thirty sorts; and W. J. Twinberrow, Walsgrove, Great Witley, a few others. For Hereford, the Cranston Nursery Company show a highly meritorious representative collection of about 300 sorts, including a number of the purely local cider varieties, and nearly all of unusually good quality. Messrs. J. C. Wheeler & Son, of Gloucester, and Messrs. John Jefferies & Son, of Cirencester, show well as trade growers for their county; while Mr. Shingles, gr. to Earl Ducie at Tortworth, Falfield, represents the private growers with a very fine lot for the district. Mr. R. H. Poynter, of Taunton, and Mr. J. Scott, of Merriott, are the only Somerset growers present, the former having about eighty varieties, nice cleanly grown samples, and Mr. Scott a collection of about 200 sorts. Messrs. R. T. Veitch & Son, of Exeter, send a capital lot of about 100 sorts; and Mr. A. Rogers, of Axminster, a collection of fifty varieties, which are all that come from Devon; while for Dorset Mr. W. G. Pragnell, The Gardens, Sherborne Castle, sends a most meritorious collection of 140 sorts, two fruits of each, all gathered from cordon-trained trees on the Paradise stock.

Wales.

As before remarked, there are only two exhibitors from the Principality—Mr. Griffin, gr. to the Baron de Rutzen, Slebeck Park, Pembrokeshire; and General Benson, C.B., Fairy Hill, Swansea, Glamorganshire. Mr. Griffin sends the largest collection—about eighty sorts, including most of the leading varieties, and a number of local sorts, the samples for the most part being good in quality.

Scotland.

Decidedly one of the most interesting features of the exhibition is the large display made by Scotland, and which fills one of the Paxton-houses before mentioned. Here we must not omit first of all to compliment Messrs. Ormiston & Renwick, of the Tub Nurseries, Melrose, on the care and trouble they have taken in gathering and bringing to Chiswick such an admirable display of Tweedside Apples—a useful piece of work which nurserymen in other districts might also with great advantage have undertaken. The Tweedside Apples include some seventy varieties from the Earl of Home's garden, at Hirsel (Mr. Cairns, gr.), which is in the valley of the Tweed, and equidistant between the Cheviot and Lammermoor Hills; one variety from Thomas Hogg, Esq, Hope Park, Coldstream; twenty-two sorts from Miss Scott MacDougall's garden at Merkerstoun, on the north bank of the Tweed; thirty sorts from Lord Polworth's, at Mertoun, St. Boswell's (Mr. Fowler, gr.); forty-three sorts from the Rev. M. H. Graham, of Maxton Manse, on the south bank of the Tweed; thirteen varieties from Mrs. Meiklam's, of Gladswood, a similar number from the Earl of Dalkeith, Eildon Hall, on the south side of the Eildon Hills, and 600 feet above the sea level; twenty-six sorts from Priorwood (A. Curle, Esq.), near Melrose Abbey; fifteen from Harleyburn (J. Curle, Esq.); seventeen from Abbotsford (Hon. J. C. Maxwell Scott); five from Lady Brewster's, of Allerly; ten from A. Ormiston, Esq., Mayfield, Gattonside; eight from Lieut.-Gen. Henry, C.B., Pavilion; twelve from Mrs. Dalrymple's, of Langlee; eight from C. Tennant, Esq., of The Glen, Innerleithen; and three from Dryburgh Abbey.

Lanark, which has the largest acreage of any Scotch county under orchards, is represented by a collection of seventy-six sorts, shown by Mr. W. King, gr. to Major Hamilton, Motherwell, who owns one of the finest orchards in the county. Perthshire makes a very brave show with four exhibitors. First comes a very fine lot, collected by Dr. Robertson, of Errol, a local pomological authority of repute, and who sends a good representative collection of the sorts grown in the Carse of Gowrie; Mr. McKinnon, gr., Scone Palace, sends a very good lot of fifty sorts; and Mr. Doig, The Gardens, Rossie Priory, sends a similar number, good in size and colour. Another Perthshire man, Mr. John Reid, of Ballindean, Inchture, a cottager who is well known as a keen competitor at the Dundee show, sends about twenty sorts of very fair quality. From Brodie Castle, Nairnshire, about 30 miles north-east of Inverness, Mr. Clark sends a nice clean lot of fruits. East Lothian is represented by two collections, one from Mr. Brotherston, gr., Tyninghame, containing forty-six sorts—a nice lot of fruit; and the other collection, which includes about eighty-one sorts, and good in quality all through, comes from Mr. John Brunton, gr., Gilmerton, a very successful exhibitor at the Edinburgh shows. From a cold and wet district in Wigtonshire, Galloway House, Garliestown, Mr. J. Day sends a small collection; and before this number reaches our readers it is expected that a collection of about 200 dishes will have been staged by Mr. Dunn, of Dalkeith.

The committee commenced their duties in examining the collections and correctiog the nomenclature yesterday (Friday), and will proceed from day to day until the whole is completed, when we hope to present our readers with some of the useful results of this great show.

Next week we shall resume our report, and in the meantime we advise gardeners and fruit-growers to pay Chiswick a visit. We congratulate the authorities on the success of their venture, and trust their enterprise may bear fruit to their entire satisfaction.

Vegetation of Tulcan. — A characteristic feature of this foggy and cold region, where the Lichens hang from the trees in long fringes of grey lace, is the presence of a pretty Orchid, the variety of Oncidium cucullatum called macrochilum. I indicate the locality to collectors—I should say, to the spoilers—of these beautiful plants, because it is so abundant that they cannot exterminate it. I have found, but more rarely, a white variety. On the crest of this paramo, which overlooks the *méseta* of Tulcan, I saw for the last time the distant summits of New Grenada; henceforth the heights I shall have to traverse will entirely hide them from view. Vegetable life abounds in this cold foggy district, thanks to a fertile soil. Veritable trees reappear. Enormous Aralacious plants of the genus Oreopanax, Melastomads to be classed among the giants of the family have their branches covered with charming Bromeliads (Caraguata), with pendent flower-spikes, scarlet bracts, and orange flowers, and the pretty bunches of an Orchid (Epidendrum), of which the colour varies from a cinnamon-brown to a decided yellow. *Ed. André*, "*Le Tour du Monde*," *p.* 363-4.

GARDEN NAMES FOR PLANTS.

This subject is one that is continually cropping up. For botanical purposes strictly there is a code well known and acted on by botanists, but for garden plants this code does not work well. The original type should retain its Latin name—all agree upon that point; but when it comes to garden varieties the case becomes altered. Where English names are available they should, of course, be employed; but when it comes to a question of forging new ones then a difficulty arises. Artificial varieties—made, if we may be allowed the expression, by the gardeners—should certainly either not have Latin names at all, or if Latin be employed the terms used should be such as not to create a false impression as to the real nature of the plant to which they are appended. English names, however, have the great objection that they will not pass current in France, in Germany, or in Russia. We have an illustration of the inconvenience of foreign nomenclature in the names given by Russian or Polish botanists and gardeners. In this country such names are but too likely to be mis-spelt, and are too often unpronounceable.

Quite lately, Dr. Sturlevant, the Director of the New York Agricultural Station, had occasion to speak of certain well marked and, according to him, constant varieties of Maize, to which he proposes to give the name of Pop Corn, Flint Corn, Dent Corn, Soft Corn, Sweet Corn, and Husk Corn respectively. These are good serviceable names for garden or field use in America; but in this country not one of these would be called by the name Corn—Maize being our word for the varieties of Zea Mays. Further, Dr. Sturtevant proposes to distinguish these varieties by Latin appellations, as follows:—Zea * everta, Zea * indurata, Zea * indentata, Zea * amylacea, Zea * saccharata, and Zea * vaginata. These six varieties may all have originated from Zea Mays, under which head they would all be grouped by botanists. Dr. Sturtevant thinks they may be so many species as distinct from each other as Zea Mays is distinct from its allies; but as the matter is doubtful he uses the asterisk (*) between the generic and the specific name—a conventional method of indicating that the names are intended for the purposes of the cultivator rather than for the scientific classifier.

The great objection to this plan is that it is only available in written or printed documents, and even from them the distinguishing asterisk would be almost sure to be omitted sooner or later, while for conversational purposes of course the asterisk is quite useless. The same objection applies to the plan we frequently adopt of adding the symbol "hort." to plants of garden origin whose botanical status is unknown or undefined: thus, Cattleya præstantissima, hort. Veitch, or Aërides pretiossisimum, hort. Lawrence—to coin names for the purpose of illustration. What is wanted is some Latin suffix or affix indicative of the garden origin or botanically indeterminate nature of the plant—one which will not clash with any in use by botanists, and to which definite significations are attached by them. Thus the terminations "eæ," "acea," "aceæ," have each a definite botanical signification—not absolute—for where there are many men there are many minds, and some people will not obey the law, while in other cases expedience and convenience extenuate if not justify the breach. Some scholar like Mr. Wolley Dod — whose efforts to secure correct nomenclature deserve all praise—and who knows the requirements both of botanists and of gardeners, might be able to devise some scheme which would serve as an expedient. In the nature of things it could only be an expedient, for it would be in vain to endeavour to attach fixed names to things, many of which are evanescent, and all of which are subject to variation, and all likely to be differently appreciated by different minds.

Torenias. — Some charming specimens of T. Bailloni and T. Fournieri were objects of considerable interest at Chiswick during the summer, in the form of pretty compact specimens, blooming very freely, the pendent growth of the former contrasting pleasantly with the upright habit of the latter; and the pretty orange and dark flowers of T. Bailloni are very distinct from those of T. Fournieri, these having a pale blue crest, a yellow flame in the throat; the lip and sides of the flower being maroon. They are plants we do not often see, but when well grown they are highly attractive. We have seen the former, and also T. asiatica, used as basket plants with excellent effect.

IRISH GARDEN NOTES.

Old Conna Hill, Bray. — Having visited Ireland recently, I intended to see as much of the country as I could, and as many gardens as I was able in the few days at my disposal, being at the same time determined to keep my pencil and notebook in my pocket, and take no notes of anything. But on visiting Old Conna Hill, in company with that genial Irishman and kind friend, Rev. F. Tymons, I found a few things it was not possible to pass without notice. Phineas Riall, Esq., D.L., is the owner of this beautiful estate and interesting old garden. In driving through the well kept grounds to the mansion, I made a comparison mentally between the deciduous, evergreen, and coniferous trees here and those in our own garden, about the same distance from London as this is from Dublin, the comparison being very much in favour of the Irish garden. Every tree was in full leaf and summer beauty, and no traces of autumn tints to be seen, while our trees had been blasted with hot winds and summer drought to such an extent that some of them had lost a large proportion of their leaves, and the broom had been in constant requisition for a month at least. These noble trees and vigorous healthy shrubs testify to the excellent soil and favourable climate of this part at least of the Emerald Isle. The coniferous trees are vigorous almost beyond belief, and they are rivalled by the Hollies, the rich colours of the variegated kinds, such as Golden Queen, attracting immediate notice. Beside the Coniferous trees, of which there is a very choice collection, comprising some handsome specimens of Abies nobilis and A. Nordmanniana, Larix Kæmpferi is a vigorous young specimen, although, as is usual, it does not grow freely upward. There are numerous New Holland shrubs, which grow quite vigorously in the garden, having withstood several severe winters. Here, for instance, is a noble specimen of what is usually termed the Bottle-brush shrub (Metrosideros floribunda), usually grown in our greenhouses. It has been established out-of-doors for years, probably a quarter of a century or more, as it is about 8 feet high and 6 feet across.

Desfontainea spinosa was conspicuous at a distance by its beautiful scarlet and yellow flowers: the bush, in exuberant health, was 6 feet high and 7 feet through. This Peruvian plant is not often seen in such fine condition.

A noble specimen of Cordyline australis rises from the centre of a sheltered lawn to a height of 15 feet or more. It bore a terminal panicle of sweet-scented blossoms, quite 4 feet across. Truly, this is the place to practise subtropical gardening! This Cordyline is an excellent plant to plunge out-of-doors during summer; but where in England has it become an established specimen out-of-doors?

Eugenia apiculata forms a large bush, 12 feet high by 12 feet across. It is furnished to the ground with a dense mass of branches, its Myrtle-like white flowers being thickly distributed amidst its deep green leaves. An isolated specimen of Erica arborea, 10 feet high, shows how well the soil was adapted for Heath culture. Cistus Algarvensis is finely in flower; its golden blossoms with a maroon base to the petals, are an inch in diameter. Mandevilla suaveolens is a very fine greenhouse climber, not often seen in good condition, owing to its reluctance to take kindly to pot culture. Planted out, the pure white fragrant blossoms are very charming. Here it is in great beauty, trained to a wall out-of-doors; and near it is Solanum jasminoides, climbing to the top of a high wall; its clusters of white flowers hanging from straggling branches is a sight not soon to be forgotten.

Fuchsia Riccartoni, as seen in the form of large bushes, is a grand sight. The pretty little species, F. microphylla, is in its way not less beautiful; it is a tiny bush in comparison to its next of kin, but the little scarlet drops suspended amongst the small leaves on slender stems never fail to please.

Amongst the popular plants of the Dublin district the large flowered shrubby St. John's Worts hold a prominent place, and most deservedly so, as they are grown and flowered in the best gardens. Hypericum oblongifolium, with its large golden cupped flowers covering every growth, is new to my experience. Not less handsome is H. triflorum, and, as seen in this garden in the form of large bushes and in excellent health, finer shrubs can hardly be imagined. Here also is the scarlet flowered Tropæolum speciosum, planted against a high wall close to the doorway. Left to itself it forms a beautiful picture; clinging to the branches of trees and shrubs it has gained the top of the wall, and wreathed the doorway with its scarlet blossoms, more beautiful now in contrast with the blue-tinted seeds. I have not mentioned a tenth of the beautiful flowering and handsome leaved shrubs; neither is there space to enumerate the herbaceous plants in the mixed borders, nor the bedding-out on the well kept lawns. The hothouses are maintained in excellent order, and quite satisfy the demand for flowers and fruit, everything being very creditable to Mr. Riall's excellent gardener. In walking through the hothouses it is easy to perceive the worthy proprietor has a strong leaning towards the culture of Ferns and allied genera. The Filmy Ferns have ample space in which to develope their beauties, being shaded from the sun and sheltered by glass, in the way best adapted to their requirements; while the larger growing species have also sufficient space in which to display the charms of their finely divided fronds and their graceful contours.

There is also a fine representative collection of hardy Ferns. These have been arranged with much taste in a specially prepared rock garden. To name the collection would be to give a list of the finest forms of all our native Ferns. Sheltered as they are from cutting winds by an old Yew hedge, the fronds were perfect in form and colour. Not content with what seems ample space for a hardy fernery, they have overflowed into the kitchen garden, and travelled for scores of yards round the borders. Thinking that Mr. Riall might not have seen the variety of the common Polypody, Polypodium vulgare cornubiense Fowleri, which resembles the Killarney Fern so much as to be mistaken for it at a casual glance, I mentioned it to him. "Oh, yes; I have it here;" and thinking to see a small plant, I followed as he led the way round the border, and here sure enough it was in two forms; a whole row of it across the narrow border like a broad band of Parsley. It was evidently not a new plant at Old Conna Hill. There seem to be two types of it, one much more delicately formed than the other. I sent a frond of each form of it to that great authority on Ferns, Thomas Moore, Esq., the Botanic Garden, Chelsea. I saw the plant from Messrs. Stansfield that was certificated last year, and do not doubt that it is identical with the above kind. Having to go further that day, we reluctantly took leave of Mr. Riall and his interesting garden, which to him must be a source of never failing enjoyment. *J. Douglas.*

The Arboretum.

Æsculus sinensis, Bunge.—M. Lavallée recently showed specimens of this tree before the Central Horticultural Society of France from China and from Japan. The tree is hardier than the common Horse Chestnut, and begins to unfold its buds about a month later. The young leaves have a rusty-brown colour.

Cratægus nigra.—This is a robust vigorous-growing Thorn, with deeply-cut leaves, hoary beneath, and shining black, round fruits. It makes a good bush or small tree from 15 to 20 feet in height, and when laden with fruit is a striking object. It is a native of Hungary, and was introduced to this country at the commencement of the present century; it is, however, not so frequently grown as it deserves to be. London informs us that "nightingales are said to be attracted by this tree, probably because it is particularly liable to be attacked by insects, and because numerous caterpillars are to be found on it about the time when the nightingale is in full song." The same property of attracting nightingales is ascribed to the common Hawthorn in *La Théorie du Jardinage*, &c., published in 1709. C. nigra at Kew (where there are many fine trees) seems to be, this season at any rate, almost free from insect attacks of any kind.

Escallonia Phillippiana.—A white-flowering variety of these elegant shrubs is a most abundant bloomer during the months of June and July, so that the duration is an extended one for a summer flowering shrub. The plant is not particular as to soil, but more so as regards position, requiring, in more northerly localities than London, the protection of a wall. At Combe Wood it is quite hardy, blooming beautifully in fully exposed places, and having no other protection than what is afforded by the proximity of other dwarf shrubs. This should prove to be an excellent companion plant to E. macrantha and E. Ingrami, all of which are very effective as specimens for the lawn or choice shrubbery, and equally so as pot or tub plants for courts, balconies, and such-like places, in which tenderer plants, or those with softer foliage, would be damaged by the wind and general exposure. A figure was given in our volume for 1878, p. 109.

Prunus Pissardi is certainly one of the most remarkable hardy shrubs in cultivation. We know of none which can in any way vie with it in the splendour of its intense red foliage. The fruits, too, even in a young state, are also a deep red colour—a character which perhaps does not obtain in any other Plum. The species is still rare in gardens—indeed the only locality where we have seen it in this country is the Waltham Cross Nurseries of Messrs. W. Paul & Son—but its rare ornamental character is sure to make it a general favourite before long. A coloured plate of the foliage and a full description of the plant, together with the history of its introduction, is given in the *Revue Horticole* for 1881. The specific name was given by M. Carrière, in honour of M. Pissard (head gardener to the Shah of Persia), who sent the plant to France. It is found about Tauris, an important Persian town about 450 kilometres from Teheran, where it is still rare and much sought after on account of the bright colouring of the leaves, and particularly of the fruits, which are deep red even as soon as formed. Before being ripe these are used for the decoration of desserts, and are also eaten with salt; when quite ripe they are of fairly good quality. M. Carrière recommends that the plant should be used for enlivening beds or borders near dwellings, as its leaves, flowers, fruit, as well as the deep blackish-red shining bark, constitute a perpetual ornament. Its dwarf branching habit renders it a fit subject to be grown in pots, like Spiræas and other similar shrubs. *G. N.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON

For the Week ending Wednesday, October 3, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Sept.	In.	In.	°	°	°	°	°	°	°		In.
27	29.50	−0.24	63.0	51.5	11.5	55.9	+ 1.3	50.3	82	W.	0.15
28	29.38	−0.35	64.0	48.8	15.2	56.0	+ 1.5	48.1	70	W.	0.17
29	29.09	−0.63	58.5	47.5	11.0	50.9	− 3.5	45.7	84	W.	0.87
30	29.26	−0.45	53.0	45.5	7.5	48.8	− 5.5	46.3	91	W. ; N.N.E.	0.19
Oct. 1	29.63	−0.07	54.5	46.0	8.5	48.8	− 5.0	40.0	73	W.NW.	0.05
2	29.82	+0.13	54.0	40.5	13.5	46.6	− 7.6	37.4	73	N. ; N.N.W.	0.05
3	29.35	−0.33	48.5	42.0	6.5	45.2	− 8.7	41.8	88	W.	0.22
Mean	29.43	−0.28	56.5	46.0	10.5	50.3	− 4.0	44.2	80	W.	1.70

Sept. 27.—Heavy showers throughout the day. Fine night.
— 28.—Fine and bright at times. Dark cloudy night; rain from 6 P.M. to 8 P.M.
— 29.—Fine bright morning; hail fell from 2.13 P.M. to 2.20 P.M. Heavy rain from 4 P.M.
— 30.—Dull morning; rain till noon; occasionally bright, with a warm sun. Dark cloudy night.
Oct. 1.—Fine at times; few showers of rain. Dark night; cold wind all day and night.
— 2.—Fine and cloudy alternately; very cold wind. Dark sky at night.
— 3.—Very dull; raining all day. Dark night.

London: *Atmospheric Pressure.*—During the week ending September 29 the reading of the barometer at the level of the sea increased from 29.93 inches at the beginning of the week to 30.10 inches by 9 A.M. on the 23d, decreased to 29.66 inches by 3 P.M. on the 24th, increased to 29.91 inches by 10 P.M. on the 25th, decreased to 29.69 inches by 9 A.M. on the 26th, increased to 29.73 inches by 10 P.M. on the same day, decreased to 29.64 inches by 3 P.M. on the 27th, increased to 29.72 inches by 9 A.M. on the 28th, and was 29.23 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.69 inches, being 0.29 inch lower than

last week, and 0.21 inch below the average of the week.

Temperature. — The highest temperature in the shade in the week was 69°, on the 25th; the highest reached on the 29th was 58°.5. The mean of the seven high day temperatures was 64°.9.

The lowest temperature in the week was 43°.5, on the 23d; the lowest temperature on the 25th was 55°.1. The mean of the seven low night temperatures was 50°.6.

The greatest range of temperature in one day was 21°.9, on the 23d; the smallest was 11°, on the 29th. The mean of the seven daily ranges was 14°.3.

The mean temperatures were—on the 23d, 54°.7; on the 24th, 59°.8; on the 25th, 60°.6; on the 26th, 59°.8; on the 27th, 55°.9; on the 28th, 56°; and on the 29th, 50°.9. Of these the 23d and 29th were below their averages by 0°.5 and 3°.5 respectively; the rest were above by 4°.8, 5°.8, 5°.1, 1°.3, and 1°.5 respectively.

The mean temperature of the week was 56°.8, being 1°.5 lower than last week, and 2°.1 higher than the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 117°.5, on the 26th. The mean of the seven readings was 111°.4.

The lowest reading of a thermometer with its bulb placed on short grass was 36°.1, on the 23d. The mean of the seven readings was 42°.9.

Rain.—Rain fell on six days, to the amount of 1.48 inch, during the week, of which 0.87 inch fell on the 29th.

England: *Temperature.*—During the week ending September 29 the highest temperatures were 69°.7 at Cambridge, and 69° at Truro and Blackheath; the highest at Bolton was 62°.2, at Bradford 62°.8, and at Wolverhampton 63°.7. The general mean was 65°.9.

The lowest temperatures in the week were 38° at Wolverhampton, 39°.7 at Cambridge, and 41°.2 at Nottingham; the lowest at Truro and Leeds was 49°, and at Bradford 48°.8. The general mean was 45°.2.

The greatest ranges of temperature in the week were 30° at Cambridge, 26°.6 at Nottingham, and 25°.7 at Wolverhampton; the smallest ranges were 14° at Bradford, 15° at Leeds, and 15°.9 at Liverpool. The general mean was 20°.7.

The mean of the seven high day temperatures was highest at Cambridge, 65°.4, at Blackheath 64°.9, and at Brighton 64°.5; and were lowest at Bolton, 59°.4, at Bradford 60°.1, and at Liverpool 60°.3. The general mean was 62°.2.

The mean of the seven low night temperatures were highest at Truro, 54°.9, at Plymouth 53°.4, and at Brighton 52°.2; and were lowest at Wolverhampton, 46°.9, at Nottingham 48°, and at Cambridge 49°.1. The general mean was 50°.8.

The mean daily range of temperature was greatest at Cambridge, 16°.3, at Nottingham 15°.5, and at Blackheath 14°.3; and were least at Liverpool, 8°.4, at Truro 8°.5, and at Bradford 8°.9. The general mean was 11°.4.

The mean temperature was highest at Truro, 58°, at Brighton 57°.2, and at Plymouth 57°.1; and was lowest at Wolverhampton, 52°.9, at Bolton 53°.4, and at Bradford 54°.4. The general mean was 55°.5.

Rain.—The largest falls were 4.14 inches at Bolton, 3.86 inches at Bradford, and 2.68 inches at Sheffield; the smallest falls were 1.28 inch at Nottingham, 1.33 inch at Brighton, and 1.48 inch at Bradford. The general mean fall was 2.26 inches. Rain fell on every day in the week at northern stations, and on six days at southern stations.

Scotland: *Temperature.*—During the week ending September 29 the highest temperature was 66°.9, at Dundee; at Paisley the highest was 62°.5. The general mean was 64°.4.

The lowest temperature in the week was 38°.5, at Aberdeen; at Leith the lowest temperature was 46°.4. The general mean was 41°.9.

The mean temperature was highest at Leith, 55°.5; and lowest at Aberdeen 51°.9. The general mean was 53°.5.

Rain.—The largest fall was 1.44 inch, at Perth; and the smallest was 0.63 inch at Leith. The mean fall was 1.07 inch.

JAMES GLAISHER, F.R.S.

Variation. — "Each species has the property of varying within a certain amount; crossing of different individuals, so long as no selection is made in a definite direction, suffices to keep the middle point fairly constant, about which the variations oscillate; and so the extremes remain also constant. But if the tendency to vary in either direction is aided by natural or artificial selection, then our middle point is, as it were, shifted to that side, and the extremes of oscillation are also shifted to the same side." *Müller's "Fertilisation of Flowers."*

Enquiries.

He that questioneth much shall learn much.—Bacon.

Preserving Berries of Mountain Ash.—Is there any method of preserving the berries of Mountain Ash, so that they may be used through the winter for decorative purposes? Any information will very much oblige. *John Littlejohn, Aberdeen.*

Answers to Correspondents.

Artificial Edging Tiles (see p. 409). — There is a great dearth of really rustic or artistic edging-tiles. The only really good substitute that I have met with is a singular one. Of this I have used some miles in extent in connection with my landscape garden work. What I refer to are the "clinkers," or bricks used for paving all good stables, or more especially the stalls wherein the horses stand. These are in size 5 or 6 inches in length, 1 to 1½ inch in thickness, and about 2 inches, or a little more, in width. They are composed of exceedingly hard material—so much so that difficulty is experienced in breaking them with the hammer. I have never had occasion to use new ones—old ones which had been cemented in, worn somewhat, and taken up, being preferable to new, owing to their aged appearance and the roughness which portions of cement attached give. They are not made square, or to any true outline, hence the name of "clinkers," and excellent effect they produce. Laid slantwise in the ground, with one corner only projecting upward, they give an exceedingly neat and effective edging. Such a small portion protrudes from the ground, or above its level, that they are a fixture, seldom shifting when a wheelbarrow-wheel goes over them, and they are easily righted when displaced. Of course, if laid in binding material, lime, sand, &c., well watered in during dry weather, this substance being permitted to dry, they become additionally firm. Modern clinkers are made with smooth surfaces and cut-away edges, glazed, &c.: these I do not recommend as being equal to the old. Probably an advertisement may result in obtaining a heap of the old, as they are but a lumber-heap in many places which owners do not know what to do with. *William Earley, Double House, Ilford.* [We also can speak well of these for an edging. Eo.] — In answer to "S. F.'s" enquiry about artificial edging for kitchen gardens I would suggest the use of rope made of manilla or ordinary hemp, 4-ply thick, such as is used on board ship, and thoroughly saturated in gas or other tar to preserve it from damp. To use it judiciously boards or Larch poles of an even thickness, say 3 inches in diameter, should be firmly placed into the ground and secured with wooden or iron pegs, and the rope nailed firmly thereto with 4 or 5-inch steel nails. In the gardens of a nobleman on the northern side of the "bonny Tweed" may be seen numerous flower beds adorned with rope of the thickness described, and to those fond of an artificial edging the rope will be found not only pleasing to the eye, but less labour will be needed by the use of it. *Seedsman, Dublin.*

Begonia: *G. Finlay.* The blooms were very good; it may, therefore, be worth preserving, especially as habit and foliage are good.

Books: *Inquirer. Table Decoration;* Miss Hassard's *Floral Decorations for Dwelling Houses* (Macmillan & Co.). — *Aquatic Subscriber.* There is a shilling manual on the subject, called *The Aquaria,* which gives the information you require, but we have forgotten the name of the publisher. Any bookseller will get it for you.

Coverings for Frames: *Old Subscriber.* Straw mats, such as are made at Aston Clinton, near Tring, are more durable, and are much warmer, than any Russian mat. They are a little dearer, but with care in drying properly when put away for the summer season, they will last three years. For shading something similar is made from Reeds put together in a similar way to the straw mat. These will last still longer. Your communication concerning the Strawberry is unfortunately mislaid.

Cucumbers (see p. 409).—I have taken 240 fruits off three plants—Daniels' Duke of Edinburgh, Carter's Improved Telegraph, and Marquis of Lorne—some of the fruits weighing 8 lb. 2 oz., and measuring 38 inches in length. *J. A. McL., Ayrshire.*

Dahlia, Semi-double: *Cornub a.* It is not sufficiently dwarf to make a bedding variety, and for any other purpose it is not worth sending out.

Eucharis amazonica: *J. Broome.* We have many times seen twin flowers.

Lilium auratum: *A. M. K.* There are many better of the same class.

Names of Fruit: *J. Farmer.* Sanguinole, or Blood Pear.—*A Subscriber, Salop.* 1, 3, 7, 10, Marie Louise; 2, Passe Colmar; 4, Old Colmar; 5, Beurré Diel; 6, Duchesse d'Angoulême; 8, Fondante d'Automne; 9, Napoleon; 11, 12, not recognised; 13, Beurré Sterckmans.—*J. Parker.* 1, Beurré Diel; 2, Marie Louise; 3, Vicar of Winkfield; 4, Louise Bonne of Jersey; 5, Beurré d'Amanlis. *Apples:* 1, Dumelow's Seedling; 2, Minshul Crab; 3, Cox's Orange Pippin; 4, King of the Pippins.—*M. Smith Kennard. Pear,* Flemish Beauty; *Peach,* Walburton Admirable.—*Capt. Rogers.* 1, unknown—not Margil; 2, Prince Albert; 3, Cellini.—*E. Morgan.* Appears to be Passe Colmar, but not ripe yet.—*J. L., Diss. Pear,* Beurré Bosc. Other inquirers must please wait till next week.

Names of Plants: *C. A. Hooper.* The old Wheat-ear Carnation.—*J. H., Dartington.* 1, Polygonum Aviculare (Knot-grass); 2, Bartsia odontites; 3, Rhinanthus crista-galli (Yellow Rattle). All common weeds.—*H. C., Syston.* Aponogeton distachyon.—*T. T.* Not Chrysocoma Linosyris, but Inula Conyza; not rare.—*R. G.* 1, Odontoglossum læve; 2, we can only guess the plant to be Oncidium sculptum. Other inquirers must wait till next week.

Pea Gladiator: *Taffy.* Has been frequently recommended in our columns.

Peaches: *J. M. P.* Answered last week.

Peach House: *C. B.* Nothing planted out permanently under such circumstances as you describe would be likely to do any good, and we could not advise you to make any experiments in the matter. Of course, in early spring, before the leaves get too dense, and in the autumn, after the leaves have fallen, such a bed may be made very useful—in what way we suspect you need not be told.

Potatos: *H. H., Bournemouth.* The most reliable sorts for your use would be the best table sorts—Magnum Bonum Kidney, Paterson's Victoria, and Yorkshire Regent, white round sorts; and Scotch Rocks, blue, a good ordinary sort. All of them keep well.

Primulas: *T. C. T.* The young leaves are dead at the edges. Have you used any strong manure-water, or fumigated them too strongly? Extremes of dryness alternating with copious waterings are injurious also to the Primula.

Rœstelia and Podisoma: *W. G. S.* A connection is said to exist between the teleutospores, not only of the Podisoma growing on the Savin, but on Juniperus communis, J. oxycedrus, virginiana, phœnicea, and Pinus halepensis. Œrsted is credited with all these discoveries. See *Journal of the Central Horticultural Society of France,* 1865; *Bulletin of the Botanical Society of France,* xvi., 214, &c.

Strawberry: *C. & R.* Fruit quite destroyed when received.

CATALOGUES RECEIVED.

Charles Turner, Slough — Hardy Trees and Shrubs, Climbing Plants, &c.

James W. Mackey, 23, Upper Sackville Street, Dublin —Dutch Flower Roots.

V. Lemoine, Rue de l'Etang, à Nancy—Extrait du Prix Courant.

Etablissement d'Horticulture, du Golf-Juan, Vallauris—Roses.

George Rudd, Undercliffe, near Bradford—Auriculas, Carnations, and Picotees.

Communications Received:—H. K.—T. J.—F. Sander & Co.—H.—C. W. D.—Enquirer.—J. Veitch & Sons.—Heath & Son—H. S.—F. W.—A. T. S.—Barker.—Walter J. Royle.—K. L.—P. F. Keir, Kieff.—H. E.—J. D. & Sons.—C. M. O. (with thanks—please do).—K. & B.—L. W.—F. W.—J. S.—R. Hau.—C. H. (a form analogous to the old Wheat-ear Carnation) — J. S.—Messrs. Cannell & Co.—E. B. B.—Messrs. Cassell.—W. J. M.—F. W. B.—C. P.—T. C.—J. O. B.—D. S.—G. P.—B. R.—E. L. S., New York.—J. B.—James Dickson & Sons.—J. S.—H. B. McK., Dundee (your letter is to hand, but nothing else)—T. C.—E. V. B.—J. C.—H. W. D'Ombrain.—M. Mazel Nue.

DIED, on August 2, at Sydney, New South Wales, William, third son of Mr. James Tegg, of Bearwood, aged twenty-six years.

Markets.

COVENT GARDEN, October 4.

Trade for best goods improved; Apples heavy. *James Webber, Wholesale Apple Market.*

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, doz.	12 0–24 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 0
Asters, per doz.	4 0– 9 0	Fuchsias, per dozen	4 0– 9 0
Begonias, per doz.	6 0–12 0	Hydrangea, per. doz.	9 0–24 0
Bouvardia, doz.	12 0–18 0	Liliums, various, per dozen	12 0–30 0
Caladiums, per doz.	6 0–24 0	Marguerite Daisy, per dozen	8 0–12 0
Cockscombs, doz.	3 0– 6 0	Mignonnette doz.	4 0– 6 0
Coleus, doz.	2 0– 6 0	Myrtles, per doz.	6 0–12 0
Dracæna term. doz.	30 0–60 0	Palms in variety, each	2 6–21 0
—viridis, per doz.	12 0–24 0	Pelargoniums, scarlet, per dozen	2 0– 6 0
Erica, various, doz.	9 0–18 0		
Euonymus, various, per dozen	9 0–18 0		
Evergreens, in var., per dozen	6 0–24 0		

Cut Flowers.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Mignonette, 12 bun.	2 0– 6 0
Asters, 12 bunches	2 0– 9 0	Marigolds, 12 bun.	2 0– 4 0
— French, per bun.	3 0– 4 0	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 0
Bouvardias, per bun.	1 0– 1 6	Pansies, 12 bunches	0 9– 1 6
Carnations, 12 blms.	1 0– 3 0	Pelargoniums, 12 spr.	1 0– 1 6
— 12 bunches	3 0– 6 0	— zonal, 12 sprays	0 3– 0 6
Coroflower, 12 bun.	1 6– 4 0	Picotees, 12 bun.	2 0– 6 0
Dahlias, 12 bun.	3 0– 6 0	Primula, double, bun.	1 0– 1 6
Eucharis, per doz.	3 0– 6 0	Roses (indoor), doz.	2 0– 6 0
Gardenias, 12 blms.	3 0– 6 0	— (outdoor), 12 bun.	3 0– 6 0
Gladioli, 12 spikes	1 0– 3 0	— coloured, doz.	3 0– 8 0
Heliotropes, 12 sp.	0 6– 1 0	Stephanotis, 12 spr.	4 0– 6 0
Lapageria, white, 12 blooms	3 0– 6 0	Sweet Peas, 12 bun.	2 0– 4 0
— red, 12 blooms	1 0– 3 0	Tropæolum, 12 bun.	1 0– 2 0
Liliums, 12 blooms	0 6– 1 6	White Jasmine, bun.	0 6– 1 0
Marguerites, 12 bun.	6 0– 9 0		

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 6– 2 6	Melons, each ..	1 0– 3 0
Cobs, per 100 lb...	100 0–116 0	Peaches, per doz. ..	2 0–12 0
Figs, per dozen ..	1 0– ..	Pine-apples, Eng., lb.	2 0– 5 0
Grapes, per lb. ..	1 0– 2 0	Plums, ½-sieve ..	7 0–13 0
Lemons, per case..	22 0– 30 0		

VEGETABLES—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz. ..	3 0– 5 0	Lettuces, Cabbage, per dozen ..	1 0– ..
Beans, French, lb...	0 4– ..	— Cos, per dozen..	1 6– ..
— Scarlet, per lb...	0 3– ..	Mint, green, bunch..	0 6– ..
Beet, per doz. ..	1 0– ..	Mushrooms, p. baskt.	1 0– 2 0
Cabbages, per doz...	1 0– 2 0	Onions, per bunch ..	0 6– ..
Carrots, new, p. bun.	0 4– 0 6	— Spring, per bun.	0 6– ..
Cauliflowers, English, dozen ..	2 0– 3 0	Parsley, per bunch..	0 4– ..
Celery, per bundle ..	1 6– ..	Peas, English, quart	1 0– ..
Cucumbers, each ..	0 4– 0 8	Radishes, per doz. ..	1 6– ..
Endive, English, per dozen ..	1 0– ..	Small salading, pun.	0 4– ..
Garlic, per lb. ..	1 0– ..	Spinach, per bushel	2 6– ..
Herbs, per bunch ..	0 2– 0 4	Tomatos, per lb. ..	0 6– 0 9
Horse Radish, bund.	3 0– 4 0	Turnips, new, bun.	0 4– ..
		Vegt. Marrows, each	0 2– 0 4

POTATOS.—Kent Kidneys, £4 to £4 10s. per ton; do., Regents, £3 5s. 10s to £4 10s. per ton.

SEEDS.

LONDON: *Oct.* 3.—Messrs. John Shaw and Sons, of 37, Mark Lane, E.C., report that the market for farm seeds was without any fresh feature to-day. For red Clover seed no buyers are yet found. America this morning cables lower quotations, and crops everywhere promise most abundantly. The Trifolium trade is nearly over. Winter Vetches sell at former currencies. There is no variation in seed Rye. Rape seed maintains late rates. Blue Peas command former values. Canary seed is dull and neglected. Feeding Linseed slow.

CORN.

At Mark Lane on Monday the supply of English Wheat was small, and for the most part in bad condition. No quotable change occurred in prices, but the market was flat. The same may be said of foreign, of which the supplies continue heavy. Flour was dull of sale at the rates of Monday se'nnight. Malting Barley was quiet, but good qualities firm; grinding descriptions were dull, and about 6*d.* lower than on Monday last. Beans and Peas unchanged; the prices of Oats about steady, and Maize 3*d.* to 6*d.* lower since Monday week. —Wednesday's trade was dull, with prices nominally unaltered from Monday. Flour was also slow of sale at late rates. Grinding Barley was hardly steady, and malting firm. Beans and Peas remained at previous value. For Oats the market was quiet, and new Riga barely supported. Maize was a slack sale at about late quotations.—Average prices of corn for the week ending September 29:—Wheat, 41*s.*; Barley, 33*s.*; Oats, 20*s.* For the corresponding period last year: — Wheat, 40*s.* 4*d.*; Barley, 34*s.* 10*d.*; Oats, 20*s.* 2*d.*

CATTLE.

At the Metropolitan Market on Monday beasts were dull, and prices barely up to last week, excepting for a few choice qualities. Danish cattle sold at 4*s.* 6*d.* to 5*s.*, and Canadian 5*s.* 2*d.* to 5*s.* 4*d.* Sheep met a fairly steady sale, and in some cases brought rather better prices. Canadians made 5*s.* 10*d.* to 6*s.* 6*d.*; and Danish 5*s.* 8*d.* The calf supplies consisted chiefly of foreign. The pig trade was about steady. Quotations (average):—Beasts, 5*s.* to 5*s.* 8*d.*, and 5*s.* 10*d.* to 6*s.* 2*d.*; calves, 5*s.* to 6*s.* 8*d.*; sheep, 5*s.* 8*d.* to 6*s.* 4*d.*, and 6*s* 8*d.* to *s.* 2*d.*; pigs, 4*s.* to 5*s.*—On Thursday notmuch was passing in the cattle trade: no prime qualities, and business was quiet at drooping prices. Sheep were in fair demand at Monday's currency, Calves were scarce and dear, and pigs dull.

HAY.

Tuesday's Whitechapel Market report states that the supplies were very moderate and trade quiet. Quotations:—Prime Clover, 100*s.* to 112*s.*; inferior, 60*s.* to 75*s.*; prime second cut, 90*s.* to 108*s.*; best meadow hay, 80*s.* to 90*s.*; inferior, 40*s.* to 65*s.*; and straw, 29*s.* to 38*s.* per load.—On Thursday there was a moderate supply, and trade was quiet at the above rates. — Cumberland Market quotations:—Superior meadow hay, 84*s.* to 95*s.*; inferior, 60*s.* to 72*s.*; superior Clover, 108*s.* to 116*s.*; inferior, 84*s.* to 95*s.*; and straw, 35*s.* to 39*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that there have been moderate supplies, with a quiet demand. Quotations:—Magnum Bonums, 60*s.* to 80*s.*; Kent Regents, 80*s.*; Essex Regents, 70*s.*; Champions, 60*s.*; and Roses, 60*s.* per ton.—The imports into London last week consisted of 3100 bags from Hamburgh, 4 from Ostend, and 204 from Ghent.

COALS.

The following are the prices current at market during the week:—East Wylam, 17*s.*; Ravensworth West Hartley, 15*s.* 9*d.*; Walls End—Hetton, 20*s.*; Hetton Lyons, 18*s.*; Lambton, 19*s.* 6*d.*; Wear, 18*s.*; Tees, 20*s.* 3*d.*; Thornley, 18*s.* 6*d.*

Government Stock.—Consols closed on Monday at 101 to 101⅛ for delivery, 100 13/16 to 101 1/16 for the account. The figures of Tuesday and Wednesday were 100 15/16 to 101 for delivery, and 101⅛ to 101¼ for the account. Wednesday's final quotations were 100 13/16 to 100 15/16 for delivery, and 101 to 101⅛ for the account.

1883.] Offer of Seeds from [1884.

A. LIETZE, Rio de Janeiro, Brazil.

Gross Prices in Shillings.

	Ripening.	100 Seeds.	1000 Seeds.
		s.	s.
ACROCOMIA sclerocarpa	Sept.	10	80
ARAUCARIA brasiliensis	May	5	30
ARECA lutescens	Jan.	4	25
,, ,, ... 5 000 Seeds, 100s.	,,		
,, ,, ... 10,000 Seeds, 160s.	,,		
,, madagasc.	June	4	20
,, rubra	Jan.	2	12
,, ,, ... 5,000 Seeds, 50s.	,,		
,, ,, ... 10 000 Seeds, 80s.	,,		
ASTROCARYUM Airi	Nov.	15	120
ATTALEA speciosa	May	30	..
BACTRIS Maraja	Nov.	6	40
CARYOTA sobolifera	irregularly	6	40
,, urens	,,	6	40
COCOS campestris	,,	7	50
,, flexuosa	Sept.	5	30
,, oleracea	Jan.	10	80
,, plumosa	irregularly	5	30
,, ,, ... 5,000 Seeds, 120s.	,,		
,, Procopeana	Nov.	20	..
,, Weddelliana	Dec.	7	50
,, ,, ... 5,000 Seeds, 200s.	,,		
,, ,, ... 10,000 Seeds, 375s.	,,		
COFFEA arabica	May	2	15
,, ,, yellow fruit variety ..	,,	3	25
,, ,, variety Maragogipe ..	,,	5	40
COPERNICIA cerifera	Jan.	10	80
DESMONCUS, sp Rio	May	10	..
DIPLOTHEMIUM caudescens ..	Nov.	15	130
,, maritimum	April	12	100
ELAEIS guineensis	May	12	100
EUTERPE edulis	,,	6	50
GEONOMA gracilis	March	5	30
,, ... 5,000 Seeds, 120s.	,,		
,, Schottiana	June	5	30
GLAZIOVA insignis	Dec.	7	50
,, ,, ... 5,000 Seeds, 200s.	,,		
LIVISTONA sinensis	Aug.	2	10
,, ,, ... 5,000 Seeds, 40s.	,,		
,, ,, ... 10,000 Seeds, 70s.	,,		
MASSANGEA tigrina (Brom) ..	May	5	30
OREODOXA oleracea	irregularly	2	10
PANDANUS utilis	,,	3	20
,, ,, ... 5,000 Seeds, 80s.	,,		
,, ,, ... 10,000 Seeds, 150s.	,,		
RAVENALA madagasc.	,,	4	30
PHILODENDRON bipinnatif. } ,, speciosum .. .. }	April	3	20
,, ,, ... 5,000 Seeds, 75s.	,,		
,, ,, ... 10,000 Seeds, 120s.	,,		

Less than 100 Seeds each sort are not delivered.

NEW LILIUM HARRISI.—We were the introducers of this distinct and floriferous variety of L. eximium last year.

Extract from *Gardeners' Chronicle*:—"Lilium Harrisi.—We have received a two-flowered stem of this Lily from Messrs. Watkins & Simpson, who introduced it into the London market, and which is the second flower-stem produced this season in the manner described by Mr. Clausen, at p. 53, by a second-sized bulb in the possession of Mr. Walker, of Whitton, near Hounslow. The flowers are very fine, and evidence seems to be accumulating that it is distinct from L. longiflorum, or at least a well-marked variety of that species. It does not appear to do well out-of-doors, preferring the shelter of a cool greenhouse; and it stands forcing well. We understand that one of the most extensive growers of plants for market has given a large order for bulbs for forcing next spring."

Price of Bulbs of the above and many other Lilies on application to

WATKINS AND SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, W.C.

Special Trade Offer.

IRIS RETICULATA, MARTAGON LILY (yellow and purple), LILIUM CANDIDUM, also Improved Large RUSSIAN SHALLOTS.

WILLIAM INGLIS, General Seed Merchant, Kelso, N.B.

THE SELECTED BURGHLEY PRESIDENT STRAWBERRY.

Characterised by T.R.H. the Prince and Princess of Wales, as the largest in size and the best in flavour: an enormous cropper, and splendid glossy colour. Are now ready to send out on turf, to insure a full crop next season. 25s. per 100; ordinary Runners half price.

R. GILBERT, High Park Gardens, Stamford.

Roses.—Fruit Trees.—Fruit Tree Stocks.

SPECIAL OFFER at REDUCED PRICES,

Delivered free to London.

30,000 ROSES, fine standards, No. 1 and No. 2, choice.
18,000 ,, fine half-standards, No. 1 and No. 2, choice.
45,000 ,, fine low-budded on Manetti, No. 1 and No. 2 choice.
20,000 ,, fine low-budded on Brier roots, No. 1 and No. 2.
50,000 ,, fine, own roots, well assorted. [choice.
10,000 ,, fine, own roots, Souvenir de Malmaison.
300,000 ,, Brier seedling stocks.
100,000 STOCKS, Manetti, No. 1 and No. 2.
25 000 ,, La Grifferaye, No. 1 and No. 2.
100,000 PEARS, PEACHES, PLUMS, APRICOTS, APPLES, and CHERRIES, fine 1-yr. budded.
30,000 PEARS and APPLES, pyramid, fine 2-yr budded.
15,000 PEARS, APPLES, PEACHES, APRICOTS, PLUMS and CHERRIES, formed in pyramids and palmette, fine extra transplanted, ready to give fruits.
2,000,000 FRUIT TREE STOCKS, of every kind and choice, such as Quince; Apple, 1-yr. and transplanted; Pears, 1-yr. and transplanted; Plums, St. Julien, Myrobolan, Mahaleb; common Cherries (Cerasus avium).
10,000,000 FOREST TREES and Ornamental SHRUBS, young stocks, 1 and 2-yr., and transplanted.

PRUNUS PISSARDI.

This splendid ornamental tree, with its red leaves and black wood foliage, keeping red until frost, is offered per 100 and 1000, at low prices. A few hundred fine Specimens 00 standards.

The prices of the Roses, Fruit Trees, and Fruit Tree Stocks are very low and advantageous, and will be sent on demand.

L. PAILLET, Nurseryman, Chatenay (Seine), près Paris, France. Established 1827.

Persons wishing to be assured of being supplied in full for the next season, must direct their demands and orders at the earliest moment. Mr. L. PAILLET is ready to make immediately a contract for any quantities of the above stocks.

A Catalogue, printed in English, will be sent on application.

ROSES (20 acres).—Well-rooted, many shooted, truly named, of matured vigorous growth, and of the best kinds. Bushes, R. S. & Co.'s selection, 8*s.* per dozen, 60*s.* per 100; packing and carriage free for cash with order. Standards, 15*s.* per dozen, or 100 free for 120*s.* These world-famed Roses cannot fail to give the greatest satisfaction. Descriptive LIST free on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

SWEET-SCENTED LAVENDER.—Twelve plants, 1*s.* 3*d.*, free, or 7*s.* per 100, free per Parcels Post. This charming sweet-scented plant ought to be in every garden; perfectly hardy, but suitable for greenhouse culture.

RARE HOLLY FERN, with thorns, like miniature Holly leaves, 1*s.*, free; two plants, 1*s.* 6*d.*, free; twelve, 7*s.*, free. Quite hardy, but nice for Fern-case culture.

White scented old English garden LILY, three fine blooming-size bulbs, 1*s.* 6*d.*, free; twelve, 4*s.* 6*d.*, free.

MORLEY AND CO., Rosedale Exotic Nurseries, Preston.

Trade Offer.—50,000 Palms and Ferns.

WILLIAM ICETON, Barnes and Roehampton, has an especially fine stock of clean healthy PALMS, at very low rates for quantities, viz.:—Arecas, Coryphas, Cocos flexuosa, Weddelliana, Romanzoffiana; Geonomas of sorts; Kentias, 1000 nice plants; Latanias, Phœnix rupicola, Cycas revoluta, circinalis, Rumphia. The finest stock of DRACÆNA LINEATA (true), from 3 to 9 feet, for Winter Gardens and Conservatory Decoration: perfect plants. DRACÆNA RUBRA in large quantities, also ASPIDISTRAS, variegated; ADIANTUM CUNEATUM, in very large quantities.

Roses, &c.

W. GROVE, NURSERYMAN, Hereford, offers grand healthy plants free from mildew, of the leading kinds:—100 fine Dwarfs, including six A. K. Williams, 40*s.* to 50*s.*; 50 from 21*s.* Maréchal Niel, Céline Forestier, Lamarque, Souvenir de la Malmaison, Gloire de Dijon, A. K. Williams, La France, Baroness, Marie Baumann, &c., 6*s.* to 9*s* per dozen. Standards, very fine, from £5 per 100, 12*s.* to 18*s.* per dozen. Fine Standard Maréchal Niel, Céline Forestier, Lamarque.

LARCH and ASH, fine, 2 to 6 feet; Spanish CHESTNUT, OAK, 2 to 4 feet; Scotch and Spruce FIR, fine, extra transplanted, 2 to 5 feet; QUICKS, transplanted, from 10*s.* per 1000. Silver FIR, 1½ to 3 feet; cheap; FRUIT TREES, &c.

Trade price upon application.

BEECH—BEECH—BEECH.—100,000 2 to 3-yr. Seedling Beech, splendid stuff and well rooted, 5*s.* to 7*s.* 6*d.* per 1000. Orders executed in rotation

Apply to E. WILSON SERPELL (late Pontey), Vinstone Nurseries, Plymouth.

New Hardy Pernettyas.

L. T. DAVIS' LIST of the above for the present Season is now ready, and may be had on application.

Ogle's Grove Nursery, Helensborough, Co. Down.

SEAKALE (SEED).—We have a very fine Sample of New Seed, just harvested, of the true Fulham variety. Price per pound or hundredweight on application.

WATKINS AND SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, W.C.

PANSIES.—The largest Amateur Pansy Grower in this country has authorised his Gardener to sell surplus plants from his stock, which comprises over 400 Exhibition varieties, and which have taken First-class Certificates and Prizes all over the country. The Pansies will be offered at prices far below what they can be obtained from nurserymen for. Particulars on application to

GARDENER, Messrs. G. Street & Co., 30, Cornhill, London, E.C.

CABBAGE—CABBAGE.—Extra strong and fine Plants of autumn sown Early Rainham, Early Enfield Market, Early Battersea, and Early Nonpareil, 3*s.* per 1000; Robinson's Champion Drumhead, 3*s.* per 1000. The above are well-rooted, and free from club. No better plants can be had. Post-office Order, or reference from unknown correspondents. Free on rail. Samples on application. Apply,

W. VIRGO, Wonersh Nurseries, near Guildford, Surrey.

FRUIT TREES (74 acres).—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, &c, as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety. VINES, excellent canes, 3*s.* 6*d.* to 10*s.* 6*d.* ORCHARD HOUSE TREES in pots, from 5*s.* FIGS, from 3*s.* 6*d.* Descriptive LIST, containing a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also information as to Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., free by post.

RICHARD SMITH AND CO., Worcester.

To Nurserymen and Planters.

SEEDS and PLANTS from Ceylon.

PALM SEEDS of different varieties, including Oncosperma fasciculata, Caryota urens, Corypha umbraculifera, Areca Catechu. CYCAS CIRCINALIS stems of all sizes. CINCHONA SEEDS of different varieties, including Ledgeriana. Also numerous NEW PRODUCT SEEDS and PLANTS, including Ceara Rubber, Caracas Cocoa, Cardamom robusta. Forwarded to all parts of the World on most advantageous terms.

Price LIST post-free on application.

J. P. WILLIAM AND BROTHERS, New Product Seed Depôt, Heneratgoda, Ceylon.

WATKINS AND SIMPSON, SEED and BULB MERCHANTS, Exeter Street, Strand, W.C., offer:—

100,000 DAFFODILS (Lent Lily), double.
40,000 DAFFODILS (Lent Lily), single.
50,000 NARCISS, Pheasant-eyed.
50,000 NARCISS, Double White, sweet-scented.
25,000 CAMPERNELLE JONQUIL, single.

And a great variety of other sorts of NARCISS, HYACINTHS, TULIPS, SNOWDROPS, LILIES (English and Japanese), &c.

See our Wholesale Bulb CATALOGUE, to be had on application. Special quotations for large quantities.

HOLLY for HEDGES.—12 to 15 inches, 25*s.*; 15 to 18 inches, 35*s.*; 18 to 24 inches, 50*s.* per 100. Forest LIST, containing heights and prices of well-grown transplanted Quick, Ash, Larch, Spruce, Pines, Oaks, Cover Plants, &c., free.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

BLOOMS ALL THE WINTER.

DOUBLE PRIMULAS.

WE offer 1500 splendid vigorous plants, in 60's, just ready for a shift, of the good old Double White PRIMULA SINENSIS, 10s. per dozen, £3 15s. per 100.

BOUVARDIAS, DOUBLE.

ALFRED NEUNER, fine healthy plants, 5 inch pots, coming full of buds, 12s. per dozen, £4 per 100.

PRESIDENT GARFIELD, ditto, 15s. per dozen, £5 per 100.

RUBUS ROSÆFOLIUS (Bridal Rose), fine plants, coming into bud, 10s. per dozen, £3 10s. per 100.

H. CANNELL & SONS,
The Home of Flowers, Swanley, Kent.

TO THE TRADE.

ACACIA ARMATA, fine, 75s. and 100s. per 100.
ADIANTUM CUNEATUM, in 48's, 75s. and 100s. per 100; in 32's, extra fine, £7 10s. per 100.
" GRACILLIMUM, in 48's, 75s. and 100s. per 100.
ERICA HYEMALIS, 9s., 15s., and 18s. per dozen.
" CAFFRA, 75s. per 100.
" GRACILIS, 60s. and 75s. per 100.
GARDENIA INTERMEDIA, best variety, extra fine, 18s. per dozen.
LATANIA BORBONICA, fine, dwarf, well characterised plants, 18s. and 21s. per dozen.
ROSE, Céline Forestière, Cheshunt Hybrid, strong, in pots, 18s. per dozen.
SOLANUMS, berried, 6s., 9s. and 12s. per dozen.

HUGH LOW & CO.
Offer the above, of good quality.
CLAPTON NURSERY, LONDON, E.

SPECIAL TRADE OFFER.

PASSIFLORA CŒRULEA, in 3-inch pots, 2 to 3 feet high, 6s. per dozen, 40s. per 100.
AMPELOPSIS VEITCHII, in 3-inch pots, 1 to 2 feet high, 4s. per dozen, 25s. per 100.

HEATH & SON, Exotic Nurseries, Cheltenham.

TO THE TRADE ONLY.

SPECIAL CASH OFFER OF OVER 20,000 PALMS,

including Kentias, Arecas, Seaforthias, Latanias, Geonomas, Coryphas, Phœnix, Cocos Weddelliana, Caryotas, &c.; FERNS, in 48's and 60's; ARUM LILIES, for flowering this season; PANDANUS, CROTONS, FICUS, JASMINUM GRACILLIMUM (new), STEPHANOTIS, and various CLIMBING PLANTS; Tuberous and Foliage BEGONIAS, Tree CARNATIONS, and many other useful plants.

Price Lists free on application.

AN INSPECTION IS INVITED.

W. M. CROWE,
BOLEYN NURSERY, UPTON, ESSEX.

The Nursery is about Five Minutes' Walk from Upton Park Station (London, Tilbury, and Southend Railway), and Ten Minutes from Forest Gate Station (Great Eastern Railway).

Come and See.

OUR CHRYSANTHEMUMS.

Our House has for the last two months presented a splendid show of colour. Is now and will continue all through the season the finest and most complete display of this family yet seen (we shall flower and prove above 500 varieties). Our stock is immense, in all stages of growth, and should be glad to quote prices for any sorts or sizes.

See Illustrated CATALOGUE, sent free, describing correctly all the best in cultivation.

12 Early-flowering Varieties in Bud for 5s.

Will correctly name good specimens sent for two stamps each variety.

H. CANNELL & SON,
The Home of Flowers, Swanley, Kent.

JOSEPH SPOONER, Woking Station, offers the following:—FIRS, Larch, good, 3 to 3½ feet; PRIVET, Common, 3 to 3½ feet; YEWS, of various heights; HOLLIES, Green, 1 to 5 feet; LAURELS, Portugal, 1½ to 2 feet; Common do., 1½ to 3 feet; variegated HOLLIES and QUICK. All these are good prime stuff, and well rooted, &c.

DUTCH BULBS.
All first size and quality. Cash prices.
HYACINTHS, finest named, 4s., 5s., and 6s. per dozen; ditto, finest for beds, 2s. 6d. per dozen.
TULIPS, finest named, 5s. to 8s. per 100; ditto, finest mixed, double or single, 4s. per 100.
CROCUSES, first size, all kinds to name, 1s. 6d. per 100.
The CITY SEED AND BULB DEPOT, 162, Fenchurch Street, and 80, St. Paul's Churchyard, E.C.

GARDEN REQUISITES.

PEAT, LOAM, SILVER SAND, COCOA-NUT FIBRE REFUSE, TOBACCO CLOTH, PAPER and ROPE, &c.

Superior quality, at exceptionally low prices.
PEAT, best Black Fibrous, from 4s. 6d. per sack.
PEAT, best Brown Fibrous, from 5s. per sack.
PEAT, specially selected for Orchids, from 6s. per sack.
LOAM, Yellow Fibrous, 1s. per bushel.
LEAF MOULD, best, 1s. per bushel.
PEAT MOULD, 1s. per bushel.
SILVER SAND, Coarse, 1s. 6d. per bushel.
RAFFIA FIBRE, best, 9d. per pound
TOBACCO PAPER, CLOTH, and ROPE, from 6d. per pound.
COCOA-NUT FIBRE REFUSE, 1s. 3d. per bag; per truck-load of about 2 tons, 30s.
SPHAGNUM MOSS, 4s. 6d. per bag.
VIRGIN CORK, 18s. per cwt.
The Trade supplied on Wholesale terms.

W. WEBBER, 34, Glengarry Road, East Dulwich, S.E.

PEAT, for Rhododendrons, &c., of excellent quality, also the finest Yellow Fibrous LOAM, Light or Close, from rich forest pasture land, in trucks of 4 tons, 48s. each Selected PEAT, 3s. per sack. SILVER SAND and LEAF MOULD, 8d. per bushel. Sacks, 6d. each. Remittance with order. B. LAMBERT, Ringwood.

12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per Truck. Sample Bag, 5s.; 5 Bags, 21s. 6d.; 10 Bags, 45s. Bags included. Fresh SPHAGNUM, 10s. 6d. per Bag. SILVER SAND, Coarse or Fine, 52s. per Truck of 4 tons. Red Sandstone ROCKWORK, £5 per Truck of 4 tons. GRAVEL, good colour, 25s. per Truck of 6 tons.
WALKER AND CO., Farnborough Station, Hants.

COCOA NUT FIBRE REFUSE, newly made, as supplied to the Royal Horticultural Society and principal Nurserymen in England, in sacks at 1s. 3d. each, or 15 sacks, 18s.; 30 sacks, £1 5s., sacks included. Truck-load, loose, 33s.; fifteen bags or more and truck-load free on to rail. Post-office order or cheque with all orders will oblige. Established 1872—J. STEVENS AND CO., "Greyhound" Yard, and 132, High Street, Battersea, S.W.

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Quality **equal to any** in the Market.
(All Sacks included.)

PEAT, best brown fibrous ..	4s. 6d. per sack; 5 sacks for 20s.
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" extra selected Orchid	5s. 0d. "
LOAM, best yellow fibrous	1s. per bushel (sacks included).
PREPARED COMPOST, best ..	
LEAF MOULD	
PEAT MOULD	
SILVER SAND (coarse) . ..	1s. 3d. per bushel.
RAFFIA FIBRE, best only	10d. per lb.
TOBACCO CLOTH, finest imported..	8d. per lb., 28 lb. 18s.
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COCOA-NUT FIBRE REFUSE (see special advertisement).
Terms, strictly Cash with order.

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

Important Discovery.

For Cleansing Plants from Aphides, and all Parasites. To prevent American Blight, all kinds of Scale, &c., and for Washing all Hard-wooded Plants, always use

HUDSON'S EXTRACT OF SOAP.

A ¼ lb. Packet to 3 Gallons of Water.
A strong solution thickened with clay makes an effective Winter Dressing.

Testimonials.

"Coton Hall Nursery, Shrewsbury, July 28, 1880.
"We find Hudson's Soap a very useful Winter Dressing for all kinds of Fruit Trees; both as a preventive and cure against American Blight and all kinds of Scales. We also use it for Camellias, Azaleas, Rhododendrons, and all kinds of Hard-wooded Plants. We have much pleasure in presenting you with this testimonial, and remain, yours truly,
(Signed) "JOHN JONES AND CO."

"201, Broad Street, Birmingham, August 15, 1883.
"DEAR SIR,—I have lately tried Hudson's Extract of Soap for the mildew on my Rose trees in the greenhouse, and I find that with one syringing it completely cures it instantly. I should say I tried it some time ago with the same result. Yours truly,
(Signed) "W. JAMES."

SOLD EVERYWHERE.

REMARKABLE DISAPPEARANCE!
of all DIRT from EVERYTHING
BY USING
HUDSON'S EXTRACT OF SOAP.

Thomson's Vine and Plant Manure.

Manufactured by the
LIVERPOOL HORTICULTURAL COMPANY
(JOHN COWAN), LIMITED,
The Vineyard and Nurseries, Garston, near Liverpool,
and Sold by them and all Nurserymen and Seedsmen.

This is the Manure used to produce the splendid Grapes grown by Messrs. WM. THOMSON & SON, Clevenfords.

For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

SILVER MEDAL-1881. BRONZE MEDAL-1881.

To Her Most Gracious Majesty Queen Victoria. To His Royal Highness the Prince of Wales.

For Beautiful Flowers and Fruits
USE CHUBB, ROUND AND CO.'S PATENT

COCOA-NUT FIBRE REFUSE

By CHUBB'S PATENT PROCESS,

As supplied to all the Royal Gardens and Principal Nurseries of Europe.

GUARANTEED ABSOLUTELY PURE. FREE FROM ANY FOREIGN INTERMIXTURE. Manufactured on the premises from the famous "Laguna" Cocoa-Nut Husks, and can only be obtained from us direct. This article is not to be confused with so-called Cocoa-Nut Fibre Refuse, sold by dealers and others at ridiculously low prices, and dear in the end. Amongst numerous Testimonials and extracts from scientific writers, to be seen at our works, we hold the following:—From Mr. CHARLES PENNY, Head Gardener to H.R.H. the Prince of Wales: "The Gardens, Sandringham, February 28, 1883.—I must say your Cocoa-Nut Fibre Refuse is far superior to any I have ever tried; in fact, it is simply perfection; and the use of your Fibre for so many purposes in Horticulture is a thorough boon. Make what use you like of this letter." Useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bulbs, Mushrooms, Bedding-out Plants, &c.

DESTROYS ALL SLUGS AND INSECTS.

An elegant Bordering to Flower Beds. Combines warmth and cleanliness with valuable antiseptic and deodorising properties.

MOISTENS IN HEAT. HOLDS HEAT IN COLD WEATHER.

Terms, strictly cash with order. Prices as follows:—Sacks, 1s. 6d. each; 10 sacks, 13s.; 15 sacks, 18s.; 20 sacks, 23s.; 30 sacks, 30s. (all sacks included). Truck-load, free on rail, £2. Limited quantities of SPECIAL QUALITY, Granulated, in sacks only, 2s. 6d. each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from the Manufacturers, **CHUBB, ROUND & CO.,**
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A SPECIALITY.

BEESON'S ROSE, VINE, and PLANT MANURE.

To be had of all Nurserymen, Seedsmen, and Florists.
For all particulars please apply to
W. H. BEESON, Carbrook Bone Mills,
SHEFFIELD.
Also GROUND BONES for Vine Borders, Potting, &c.

Certain Sudden DEATH

to all Grubs, Aphis, Lice, Red Spider, Thrips, Mealy Bug, Caterpillars, &c.

Perfectly } to the Hands and Skin, but will cure Ring-
Harmless } worm and all Diseases produced by Parasites.

FIR TREE OIL (SOLUBLE) INSECTICIDE

A combination of Hydrocarbon Oils made Soluble in Water. **For destroying ALL INSECTS and PARASITES that infest Trees and Plants,** whether at the Roots or on the Foliage. It cures Mildew and Blight on Fruit or Foliage, and a weak solution Kills all Vegetable Grubs, Turnip Fly, &c. Cleans Grapes from Mildew or Mealy Bug without affecting the bloom; and, thickened with a little clay, makes a good winter dressing. Destroys Lice and Fleas on Animals. Sold by Seedsmen and Chemists, 1s. 6d., 2s. 6d., 4s. 6d. a bottle. Per gallon 12s. 6d., or less in larger quantities. Each bottle bears the Inventor's Trade Mark (a Cat's Head) and full directions for use. *Manufactured by*
E. GRIFFITHS HUGHES, Manchester.
Wholesale from all the London Seed Merchants and Wholesale Druggists.
NEW YORK: RÖLKER AND SONS.

EUREKA!!! INSECTICIDE, prepared by WILLIAM SMITH, Chemist, Stockbridge, Edinburgh. The only Insecticide worth using. Once used always used.

DIRECTIONS.—For Syringing purposes, one part of the Insecticide to 100 parts of water. For Greenfly on Roses, &c., from 1 to 20, to 1 to 40 parts. For Thrip and Scale, 1 to 20 parts. For Bug, 1 to 15 parts.

N.B.—*Very tender plants should be well syringed after using the Insecticide.*

In Bottles, 1s., 2s., and 3s. 6d. each. 7s. 6d. per Gallon. Special quotations for large quantities.

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4*d.* per bushel; 100 for 25*s*; truck (loose, about 2 tons), 40*s*; 4-bushel bags, 4*d.* each.
LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s*; sacks, 4*d.* each.
BLACK FIBROUS PEAT, 5*s* per sack, 5 sacks 22*s.*; sacks, 4*d.* each.
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YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1*s.* per bushel.
SPHAGNUM MOSS. 8*s.* 6*d.* per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Free Price LIST.—**H. G. SMYTH**, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

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14×12	20×12	20×14	20×16	20×18
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TEN SILVER MEDALS
AWARDED TO

JOHN MATTHEWS, THE ROYAL POTTERY, WESTON-SUPER-MARE, Manufacturer of TERRA-COTTA VASES, FOUNTAINS, ITALIAN BASKETS, BORDER TILES, GARDEN POTS of superior quality, from 1 to 30 inches diameter, stand the frosts, and seldom turn green; ORCHID, FERN, SEED and STRIKING PANS, RHUBARB and SEAKALE POTS, &c. Price LIST post-free. Sheet of Designs, 6*d.* Book of Designs, 1*s.*

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Can be obtained in all sizes and qualities of

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B. & Son have always a large stock in London of 20 in. by 12 in., 20 in. by 14 in., 20 in. by 16 in., 20 in. by 18 in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200-ft. and 300-ft. cases.

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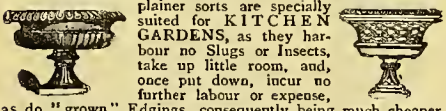

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20 Boxes, 20×12	10 Boxes, 20×13	10 Boxes, 20×14
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In 200 feet Boxes, at 2¼*d.* per foot nett for not less than 1000 feet. **BOXES FREE.**

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100 Squares, good Glass, at the following prices, in Leeds:—

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The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

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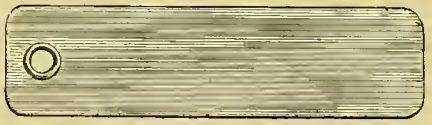

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"FRIGI DOMO"
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From Damp, Frost, and Cold Winds.
A perfect Non-conductor of Heat, keeping Wherever it is applied an even Temperature.

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RUSSIA MATS, Archangel, Taganrog, Petersburg, and Dunnage. SACKS and SEED BAGS. ROPES, LINES and TWINES. RAFFIA FIBRE.
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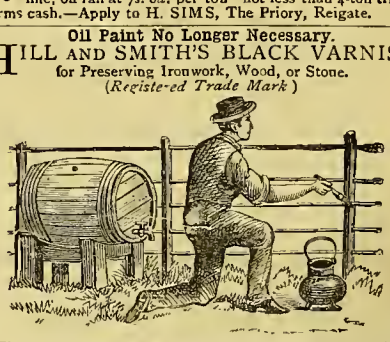

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Sold in Casks of about 30 gallons each, at 1*s.* 6*d.* per gallon at the Manufactory, or 1*s.* 8*d.* per gallon carriage paid to any Station in the Kingdom.

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"*Piercefield Park, June* 21, 1876.—Sirs.—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, WM. COX."

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H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

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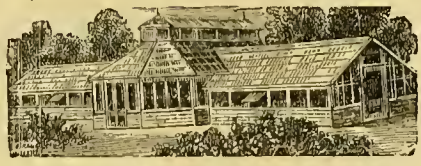

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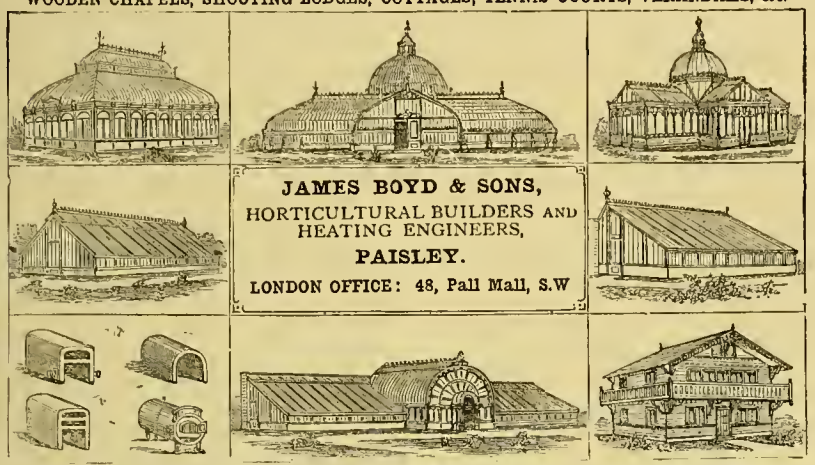

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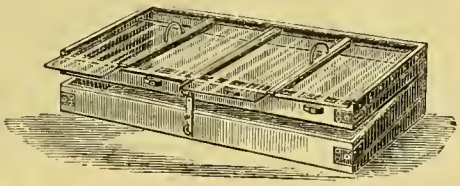

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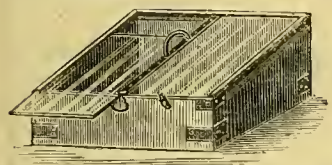

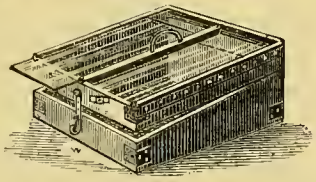

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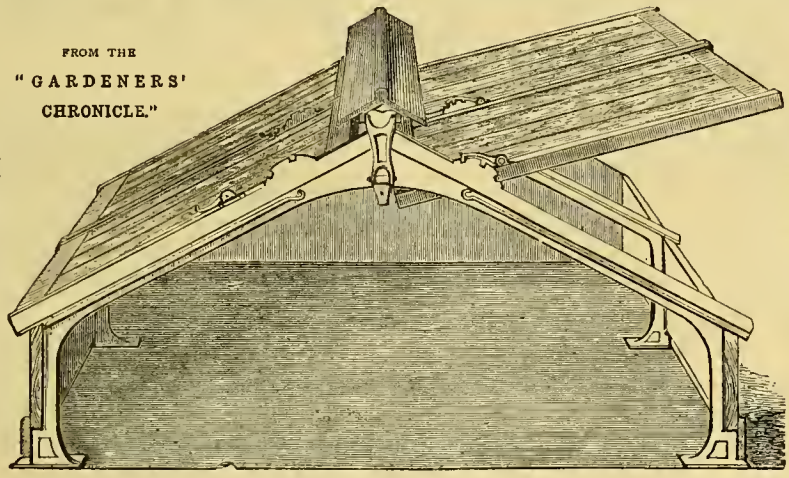

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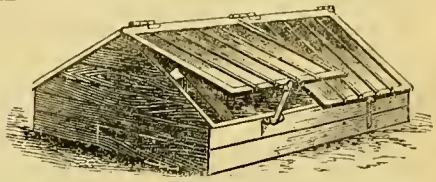

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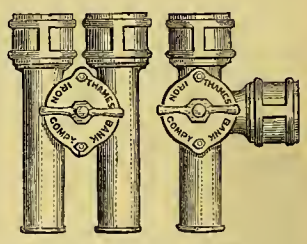

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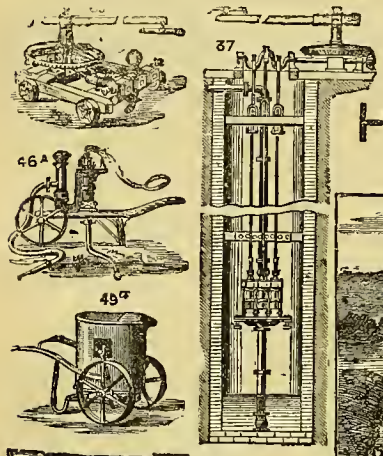

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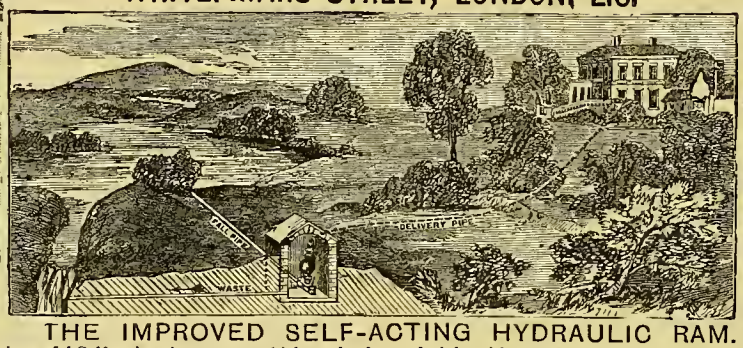

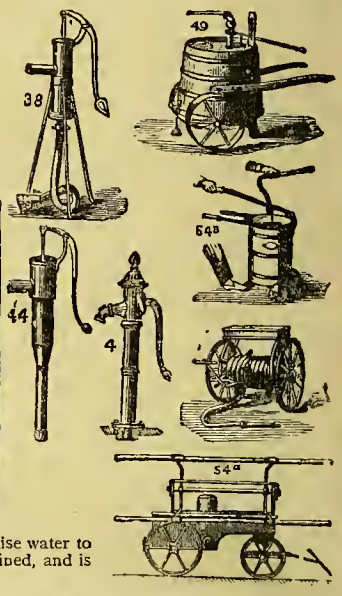

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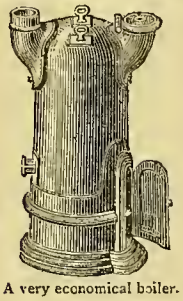

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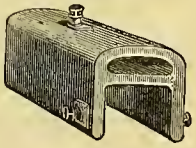

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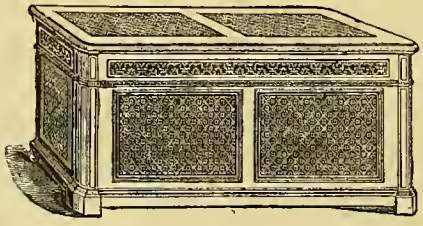

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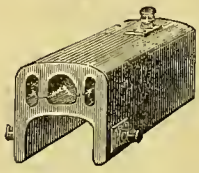

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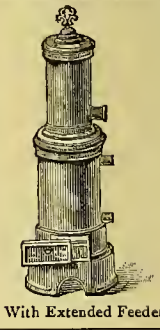

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THE

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Established 1841.

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STRAWBERRY RUNNERS. — All the leading kinds. 2s. per 100. Cash with order.
JOHN SCOTT, Royal Nurseries, Merriott, Somerset.

STRAWBERRIES—Next Summer, by planting now: capital roots, 4s. per 100; 6d. extra per 100 for delivery by Parcels Post. In a Few Months, by forcing: plants in pots, 16s. per 100. Only the best varieties are offered. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To the Trade.
CUCUMBER SEEDS.—We shall be glad to quote prices of Veitch's Tender and True and Rollison's Telegraph Cucumber seeds, in large or small quantities. Both are very superior stocks, of our own growth, and carefully selected.
GEO. COOLING AND SON, Seedsmen, Bath.

SALES BY AUCTION.

Dutch Bulbs.—Great Unreserved Sales,

Every MONDAY, THURSDAY, and SATURDAY.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every MONDAY, THURSDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other ROOTS from Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Lewisham, S.E.

GREAT ANNUAL TRADE SALE of FERNS and WINTER-FLOWERING PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Richard Biggs to SELL by AUCTION, on the Premises, The Nursery, Lewisham, S.E., a few minutes' walk from Ladywell and Lewisham Stations, on TUESDAY, October 16, at 12 o'Clock precisely (in consequence of the large number of lots), 50,000 Maidenhair FERNS, 2000 ditto in 24 and 32-pots, 4000 in 48-pots, many thousands of PTERIS ARGYREA, ARISTATA ALBO-LINEATA, 5000 LOMARIA GIBBA (best variety); also ADIANTUM FARLEYENSE, BAUSEI, SCUTUM, INSIGNIS, GRACILLIMUM, &c.; GYMNOGRAMMAS of sorts, TODEAS, &c., grown and lotted especially for the Trade; also 500 CAMELLIAS, mostly white; 500 AZALEAS, including several large specimen whites; BOUVARDIAS, HYEMALIS and other HEATHS, EUCHARIS AMAZONICA and CANDIDA, PALMS, DRACÆNAS, FICUS, 2000 Winter-flowering CARNATIONS, 2000 CINERARIAS, 1000 specimen CHRYSANTHEMUMS, PRIMULAS, Border SHRUBS, and other Stock.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 8, New Broad Street, and 67 and 68, Cheapside, E.C.

Ealing, W.—Highly Important Sale, without Reserve.

EXTENSIVE CLEARANCE SALE of exceptionally well-grown NURSERY STOCK and FRUIT TREES, by order of Messrs. Charles Lee & Son.

Important to Noblemen, Gentlemen, Nurserymen, and others.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Nursery, Ealing, Middlesex, W., about a mile from the station, on TUESDAY, October 16, and following days, at 12 o'Clock precisely each day, without reserve, several acres of beautifully grown NURSERY STOCK, the whole of which has been carefully prepared for transplanting. Amongst the Stock will be found a variety of Coniferæ, Evergreen Shrubs, but by far the larger portion will consist of about 18,000 trained Fruit Trees, offering an opportunity seldom met with of securing fine and clean grown trees. They comprise 3000 Pyramid Pears, very fine large fruiting trees, 6 to 7 feet; 2000 Standard Pears, 2000 Standard Apples, 3000 Pyramid Apples, fine fruiting trees, in bearing; 2000 Horizontal and Fan-trained Pears, very fine large fruiting trees; 2000 ditto Apples, 1000 Dwarf-trained Peaches and Nectarines, very fine; 2000 ditto Plums, 1000 ditto Cherries, 300 Standard Quinces, 2000 Limes and other Forest Trees, 2000 fine Standard Roses, 300 Yucca gloriosa, and other Stock.

May be viewed. Catalogues may be had on the Premises; of Messrs. LEE AND SON, Royal Vineyard Nursery, Hammersmith, W.; and of the Auctioneers and Valuers, 8, New Broad Street, and 67 and 68, Cheapside, E.C.

Lea Bridge Road, E.

UNRESERVED SALE of fine WINTER FLOWERING HEATHS and GREENHOUSE PLANTS.

Expiration of Lease.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser to SELL by AUCTION, on the Premises, at Lea Bridge Nurseries, Leyton, E. (close to New Street Station), on WEDNESDAY, October 17, at 12 o'Clock precisely, without reserve, many thousands of Winter Blooming and other HEATHS, remarkably well grown, and including HYEMALIS, WILMOREA, PERSOLUTA ALBA, and others; 1000 EPACRIS of the choicest kinds; 2000 CYCLAMEN PERSICUM, 1000 GENISTA FRAGRANS, 1000 PRIMULA SINENSIS, red, white, and double white; 500 Greenhouse FERNS, Tea-scented and Noisette ROSES, SOLANUMS in berry, a quantity of miscellaneous STOVE and GREENHOUSE PLANTS, several hundreds of English-grown CAMELLIAS, well set with bloom; 300 early flowering and other CHRYSANTHEMUMS; 400 fine double white PRIMULAS in 48-pots, 200 Maréchal Niel and other ROSES, from 7 to 10 feet; a large quantity of fine plants of AMPELOPSIS VEITCHII, CLEMATIS JACKMANNI; also a healthy lot of Seedling CONIFERÆ, including CUPRESSUS, ABIES, CEDRUS, WELLINGTONIA, and other stock.

May now be viewed. Catalogues may be had on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Friday Next.

IMPORTED and ESTABLISHED ORCHIDS, in the best condition.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Shuttleworth, Carder & Co. to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, at half-past 12 o'Clock precisely, a splendid lot of ODONTOGLOSSUM ALEXANDRÆ (crispum), O. VEXILLARIUM, O. GRANDE, O. PESCATOREI, O. SPECIES, and O. PHALÆNOPSIS; CATTLEYA AUREA, C. MOSSIÆ, C. DOWIANA; PAPHINIA CRISTATA, CORIANTHES MACRANTHA, CYPRIPEDIUM CHANTINI, C. INSIGNE AUREUM, ONCIDIUMS, and other ORCHIDS.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Edgware, N.W.

By order of the Mortgagee.—Clearance Sale.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, The Stone Grove Nursery, Edgware, N.W., on TUESDAY, October 23, at 12 o'Clock, without reserve, the beneficial INTEREST in the LEASE of the NURSERY; also, in separate lots, the whole of the GREENHOUSE PLANTS, the Erections of Ten GREENHOUSES, two PITS, 2000 feet of 3 and 4-inch HOT-WATER PIPING, BRICKWORK, BOILERS, and numerous effects.

May now be viewed. Catalogues may be had on the Premises, of J. H. BRIDGFORD, Esq., Solicitor, 58, Lincoln's Inn Fields, E.C.; and of the Auctioneers, 67 and 68 Cheapside, and 8, New Broad Street, E.C.

Westbourne Nurseries, Harrow Road, W.

Entirely without Reserve, by order of Messrs. Woodroffe & Son, who are about letting the Land for Building Purposes.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises as above, on THURSDAY, October 25, at 12 o'Clock precisely, the whole of the GREENHOUSES, PITS, FRAMES, HOT-WATER PIPING, BOILERS, CARTS, and numerous effects.

Further particulars next week. Catalogues may be had on the Premises, and of the Auctioneers, 67 end 68, Cheapside, and 8, New Broad Street, E.C.

Gravesend.

By order of the Executors of the late Mr. Thomas Eves.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Nursery, Witham Road, Gravesend, on WEDNESDAY and THURSDAY, October 30 and November 1, without reserve, the valuable NURSERY STOCK, extending over 20 acres.

Further particulars will appear next week.

Dutch Flower Roots, every Monday, Wednesday and SATURDAY.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely, a large consignment of first-class DOUBLE and SINGLE HYACINTHS, in all colours; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, Early ROMAN HYACINTHS, and other BULBS, just received from well known farms in Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale, and Catalogues had.

Highly Important Sale of Specimen Camellias, AZALEAS, PALMS, &c.

MR. J. C. STEVENS has been favoured with instructions from Hermann Rucker, Esq., to offer for SALE by AUCTION, without reserve, on the Premises, West Hill, Wandsworth, on TUESDAY, October 16, and following days, at half-past 12 o'Clock precisely, the entire COLLECTION of PLANTS formed by the late Sigismund Rucker, Esq. The collection is general, and comprises about 200 of the finest Camellias in the country, all beautifully set with bloom; about 200 Azaleas, fine Palms, Tree and other Ferns; a fine collection of Nerines, large Myrtles in tubs, Stove Plants, and a few good ORCHIDS; also GARDEN SEATS and CHAIRS, VASES, and PEDESTALS, CHINA POTS and STANDS, SLATE TUBS, BELL GLASSES, GARDEN TOOLS, &c.

On view the day prior and mornings of Sale, and Catalogues had on the Premises, and of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, W.C.

Wednesday Next.—(Sale No. 6490.)

PLANTS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, October 17, at half-past 12 o'Clock precisely, a consignment of choice named CAMELLIAS, nice healthy plants, well set with buds; Indian AZALEAS, 200 FICUS ELASTICA, and PALMS from Ghent; hardy ornamental CONIFERS, RHODODENDRONS, Portugal LAURELS, AUCUBAS, ROSES, &c., from a well-known English Nursery.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6490.)

CONSIGNMENT of PLANTS from Ghent.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, October 17, choice named CAMELLIAS, nice healthy plants, well set with buds; Indian AZALEAS; 200 strong plants of FICUS ELASTICA; 25 PHŒNIX RECLINATA, and 25 CORYPHA AUSTRALIS, just received from Ghent.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6491.)

VANDA SPECIES.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October 18, at half-past 12 o'Clock precisely, by order of Mr. F. Sander, a grand importation of a most beautiful VANDA, from the Island of Bali in the Javanese group; this splendid Vanda produces, as will be seen, as many as twenty-four flowers on the spike, and is extraordinarily free-flowering; in habit it resembles cœrulea, but the flowers are near insigne, the colouring is chaste and striking, sepals and petals being carmine spotted and striped on white ground, and the lip violet. See drawing. ONCIDIUM ARMILLARE, a lovely new introduction, flowers yellow with brown stripes. Also other valuable importations. The Vandas are in specially fine order, all have sound roots, and among them will be found specimens of rare excellence and size.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale, No. 6491.)

PHALÆNOPSIS INTERMEDIA, grand variety in flower.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October 18, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., a very strong established plant, in flower, of a most lovely variety of PHALÆNOPSIS INTERMEDIA, which would seem far to surpass in richness of colouring any that they have previously bloomed of Brymeriana and Portei varieties.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6491.)

VANDA INSIGNIS (true).

DENDROBIUM RIMANII, D. LEUCOLOPHOTUM.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October 18, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., upwards of 200 plants of the true VANDA INSIGNIS, DENDROBIUM RIMANII, DENDROBIUM LEUCOLOPHOTUM, in quantity, the whole in very fine condition, collected by Mr. W. Boxall in the Island of Timor. The Dendrobiums are described by Professor Reichenbach in the *Gardeners' Chronicle*, October 28, November 25, 1882.

On view morning of Sale, and Catalogues had.

Thursday Next.

STOVE and GREENHOUSE PLANTS, the Property of a NOBLEMAN.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 18, a small COLLECTION of STOVE and GREENHOUSE PLANTS, including a few specimen Azaleas, Dracænas, Pandanus, Euphorbias, Adiantums, Ficus elastica, &c., all clean and well-grown, the property of a Nobleman.

On view morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS has received instructions from J. Grimshaw, Esq., of Leeds, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 25, at half-past 12 o'Clock precisely, his entire COLLECTION of ESTABLISHED ORCHIDS, comprising about 800 plants, including specimen Vandas, Dendrobiums, Cœlogynes, and Cattleyas; Stanhopea Wardianum, in bloom; Phalænopsis amabilis, with spikes; some of the finest Cattleya Mossiæ and Trianæ ever flowered, C. speciosissima in sheath, &c.

On view morning of Sale, and Catalogues had.

Sarracenias.—New Varieties.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, October 27, a Grand Collection of New Hybrid SARRACENIAS, raised by the most successful grower in the country, O. O. Wrigley, Esq., of Bury, consisting of many very distinct varieties, not yet in commerce, and in splendid condition, being the finest lot ever brought to auction, and sold by order of Mr. G. Toll, who has purchased the entire stock from the raiser.

On view morning of Sale, and Catalogues had.

Established Orchids, Stove Plants, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, October 27, at half-past 12 o'Clock precisely, a small COLLECTION of ESTABLISHED ORCHIDS, including Dendrobiums, Phalænopsis, Cypripediums, Vandas, Saccolabiums, Cattleyas, Lælias, Masdevallias, Odontoglossums, &c.; also a quantity of STOVE PLANTS, GARDENIAS, LAPAGERIAS, FERNS in variety, and other PLANTS.

On view morning of Sale, and Catalogues had.

Tansley Old Nursery, near Matlock, Derbyshire.

SECOND CLEARANCE SALE of NURSERY STOCK, comprising large quantities of Seedling Forest Trees and Shrubs, Gorse, Broom, &c., for Covert; hardy Shrubs, Herbaceous Plants, and other Stock.

MR. WM. SHUTES will SELL by AUCTION, unreservedly, on the grounds of the Tansley Old Nursery, in the occupation of Mr. Stephen Smith, about 2½ miles from Matlock Bridge Station, Midland Railway, on TUESDAY, October 16. Sale to commence at 11 o'Clock.

For Catalogues apply to the Auctioneer, or to Mr. STEPHEN SMITH, Tansley Old Nursery, Matlock. The lots may be viewed on Monday, October 15, also early on morning of Sale.

Auctioneer and Valuer's Office, Matlock Bridge.

Tansley Nurseries, near Matlock, Derbyshire.

To NOBLEMEN, GENTLEMEN, NURSERYMEN, and OTHERS.

MR. G. MARSDEN respectfully announces that he is instructed by Messrs. Samuel and James Smith to SELL by AUCTION, on the Premises, at Tansley Nurseries, near Matlock, on WEDNESDAY, THURSDAY, and FRIDAY, October 17, 18, and 19, commencing punctually at 11 o'Clock each day, about 1300 lots of choice and highly valuable NURSERY STOCK, consisting of about 300,000 transplanted Rhododendrons of the choicest specimens, growth and quality, in upwards of 350 named and common hybrids; 20,000 Ivies and Laurels, immense lots of Retinospora plumosa and aurea, in sizes suitable for all purposes; Cupressus Lawsoniana aurea, Golden Yews, Gold, Silver, and Green Hollies (some thousands of singly grown specimens, many of large size); choice specimens of Yew elegantissima, 6 to 10 feet; Cedrus Deodara, Araucarias in good condition, having been removed within the past two and three years; 250,000 Spruce and Larch, immense quantities of Poplar, Limes, Beech, Chestnut, Ash, Oak, and other Forest Trees, in great variety.

Catalogues will be ready fourteen days prior to the Sale, and may be had on application to Messrs. SAMUEL and JAMES SMITH, Tansley Nurseries, Matlock; or the Auctioneer, Wirksworth.

On view Monday and Tuesday, October 15 and 16.

Green Lane Nurseries,

Opposite the "Chequers Inn," Horley, Surrey, only a few minutes' walk from the Railway Station; 4 miles from Redhill and Reigate, and 5 from Crawley, on the road from London to Brighton.

To Nurserymen, Florists and Private Growers.

MESSRS. W. and H. STACEY are instructed to SELL by AUCTION, in the above Nurseries (the Land being wanted for other purposes), on WEDNESDAY, October 17, at 11 for 12 o'Clock, in consequence of the number of Lots, a quantity of transplanted FOREST TREES, CONIFERÆ, DECIDUOUS ORNAMENTAL TREES, and ORNAMENTAL CONIFEROUS TREES; EVERGREEN, DECIDUOUS and FLOWERING SHRUBS; Hardy CLIMBERS; HEDGE and FENCE PLANTS; APPLES, PEARS, PLUMS, CHERRIES; HYBRID PERPETUAL ROSES, Tea-scented, Noisette, Bourbon, Standards and in Pots; CLEMATIS, and a large quantity of SEEDLING STOCK.

SPECIAL NOTICE.—In consequence of the number of lots, the Worked and Seedling Stock WILL NOT BE INCLUDED in the Sale.

Catalogues may be had 10 days prior to the Sale at the principal Hotels and Inns in the district; at the place of Sale, or of Messrs. W. & H. Stacey, Auctioneers and Land Agents, Redhill, Surrey.

TO BE DISPOSED OF, a genuine good going NURSERY, SEED and FLORIST BUSINESS, in one of the most fashionable Spaing places in England. Four acres of Nursery, 8 acres of Meadow, to break up when required, and about 8000 feet of Glass; large House, and the usual Outbuildings, with a good large Shop in one of the principal streets in town. Good connection. Such an opportunity seldom met with. Satisfactory reason given for giving up.

For full particulars apply to R. HUTCHINSON, Nurseryman, Harrogate.

FOR DISPOSAL, an extensive HORTICULTURAL BUSINESS, in excellent situation, with all necessary appurtenances. Apply to

Mr. F. S. REYNOLDS, Agent, 81, Edgware Road, W.

TO LET, a Small NURSERY and FLORIST'S BUSINESS, in the best Suburb of Reading, comprising three Vineries, Cucumber-house and Frames, Stable, &c. Rent £25 per year.—For full particulars apply to A. FOWLE, Crescent Nursery, Hamilton Road, Reading, Berks.

Middlesex.

To FLORISTS, MARKET GARDENERS, &c., near London.

TO BE LET, on Lease, from 10 to 16 acres of suitable LAND, with 1 or 2 Cottages if required.

For particulars, apply to J. N. KINGCHURCH, 2, Southampton Street, Bloomsbury, W.C.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE IS HEREBY GIVEN, that an addition to the List of Pensioners of this Institution will be made in January next. All persons desirous of becoming Candidates are required to send in their applications to the Committee on or before November 3 next, after which day they will not be received.

Preference will be given to those Applicants who have been Subscribers to the Institution for 15 years and upwards, in conformity with Rule No. 6. Should there not be enough applicants of this class to fill the Vacancies, then the claims of those who have not subscribed so long or not at all will be considered. By order of the Committee,

E. R. CUTLER, Sec.

14, Tavistock Row, London.—October 3, 1883.

Application must be made upon printed Forms, which, together with all information on the subject, may be obtained from the Secretary.

MESSRS. PEED & GREAVES,

AUCTIONEERS AND ESTATE AGENTS,

1, HOLLAND ROAD, BRIXTON, LONDON, S.W.

THE above Firm will be happy to Furnish Estimates or Terms for the SALE by PUBLIC AUCTION of all Classes of NURSERY and FLORIST STOCK, either at the Nurseries of Clients, or to be removed to the Sale Rooms, as above. Mr. W. G. PEED (son of Mr. John Peed, the well-known Exhibitor, Nurseryman, and Florist), by his practical knowledge of the Trade, the nomenclature of all classes of Plants and Trees, as also his intimate knowledge of the value of every variety of Nursery Stock, can guarantee a like competency and thoroughness of Sale only possessed by one well-known firm in the Trade, and Messrs. P. & G. will undertake any such Sales at lowest possible terms.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

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

Choice Early Blooming Plants.

ISAAC DAVIES AND SON beg to call attention to the following Plants of their own raising:—

RHODODENDRONS, sweet-scented, 2*s.* 6*d.*, 3*s.* 6*d.*, and upwards, to 21*s* each.

AZALEA DAVIESII, sweet-scented, 2*s.* to 3*s.* each.

" HYERIDA ODORATA, swees-scented, 2*s.* to 3*s.* each.

RHODODENDRON PRÆCOX and varieties, 1*s.*, 1*s.* 6*d*, to 2*s.* 6*d.* each.

" ROSY BELL, 2*s.* 6*d.* to 3*s.* 6*d.* each.

" DAVIESII, orange-scarlet, bushy habit, beautiful foliage. Received First-class Certificates at London and Manchester. Prices, 3*s.* 6*d.*, 5*s*, and upwards, to 21*s.* each.

In addition to the above, we have a fine stock of AZALEA MOLLIS and other AZALEAS, well-budded plants, suitable for forcing.

Descriptive Priced LIST on application.
Brook Lane Nursery, Ormskirk.

CABBAGE PLANTS, Early Rainham, and Enfield Market, best sorts, 2*s.* 6*d.* per 1000; best Sovereign RHUBARB ROOTS, and earliest in cultivation, for planting-out, 2*s* per dozen; SEAKALE and ASPARAGUS ROOTS, cheaper than any man in the trade, price on application. Scarlet King DAISIES, for planting-out, 2*s.* per 100.
RICHARD WALKER, Market Gardens, Biggleswade, Beds.

FOR SALE, 7000 Red and Black Dutch CURRANTS, strong, 2-yr. old; 60,000 strong RASPBERRY CANES—Carter's Prolific and Northumberland Fill-basket. Prices on application to
CHAS. BLUNDELL, Sen., The Home for Fruit, Halstead Sevenoaks, Kent.

FOR SALE, a Collection of Large Stove Plants, including PHALÆNOPSIS SCHILLERIANA, with six leaves, loogest 18 inches; ADIANTUM FARLEYENSE, MUSA CAVENDISHII, DRACÆNA SHEPHERDI, ALSOPHILA EXCELSA, CROTONS, various. For particulars, address
J. REYNOLDS, Gardener to Colonel Seddon, Waltham Grove, near Great Grimsby.

Vines—Vines—Vines.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this season, as usual, a splendid stock of VINES, suitable for Fruiting in Pots and Planting Vineries. Also a fine stock of Maréchal Niel, Gloire de Dijon, and other TEA ROSES:
Descriptive Priced LIST on applicatioo.
The Vineyard, Garston, Liverpool.

ROSES, TREE CARNATIONS, CLIMBERS, &c.

My CATALOGUE of above is now ready, and contains, in addition to above, Selections of PANSIES, BEDDING VIOLAS, CLOVES, CARNATIONS, PICOTEES, PHLOXES, PYRETHRUMS, DELPHINIUMS, and many others.
THOS. S. WARE, Hale Farm Nurseries, Tottenham, London.

Prize Cob Filbert Trees.

GENTLEMEN desirous of obtaining the true WEBB'S PRIZE COB FILBERT TREES, for delivery in October and November, should now send their orders to Mr. COOPER, F.R.H.S., Calcot Gardeos, Reading, of whom alone the various sorts can be obtained.
Price LISTS on application.

TWO HUNDRED THOUSAND VIOLAS, BEDDING PANSIES, HARDY PERENNIALS, ALPINES, &c.—One uniform price, 1*s.* per dozeo, transplanted. Land sold for Railway Extension. Guinea Gardeo Collection increased to thirty dozen, worth £6; half, 12*s.*
CATALOGUE gratis.
JOHN PIRIE AND CO., Stechford, Birmingham.

HERBACEOUS, ALPINE, and ROCK PLANTS.

Collections of 60 in 100 choice varieties, 30*s.* 0*d.*
" 50 in 50 " 17*s.* 6*d.*
" 25 in 25 " 10*s.* 6*d.*

Packing free and extra plants sent to compensate for carriage.
R. H. VERTEGANS, Chad Valley Nurseries. Edgbaston, Birmingham.

STRAWBERRY RUNNERS, from 20 choice varieties, price 3*s.* per 100, 12*s.* 6*d.* per 500, 20*s.* per 1000. Free by Parcels Post, 4*s.* per 100. Terms cash. Sample and LIST free.—W. LOVEL AND SON, Strawberry Growers, Driffield.

Kent, The Garden of England.

300,000 FRUIT TREES in 600 varieties.

GEORGE BUNYARD AND CO. beg to intimate that their stock was never finer, and intending purchasers are invited to come, and see for themselves. The New Illustrated Descriptive CATALOGUE of Fruits for 3 stamps. Reference LIST free.
The Kent Roses do Live.
Extra well-rooted stuff, very good, very cheap.
Descriptive Rose CATALOGUE Free.
The Old Nurseries, Maidstone.—Established 1796.

To the Trade only.

E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, Holland. The Wholesale CATALOGUE (No. 365A) of Dutch Flower Roots and Miscellaneous Bulbous and Tuberous rooted Plants for 1883-84 is now ready, and may be had free on prepaid application by Nurserymen, Florists, and Seedsmen.

To the Trade.

HOME GROWN VEGETABLE and FIELD SEEDS.

H. AND F. SHARPE are prepared to make special offers of all the varieties of VEGETABLE and AGRICULTUAL SEEDS they have grown this season from choice selected stocks. The quality of the seeds is excellent, and the prices are very low.
Seed Growing Establishment, Wisbech.

DUTCH BULBS.

All first size and quality. Cash prices.

HYACINTHS, finest named, 4*s.*, 5*s.*, and 6*s.* per dozen; ditto, finest for beds, 2*s.* 6*d.* per dozen.

TULIPS, finest named, 5*s.* to 8*s.* per 100; ditto, finest mixed, double or single, 4*s.* per 100.

CROCUSES, first size, all kinds to name, 1*s.* 6*d.* per 100.

The CITY SEED AND BULB DEPOT, 162, Fenchurch Street, and 80, St. Paul's Churchyard, E.C.

HOLLY for HEDGES.—12 to 15 inches, 25*s.*; 15 to 18 inches, 35*s.*; 18 to 24 inches, 50*s.* per 100. Forest LIST, containing heights and prices of well-grown transplanted Quick, Ash, Larch, Spruce, Pines, Oaks, Cover Plants, &c., free.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

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CABBAGE—CABBAGE.—Extra strong and fine Plants of autumn sown Early Rainham, Early Enfield Market, Early Battersea, and Early Nonpareil, 3*s.* per 1000; Robinson's Champion Drumhead, 3*s.* per 1000. The above are well-rooted, and free from club. No better plants can be had. Post-office Order, or reference from unknown correspondents. Free on rail. Samples on application. Apply,
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PANSIES.—The largest Amateur Pansy Grower in this country has authorised his Gardener to sell surplus plants from his stock, which comprises over 400 Exhibition varieties, and which have taken First-class Certificates and Prizes all over the country. The Pansies will be offered at prices far below what they can be obtained from nurserymen for. Particulars on application to
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SPECIAL CHEAP OFFER.

ARBOR VITÆ, American, 2 to 3 feet, 30*s.* per 100; 3 to 4 feet, 40*s.* per 100.

THUIA LOBBII, 3 to 4 ft., 80*s.* per 100; 4 to 5 ft., 120*s.* per 100.

HOLLIES, Green, 1 to 1½ foot, 20*s.* per 100; 1½ to 2 feet, 40*s.* per 100; 2 to 2½ feet, 80*s.* per 100

The above have splendid roots and are well grown.
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GLADIOLUS, THE BRIDE.—This pure white variety is perfectly hardy, and should be planted this month, or early next. Blooms in June, or will stand moderate forcing well. See our Wholesale Bulb Catalogue, to be had on application. Special low prices for large quantities.
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AZALEA MOLLIS, with ten to twenty and thirty buds.
" PONTICA NARCISSIFLORA, ten to twenty buds.
" " Graf Von Meran and others, covered with buds.
KALMIA LATIFOLIA, covered with buds.
ANDROMEDA PULVERULENTA.
HYDRANGEA PANICULATA GRANDIFLORA.
DEUTZIA GRACILIS, very strong.
ANTHONY WATERER, Knap Hill Nursery.

NEW LILIUM HARRISI (True).

We were the introducers of this distinct and floriferous variety of L. eximium last year.

Extract from *Gardeners' Chronicle*:—"Lilium Harrisi.—We have received a two-flowered stem of this Lily from Messrs. Watkins & Simpson, who introduced it into the London market, and which is the second flower-stem produced this season in the manoer described by Mr. Clausen, at p. 53, by a second-sized bulb in the possession of Mr. Walker, of Whitton, near Hounslow. The flowers are very fine, and evidence seems to be accumulating that it is distinct from L. longiflorum, or at least a well-marked variety of that species. It does not appear to do well out-of-doors, preferring the shelter of a cool greenhouse; and it stands forcing well.

"*We understand that one of the most extensive growers of plants for market has given a large order for bulbs for forcing next spring.*"

Price of Bulbs of the above and many other Lilies on application to

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SHOW VARIETIES, all the best sorts.
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Invites attention to the following LIST of well-grown and properly rooted NURSERY STOCK:—

HOLLIES, Common Green, 3, 4, 5, 6, 7, 8 to 10 feet high.
" laurifolia, ditto.
" Hodgins', 3, 4, 5 to 8 feet.
" myrtifolia, ditto.
" Saw-leaved, ditto.
" Scottica, 3 to 8 feet.
" Yellow-berried, altaclarense and others.
" Variegated, of sorts, 3, 4, 5, 6, 8 to 10 ft.
} many thousands.
" Waterer's, splendid plants, 3, 4, 5 and 6 feet, 8 to 15 feet in circumference.
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" New Golden Weeping, a large number of very beautiful plants.

BOX, Green and Variegated, 3, 4, 5, 6, to 7 feet, many thousands.

YEWS, Common, 3, 4, 5, 6, to 10 feet, thousands.
" Golden, of all sizes up to 10 feet. We have many thousands as Pyramids, Globes, Standards. In point of variety and size unequalled.

CUPRESSUS ERECTA VIRIDIS, 3, 4, 5, 6, to 8 feet, thousands.
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RHODODENDRONS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet. The plants are covered with buds.

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

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PICEA PINSAPO, 6 to 8 feet.
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36 HYACINTHS, mixed, in distinct colours.
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30 NARCISSUS, POLYANTHUS, best mixed.
30 ,, Incomparable, yellow, double.
50 ANEMONES, double, best mixed.
50 RANUNCULUS, double, best mixed.
400 CROCUS, in 4 distinct colours.
36 GLADIOLUS, best mixed.
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Half this quantity for 10s. 6d.
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Order Early and Plant in October and November.

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NEW POTATOS FOR CHRISTMAS

May be had without difficulty by planting, any time before October 20, in pots or frames,

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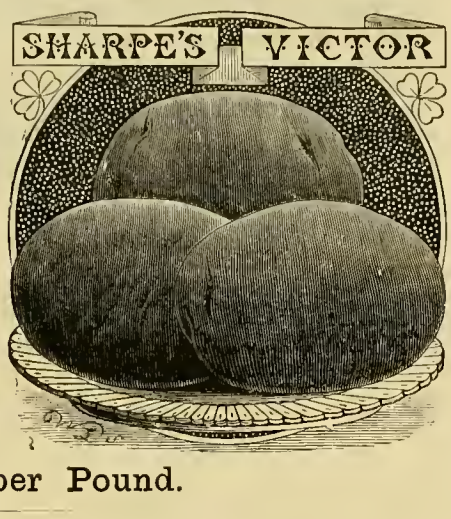

Sharpe's Victor is a seedling raised from the Alma Kidney and the old early short-topround Potato. It is earlier than any present variety, and having a very short top is especially suitable for frame cultivation, and there is no difficulty in **securing new Potatos for the Table every day in the year.** Victor is a flattened roundish oval in shape, with a beautiful clear skin and extremely shallow eyes, being one of the handsomest as well as the heaviest croppers of any variety adapted for frame-work, or for a first early crop outdoors. It is dry and mealy when cooked, and the flavour and quality of the flesh are superior to nearly every other variety at present in use.

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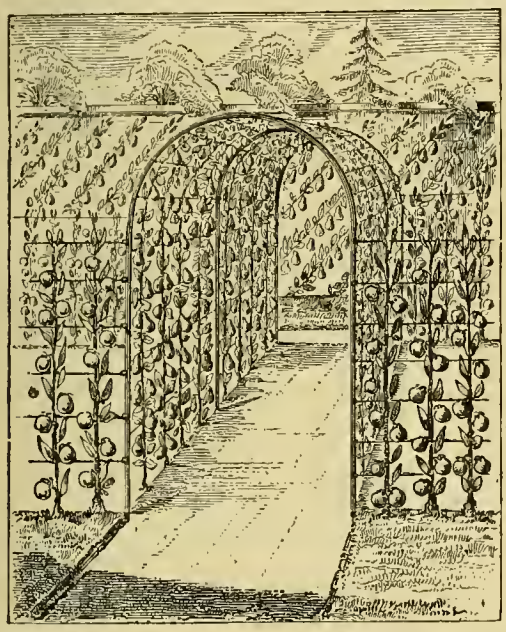

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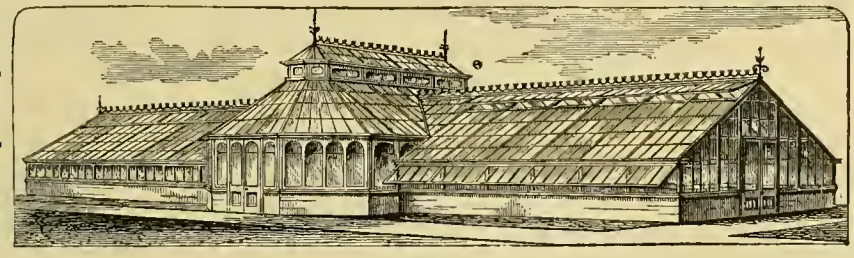

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ABERDEEN FAVOURITE.

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PEAT, for Rhododendrons, &c., of excellent quality, also the finest Yellow Fibrous LOAM, Light or Close, from rich forest pasture land, in trucks of 4 tons, 48*s.* each. Selected PEAT, 3*s.* per sack. SILVER SAND and LEAF MOULD, 8*d.* per bushel. Sacks, 6*d.* each. Remittance with order. B. LAMBERT, Ringwood.

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25 Iris, Spanish, mixed	12 ,, early double mixed
12 Jonquils, Campernelle	6 ,, La Candeur, dble.
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CONTAINS

3 Amaryllis formosissima	9 Polyanthus Narcissus, fine, mixed.
100 Crocus, named	9 Scilla sibirica
2 Cyclamen persicum	50 Snowdrops
12 Hyacinths, named	6 Sparaxis, mixed
3 ,, miniature, named	12 Tulips, Duc Van Thol, scarlet
3 Iris Pavonia	25 ,, early, five sorts
6 Ixias, fine mixed	6 ,, Tournesol, double
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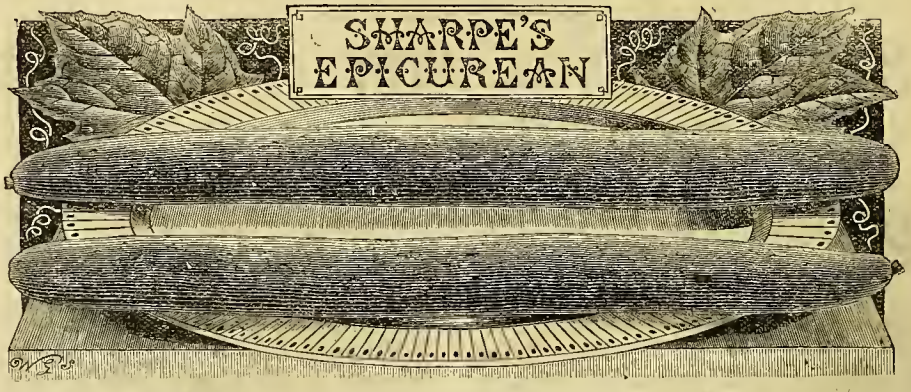

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GRAND VARIETY—IN FLOWER.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October 18, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., a very strong established plant, in flower, of a most lovely variety of PHALÆNOPSIS INTERMEDIA, which would seem far to surpass in richness of colouring any that they have previously bloomed of Brymeriana and Portei varieties.

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VANDA INSIGNIS (TRUE).
DENDROBIUM RIMANII, D. LEUCOLOPHOTUM.

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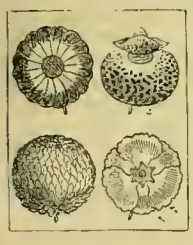

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THE QUEEN'S SEEDSMEN,
READING.

THE
Gardeners' Chronicle.

SATURDAY, OCTOBER 13, 1883.

HYBRID RHUBARBS.

In a recent number of the *Revue Horticole* M. Baillon describes several hybrid Rhubarbs which arose spontaneously in the garden of the Faculty of Medicine in Paris, as a result of the intercrossing, by insect agency, of Rheum Collinianum and R. officinale. Some of these hybrids are of great beauty as regards habit and the coloration of their flowers, especially one figured under the name of "Florentin." These hybrids are carefully described, and it is stated that they are perfectly fertile, but that some of the seedlings are so different from their parents that botanists to whom they have been shown have been led to consider them distinct species in the sense in which that word is now generally understood. They are, in fact, more different from the stock from which they sprung than are many so-called species one from the other. These facts lead M. Baillon to the inference that R. hybridum, R. Collinianum, and even R. officinale and R. palmatum may have originated (he does not say they did) at some relatively not very remote period from one and the same primitive stock. It is curious to see that this opinion, though very guardedly expressed, is offered with a *quasi* apology, and that the Editor takes care to leave the responsibility of such an heretical opinion to his contributor. The idea of the derivative origin of so-called species, which is now almost universally admitted in principle by naturalists, seems in France still to be spoken of with bated breath. Gardeners, at any rate, are about the last persons in the world who should doubt the validity of such a supposition. Their operations, indeed, furnish collateral and indirect proof of its correctness. At the same time the vagaries of those who—not following the safe ground of observation and experiment—construct ideal pedigrees on very shallow premises should not receive encouragement. Such speculations may be permissible as matter for discussion and research among experts, with a view to establishing their correctness or otherwise: they are not permissible when they are put forward by popular writers as established facts to be accepted by an unenquiring public as dogmas.

M. Baillon cites some passages from Linnæus which have been generally overlooked, but which show that the great Swedish naturalist considered Prunella laciniata to be descended from P. vulgaris. Moreover, in describing four "species" of Scorpiurus (*Species Plantarum*, ed. 2, 1763, p. 1050), he says that all these species doubtless originated from one. In point of fact the so-called "species of botanists" are mere convictions—judgments Asa Gray calls them. What amount of truth there is in these imperfect guesses we can never know till their genealogy has been worked out. Genealogical affinities constitute the basis of the natural system—natural only in proportion to our knowledge of the exact degree of affinity between the several forms. It may seem to

some a matter of no direct consequence whether a particular form is called a species, in the old sense of the term, or is considered to be the descendant of a pre-existent species, according to modern notions, or a hybrid between two species. Such questions, in the eyes of some folk, are mere playthings to amuse naturalists and sharpen their faculties; but it is held that they are of no practical value, and that to spend time over them is mere laborious trifling. The gardener and the raiser of new varieties know better, and those who are conversant with the efforts that have been made to introduce the Cinchona into India and the colonies will remember, as a case in point, the discussion that is in progress as to the real nature, specific or hybrid, of a particular form of Cinchona. Mincing Lane merchants would not trouble themselves much about the scientific part of the question; but when, as in this case, it becomes a matter of so much more alkaloid, representing so much higher value, the matter assumes to them an importance of a very practical character.

The hybrid Rhubarb of which we have been speaking must be propagated by division if it be wished to keep the stock pure. The spring is the best season for this operation, as that is the period when the new roots begin to spring. All these Rhubarbs are hardy and suitable for decorative purposes. At the same time, M. Baillon tells us the leaf-stalks are less sour than those of the ordinary varieties, and therefore better suited for culinary purposes.

New Garden Plants.

MASDEVALLIA INFRACTA (*Lindl.*) PURPUREA.

I have lately seen many flowers of this variety, kindly sent me by Sir Trevor Lawrence, and which surpass anything I should have thought possible. It has a far larger flower than any one seen before, and it is of the brightest purple-mauve colour, having but a very small whitish space over the ovary. *H. G. Rchb. f.*

Aërides Lawrenciæ, *n. sp.**

The grand and unique Aërides, imported by lucky Mr. F. Sander, has found its harbour in Sir Trevor Lawrence's orchidic Eldorado, associated now with innumerable treasures, having been purchased, I believe, at the highest price ever paid for an Orchid, after a very spirited competition (see No. 508, September 22, 1883, p. 368, column 3), September 19. One of my best correspondents tells me the price was rather moderate, so great is the actual desire for some gorgeous, extraordinary existing novelties amidst the *habitués* of Stevens' rooms.

I am thankful to say that the entire grand inflorescence is at my side. As it is, it is very well marked, though—*post equitem sedet atra cura*—we must learn by other inflorescences whether the features we admire to-day will prove constant.

No doubt it ranks close to old Aërides odoratum. It is far superior to it in the dimensions of the flower. The mid lacinia of the lip boasts basilar side lobules, the spur is far longer than in any Aërides odoratum I ever saw, and the calli in its throat are apparently distinct; add to this, that the two longitudinal stripes of the disc of the lip are peculiar. The side lacinia of the lip, oblong dolabriform as they are, appear very high. I am informed the veteran, J. Bateman, Esq., compared them to the well-known high collar of an illustrious English statesman, who appeared lately on the Baltic shores. It is a high satisfaction for me to dedicate this plant to Lady Lawrence, whom I have had the good luck to see amidst her beloved flowers, quite a *connoisseur*, and who is considered to afford the most ardent stimulus to Sir Trevor's love for Aërides, always desiring the progress of the grand collection of Burford Lodge.

We may easily describe the inflorescence. A glorious Aërides raceme, surpassing a foot's length, having flowers nearly as large as those of Aërides crispum, but near those of Aërides odoratum, first with greenish, then white, finally yellowish ground-coloured sepals, the petals flushed at the ends with fine purple, mid lacinia excluding basilar side lobules of same purple, sending two purple lines to the mouth of the spur. End of the spur green. This is the celebrated much talked of Aërides. *H. G. Rchb. f.*

* *Aërides Lawrenciæ*, n. sp.—Racemo elongato denso multiflora; sepalo impari cuneato oblongo obtuso; sepalis lateralibus latioribus; tepalis cuneato ligulatis obtusis; labelli laciniis lateralibus oblongo-dolabratis altis; lacinia mediana ligulata denticulata crispula obtuse acuta utrinque basi lobulata; calcari conico acute incurvo, carinula trilobula antice inclusa, callis geminis crassis postice. Ill. Dominæ Lawrence dicatum; ex Asia tropica importatum. *H. G. Rchb. f.*

JAPANESE FERNS.

Among the most striking and acceptable of recent introductions are the rhizomes of the new Davallia Mariesii, trained in various grotesque ways, and which have found their way into a few gardens during the last year. They come from a certain district in Japan, where the Fern in question forms one of the principal plants for indoor cultivation, the hardiness of its nature and its tenacity of life admirably adapting it for cultivation in dwelling-houses, arbours, and even in the open garden. A correspondent in Japan writes:—"This Davallia is one of the hardiest and most useful Ferns we have; it grows in this district on the bare rocks exposed to the full glare of the sun in the hot weather and to all the inclemency of the weather in the cold season. It s not, therefore, to be wondered at that after it has lent itself to be trained into all sorts of fanciful forms by the natives, it should grow luxuriantly when a little care and attention is given it." Experiments during the last year prove that the plant is as useful in this country as in Japan, it appearing to thrive equally well in stove, greenhouse, dwelling-house, or outside windows or verandas. Plant growers are always on the look-out for hanging plants which do not require much attention, and here they have the very thing they seek. It has been stated that this plant is quite hardy in this country, as it comes from where the Aucuba and Euonymus grow wild; a slight protection, however, would be advisable. Our illustration (fig. 69) was taken from Mr. James O'Brien's plants at Harrow-on-the-Hill, Mr. O'Brien having ventured on a large importation of them in spite of the inevitable risks and losses entailed by a ninety days' journey.

NOTES FROM BROCKHURST.

Narcissus (Corbularia) bulbocodium (the Hoop-petticoat Narcissus) has been the subject of many communications to the horticultural journals of late, and is more and more appreciated from year to year. Its hardiness in our climate has, however, been much questioned, and is still in debate. For my own part I believe it to be hardy in light soils and warm situations, having proof hereof for four or five years in some cases. A little circumstance came under my notice a few days ago which may throw some light on this question. My gardener was overhauling last year's Narcissus which had been bloomed in pots, and turned out two small lots of N. Bulbocodium, which had attracted our attention last spring. They were purchased from Hartland, of Cork, and he informs me that the bulbs had been collected in North Africa. A dozen bulbs yielded three distinct varieties, and we therefore preserved the pots carefully. On turning out the bulbs it was found that each of the old tunics which had coated the bulbs was filled with bulblets, no less than forty-two being now yielded by them, three or four of which are good medium size, fit to bloom in the spring. All these bulblets are of perfect form, without flattened sides, as is the case with Narcissi under similar conditions. Here, then, is, I believe, the reason why this Narcissus fails to show itself hardy when planted out in gardens. If a group of large, ripe, imported bulbs is planted, it flowers profusely the first year. We are told that bulbs are not roots, but buds, and thus a bulb blooms and that bud is over for flowering purposes. The bulbs all break up into bulblets, and the tunics are thus filled with their progeny. Most of these are too small to bloom the next season, and thus the spot is blank of flowers, and shows only grass-like foliage, easily overlooked, and it is taken for granted that the plants are dead. In warm sandy situations these bulblets will grow into bulbs, and flower the following season but one. This is, I believe, the true course of growth with this Corbularia. It is much more like an Amaryllis than a Daffodil in its flower, and again in its bulb history it also more nearly resembles it. The special requirements of its culture should be studied accordingly.

Indian Primulas.—If the cold wet weather had not come upon us we should have had a fine show of bloom on the Indian Primulaceæ this autumn. The plants have all made extraordinary growth, the denticulatas and cashmirianas carrying leaves 15 inches long. Deep in the rosettes were dense clusters of buds, and the stalks were just lifting them up when the rains set in. In almost every case they have now all rotted away. This shows us that these interesting plants should always be covered as soon as the buds are set; they cannot stand our cold damp rains, and seldom mature a good flower-truss without protection; in other respects they thrive in our climate.

Primula obconica astonishes me with its floriferousness. Our plants, as previously noted, were grown from seed sown in March last, and they have for the last two months flowered continuously. One plant now carries six flower-stalks, with good trusses of pale pink flowers, and is setting its seed abundantly. The plants are all in the open garden; it would probably do better still in a cool greenhouse. A friend to whom I sent a plant in bloom was greatly pleased with it, and wrote me that it reminded him of P. sinensis on its first introduction, and before the florists had improved it. I have no doubt it has a great future before it. P. capitata is now blooming from plants grown from seed sown in March last.

Nicotiana affinis has also bloomed continuously in the open garden for the last three months; at evening its flowers are very fragrant. Helleborus niger (altifolius) is in bud, and will bloom in a week or so; it is thus many weeks earlier than H. n. angustifolius. *Wm. Brockbank, Brockhurst, Didsbury, Oct. 6.*

FRUIT TREES ON POOR SOILS.

The Cultivation of Fruit Trees in Poor Soil on the Genoese Riviera and in England.—My garden in Surrey is on the borders of Woking Common, in a poor, sandy soil. It grows Heather, Gorse, Conifers, Birch, very successfully, which says something for it as a poor soil. I have recently passed through the province of Friesland in North Holland, and found that an apparently similar geological formation (sandy) for 40 or 50 miles could only manage to grow Heather about 2 inches high. I scarcely thought before that Heather could exist and cover the land in so stunted, mangy a form. I know of no such stunted Heather in the British Isles; the Dutch soil must contain scarcely any vegetable mould.

Fruit trees, Apples, Pears, Plums, grow in our sandy soil, form tolerably large leafy trees, but seldom produce any fruit. The flowers form in profusion and expand, the fruit sets, and then it generally falls off, most frequently under the influence of a late spring frost. I and my neighbours similarly situated have accepted the explanation, that our spring frosts are worse than those of other people, and that this is the reason of our failure to produce a fruit crop year after year. I have cultivated many fruit trees for more than twenty years, on espalier and in the open, of various kinds, early and late, with the same discouraging result. We have pruned, mulched, and used liquid manure, all to no purpose. Thus, I have been led to depend all but exclusively on Grapes or Peaches grown under glass.

At last I bethought me two years ago of trying the system adopted at Mentone and elsewhere, on the Genoese Riviera, for the cultivation of Lemon, Orange, and Olive trees. These trees grow in a shallow calcareous soil lying on limestone on mountain terraces, some 10 or 14 feet broad, rising tier above tier. If left to themselves they form handsome trees, full of foliage and of flowers, but do not produce fruit, or, at least, fruit worth gathering. The trees—at least the Lemon and Orange trees—are planted very near to each other, say at a distance of from 5 to 10 feet, in order, it is said, that their branches may meet and screen the soil from the scorching, drying rays of the sun. To produce saleable fruit they have to be watered every fortnight, and root-pruned and manured every two years. This is

done in a peculiar manner. A circular trench is dug about 2 or 3 feet from the trunk of the tree, about 18 inches deep, and 2 feet wide, according to the age of the tree. The larger roots are severed and the soil removed. The trench is then filled with soil mixed with manure, principally human, often mingled with old woollen rags. Horse-shoe parings are held in great esteem. The dose is a kilogramme (2¼ lb.) to each tree. Its manurial virtue is said to extend over several years—five or six.

At first it would seem as if this very severe root-pruning would be destructive to the trees, but it is not so. They do not seem to suffer in the least, and become very luxuriant afterwards, full of healthy foliage, and produce a good crop of saleable fruit. I am told that the root-pruning presents two great advantages, firstly, were it not resorted to, the trees, being planted so near together, would throw out long roots, all but destitute of small fibres, which would form a tangled mat of unproductive roots around the trees. Secondly, the long roots being severed, a mass of small fibrous roots is at once formed, which penetrates into the richly manured soil, gives food to the trees, and secures the formation of vigorous fruit buds.

Following this example, two years ago I trenched in the way described two Pear trees, about ten years old, which had never produced any fruit—a Beurré Superfin and a Beurré d'Amanlis. The trench was made 2 feet from the trunk of the trees, 18 inches wide and 18 inches deep. This trench was filled with a compost, one part rotten manure, two parts good loam. The result was most gratifying: the next summer, as also this, these trees have produced a good crop of fine healthy Pears. They neither fell off with the spring frosts, nor shrivelled up later, but matured perfectly. The fruit-buds being more vigorous have withstood all trials, and formed good ripe fruit.

Encouraged by this result I have this autumn treated all my fruit trees in the same way, but using equal parts loam and manure. In doing so I think I have brought clearly to light the reason why they have not fruited hitherto. I found that they had all made from three to half-a-dozen roots as thick as the finger or thumb. These roots had rushed away from the tree, 6 or 8 feet or more, into the poor surrounding soil, evidently in the search for nourishment. Thus, all our mulching and liquid manuring around and at the base of the trees was lost labour; the roots were not there—they had gone off far away, beyond reach. They found enough nourishment to keep the trees alive, to furnish leaves and flowers, but not enough to secure the fruit crop.

I would remark that when trees are thus treated they require regular watering all throughout the summer. This is always done on the Genoese Riviera, in the Lemon plantations, every fortnight, as stated, during the dry season which separates the spring equinoctial rains from those of the autumn. I have found it equally necessary here. It will not do to depend on the slight summer rain. For want of it last August my Pears ceased to swell, and began to crack. This is easily understood, for the roots in the manured trench are in a pot, as it were, and must soon exhaust the contained moisture. On the Genoese Riviera the trench manuring is repeated every two years, and generally in the same place, the distance from the tree depending on its age; but the trench is seldom more than 3 feet distant from the tree, whatever its age and size. I am taking off the soil from the surface around the tree to a depth of about 6 inches, and replacing it by a rich compost. I presume that the roots severed will not only throw out rootlets in the manured soil of the trench, but also between it and the trunk.

A gentleman whom I met a short time ago at the charming excursion of the Horticultural Club to Dropmore and to Cliveden, and to whom I mentioned these facts, said they were well known to the horticultural world. He had often made sterile fruit trees bear by severe root-pruning. He added that when it was adopted with trees of a certain size it was more prudent to only root-prune on one-half of the circumference the first year, and to complete the other half the next. In such cases he had known the pruned half to bear ripe fruit, whilst on the unpruned half of the tree the fruit dropped, or it remained

Fig. 69.—Davallia mariesii in grotesque forms. (see p. 460.)

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sterile. I have acted on this suggestion in pruning my sterile trees this autumn. I question, however, whether the trench system as practised in my Lemon terraces at Mentone is known and adopted in the North, and that is my reason for bringing it before the horticultural world—it is so thorough. It would have been perhaps better to wait and see the result of the treatment made this autumn; but then it would have taken a year or two to arrive at any results, and by thus rushing into print I may enlist other experimentalists in the cause. I may also be fortunate enough to elicit the opinions and experience of some wise fruit growers in similar regions to my own. My neighbours certainly do not seem to be able to meet the difficulty presented by a poor sandy soil any better than I have been. The other day I walked through the grounds of a prominent horticulturist, and saw a whole orchard of Pear trees, grown for sale, without a Pear on them.

I have recently returned from a tour in North Holland, with an increased appreciation of the value of manure both horticulturally and agriculturally. At Haarlem Mr. Krelage, the owner of the extensive Hyacinth farms, told me that he used from 3000 to 4000 fr. worth (£120 to £160) of cow-manure to prepare a hectare of land (2¼ acres) for the cultivation of Hyacinths, and more manure was required if the same ground was to be used again for the same purpose. The second year it would do for Tulips, but not for Hyacinths. In North Holland, which is all but exclusively devoted to pasture, I saw masses of manure applied to the land. I was told that the cattle are stall-fed in winter, and that all the manure they make is applied to the grass-land. In my summer home at Weybridge I preserve preciously, in a cemented tank, every ounce of house drainage, and at 6 o'clock every morning it is distributed by means of a barrow-tank over the grounds. Everything it touches is benefited—not only the grass and the flowers, but the Conifers, the Rhododendrons, the Broom, the Gorse, and the Heather, for I have 2 acres of cultivated wood. A double ventilating shaft from the cesspool, up the stable chimney, frees me from all unpleasantness. Clearly manure is the key to successful cultivation in sterile sandy soils, and I mean henceforth to use twice as much as I have ever used before. *Henry Bennet, M.D., The Ferns, Weybridge, Sept.* 10.

EDINBURGH NOTES.

Flowering Shrubs, &c.—Now that the mania for the exclusive use of bedding plants is dying out, there must be a difficulty in many a garden as to what is to take their place. Beds and borders of herbaceous plants require constant attention, and also a degree of knowledge and experience as to their management, which is unfortunately not too common. Much may be done by supplementing these herbaceous plants by a much larger use of flowering and fine-foliaged shrubs than is usually done. Once planted in ground so well prepared as to be both deep and rich, the work is done for years; and beyond occasional pruning, thinning out, or top-dressing, the shrubs require but little further attention.

Many good and rare shrubs are to be found about Edinburgh, which, from its climate, is no bad trial ground as to their hardiness, for if hardy here they are sure to be hardy in the more southern parts of the country. But many a shrub grown under glass here may be grown out-of-doors with good chance of success in a climate like that of the south-east coast of Ireland. The Comely Bank Nursery, from the many rare and curious plants to be found there, resembles a botanic garden almost as much as it does a nursery, many such plants finding a home there for years, even when there was little or no demand for them. A variety of Magnolia grandiflora called ferruginea undulata has deep green, very glossy leaves, which while young are brown at the back. They last remarkably well in water. The blossom is large and cup-shaped, produced late in summer. Though usually grown under glass here it proved fairly hardy on a wall, not having been quite killed even in the hardest winters. Several other hardy Magnolias are grown here, amongst which are M. conspicua, pure white; M. Soulangeana, pinkish-white; M. Thompsoniana, which flowers most of the summer and autumn.

The Japanese Loquat tree, Eriobotrya japonica, with a leaf like that of the sweet Chestnut, has proved hardy during all but exceptionally severe winters; Andromeda formosa (hardy in the south-east of Ireland, though not so here) and Myrica californica, which if as hardy as M. pennsylvanica, may also be grown out-of-doors in the South; the silver-leaved Rhamnus alaternus, an old plant now comparatively rare; Buddleia globosa, and B. Lindleyana, with a purplish blossom; Escallonia pterocladon, the waxy flowers of which are like a white Epacris, and the leaf small; Escallonia montevidensis, with a large cluster of white flowers, as well as several other varieties; Hydrangea quercifolia, with deeply lobed oblong leaves, like large Oak leaves, an old hardy plant; and if the variegated Elæagnus is hardy in the South is would be well worth growing; and the same may be said of Phyllocladus aspleniifolius, also grown under glass here; it is a singular looking plant, well described by its name. Olea ilicifolia is fairly hardy, but O. fragrans is more tender. Eurya latifolia variegata, though not hardy here, might be hardy in the South, and worth trying, as it is well variegated. Skimmia lauriola, the foliage of which is like Spurge Laurel, and very aromatic, would probably be good for underwood; it is about 2 feet high. Ligustrum coriaceum, with deep green, thick, glossy leaves, is distinct; and L. latifolium novum, having leaves exactly like those of a Camellia, is probably quite hardy. Rhus glabra laciniata has a pretty leaf, which fades off to scarlet in autumn; and from its Lycopod-like foliage, Thuiopsis lætevirens is well worth growing. Lonicera grata lasts long in flower during the summer, and its blossoms, shaded with deep crimson, are fine; L. fragrantissima is useful, as it flowers in early spring. Stauntonia latifolia, grown here as a conservatory climber, would be sure to be hardy in the south, as it is so here except in very severe seasons; it flowers in spring and is very sweet-scented. Viburnum macrocephalum also flowers early, and from the very large size of the bunches of blossom must be worthy of a place in every collection. Berberis Fortunei has foliage like an Aralia. The branch-like leaves of Aralia japonica here grow to the immense size of about 5½ feet long, by nearly 5 feet wide. It blossoms in the autumn, but sometimes not early enough to flower well. Such old plants as the Carolina Allspice, the flowering Gooseberry (Ribes speciosum), the Siberian Crab, with bright red Cherry-like fruit, and the winter flowering Chimonanthus fragrans, are to be found here; also various kinds of Ivy, including amongst others H. Caenwoodiana, H. dentata, with large pointed leaves and strikingly imbricated foliage; H. atropurpurea, which turns purple in autumn; H. maderensis variegata, and H. Cavendishii, both good silver variegated forms. Cotoneaster rupestris is an excellent kind for rockwork. Epigæa repens, the May-flower, grows luxuriantly here in pure peat; though hardy, it blossoms better when grown under cap-glasses in winter. Yucca filamentosa variegata is also protected by cap-glasses in winter, and thrives well. Y. recurva and Y. gloriosa glauca are good hardy kinds, the latter being an improvement on the type. A plant of Y. aloifolia, over 6 feet high, in one of the houses, is very effective, but this species is not hardy here. Daphne hybrida is hardy against a wall; it has very sweet-scented pink flowers. Genista præcox with its numerous small lemon-coloured flowers, is quite distinct from the cream-coloured form of the common Broom. Though not coming under the head of shrubs, a very frequent form of herbaceous Pæony, called Queen Victoria, may be mentioned. The blossoms are white, slightly tipped with red; also a white Carnation, good both in flower and foliage (W. P. Milne). Amongst Spiræas grown here is S. callosa alba, from 1 foot to 2 feet high, which flowers profusely in August; also S. Thunbergii, rather like a Bamboo in foliage; and S. Douglasii. There are also some good varieties of Ceanothus, including C. Gloire de Versailles, C. dentatus, C. divaricatus, C. Lobbii, &c. Amongst Oaks the variegated Turkey Oak and Quercus glabra, with a leaf more like that of a Magnolia than of an Oak, are very distinct. Prunus Pissardi is a good addition to dark-leaved shrubs. Perhaps one of the rarest shrubs to be found here is Edwardsia speciosa, growing out-of-doors in a well-sheltered corner against a wall; the foliage is like that of a Clianthus.

One of the specialities of this interesting garden is its Hollies, of which Mr. Fraser grows considerably over fifty varieties. About half an acre of Golden Queen Holly, from 1 to 1½ foot high, is a pretty sight. Ilex madeirensis is a very hardy kind, but if required to berry care should be taken to get the lighter green of the two green forms, as the other does not berry here. Two of the species most unlike ordinary Hollies are Ilex Fortunei (crenata), with foliage like that of a Pernettya, which it also resembles in its habit of growth; and I. latifolia, the foliage of which is curiously like that of a Magnolia. This Holly here requires the protection of a wall. *C. M. Owen.*

(*To be continued.*)

NEW ROSES.

This is in many ways a thorny subject, for the new varieties are so numerous, and the expectations of the raisers being as extravagant as their descriptions, when one comes fairly to examine them and test the promise by the reality there must be a large percentage of worthless rubbish struck off. Consequently not only is disappointment sure to be felt but all kinds of insinuations are made as to the reasons of the disparaging remarks that are made on these so-called novelties. Let me illustrate this by one fact. A gentleman well known in the Rose world, Mr. Hinton, of Warminster, is conducting in the pages of the *Journal of Horticulture* the election of the best twenty-four new Roses of the last few years, but he has been compelled to include in the range of years 1877, in which year A. K. Williams, Gabriel Luizet and Madame Lambard were introduced to commerce, and although the lists have not yet been published I venture to prophesy, notwithstanding Abraham Lincoln's appearance, that these three will hold the highest places; and yet in those six years there have been on an average between sixty and seventy Roses sent out in France, besides those sent out by our English raisers. I venture to think that it will be an extremely difficult thing to find, besides those mentioned, that six first-class exhibition Roses have been sent into commerce, and this from a plethoric list of between 300 and 400 Roses. No wonder then that growers now are no longer captivated by high-sounding phrases, and prefer to wait until they can see whether they deserve the laudations given them. Another thorny part of the subject is that referred to in the following letter, which I have received from one of the most honest of the French growers, and which I think it best to give in his own words. After mentioning several Roses, such as Marguerite Brassac, he says:—"Most of these are not considered by us as seedlings, but accidentally fixed and sold for new Roses, which was not fair when found inferior; and I regret much that this is done also in England, in the same way, only instead of changing the name an additional one has been added, such as Climbing Jules Margottin, Climbing Victor Verdier, Climbing Charles Lefebvre. I have this season found many among my Roses a good many going out of the ordinary way of growth, which I might with as much reason call Climbing Comtesse d'Oxford, Climbing Captain Christy, &c. This is always at the expense of the flowers, which are always much smaller. There are many, too, in the catalogues I have which are sports, often inferior to the type, although sometimes good; such, for example, is Merveille de Lyon, Mabel Morrison, and White Baroness. I do not believe that any of these are seedlings (Mr. Paul distinctly calls White Baroness a sport); all the three are accidentally fixed or sports, and the best is undoubtedly Merveille de Lyon as long as it will stand double, and continue as white as it is. Sports occur, and in two remarkable ways, in the growth of the plant and perfection of the flower. There is such an infinite variety in Nature that we are obliged to take into consideration these variations. Those who sell new Roses should always say whether they are seedlings or not. A new Rose to be called so should have a new origin, otherwise it is a variation of the same. Baronne Prevost, Duc d'Orleans, and Orderic Vital, are all the same, only changed in colour. Duchesse de Cambacérès and Belle de Printemps are the same, and these facts should be distinctly stated when so-called new Roses are sent out."

The Roses sent out in the autumn of 1882 were, I believe, on the whole, as inferior a batch as the French raisers have sent us for many years. A very experienced horticulturist, not himself a raiser of seedling Roses, has noticed the following. It will be seen that there are on his list five hybrid perpetuals, not one of which, except Merveille de Lyon, have we seen; and, according to my first correspondent, this is only a sport on which no dependence can be placed, as we know how readily they deteriorate. It is, as we have seen it, fuller than Mabel Morrison, and bears a close resemblance to Messrs. Paul & Son's White Baroness—the other.

Madame Eugène Labruyère (Gonod).—This is said to be large, good shape, rose, with a yellowish tint. Gonod has never yet given us a Rose worth having. His name does not occur as affixed to one of those in the National Rose Society's catalogue, either amongst the Teas or Hybrid Perpetuals, so that I

should be very doubtful of the present addition to the lists of the following by the same raiser :—

Madame Adriene de Meynet, which is described as a large vivid cherry-red ; this may mean anything.

Alexander Dupont (Liabaud).—This is said to be large and of good shape, purplish-scarlet, shaded crimson, suggestive of Jean Liabaud.

Centenaire de Camoens (Deas).—This is a new name to me as a raiser. The Rose is described as large, full, fine shape, velvety-crimson, shaded purple ; very fine, scarce. I have not seen it as yet.

Of the Teas there are :—

The Hon. Edith Gifford (Sisley).—A promising Rose, large, full, of fine shape, fleshy-white, centre slightly yellowish and pink.

Madame Eugène Verdier (Levet).—Another of the name makes it rather confusing, as we have it already amongst the H.P.'s ; good shape, dark salmony-yellow, new colour.

Souvenir de Thérèse Levet (Levet).—Large, fine, scarlet shaded amber. If this be a true description, and it is really a Tea—and not a hybrid Tea—it is introducing quite a new colour amongst the Tea Roses, whether to their advantage is questionable.

Of the Roses to be sent out in November, I have notices of the following—the descriptions are those of the raisers, and must be taken with reservation.

Of hybrid perpetuals there are :—

Julie Gaulain (Liabaud).—Large, nearly full, dark rose, slightly yellowish ; these nearly full Roses are seldom satisfactory.

Louise Chrétien (Liabaud).—Large, full, globular, dark rose, slightly yellowish.

Louise Aunir (Liabaud). — Large, dark scarlet, probably of the Jean Liabaud family.

Avocat Lambert (Bresson).—Full, fine shape, delicate rose, with whitish centre.

Madame Delleram (Bresson).—Large, fine shape, pure white, sometimes shaded pink.

Souvenir de Léon Gambetta (Gonod).—Very large, fine shape, beautiful crimson.

Eclair (Lacharme).—Large, full, fine shape, round, vivid scarlet.

Alphonse Soupert (Lacharme).—Large, full, shape and size of La Reine, vivid pure rose. Lacharme has given us so many good Roses, and seldom any bad ones, that one is always hopeful of his novelties.

Teas.

Edward Gautier (Ducher). — Medium size, full, good shape, white with dark yellow centre, slightly pink on the outer petals.

Baronne de Sinety (Gonod).—Large, full, globular, fine shape, yellow, darker centre, outer petals slightly shaded with pink.

Madame de Watteville (Guillot).—Large, full, fine shape, white, slightly shaded salmon, yellow, edged with bright-pink.

Clothilde Soupert (Levet). — Large, very full, carmine-pink.

Besides these Guillot announces a hybrid Tea—

Aotoine Mermet, which is said to be very large, full, fine shape, dark carmine-pink, slightly shaded with white. There is also apparently a good addition to the charming little polyantha Roses in

Perle d'Or (Rambaud), said to be as dwarf as Paquerette, very free bloom, light yellow, darker centre, whitish edges, the first of this colour in the polyantha tribe.

Our English raisers do not seem to have many novelties to send out—the only one of any account that I have seen is

Lord Frederick Cavendish.—This is sent out by Mr. Frettingham, of Beeston, near Nottingham. It was exhibited at Liverpool at the show of the Wirral Rose Society, where it obtained the National Rose Society's Gold Medal. It is a fine flower, of the Duke of Edinburgh and Duke of Teck type, brilliant dazzling scarlet in colour, globular, and finely finished. The petals are pointed, growth very robust, and likely to be a favourite show Rose.

Duchess of Connaught, raised by Mr. Noble, of Bagshot, is likely to be a valuable decorative Rose. It is a very free bloomer, bright crimson, shaded with dark velvety-purple, and I have seen blooms of it quite suitable for exhibition.

It may be asked what about Her Majesty? I believe I am correct in saying that it will not be put into commerce yet. Rose growers take matters much more quietly about novelties than they were wont to do. It is, indeed, very difficult to imagine anything more lovely than some of the Roses we now have. The clamour for size I conceive to be a mistake, and a large overgrown Rose, however brilliant in colour, destroys the evenness of a stand. I do not think we require anything larger than what we already have. There are a few desiderata we still look for, but anything very marvellous I for one hardly anticipate.

Wild Rose.

ASTERS.

From Mr. Ware comes a series of fine Michaelmas Daisies, of which we note the most prominent characters from a horticultural point of view, without taking any responsibility as to the correctness of the names :—

Aster amellus Bessarabicus.—A tall form, with rough oblong obtuse leaves 2 inches long by ½ inch in width, and with terminal corymbs of slaty-blue flower-heads 1½ inch across, and surrounded by a cylindrical involucre of many rows of oblong obtuse leafy bracts, recurved at the tips ; one of the handsomest forms.

Aster amellus var. Cassidicus. — A tall form, with lanceolate pointed leaves, rounded at the base, and with terminal flower-heads 1¼ inch across, the rays oblong. Very like the preceding, but with smaller flower-heads ; rather less attractive.

Aster amellus roseus.—A form with rough lanceolate pointed leaves, 2 inches by ½ inch, and loose terminal corymbs of lilac flower-heads, each about 1½ inch across. Bracts oblong, pointed, purple at the tips.

Aster novæ-angliæ.—A tall, much branched form, with sessile lanceolate rough leaves, auricled at the base, and with terminal corymbs of numerous rosy-lilac flower-heads, each about an inch across, with narrow rays. The involucre is cylindrical, consisting of many rows of small narrow and sharply pointed bracts.

Aster formosissimus.—A tall, much-branched form, with smooth lanceolate leaves and terminal panicles of pale violet flower-heads, each about half an inch across, and surrounded by a cylindrical involucre of numerous rows of small oblong acute bracts.

Aster versicolor.—A tall, much branched form, with smooth lanceolate leaves, 3 inches by ¾ inch, and terminal, many-flowered long clusters of flower-heads, each about three-quarters of an inch across the rays, some of the heads white, in others pale lilac. The bracts of the cylindrical involucre very small, linear tightly packed, and scarcely reflexed at the points.

Aster dumosus.—A tall, much-branched form, with smooth lanceolate leaves, rounded at the base, 2 inches by ½ inch. Flower-heads numerous along the ends of the branches, each about half an inch across ; rays narrow oblong, pointed, slaty-blue. The bracts of the cylindrical involucre are in many rows, small, oblong acute, tightly packed, and not recurved at the tips.

Erigeron salsuginosus (?).—A much branched plant, with loosely arranged leaves, 4 inches long by half an inch wide, oblong-obtuse, smooth. The flower-heads are relatively few terminal, each on a long, nearly leafless stalk, about 1½ inch across, with linear rays of a very pale lilac colour, and surrounded by a cup-shaped involucre of numerous linear-acuminate hairy bracts in few rows.

Aster turbinellus. — A form with numerous loosely spreading very slender wiry branches, with narrow, lanceolate, smooth leaves, 2 inches long, half an inch broad, the leaves diminishing in size upwards. The flower-heads are loosely arranged along the ends of the wire-like stalks, each three-quarters of an inch wide, the rays pale lilac, surrounded by an elongated cup-like involucre of narrow, pointed, closely packed bracts.

Aster versicolor.—A form of medium height, with lanceolate smooth leaves, 1¾ inch by ¾ inch. The flower-heads are on short stalks along the ends of the branches, each three-quarters of an inch long, pale or deep violet, surrounded by an elongated cup-shaped involucre of numerous small linear, closely packed bracts.

Aster discolor. — Much branched. Leaves 2 inches by ¼ inch, smooth, lanceolate, acuminate, undulate. Flower-heads very numerous along the ends of the branches on short stalks thickly set with small leaves, each flower-head half an inch across, white and violet, surrounded by a cup-shaped involucre of minute linear-pointed bracts, not reflexed at the tips. A pretty form, with profuse flowers.

Aster longifolius formosus.—Leaves smooth, 2 inches by ¼ inch, lanceolate. Flower-heads very numerous along the ends of the branches, stalks with numerous small leaves, arranged in corymbose fashion, each half an inch across, pale lilac, surrounded by a cup-shaped involucre of linear, closely-packed bracts, not recurved at the tips.

DOGMERSFIELD PARK.

For sixteen years past the gardens at Dogmersfield Park have been thrown open to the public on three successive Mondays in August and September, and this act of kindness on the part of Sir Henry St. John Mildmay, Bart., is greatly appreciated by the residents of Odiham, Winchfield, and district, who go there in large numbers, and who annually find something fresh and attractive to admire. The fruit gardens have long been famous for the fine Apples and Pears grown by Mr. W. Fowle, and with which he has taken many leading prizes at the London exhibitions. There is a very fine display this year both on the walls and pyramid trees ; the latter, planted near the kitchen garden walks, have a very fine show of fruit. In this garden there are a number of rustic arches, with various-coloured Clematises trained over them, that have a very pretty effect, having flowered with remarkable freedom.

One of the most novel features in what is termed by the residents the "dress" part of the gardens are two borders, each about 200 yards in length, planted with Herniaria glabra, which covers the ground, and about it are planted small specimens of the golden, silver, and green-leaved Retinosporas ; between them, here and there, are dotted little clumps of Fuchsias, scarlet Begonias, double Zinnias, and white Asters, the whole backed up with a Yew hedge, forming a dense evergreen wall 8 feet in height and certainly unique in appearance. Beyond these borders are fine masses of single Dahlias, Fuchsias, Abutilons, &c., and large beds of Sunflowers. The broad walk is laid out in semicircles filled with various coloured Pelargoniums, Calceolarias, Ageratums, &c., with a wide border of Sedum Telephium. These beds are all edged with Lonicera aureo reticulata, the spaces between being filled up with Dell's dark-leaved Beet. These borders are about 300 yards long, with a Holly hedge for the background the same height as the Yew hedge. The beds in the flower garden are of various designs on grass, and in four divisions. In the centre of each division is a raised ornamental bed of oblong form filled with some of the best varieties of Fuchsias, with a margin of single and double Ivy-leaved Pelargoniums. There are also eight circular beds that are most conspicuous by reason of having large clumps of the scarlet Lobelia fulgens, surrounded with Pelargoniums Flower of the Day, Golden Harry Hieover, The Shah, and others. Another arrangement is composed of the pretty variegated grass, Dactylis glomerata variegata, the white variety, with belts of the pretty dwarf Iresine Wallichi. The carpet beds are filled with the best varieties of Alternanthera, Mesembryanthemum cordifolium variegatum, &c. The edgings and groundwork are formed of Herniaria glabra.

In the conservatory there are some beautiful specimens of various-coloured Begonias, Palms, Tree Ferns, Liliums, &c. The fernery, adjoining the conservatory, is a new feature, having been extended and remodelled ; the Ferns are planted out in bark-covered borders, one above the other, to the top of the house, and the plants appear to be so much at home as to form one dense luxuriant bank.

The pleasure-grounds always come in for a considerable share of admiration from visitors. There are fine specimens of trees and shrubs in the pinetum and other parts of the grounds. The grass sward is well kept, and the surroundings nicely ordered.

There is a combination of plants growing in the mixed herbaceous border that compels notice. There is a back row of fine herbaceous Phloxes, then a band of Anemone japonica alba, with which is mingled the beautiful blue Salvia patens, both in full bloom. This has a charming effect, as might be imagined. The Anemones are left undisturbed, but covered with a thick dressing of manure during the winter. They have this season carried thousands of flowers. Great credit is due to Mr. Fowle for his admirable management of these gardens.

THE SEED-VESSELS OF AUSTRALIAN TREES AND SHRUBS.

The fruits or seed-vessels of many Australian trees and shrubs constitute perhaps their most singular feature, and at the same time the parts least known to Europeans. Exceedingly hard woody fruits, enclosing minute small or delicately organised seeds, are one of the characteristics of the flora. Excluding the tropical portion of the country there are very few trees or shrubs that bear fleshy fruits or large farinaceous seeds—in short, there is every provision to ensure their reproduction from seed. We will in the first place illustrate some of the more distinct types of seed-vessel offered by the

Gum Trees or Eucalypti.

The genus Eucalyptus forms the most important and the commonest element in the arboreous vegetation of Australia. Members of this genus abound in almost every part of the country; indeed, with the exception of two or three species in New Guinea, one in Timor, and one, or perhaps two, apparently rare species in the Moluccas, it is restricted to Australia. The forms are innumerable, and the described species number something like 150, though many of them are still imperfectly defined. Mr. Bentham (*Flora Australiensis*, iii., pp. 185-261) defines 135; but Baron F. Mueller (*Eucalyptographia*, introduction, p. 4) estimates the number at about 140; and of these he has already illustrated and fully described eighty in the work named. The distribution of the species within the country, as far as at present known, is tabulated in Mueller's *Census of Australian Plants*, from which we learn that forty-eight species grow in New South Wales; forty-six in West Australia; thirty-seven in Queensland; thirty-five in Victoria; twenty-eight in South Australia*; twenty-five in North Australia, and fourteen in Tasmania. Analysing these numbers we find that thirty-eight of the species recorded from West Australia have not hitherto been met with outside of the limits of that colony, while only five of the South Australian species are peculiar. Of the large number found in New South Wales there are only four which do not extend to one or more of the other colonies; this, however, is explained by the fact that the political boundaries do not coincide with physically different regions or areas. On the other hand, of the twenty-five North Australian species thirteen are peculiar, and five others extend only into Queensland. One species, E. rostrata, is common to all the colonies of the mainland of Australia; and a few others, such as E. gracilis, E. uncinata, E. oleosa, and E. incrassata have a very wide range.

Before proceeding to the consideration of the seed-vessels of the Gum trees, a few words respecting the trees and their foliage. In habit and stature the species of Eucalyptus vary from dwarf straggling bushes to the most gigantic of trees. Generally speaking the trunks, especially of the taller kinds, are massive and straight, with comparatively small limbs, while the ultimate branchlets are usually slender, and often drooping. The leaves of quite young trees are often opposite, relatively large, horizontal, with the two surfaces different; otherwise there is a great sameness in the foliage of adult trees, one type prevailing throughout. Both surfaces of the alternate leaves are alike, and the direction of the blade is more or less vertical. But the reader may get a better idea of the character of the foliage and the habits of the trees by turning to the figures in the *Gardeners' Chronicle* for 1873, p. 1567; n. s., xii., p. 113; and xv., p. 601. This knowledge, and much more, may be obtained by visiting the Marianne North Gallery at Kew, where there are paintings of several species as they grow in their native haunts.

The seed-vessels or fruits of the Gum trees offer great variety both in size and shape, yet they afford no characters by which the species can be systematically classified. A large proportion of the species, however, are more readily distinguished by their seed-vessels than by any other character. The differences are in size and shape more than in structure, though the number of cells or compartments varies from three to six. The seeds are always small, and of some species very small, irregular in shape, and usually numerous in each cell, though few, or even only one in each cell are fertile, the rest being abortive.

Beginning with the smaller-fruited species, there are, among others, Eucalyptus brachypoda and E. amygdalina, both drawn natural size in fig. 70. E.

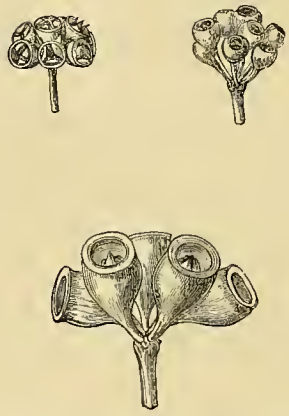

Fig. 70.—Upper left-hand figure, a cluster of seed-vessels of Eucalyptus brachypoda; upper right-hand figure, E. amygdalina; lower figure, E. diversicolor. All natural size.

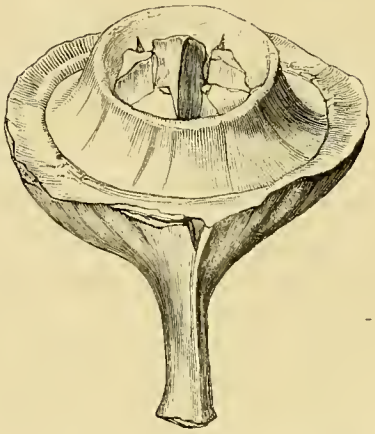

Fig. 71.—A seed-vessel of Eucalyptus pyriformis. Natural size.

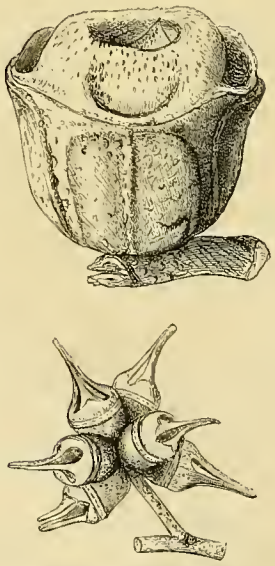

Fig. 72.—A single fruit of Eucalyptus erythrocorys, and a cluster of fruits of E. cornuta.

brachypoda, whose fruit is represented above on the left in fig. 70, is a widely dispersed shrub or small tree of apparently little or no commercial importance. There is one other species, E. brachyandra, from North Australia, that has a fruit (if the fruit we have seen is normal) about half the size, or only one-twelfth of an inch in diameter. E. amygdalina—fig. 70, above on the right—a widely diffused species in Eastern Australia, is perhaps the tallest tree in the world, yet it has fruit approaching the smallest in the genus, and minute seeds. Like several of the small-fruited species, it is not easily recognised by its fruit. The following particulars of this species are extracted from Baron Mueller's *Eucalyptographia*:—

"This Eucalyptus is one of the most remarkable and important of all the plants in the whole creation! Viewed in its marvellous height when standing forth in its fullest development on the slopes or within glens of mountain forests, it represents probably the tallest of all trees of the globe; considered as a hard-wood tree of celerity in growth it ranks among the very foremost; regarded in reference to its timber the tall variety can fairly be classed with the superior kinds of Eucalypts, and contemplated in respect to the yield of volatile oil from its copious foliage it is unsurpassed, and perhaps not equalled by any other tree in the whole world! These various signal qualities of E. amygdalina having become gradually known, much through the exertions of the writer, this tree has found already a wide appreciation abroad, in countries neither subject to severe frosts, nor to intense moist heat. It assumes under different climatic and geologic conditions various forms; thus in the irrigated ravines of cooler ranges the tree attained the most towering height, combined with a perfect straightness of stem, while the outer layers of its bark decorticate so completely as to render the huge stems quite smooth and almost white, the habit then being that of its only rival in loftiness among congeners, namely E. diversicolor (the Karri of West Australia). This lofty state of the tree passes as one of the White Gum-trees (and even also as Mountain Ash in the Dandenong ranges), while phytographically it has been distinguished as 'regnans.' According to Mr. F. Abbott, it is this form which constitutes the 'Swamp Gum-tree' in Tasmania, where already Sir William Denison placed early its huge dimensions on record. In more open and in merely ridgy country E. amygdalina remains much lower in stature, even often a comparatively dwarf tree, with outside rough, inside tough somewhat fibrous bark, which remains more or less persistent on the stem and even lower branches; under which conditions the species is called the 'Peppermint tree' in Victoria and Tasmania and a 'Messmate tree' in some tracts of New South Wales . . .

"It is the intention to give on a future occasion a schedule of exact measurements, clinometrically obtained, of the tallest individual trees anywhere to be found; but it may for the present suffice to observe, that approximate heights for this tree of 400 feet have been obtained by the writer at the Black Spur and elsewhere on the Upper Yarra and Upper Goulburn River. Mr. D. Boyle first of all ascertained the length of a fallen tree of this species, found by him in the Dandenong ranges, at 420 feet; the length of the stem up to the first branch being 295 feet; the diameter of the stem at the commencement of the ramification proved 4 feet, 70 feet higher up the diameter was still 3 feet: the top portion was wanting. A still thicker tree there measured at 3 feet from the ground 53 feet in circumference. Mr. Boyle found another tree with a stem 25 feet in diameter at the base, and yet the bark quite thin. Mr. Howitt obtained in Gippsland also measurements up to 410 feet. The Rev. H. Ewing (as stated in Henfrey's *Botanic Gazette*) measured a prostrate tree on a rill of the North-west Bay River, at the rear of Mount Wellington, already thirty years, and recorded the height up to the first branch 220 feet, from thence to where the top was broken off 64 feet more; the basal diameter proved to be 30 feet; the stem diameter at 220 feet was still 12 feet; and to that distance it would turn out already more timber than three of the largest Oaks taken together with their branches. A standing tree at the same place measured, 3 feet from the ground, 102 feet in circumference; but close to the ground even 130 feet! The reverend gentleman observed within a square mile at least 100 trees, none less than 40 feet in circumference at the base. Mr. G. Robinson noticed in the back ranges of Berwick the circumference of a stem to be even 81 feet at a distance of 4 feet from the ground. (See Elwood Cooper's edition of some of my lectures and essays, p. 161.) The same gentleman, whose professional judgment as a surveyor would give every guarantee for accuracy, obtained at the foot of Mount Baw-Baw the measurement of an exceptionally large tree, which was 471 feet high. From the Cape Otway ranges a tree is also on record by Mr. Walter with a height of 415 feet, and a basal diameter of 15 feet, although the loftiest trees have not always the most colossal stems. But, although this Eucalypt of ours will probably maintain the actual supremacy in height among trees of the globe, it must cede the palm of superiority perhaps to the Wellingtonia (Sequoia), and the only other congener of the mammoth trees of California in respect to height combined with massive ramification, and a crown of foliage dense to the summit in Sequoias, because the final extraordinary

* This number, we believe, is found within the old boundary of the colony.

height of E. amygdalina is often attained only by a solitary, straggling branch, pushing singly towards the sky. It is a grand picture to see a mass of enormously tall trees of this kind with stems of mast-like straightness and clear whiteness so close together in the forests as to allow them space only towards their summit to send their scanty branches and sparse foliage to the free light."

E. diversicolor (the lower cluster of seed-vessels in fig. 70) is the largest tree of the West Australian forests. It is the Karri of the aborigines, and it is, we believe, the one mentioned by Mueller in his *Fragmenta* under the name E. colossea. According to Baron Mueller, Messrs. Muir saw trees with stems about 300 feet long up to the first branch, and he himself noticed many trees which approached to 400 feet in their total height. When closely growing the young trees may have a comparatively slender trunk, so much so, that a tree 180 feet high may show a stem hardly over a foot in diameter; in such a case the foliage for want of space is also only scantily developed, and the ramifications are but short in proportion to the tallness of the stems. In the mast-like straightness of the trunk, and the smooth whiteness of the bark, this superb tree imitates completely the variety regnans of E. amygdalina of South-East Australia.

E. pyriformis (fig. 71) is one of the larger-fruited

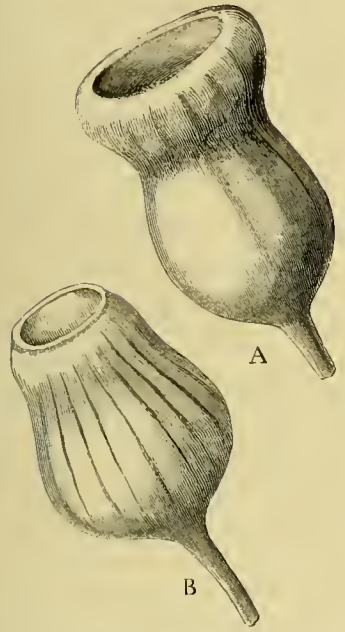

Fig. 73.—A, Fruit of Eucalyptus calophylla?; B, Fruit of E. ficifolia. Natural size.

species, being exceeded only by that of the allied E. macrocarpa, of which there is a specimen in the Kew Museum 3¾ inches across. Baron Mueller states that it begins to flower when it is not more than 4 feet high, though it grows into a small tree about 20 feet high. E. macrocarpa, of which there is a painting in the Marianne North Gallery, is also shrubby, and so rare and local that it is feared it may soon become extinct. We may here describe a peculiarity in the flowers of Eucalyptus in allusion to which the generic name was given. An expanded flower has no petals outside of the dense cluster of stamens, but if a bud be examined a covering will be found. When the stamens are fully developed they push off this covering, which falls away in one piece in the form of a calyptra or cap variously shaped in different species. In E. macrocarpa and E. pyriformis it is like an extinguisher. Another shrubby or small arboreous, large-fruited species from West Australia is E. erythrocorys (the upper fruit in fig. 72). This is a very ornamental species. James Drummond, who was the first resident in West Australia who took great interest in the flora, made large collections of dried plants, including many hundred new species, and he says of this (Hooker's *Kew Journal of Botany*, v., p. 121), that it is one of the finest species of the genus. "A beautiful yellow-flowered Eucalyptus grows on the limestone hills to the west of the Valley of the Lakes. It grows to a tree from 20 to 30 feet high; the leaves resemble those of the Red Gum, being hispid on the young shoots and glabrous on the flowering branches. . . . . The cups [that is, the deciduous caps described above] are of a bright scarlet colour and have a verrucose appearance, and the stamens are yellow, which, with the shining leaves, make the tree very ornamental." Oldfield found the same species in a shrubby condition, 8 to 10 feet high. The seed-vessel is very different from any other that we have seen.

E. cornuta (fig. 72) is one of two West Australian

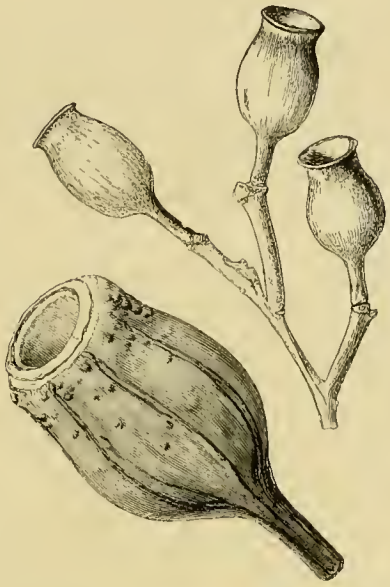

Fig. 74.—Three fruits of Eucalyptus corymbosa and a single fruit of E. ptychocarpa. Natural size.

species, remarkable for the narrow exserted tips of the capsule, which are often connivent at the tips. The showy species recently figured in the *Botanical Magazine*, plate 6140, under this name is, as Mr. N. E. Brown has pointed out to us, the allied E. Lehmanni, which differs among other things in the calyx-tube and fruit being more or less immersed in the thick peduncle.

Another type of fruit is exhibited by E. ficifolia (fig. 73, B). This is undoubtedly the most gorgeous

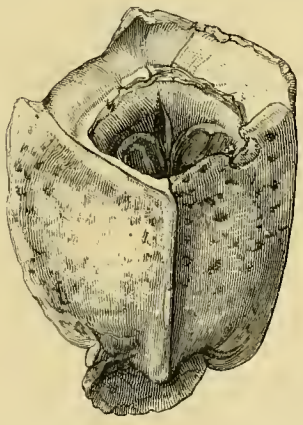

Fig. 75.—A fruit of Eucalyptus tetraptera. Natural size.

of all the Gum trees. It is a native of West Australia, and very much resembles E. calophylla in foliage and fruit, differing mainly in its brilliant crimson flowers and winged seeds. There is a painting of this in the Marianne North collection at Kew. The longitudinal lines in our figure are too conspicuous, as the fruit is really almost smooth. The fruit marked A, fig. 73, is different from any other that we have seen, but it is possibly an abnormal one of E. calophylla, with the upper part very much more expanded than is usual. E. ficifolia and E. calophylla have both very handsome, massive foliage.

E. ptychocarpa (fig. 74) is a North Australian species, the fruit of which is easily recognised by having eight longitudinal ridges. This and E. miniata, which has a fruit resembling that of E. ficifolia, are among the number specially recommended by Baron F. Mueller for ornamental purposes. E. miniata is also from North Australia, and, on the authority of the botanist just named, a nurseryman raised plants of it from seed that had been lying in a museum thirteen years.

E. corymbosa (fig. 74) is one of three or four species inhabiting Eastern and North Australia, having a peculiarly elegant type of fruit.

The oddest looking fruit of all is that of E. tetraptera (fig. 75), which is square or three-cornered, and often more or less oblique, the larger ones being as much as 3 inches long. This species is shrubby, and seldom exceeds 10 feet in height. It is a native of Western Australia.

Our last in this small selection is the Blue Gum, E. globulus (fig. 76), concerning which so much has been written in this journal that we will confine ourselves to a few extracts from the *Eucalyptographia*, merely mentioning that the fruit is readily distinguished from that of all other species.

"Sénateur Comte Torelli, who was commissioned to initiate the extensive culture of E. globulus on the malarian swamps near Rome, informs us that at Gaëta a specimen of this tree among those planted by Royal order in 1854 was about 100 feet high in 1878, showing a basal circumference of 11 feet. But Dr. W. von Hamm, of Vienna, who purposely visited Italy in the interest of Eucalyptus culture, saw still larger trees at Lago Mag-

Fig. 76.—Fruit of Eucalyptus globulus, seen from above and the side. Natural size.

giore, one of which in 1878 was fully 120 feet in height, and was supposed to be twenty-eight years old. At Hyères a tree, raised from seed in 1857, according to Dr. Raveret-Wattel had attained in 1875 a height of 67 feet, with a circumference of 7 feet towards the base of the stem. As far north as Nice a small seedling planted in 1869 had risen in 1874 to a tree of about 50 feet in height, with a circumference of 3 feet of the basal portion of the stem. At Malaga, according to Dr. Planchon, a specimen attained in six years 65 feet. Still greater celerity of growth is shown by E. globulus in temperate regions of tropical mountains, where equality of temperature is combined with moderate continuous humidity. Thus Mr. Brace wrote to me from the Neilgherri Hills of the Madras Presidency, that his Eucalypts had attained an average height of 20 to 25 feet eighteen months after the seeds were sown!

"Baron von Humboldt stated that the height of E. globulus—230 feet—was extraordinary among the record of tall trees known at his time. The Rev. Th. Ewing actually measured a tree showing a height of 280 feet, and the Rev. James Backhouse, whose accuracy can also be implicitly relied upon, gives in the work on his missionary travels the height of the tallest tree seen by him as even 330 feet. Mr. James Dickson informs me that at Southport he noticed a tree of E. globulus far exceeding in girth even the mightiest of E. amygdalina; of this particular tree a local shipwright declared that it contained as much timber as would suffice to build a 90-ton schooner solely from it. The stem of this venerable patriarch of the forest measured about 150 feet to the fist limb."

W. B. Hemsley.

Finsbury Park. — The usual display of Chrysanthemums in this North London Park will be opened to the public to-morrow (Sunday), and the flowers will be at their best from a fortnight to a month afterwards.

Orchid Notes and Gleanings.

Vanda Sanderiana, *Rchb. f.*—When I received the first flower, kindly sent by Mr. F. Sander, as thin as tracing-paper, I felt very much embarrassed. Only one thing was evident—I had to give a name o an entirely new thing. But—of what genus? My best friend, the pollen apparatus, was absent. The nature of the lip and its adhesion to the column were doubtful. I was left to the *tâtonnement*, often called De Candollean *tâtonnement* by those who believe that work in systematic botany is as clear as a mathematical calculation. The *tâtonnement* guided me to Vanda. Now the fresh flower is at hand, thanks to the liberality of Mr. William Lee, Downside, Leatherhead, who most kindly sent me his first flower, grown by Mr. Charles Woolford. Mr. Lee is, however, very rich, as he informs me there are three racemes, two of twelve flowers each, and the third actually scarcely developed. The flower is grand, original in its own merits, of a distinct appearance. It fully shows that those sketches Mr. F. Sander had from his travellers were quite correct notwithstanding their having created the impression that they were made up. The sepals and petals lie in one planum, as in Odontoglossum vexillarium. The superior half consists of the upper sepals appearing as half a circle, covered a good deal at each side of the base by the rhomboid blunt angled deflexed smaller petals. Those organs are light white in appearance. At their base are two brown nearly parallel transverse lines, forming half a circle. There are four lines of purple spots on the inferior bases of the petals. The lower sepals are large, cuneate elliptic blunt acute, and make such a contrast of paint as Nature alone takes the permission to mix. The ground colour is a certain yellow, as if some little dose of orange had been mixed with sulphur. Excluding the ends and some part of margins all the longitudinal veins are covered by purple-red, and the connecting branchlets, and anastomosing nervils too. This makes one think of the design of certain oriental designers of Turkish carpets. When writing this I do not remember of anything comparable in Orchids, though I have no doubt one may by-and-bye find some analogy. You might also think of mineral dendrits. The lip's auriculæ form a kind of ochre-coloured cup. The base is rounded and not extended into an especial spur. The central lacinia is nearly square, but broader and heart-shaped at the base, with three lamellæ running over the mid from base to apex. Its colour is red. The hinde side of the sepals and petals is quite Vandaceous, very light, whitish. There is some lightish purple-mauve hue on these bespoken organs, and you may see a gleam of yellow and red paint on pair sepals. The fine six-winged pedicelled ovary is quite Vandaceous, as are the column, anthers, and pollen apparatus. The appearance of this grand novelty in Europe forms quite a golden letter day in the history of Orchids. I do not think it easy to beat this Vanda in beauty, though we are so often partial to novelties. Imagine this and a good Vanda cœrulea, and an excellent Vanda teres in one group. An orchidist's heart might burst from enthusiasm. Mr. William Lee may be quite proud of having been the first who flowered Vanda Sanderiana in Europe. *H. G. Rchb. f.* [Mr. Lee writes:—"I think it only due to Messrs. Low that it should be known that my plant came from them, and was the largest plant of their last importation." A full page illustration was given at p. 441 of our last number. Ed.]

Masdevallia racemosa, *Lindl.* — "What is Masdevallia racemosa?" That is the actual newest orchidic question in numerous letters. May I be forgiven for giving in these columns one universal answer? It was described in 1845 by Dr. Lindley, who called it a charming plant. It is quite peculiar, forming a group for itself, one of the shyest travellers of Orchids. It inhabits the lofty Cordillera of western South America. According to Mr. Lehmann it is not quite so ambitious of high levels as Masdevallia rosea, growing at 600 to 900 metres lower. The leaves are long petioled, broad, lanceolate, usually rather small for the fine inflorescence. My best herbarium specimen, a present from Mr. Harry Veitch, shows two peduncles, one with three, one with four flowers, six of which are in the same good state, quite open. The best part of the flower is effected by the limb of the lateral sepals, which form a wide fine two-lobed blade, each lobe arching outside. The apical sepal is small and inconspicuous. The narrow table does not reach an inch in length. A specimen of Hartweg's shows a long peduncle with the remains of fourteen flowers! What a grand sight must the plant have offered! As to the colour of the flower, all observers say they are orange. My friend Lehmann calls them "very delicate orange-red," but his drawing at hand might rather be said to bear rose flowers. A representation sent by Mr. Sander shows a tendency to bright yellow cinnabar. One of my two Hartwegian specimens looks as if the flower had been fine light purple. Some flowers before me now are bright yellow-orange. At all events the colour is bright and fine, and most probably subject to variations. *Qui vivra verra.* Only a few collectors have seen the plant—Hartweg, Cross, Lehmann, and the collector of Mr. Sander. It is a most agreeable surprise to know that the plants are alive in England. Since it is even a worse traveller than Masdevallia rosea itself, we cannot expect to meet it as a frequent customer at Stevens' room. *H. G. Rchb. f.*

Orchids at Silverdale Lodge, Sydenham.—Few amateurs bestow the care and thought on their Orchids that Mr. Walter Cobb does; for upwards of fourteen years, during which he has been a grower, everything that has suggested itself for the benefit of his plants has been immediately put into operation, and that with such happy results that his collection now ranks among the best for soundness and cleanness of its plants, for excellence of varieties, and for the perfection of the blooms, which such good cultivation causes them to produce. Even where all things are good there is a best, and the best feature at Silverdale is the Cattleya and Lælia-house. It is a spacious structure, 40 feet in length, 14 feet in height, and 18 feet 6 inches in width, running east and west, the south side being glazed with Hartley's ribbed glass, and the north side for the greater part with clear glass, and no other shading is used. The plants are arranged on open wood stages, which rise towards the middle, the side ones having a few inches of water underneath, and the centre stage and west end of the house are planted as a Fern rockery; indeed, these rockeries, planted with Ferns and mosses, are arranged under the stages wherever available in all the houses, and Mr. Cobb attributes a good deal of the vigour of his plants to the healthy moisture arising from them, One thing is very evident, and that is that by the aid of these rockeries, combined with perfect ventilation and liberal arrangements for the reception of rain-water, a fresh and sweet atmosphere is maintained in every house, hot or cold. The plants in the large Cattleya-house are pleasant to behold, so vigorous, clean, and perfect are they; the root action is something surprising, and as a natural consequence the show for bloom is in proportion—the specimens of C. Trianæ alone contributing over 150 sheaths. All the varieties seem doing equally well, the more delicate C. Dowiana and its variety aurea thriving as well as the fine masses of the stronger growing C. gigas Sanderiana, C. Mendelii, &c. Noticeable among the rare things in this house are fine pieces of C. Trianæ alba, C. Trianæ virginalis, and other rare Trianæs; C. Skinneri alba and oculata, grand masses of Lælia elegans, alba, Schilleriana, prasiata, &c.; while the delicate odour of the finely bloomed C. Dowiana and C. Eldorado filled the whole house. The floor, like all the other Orchid-house floors at Silverdale, is fitted with neat open wood trellises, which makes it very comfortable to get about. The main block of the house is composed of a number of convenient spans, each from 35 feet to 50 feet in length, and here the second Cattleya-house for the newer arrivals is situated, the condition of the plants plainly indicating that they will soon be in as good order as those in the large house. The plants in the Phalænopsis-house are in very fine health; they are being tried on two plans—those on the right-hand side and end being raised on tall cylinders and those on the left being suspended from a kind of iron framework which Mr. Cobb has had made, and from which the plants hang above the stage instead of resting on it. This plan will certainly prevent insects, slugs, &c., getting about among them so readily, and will also allow the plants to have free air all around them. Several forms of P. violacea, P. grandiflora, P. rosea leucaspis, and that chaste beauty, P. Sanderiana, are in bloom—the foliage of some of the varieties of it being very remarkable. The several Odontoglossum and Masdevallia houses contain a grand lot, the masses of Alexandræ in the large house being equal to any round London, the immense smooth bulbs, shining green leaves and stout flower-spikes proclaiming them as much at home at Sydenham as they were at Bogota, and giving evidence that if they felt the change they liked it. Through the Dendrobe and Oncidium houses we reach the flowering plant house, charming with huge spikes of Oncidium Forbesi, Cypripedium Schlimii, Odontoglossum Alexandræ, O. Pescatorei, O. tripudians, Cypripedium Spicerianum, Lælia pumila, L. elegans alba, Comparettia macroplectron, Lycaste Cobbiana, Houlletia, new species; Maxillaria grandiflora, Barkeria elegans, Dendrobium formosum giganteum, D. heterocarpum philippinense, Cattleya Dowiana, C. Gaskelliana, Masdevallias, quantities of Oncidium varicosum, many fine varieties of Zygopetalum maxillare, and in a cool corner a grand batch of healthy plants of Vanda cœrulea bristling with spikes of heavenly-blue flowers. At the end of the Lælia-house the great numbers of spikes of L. anceps, L. autumnalis, L. harpophylla, and other things, and also a spike of Odontoglossum coronarium, seem to insure a good succession of blooms.

Masdevallias.—Among the plants figured in the September number of the *Orchid Album* is Masdevallia Harryana atrosanguinea, a fine variety with deep rosy-purple flowers. Mr. Warner, from whose plant the present illustration was taken, grows them in pits after they have bloomed in summer, and brings them back in autumn into the Odontoglossum-house, where they complete their growth and bloom in spring, They require rough fibrous peat and sphagnum moss, and a good supply of water nearly all the year round. They must never get dry, as they are found in shady places where the atmosphere is always moist. Draughts should be avoided, whether the plants are grown in cool or in warm houses. While shading them from bright sun care should be taken to give them all the light possible.

The Kitchen Garden.

Presuming that the root-room has been thoroughly cleansed by whitewashing, as advised in our last, advantage should be taken of the present dry weather to begin the storing away of the various roots for winter use, and Beet is the first to require attention, from the fact that it is the most tender. Great care is necessary in taking it up so as not to break the roots. Carrots also may now be lifted and stored away, keeping the various kinds apart, as some keep better than others. Scorzonera, Salsafy, Chicory, French Dandelion may all be safely taken up and put away till wanted where one is obliged to make a shift. In storing roots we have seen them pitted in the same way as Potatos. A dry place under Fir trees is perhaps the best—the soil is usually dry in such places. Parsnips are generally considered sweeter if left in the ground till wanted, but there are exceptions to this if the soil is of a wet tenacious nature. Turnips are usually taken up in small quantities, and it is advisable to take up the best roots first, leaving the smaller ones to furnish a supply of Greens in the spring. Great care is requisite in watching newly pitted Potatos not to close the pit entirely for the present; oftentimes a lot of newly dug Potatos, or any other roots placed together, will generate heat, which if not allowed to pass off will cause decay; therefore see that the ventilating drain tiles on the top of the heaps are kept open till hard weather sets in.

In view of the cold weather which we may have, it will be well to be prepared for it. In the country districts where the Bracken Fern (Pteris aquilina) grows abundantly, a good supply should be cut and dried and stacked away ready for use; this will be invaluable for protection during winter. Collect all vegetable refuse and manure from the stables into a heap, and turn this over occasionally, to be in readiness to cart or wheel on to the land when frosty weather comes, always bearing in mind that succulent vegetables cannot be produced unless the ground is rich in manure. Continue to earth up Celery, and in digging up the roots for daily use move the ground to a good depth and leave it somewhat rough, so as to be acted on by the winter's frosts. Cauliflowers must be looked

sharply after during this mild weather; slugs are plentiful and are very mischievous in the frames. Early in the morning is a good time to catch them, or on a quiet mild night searching for them with a lantern they will be discovered feeding. The Lettuce sown in the first week in August ought now to be planted-out under glass, they will come in during winter for salad, and a certain portion of the second sowing of Endive will do better if protected in the same way. It matters not of what materials the pit or frame is built. Turf as it comes from the land answers perfectly, but the lights must be sound and good as drip causes the loss of more plants in winter than cold.

Tomatos in pits will require very little water just now, and the same remark applies to French Beans, and what is given should be in the morning with ventilation on for an hour or two to let the moisture escape, covering up at night with mats, or litter, the plants being tender. The Mushroom-house will now need artificial heat, ranging from 55° to 60° and plenty of atmospheric moisture: the great thing to observe with this and every other crop is to have a continued succession with no break between; therefore make fresh beds once a month from now onwards and let them be small rather than large—this is much more likely to keep up a supply. The brown variety of Mushroom we find the hardiest. In wet weather look over the Onion loft: this should be in every garden—a dry airy place over a tool-shed or some such place, as damp is ruinous to their keeping, by promoting growth and early decay. Where there is no such place to keep them in the next best plan is to bundle the entire crop and hang them up on the rafters of some dry building, being careful to save late keepers, such as James' Keeping, for the spring supply. *J. Rust, Eridge Castle, Sussex.*

Melons and Cucumbers.

Cucumbers.—Plants in full bearing, and especially those having their roots in a somewhat confined space, should receive copious supplies of tepid liquid manure in a diluted state. Cut the fruit as soon as they attain the desired size for the table, and stand them in a saucer containing about half-an-inch of water in a fruit-room until they are required for use. The plants thus relieved will concentrate their energies in developing the smaller fruits, and so on during the whole fruiting period of the plants. Maintain a night temperature of from 65° to 70° (according to the character of the weather), and from 70° to 75° by day with fire, running up 10° or 15° with sun-heat, and plenty of atmospheric moisture. Cucumbers growing in frames heated by fermenting materials only should have their linings made up weekly or fortnightly, as circumstances may necessitate, by which means a steady growing heat can be maintained, and the plants be kept in a bearing state for several weeks hence. These plants will not require water in any shape; they should have the points pinched out of the shoots and all old or damaged leaves removed therefrom; and should mildew attack them, dust the affected leaves whilst damp with flowers of sulphur, which will arrest its progress. Cover the frames at night with mats and dry Fern, putting on more or less of the latter in accordance with the nature of the weather. *H. W. Ward, Longford Castle.*

Melons.—To ripen Melons satisfactorily in October there should, in connection with favourable weather, be a good supply of top and bottom heat at command, without which, during dull weather, the fruit must necessarily be wanting in flavour and colour. To attain these indispensable points the temperature during the ripening period of the fruits should be somewhat high, and the atmosphere dry and airy—neither of these essential points can be acquired or maintained in the absence of fire-heat in late autumn; therefore, under these circumstances, the linings of Melon frames being made up after the end of August or the middle of September, according to the state of the weather, with a view to ripen or to hasten the maturation of the fruit, is not only labour misapplied, but is calculated to thwart the very object that it was intended to accomplish—the quicker ripening and better flavouring of the fruit, inasmuch as the steam or ammonia which arises in the frames and settles upon the fruits in proportion to the temperature produced by the frequent making up of the linings with fermenting material, is equal to a humid stagnant atmosphere, which renders the flavour of the fruit little better than a Marrow. However, the most that can be said of Melons grown under such unfavourable circumstances is that they make a "dish" when fruit in variety on the dessert table is scarce. *H. W. Ward, Longford Castle Gardens, Wilts.*

Plants and their Culture.

Ferns.—A good supply of the more useful kinds for cut purposes is always a necessary adjunct to any establishment from which a great amount of cut flowers is expected to be supplied. The demand for these latter is evidently much on the increase of late years, therefore an extra quantity of such Ferns as Adiantum cuneatum, A. amabile, A. concinnum, A. Capillus-Veneris, Davallia bullata, and other kinds, with Onychium japonicum, Pteris cretica and P. serrulata, should be worked up as opportunity occurs. At this season of the year, when flowers are becoming less abundant, rather more cut Fern can be advantageously used if a good supply is at hand and held in reserve for this special purpose. The flowers can thus be economised to a considerable extent, the Fern will keep the better if immersed in water for an hour or two before being used. We make it a practice to allow seedling Ferns to grow on the walls and other places in our houses; it is surprising what a quantity we are able to cut by so doing. Keep a watchful eye against the damage that is caused by any superfluous moisture among the Adiantums and other Ferns of dense growth. The syringe should be withheld from them now, except in such kinds as are subject to Thrips. Most of the deciduous Ferns will now be going to rest, the water-pot should therefore be gradually dispensed with in the case of these. The fronds of such Ferns can be worked into decorations with advantage if caught just before they commence to fade. The Platyceriums will not require so much water either during the winter season, but on no account allow the Gymnogrammas, Gleichenias, Cheilanthes and Filmy Ferns to suffer the least whatever. The Tree Ferns must also be well supplied, the more so if lightly pot-bound. Dicksonia squarrosa we have found to be one of the most sensitive in this respect. For any ordinary conservatory, *i.e.*, one kept at a greenhouse temperature, several of the Aspleniums are most useful. A. bulbiferum, A. caudatum, A. flaccidum, and A. lucidum can all be kept in such a house with safety. Of the Pteris, P. cretica, P. serrulata, P. umbrosa, and P. tremula are the best for the same purpose. Nephrodium molle, Lastrea Sieboldi, and L. Standishi are all hardy Ferns for the conservatory from this time onwards through the winter. Basket Ferns that have been ornamenting the conservatory during the summer and early autumn should be removed to a more temperate house before long. Most of those that are best adapted for these purposes will need this treatment during the winter. Asplenium lanuginosum will require stove temperature. Its long pendent fronds, with generally a young plant at each extremity, make it a very attractive basket Fern.

Greenhouse Fine-Foliage Plants.—It will not be advisable to leave even the hardiest of these in the open air any longer than this. Many of them can be (with much advantage) used in the future arrangements of the conservatory; previous to this being done, however, it will be necessary to look them closely over for insects. White scale is one of the most troublesome pests to the Dracænas, Cordylines, Yuccas, and Dasylirions, and must be kept under, or the plants will soon be rendered unsightly by the marks this insect leaves behind it. If any of the Dracænas have become too tall, arrangements should be made to root them off at a convenient height. If commenced upon at once they will become re-established by the return of warm weather in the spring. In operating thus on large plants we have sawn 10-inch pots in two and then bound them together again around the stem at the required height. When these pots become filled with roots, a shift into a larger size can be given in a similar manner. As this process is going on the stem should be gradually severed close under the bottom of the pot. Later on, when sufficiently established to be taken off entirely, the plant should be moved into a closer atmosphere, and where it can be shaded for a little while during bright sunshine. Any contemplated increase by division of the Phormiums may be done at this season if the plants can afterwards be kept in a temperate house for a time. Yuccas that have become leggy may be cut down; the tops will strike (if plunged in a little bottom-heat) without much difficulty. Side growths from the Agaves can be taken off and treated like Pine suckers, to increase the stock. The Agaves, Aloes, Bonaparteas, and other succulent plants should now be kept much drier at the root. We do not recommend the extreme treatment of drying them off entirely during their resting season, if watered occasionally the roots will be kept in a more healthy state. The Cycads should also receive less water if wintered in a cool or temperate house. Any of these with shabby foliage may have the same partially shortened back, so that they may occupy less room. That useful decorative plant, the Aspidistra lurida variegata, is easily increased by division, taking, however, some little time to get established. If taken in hand now, nice stuff could be had by the spring. An old stock plant of Ficus elasticus is always handy for a few cuttings to keep up the requisite number of young plants. Coprosma Baueriana variegata is best propagated from layers. This can be done also if a plant is at hand with a good number of shoots on it, layering each shoot into a small pot. The variegated forms of Ophiopogon, viz., O. Jaburan and spicatus, are well worth increasing for pot culture. As soon as young growth is noticed pushing forth from the base, propagation by division may be proceeded with. Tall plants of the Aralias, Agnostus, Lomatias, and Rhopalas that have outgrown themselves, may be kept dry at the root for awhile, and then cut back, afterwards keeping them under temperate treatment till started fairly into growth again.

Pits and Frames.—The potting-up of annuals for early flowering in pots in spring should be done without delay. Nemophila insignis is very pretty grown in this style; the Myosotis must not be overlooked, nor the intermediate Stocks. Keep these latter plants on the dry side during the winter months. Early-struck Pinks that are intended for forcing should be lifted and potted into 6-inch pots, and then be placed in a cold frame. Hoteia (Spiræa) japonica that were planted out last year should also be transferred to pots again for next spring use. Imported clumps are much the best for early forcing, and should therefore be used in preference to home-grown stock. Polygonatum multiflorum (Solomon's Seal) will be all the better potted up early before the frosts are upon us. These remarks should also apply to Helleborus niger and Dielytra spectabilis; take care not to break the roots in potting this latter plant. *James Hudson, Gunnersbury House, Acton, W. October 9.*

Peaches and Nectarines.

The indoor Peach season is now drawing to a close. All our latest (Walburton Admirable) will be fit to gather by the end of this week. This variety is still the best late Peach we have here, but it is rather a shy bearer; yet by keeping the wood somewhat thinner than is usually done with other varieties, so as to get it thoroughly well ripened, there is no difficulty in securing a good even crop. I finished gathering Barrington and a few Sea Eagle Peaches last week; the former needs no praise from me, it being an excellent well-known late variety. Sea Eagle is rather the latest of the two. I feel confident it will prove one of the best late varieties. The Nectarine Peach has fruited with me this season, and promises to be a prolific bearer, and a good late variety. Princess of Wales has been better flavoured than last season, but still not at all good, though very fine in appearance. For early and succession work I find none to surpass Hale's Early, Grosse Mignonne, A'Bec, Royal George, Stirling Castle, Bellegarde, Galande, and Noblesse; and of Nectarines, Lord Napier is the best of all. The following are also good:—Violette Hâtive, Elruge, Downton, Stanwick Elruge, Pine-apple, and Victoria. Humboldt promises to be a fine free cropping Nectarine, and of good size, but it has that Plum flavour common to all the yellow-fleshed varieties. The present is a good time to select young trees from the nurseries. In doing so always select those on the best and cleanest growing stocks it is possible to get. This is an essential point in getting healthy trees, as weak growing stocks seldom produce long-lived healthy trees. Carry out directions already given for late and succession-houses, and if the borders are getting at all dry give liberal supplies of water. Early houses may be looked over and finally pruned, but if they have been treated according to directions previously given, very little pruning will be required. Sashes that have been taken off (if not already done) should at once be cleaned (and if required, painted), and made ready to put on at any time when wanted. *J. Wallis, Keele Gardens.*

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Oct. 15	Sale of Dutch Bulbs, at Protheroe & Morris' and Stevens' Rooms.
Tuesday,	Oct. 16	Sale of Greenhouse Plants, at Biggs' Nursery, Lewisham, by Protheroe & Morris. Sale of the Collection of Plants formed by the late S. Rucker, Esq., at Wandsworth, by Mr. Stevens (two days). Sale of Fruit Trees, &c., at Lee's Nursery, Ealing, by Protheroe & Morris (three days).
Wednesday,	Oct. 17	Sale of Greenhouse Plants, at Fraser's Nursery, Leyton, by Protheroe & Morris.
Thursday,	Oct. 18	Sale of Dutch Bulbs, at Stevens' and Protheroe & Morris' Rooms.
Friday,	Oct. 19	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
Saturday,	Oct. 20	Sale of Dutch Bulbs, at Protheroe & Morris' and Stevens' Rooms.

WE believe, on the authority of others, that this is still the dull season, but with gardeners and editors it is a question whether there is really any dull season. At any rate, the present week does not fall under this category. Any one who may have visited the great Apple Show at Chiswick, of which we gave an initial report last week, supplemented by further particulars in this present issue, must have been struck by the great part that horticulture plays in the industry of the country, and the very large share it contributes to the material welfare and the gratification of the community. The Great Apple Show is an undoubted success, the number of the exhibits is extremely large, the quality generally good, and the interest really extraordinary. We are glad to learn that not only the horticultural specialists, but the general public also, have visited this unique exhibition in large numbers. We trust that the Royal Horticultural Society, in whose grounds this display is made, and upon whose officials the bulk of the work devolves, will take heart of grace from the success of this exhibition, and will take it as a practical refutation of the idea prevalent in some quarters, that the work of the Society is played out, and that there is nothing left for it to do. Great as is the labour of the committee in dealing with the present emergency, it must be steadfastly borne in mind that the value of the exhibition has yet to be fully brought out in that well digested report which we look for with such eagerness and which we all hope may be worthy of such an unrivalled opportunity.

But this Apple show, absorbing as it is, is not the only event in this busy week The ordinary Tuesday meeting of the Society, all overshadowed as it was by the "Fisheries," was one of no ordinary interest. The Vanda Sanderiana shown by Mr. Lee, and of which we gave an excellent illustration in our last number, was of itself an exhibition, and visitors, and *connoisseurs* especially, will have realised that not a word too much has been said of this remarkable plant. In addition to that, there was the remarkable Pitcher-plant, Nepenthes Northiana, the rival of N. Rajah itself, shown by Messrs. Veitch, and of which we gave a double-page illustration in our number for December 3, 1881. Orchid lovers, too, will have noted the rare Miltonia Bluntii and the very remarkable Trichocentrum orthoplectrum.

The miscellaneous plants exhibited by Messrs. Veitch included the beautiful Medinilla Curtisii, of which a description is given in our report of the Society's meeting. Mr. Bull also contributed some of his choicest new plants, including the very striking Anthurium splendidum. For lovers of more homely plants there was the remarkably brilliant—no other word will suffice — display of single Dahlias by Mr. Ware, which afforded an opportunity of contrasting their forms and colours with the small but fine display of the double varieties made by Mr. Rawlings. The Michaelmas Daises of Messrs. Cannell and Ware formed by no means the least striking part of the display, and should encourage those who can attempt nothing more than herbaceous plants. The wonderful Pot-Vines and the Apples shown by Messrs. Lane, of Berkhamsted, showed that these gentlemen had not exhausted their efforts at Chiswick, while the Pines exhibited from Lord Fortescue's garden deserve mention as among the most noteworthy triumphs of art that have come even from Castle Hill. The Tomatos shown by Messrs. Veitch were remarkable not only for their quality, but for their diversity and interest. Gardeners visiting London this week will thus have had an excellent opportunity of seeing first-class samples in several departments of their art, and, we should hope, of largely extending their experience.

The Apple show remains on view for several days longer, and we trust that those who have the opportunity will not fail also to visit the neighbouring gardens at Kew. Though it is late in the season, the variety and interest in the great national establishment are such as to render a visit now, as, indeed, at all times, specially profitable. Those familiar with the corresponding institutions on the Continent—even the best—will come back from their visit to Kew with a feeling of well justified pride. The great Palm-stove, the contents of which have been rearranged during the summer, was never seen to better advantage than at present. Many of the old "scrubs" have been removed, and the noble proportions of the grand Palms, Cycads, Pandanads, &c., may now be seen to better advantage than ever within our remembrance. The general health and beauty of the collections are worthy of special notice. Ferns and Orchids afford evidence of improved cultivation, the condition of the Arboretum is constantly improving, the nomenclature is being carefully attended to. The tropical aquarium and the new rockery in particular are still full of interesting subjects.

We look to Kew to furnish well-grown illustrations of plants of botanical and horticultural interest which can hardly be so well seen in private establishments. Indeed, we should regret to see any attempt made to rival private gardens in particular departments. We do not care to see elaborate bedding-out at Kew, nor to see there in the first rank plants of merely decorative interest such as can be seen in any good private establishment. Rather let us see there plants that we cannot see elsewhere to such advantage, and let us see there something of the wealth of vegetation from which gardeners may select what is suitable for their purposes. In any case, we strongly recommend those gardeners who may be attracted to Chiswick by the more immediately practical allurements of the Apple show by no means to omit to give two or three days' careful study to the varied departments of Kew.

—— The Apple Show at Chiswick.—It is proposed on the closing day of this exhibition, next Thursday, to celebrate the event at a dinner at the headquarters of the Horticultural Club, Ashley's Hotel, Covent Garden, at 6 P.M. Dr. Hogg will take the chair, and the arrangements are in the hands of Mr. Killick, to whom application should be made for tickets at the Chiswick Garden.

—— A Fungus Foray of the combined societies of Hackney, East London, Essex, Highbury, and Walthamstow will visit Chingford to-day (Saturday) by the 2.2 P.M. train from Liverpool Street. The route will then be through Hawk Wood, Cuckoo Pits, Beech Glade, &c., under the conductorship of Dr. M. C. Cooke, Mr. J. English, Mr. Worthington G. Smith, and Dr. H. L. Wharton. The members of the Hertfordshire Natural History Society have a foray of a similar nature fixed for the 27th inst. in the woods near Watford, when Dr. Cooke, Mr. W. G. Smith, and other gentlemen have promised to attend.

—— Dahlias in October.—It is probably long since such a fine collection of Dahlias was seen so late in the season as that furnished by Messrs. Rawlings Bros., of Romford, at the meeting of the Royal Horticultural Society on Tuesday last. To be able to show seventy-two blooms on October 9 is, indeed, an achievement surprising and unusual. The character of the season can be gauged by the fact that there was a remarkable absence of coarseness and roughness for so late a period of the season; and some of the flowers would have done no discredit to a select stand of twenty-four varieties.

—— The Seed Crops.—We have now reached that period of the year when something like an accurate estimate of the yield of garden seeds can be formed. The state of the weather at harvest time has much to do with it, and in this respect the present year is a great improvement upon that of 1882. The yield of Peas and Beans of the Longpod type is generally good, and from New Zealand have come accounts of extraordinary crops, and very fine samples have come to hand. There is no doubt that the competition from New Zealand with wrinkled and other Peas must interfere with the English growers, as prices are likely to rule low. Scarlet Runners and dwarf Beans are late this season, and if frost comes the hopes of a good crop in some quarters will be destroyed. A few good samples of early dwarf French Beans have come to hand. Carrot seed is everywhere almost a failure; the excessive cold and wet of the autumn and winter having killed the plants. Cabbage is a very good crop indeed, Broccolis and Kales show a good yield also. The yield of Onion seed is one of the best for a few years past. Of field seeds the yield of Swede is very bad, the inclement weather at the time of planting out in November preventing the roots from getting hold of the ground, and the late frosts forced many of the plants out of it. The Mangel Wurzel plant put out last autumn has yielded a very poor crop; that put out in the spring furnishes a better return. Yellow-fleshed Turnips are a fair crop, and the same may be said of white-fleshed Turnips; in a few places the latter show a heavy crop. In regard to Clovers, the crop of red in this country is a very fair one, and samples are generally good. The French crops are also good. As yet no definite returns have been received either from the United States or Canada. Respecting white Clover, the crops both at home and abroad are reported to be very good. Trefoil is reported to be a very short crop, the probable yield of English-grown seed is said to be at present uncertain.

—— Linnæus, Nuttall, and Gray.—On the occasion of the meeting of the American Association of Nurserymen at St. Louis, three marble busts were formally placed over the entrance to the newly erected plant-house in the Missouri Botanical Garden. The botanists thus honoured were Linnæus, Asa Gray, and Nuttall. Nuttall was an Englishman by birth, who went early in life to Philadelphia, and in his botanical zeal visited nearly every State in the Union, crossed the continent to Oregon and the Rocky Mountains, thence to the Sandwich Islands, back to California, and afterwards to South America, rounding Cape Horn and returning to the Atlantic States. From his extended researches in the Western States of the Union he has been termed the "Father of Western Botany." He was born in 1786, and died in 1859. Of Asa Gray, happily still with us, we need say nothing. With us on this side of the Atlantic he is not Mr. nor Professor, nor Doctor, but "Asa Gray." We could have wished that our Missouri friends had given the botanists some better shelter than the summit of a greenhouse porch affords.

—— Forcing Shrubs.—An interesting feature at Messrs. Veitch & Son's nursery at Fulham is the large number of shrubs grown specially for early or winter forcing, and which are produced here specially to supply the requirements of gardeners who find an abundant supply of these shrubs indispensable, yet are unable to produce them as nurserymen do. Gueldres Roses, for instance, are very largely grown, and the stock for the present season's sending out is in 32-sized pots, and all stout, well-ripened stuff, full of bloom-buds; indeed, so firm and well-seasoned is the growth, that when put into heat every bud will push, and produce those big, round white balls of flower which, outdoors, charm us so much in the early summer. Staphylea colchica is another very free and capital forcing plant. This blooms well after being in heat about twenty-eight days, so that to have it in just at some important time it is possible to assure certainty almost to a day. Prunus sinensis is found, too, in

The Gardeners' Chronicle.] FIG. 77.—LARGE CHESTNUT TREE SUCCESSFULLY MOVED BY MR. BAINES IN THE GARDEN AT BROXBOURNEBURY. (SEE P. 475.) [October 13, 1883.

large bulk, and is in great request, and so also is the beautiful Deutzia crenata flore-pleno. So considerable of late has become the demand for plants of this kind that it is difficult to satisfy it. Of course, plenty of stuff may be had from the open ground that could be potted up and forced, but the results would indeed be poor as compared with those obtained from established pot plants. Gardeners after forcing these might break up the balls, and turn the plants out into the open ground for a season, lifting and repotting again, as after the plants have once been established in pots, the dense cluster of roots will always remain. To get them established in blooming-pots, and carrying an abundance of blooming-wood is essentially the work of the nurseryman, and at Southfields it is done admirably.

—— Harvest Festival Flowers. — In no respect do the demands for decorative material for harvest festival church decorations abate, but without doubt the chief requirement is found in flowers. Some decorators are not without courage to ask for substantial flowers, and by that of course mean such ones as will endure for several days out of water. Except it be our familiar, and anything but handsome friend the big Sunflower, there are but few single flowers that can be trusted to endure for a day or two, much less for several. Single Dahlias are notoriously fickle, and that beautiful autumn flower, Anemone japonica alba, is not less so. Without doubt the best for the purpose, and especially to last out those wonderful semi-sacred designs, which now and again display so much of questionable taste and industry, no flowers can excel yellow, white and red, or scarlet pompon Dahlias. Heavy colours, such as purple or crimson, should not be employed, as in the dim religious light of a church their hues are dim also. Those who have to furnish a bulk of cut flowers for these festivals should grow these pompon Dahlias in a few striking colours largely. The true old double Sunflower, Helianthus multiflorus pleous, is one of the best and most effective of bright yellow flowers to be found in the autumn. We have seen this blooming at a station on the South-Western Railway for the past six weeks, and apparently always as full of bloom at one time as at another. Asters of the Anemone class of course are excellent, and white ones of the Victoria section are easily had in quantity. It is best to sow a portion later than usual, and flowers may be had in abundance. Some of the summer or autumn blooming Chinese Chrysanthemums also are most useful; but to have the blooms fresh the plants should be kept under glass for a week or two before cutting. These are a few things which the clergy themselves in the country might grow.

—— Birds and Pears. — Those "dear little dicky birds," whom Tom Ingoldsby wrote of with so much serio-comic sentiment, have been showing their lovableness in a very unpleasant fashion during the autumn, by evincing a fondness for our Pears, and especially for our finest fruits. This may show much appreciation on their part for that which is good, but is none the less a form of attention that is extremely annoying. We like to see the birds about our gardens, and to have in our labour their bright pleasant company; we like to find them extremely useful in destroying for us those insect pests that would be, without the birds, an intolerable nuisance. In fact we have much natural love and admiration for birds, but of course in their places; in their own peculiar sphere they are feathered angels, but out of it, and in ours, they become—well, something quite the reverse. When, after much hard labour and patient watching, the season seems about to reward our efforts with a fair crop, as seasons go, of good fruits, it is indeed very exasperating to find that the finches or the tomtits, or some other fiends in bird shape, have pecked holes in all our finest samples, and that those so served proceed to decay, and in a week or two are but lumps of rottenness. We cannot tolerate treatment of that kind, and it is not easy to find a remedy. During the past autumn Apples, too, have fallen victims to many frugivorous loving creatures, and because of the poignant feeling of anger which has been aroused, the soul of many a good man has been placed in critical danger. We cannot net our gardens universally, it is doubtful whether we can do so effectually even in a smaller way, and we are in a quandary. The birds, like the snake in the fable, have turned upon their protectors, and the protectors will for their own protection have to leave the birds to their fate. The new police revolvers may find more useful work amongst the birds than amongst the burglars.

—— Pomological Nomenclature. — In his Presidential address to the American Pomological Society, Mr. Marshall Wilder remarked:—"We should have a system of rules consistent with our science, regulated by common sense, and which shall avoid ostentatious, indecorous, inappropriate and superfluous names. Such a code your committee have in hand, and I commend its adoption. Let us have no more Generals, Colonels, or Captains attached to the names of our fruits; no more Presidents, Governors, or titled dignitaries; no more Monarchs, Kings or Princes, no more Mammoths, Giants or Tom Thumbs; no more Nonsuches, Seek-no-furthers, Ne plus ultras, Hog-pens, Sheep-noses, Big Bobs, Ironclads, Legal Tenders, Sucker States, or Stump-the-Worlds. Let us have no more long, unpronounceable, irrelevant, high-flown, bombastic names to our fruits, and, if possible, let us dispense with the now confused terms of Belle, Beurré, Calebasse, Doyenné, Pearmain, Pippin, Seedling, Beauty, Favourite, and other like useless and improper titles to our fruits. The cases are very few where a single word will not form a better name for a fruit than two or more. Thus shall we establish a standard worthy of imitation by other nations, and I suggest that we ask the co-operation of all pomological and horticultural societies, in this and foreign countries, in carrying out this important reform. As the first great national Pomological Society in origin, the representative of the most extensive and promising territory for fruit culture of which we have any knowledge, it became our duty to lead in this good work. Let us continue it, and give to the world a system of nomenclature for our fruits which shall be worthy of the Society and the country—a system pure and plain in its diction, pertinent and proper in its application, and which shall be an example, not only for fruits, but for other products of the earth, and save our Society and the nation from the disgrace of unmeaning, pretentious and nonsensical names, to the most perfect, useful, and beautiful productions of the soil the world has ever known."

—— The Price of a Planet. — The *Daily Telegraph*, in poking fun at Orchid lovers, has contrived to convey an intimation which may be of interest to those afflicted with land-hunger. It tells its readers that last spring £420 were paid in Stevens' Rooms for two planets. Strangely, the writer does not think the price was low!

—— Planting under Trees as it Should Not Be Done.—There are many unsatisfactory methods adopted to get rid of the bareness of the earth under the shade of big trees, and as some of these are to be found in gardens, public and private, in which better things might be expected, it would not be amiss to particularise one or two of them. The first is a shady bank with both large and small trees on it, planted with Ferns, underneath which the ground is covered thickly with freshly-planted Sedums of the S. acre type, which looks as if it were being fairly dripped and shaded to death; the other is planted with succulents, such as the Sempervivum calcareum, S. tabulare, and others in that style, mixed with small Aloes, Beaucarneas, Echeverias, &c. These perhaps are intended to represent summer arrangement, but then it is misleading to those not well up in these things, and who are apt to desire to see such things rendered perennial—an impossibility in our country. In another place biennials were put out with the laudable idea of covering the bare ground, with very miserable results, for the covering had been decidedly too much for them. Spergula is sometimes tried, but it is not good; nor is Pyrethrum Tchihatchewi any better. Ajuga reptans, and the red form of this plant, do fairly well, although the very pretty flowers do not show themselves, and the plants dwindle away in a few seasons. Bulbs of various kinds can be used when the shade is not too dense, so that diversity of colour can be had if desirable. These may consist of the Crocus, Tulip, Snowdrop, most of the Narcissi, Fritillarias, Allium, Sisyrinchium autumnale; also the Funkias, Aconitum napellum, and varieties of Rheum; and amongst the shrubs, Ligustrum in variety, Symphoricarpus racemosus, Ribes, Cornus, Buxus, Ruscus androgynus and aculeatus. The several kinds of Vincas, Mahonia Aquifolia, and Hypericum calycinum, will grow, and keep fairly healthy, under the shade of trees. To keep them in condition, annual dressings with manure, or, what is better, manure and fresh soil, are very necessary.

—— Hybrid Abutilons.—The following extract from Müller's *Fertilisation of Flowers* is of interest:—

"My brother, Fritz Müller, has performed many experiments on this plant at Stajahy with the following results:—

"1. All the species of Abutilon growing there, and their hybrids, are barren (with, perhaps, one exception) when fertilised with their own pollen.

"2. In those species which are unproductive with their own pollen the pollen of their near relations (the parent plants or their offspring) is less efficient than pollen from more distantly related or unconnected plants.

"3. The application of pollen from several different species gives a greater yield of seed than pollen from a single other species only.

"4. The simultaneous application of pollen of two species always produces seedlings of two kinds; not as in the experiments of Koelreuter and Gartner on other plants, where the simultaneous application of two species of pollen always produced seedlings of one kind only.

"Among hybrids of the genus Abutilon there is more or less complete sterility between nearly related individuals—between parent plants and their offspring, between offspring of the same parents in common, or even between plants which have only one parent in common.

"By considering from a common point of view the diminution of fertility in too close interbreeding, and in the production of hybrids, Fritz Müller arrives at the following law:—Every plant, to produce vigorous and prolific offspring, requires a certain degree of difference between the male and female principles which coalesce; and when this amount of difference is too great or too small, *i.e.*, when the parent plants are too distantly or too closely related, the productiveness falls off. Further, the greater the amount of difference between the sexual principles that is requisite for full productiveness in a certain plant the greater chance will there be—*cæteris paribus*—of that plant proving fruitful when crossed with much more distant relatives. Thus, species in which individuals are quite sterile with their own pollen, and more or less unfertile to pollen from closely related individuals, will in general be specially likely to form hybrids with other species."

—— Tuberous Begonias.—The value of these for bedding purposes is attested by a boxful of really beautiful flowers of all colours, from white to yellow, cream coloured, light rose to deep crimson, which have been sent to us by Messrs. J. Laing & Co. That they should so well have borne the buffeting of the late storms of wind and rain is a great point in their favour.

—— The Coffee-Leaf Disease.—Mr. Jardine thus writes in the *Ceylon Observer* of his trial of Mr. Storck's method of dealing with the Hemileia:—

"Willing to give the experiment every justice, I have for the last eight months had fifty tins with pure carbolic acid placed under fifty trees, the trees being all close together, and the acid renewed four times within this period, and I exceedingly regret to say that I have not during this time seen the least difference between these trees and others not treated, not even in retarding the fall of leaf. All the conditions necessary for the testing of the power of the acid on the spores were, I think it will be admitted, present here; and as Mr. Marshall Ward states, that the only time the acid can have any effect is when the germinal tube is exposed to its influence before entering the stoma, surely here, if at any time, its results would have been apparent in the destruction of these germinal tubes. But what do we find?—frequent crops of healthy spores. Mr. Storck wrote so positively, that I and others who tried his remedy were most sanguine of success, and reluctant to admit failure; and it was only when month after month went by, and we saw no mitigation of the disease, other than occurred naturally, that we were forced to the belief that carbolic acid vapour had no effect upon leaf-disease. Whether the carbolic remedy proves a success or a failure, Mr. Storck is entitled to the thanks of all Ceylon planters for initiating the experiments, and for the intelligence, patience, and perseverance he has shown in conducting them. 'It is better to have tried and failed, than never to have tried at all.' Like many others who have propounded a remedy for Coffee-leaf disease, Mr. Storck has been too sanguine, and has allowed his hopes to outrun his judgment; his having

changed his method so often proves this, and [shows] that he was too hasty in his first conclusions."

—— Gazania longiscapa.—Mr. J. Medley Wood, writing from the Natal Botanic Garden, says:—"I see in the *Gardeners' Chronicle*, vol. xx., p. 77, a notice of this plant, which is found in abundance all over Natal and Zululand. It may perhaps be interesting to some of your readers to know that the tomentum found upon the lower side of the leaves forms the only dress worn by a large number of the native Zulu girls, and frequently in the native locations young women of mature age may be seen with no other covering than what is afforded by a fringe of from 4 to 6 inches deep, made from this plant. The back of the leaf is scraped with the thumb-nail and the woolly covering removed, which is then twisted, soaked in fat, and attached to a string until sufficient is collected to form a thick fringe which is then tied round the loins. The root of the plant is pounded between stones, mixed with a large quantity of water, and used as an emetic. In the *Flora Capensis* the native name is said incorrectly to be *Bensh*, it should be *Ubenhla*."

—— Market Gardeners', Nurserymen's, and Farmers' Association.—At the quarterly committee meeting, held at the "Bedford Head Hotel," Covent Garden, W.C., the secretary was instructed to write a letter conveying the thanks of the committee to J. Spencer Balfour, Esq., M.P., for his kindness in bringing the amendment before the House of Commons to include market garden holdings in the Agricultural Holdings Act (England). It was resolved that, as it is rumoured that the Duke of Bedford has offered to dispose of his interest in Covent Garden Market to the Board of Works, the committee watch the proposed transfer, and carefully guard the interests of the Association.

—— The Future of Pomology.—The brave-hearted, eloquent, and venerable President of the American Pomological Society thus concludes his address. We have no doubt his stirring appeals will be heard and acted on long after his voice is silent on this earth, but whether in the way suggested, or in some other, is unimportant:—"Thus have I spoken for a long course of years of the importance of this branch of our duty. Thus would I preach while life shall last. 'Plant the most mature and perfect seeds of the most hardy, vigorous and valuable varieties, and as a shorter process, insuring more certain and happy results, cross and hybridise our finest kinds for still greater excellence.' And should my muse be able to reach you from the spirit land, she would, as with telephonic voice, still chant in your ears the same old song—

Plant the best seeds of every good fruit,
Good fruits to raise, some lands to suit;
Fruits which shall live, their bounties to shed,
On millions of souls, when you shall be dead.
These are creations that do the world good,
Treasures and pleasures, with health in your food;
Pleasures which leave in the mem'ry no sting,
No grief on the soul, no stain on Time's wing."

—— Agricultural Botany.—Dr. E. L. Sturtevant, says the American *Botanical Gazette*, in reporting the doings of the botanists at the American Association for the Advancement of Science at Minneapolis, "struck out boldly in a new and very important field. He claimed that all fixed varieties of the agriculturist and horticulturist are fit subjects of classification, and that for convenience of identification they should be classified. Such arrangement, however, should not be made to coincide with ordinary botanical classification, for in the latter species are treated as the resultants of natural forces; but in order to produce the varieties of agriculture and horticulture an entirely new force comes into play, namely, the intelligence of man, and its results should be classified on a new basis. A scheme was hinted at, but not clearly defined; but enough was given to make it evident that the author had opened up a new world of labour, which it is for him now to cultivate, and which will amply repay investigation in many more directions than agriculture and horticulture."

—— Walker's Perpetual Bearer Pea.—This valuable late variety is a selection from Veitch's Perfection, obtained by Mr. John Walker, nurseryman, Thame, and it was distributed by Messrs. Nutting & Sons about two years ago. Its great value lies in the fact that it is not only a late but a perpetual bearer, yielding a good succession of pickings, and it appears to resist mildew to a remarkable degree. At the annual exhibition of the Thame Horticultural Society on September 19, Mr. Walker offered prizes for the best fifty pods, and there were twenty competitors, some of the exhibitors staging very fine examples, with a rich bloom on them, just what one would expect to see early in July. There was a remarkable competition, the pods coming from various parts of the district round Thame, and different soils appear to suit it. A large quantity of pods were also shown by Mr. Walker in very fine condition; in addition there was a single plant of this Pea with half a dozen leading stems, and several lateral shoots thrown out from the main one, trained out to a trellis, fan-shaped, and on this plant we counted just over 270 pods. Allowing for five Peas in a pod, there would be a marvellous increase. The free branching habit of this variety appears to be another characteristic of decided value. It has amply vindicated its claim to the First-class Certificate of Merit given to it by the Royal Horticultural Society.

—— Completion of the "Pinetum Britannicum."—We extract from a circular just issued the following particulars, which will be of interest to all lovers of Conifers:—"The costly nature of the publication and its unremunerative results may perhaps be accepted as some apology for its interruption; but in his desire to keep faith with the subscribers, the proprietor feels that it is incumbent on him to proceed with the work, trusting to reap in the future, by the sale of copies of the complete volume, some reward for his labour and expenditure. As originally announced, the present series of the *Pinetum Britannicum* will be completed in fifty parts, thirty-seven of which have already been published. The remainder will be issued as follows:—Parts 38 to 42 on November 1; parts 43 to 48 on December 1; parts 49 and 50, with title and index, January 1. Subscribers who require back parts to complete their sets are requested to make application without delay, as very few remain on hand. There will be a few complete sets for sale after the publication of the last part, orders for which should be at once sent in. Communications relative to the work to be addressed to Mr. Edward Ravenscroft, 14, Loudoun Road, St. John's Wood, N.W.; or to Messrs. W. Blackwood & Sons, publishers, George Street, Edinburgh, and Paternoster Row, London."

—— The Sanitary Institute of Great Britain has awarded to Mr. James Keith, gas, hydraulic, and heating engineer, London, Edinburgh, and Arbroath, the highest honour, viz., the Medal, for the best hot-water boiler in the heating section, class III, at the Sanitary Exhibition now being held in Glasgow.—We learn also that Messrs. Chadborn & Coldwell were awarded the 1st prize, a Silver Medal, for their Excelsior lawn-mower, at the recent horticultural show in Hesketh Park, held in conjunction with the meeting of the British Association at Southport.

—— Presentation.—On Saturday last the members of the Whitburn (county Durham) Cricket Club entertained Mr. T. Dobson at dinner, and presented him with a tea service and a purse of gold in recognition of his services as Honorary Secretary during the long period of twenty-one years. Sir Hedworth Williamson, Bart. (whose head gardener Mr. Dobson has been for twenty-six years), made the presentation in kindly terms, wishing Mr. Dobson might long be spared to remain at Whitburn. Mr. Dobson, in reply, spoke of the good feeling that had always been shown him by the members, and also by his neighbours and his employer.

—— Insects and their Food.—Those insects whose bodily organisation is least adapted for a floral diet are also least ingenious and skilful in seeking and obtaining their food, so that in anthophillous insects intelligence seems to advance *pari passu* with structural adaptation. The following examples may serve to illustrate the point:—Coccinella septempunctata, the common ladybird, which is not adapted at all for a floral diet, behaves so awkwardly on flowers of Erodium cicutarium that it generally loses its hold and often falls to the ground, and many attempts fail to make it more skilful. Sarcophaga carnaria seeks honey diligently on flowers of Polygonum bistorta, but it usually misses its aim in trying to insert its proboscis into the flowers; Andrena albicans at first is equally awkward, but gradually becomes more skilful, and learns to insert its proboscis with greater accuracy. The hive-bee never fails in any case to insert its proboscis accurately. "*The Fertilisation of Flowers*," *by Professor Müller* (*p.* 571).

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Oct. 8, issued by the Meteorological Office, London:—The weather during this period has been generally cloudy and hazy over England and Ireland, with some rather heavy falls of rain over our north-eastern and eastern counties. In the east and north of Scotland, however, the latter part of the week has been characterised by very clear skies and abnormally warm weather. The temperature has been below the mean in nearly all districts, the deficit in the south and east of England being as much as 5°. In "Ireland, N.," the temperature has been about equal to the mean, but in "Scotland, E.," owing to high readings of the thermometer during the last few days of the period, the average for the week is a little above its normal value. The maxima were very generally recorded either on the 7th or 8th, and varied from 58° in "England, N.W.," and 62° in "England, S.," and "Scotland, W.," to 70° in "England, N.E.," and 74° in "Scotland, E." In the last-named district the maximum was 2° higher than any recorded during the past summer. The minima, which were registered on different days in various localities, were as low as 32° in "England, S.," and the "Midland Counties," and between 34° and 37° elsewhere. The rainfall has been rather more than the mean in the east and north-east of England, but less in all other districts. Bright sunshine percentages show a considerable increase in Scotland and the north of England, but a decrease in most other parts of the kingdom. In "Scotland, E.," the percentage of possible duration was as high as 57, whence it fell to 43 in "Scotland, W.," to 39 in "England, N.E.," to 25 in the "Midland Counties, and to 23 in "England, E." Depressions observed.—During the greater part of this period the barometer has been highest in the western and south-western parts of our area, while some depressions have travelled south-south-eastwards over our islands and the North Sea. The disturbance, whose centre was shown off the Norfolk coast at 8 A.M. on the 4th, had increased greatly in depth during the previous night, causing the wind, which till that date had been moderate from the N. or N.W., to blow a gale from the N. over eastern England. By the morning of the 7th the conditions had undergone a considerable change. A large depression, which subsequently passed eastwards over Scandinavia, had been observed approaching the north of Norway from the westward. The winds at all except our south-western stations consequently backed to the W., and in the north of Scotland blew strongly.

—— Publications Received.—*Observations on the Soils and Produce of Florida*. By W. Saunders.—*Address at the Nineteenth Session of the American Pomological Society*. By Marshall P. Wilder.

—— Gardening Appointments.—Mr. J. Wiggins, late Gardener to Henry Little, Esq., Hillingdon Place, Uxbridge, as Gardener to — Clay, Esq., Kingston-on-Thames.—Mr. Wm. Young, Foreman at Alloa Park, Alloa, N.B., as Gardener to W. F. Stanley, Esq., Cumberlow, South Norwood, London.—Mr. Wm. Foulds, lately Gardener at Balquharn, Stirlingshire, as Gardener to Thomas E. Ogilvie, Esq., Chesters, Jedburgh.—Mr. Wm. Pirie, lately Gardener at North Cliff, North Queensferry, as Gardener to Mrs. Roney-Dougal, Ratho Park, Ratho, N.B.—Mr. John Dow, lately Under Gardener at Moredun, Liberton, N.B., as Gardener to General Hope, Inveresk Lodge, Inveresk, N.B.—Mr. E. Jones, late Gardener to Sir S. M. Wilson, Bart., Uckfield, Sussex, as Gardener to W. Gilstrap, Esq., Farnham Park, Bury St. Edmunds.—Mr. H. Cook, for the last five years Gardener to W. S. Ellis, Esq., Hazelbourne, Dorking, as Gardener to Sir E. G. Moon, Bart., Fetcham Rectory, Leatherhead, Surrey.—Mr. G. Cook, lately Gardener at Launde Abbey, Leicester, as Gardener at Quorndon House, Loughborough, in succession to Mr. W. Holah.

Home Correspondence.

Pterocarya caucasica.—One of the finest trees in this country was destroyed by the gale on the 4th inst., in the Cambridge Botanic Garden. It was a splendid tree, and measured 51 feet in height by as much through. There were five main branches springing together from the ground, and it can be seen now that their bases were much decayed though it had not in any way diminished the vigour of the tree. It was close to water, just where it grows best, though it appears that the moisture which gave it immense vigour, produced also the decay which made it an easy victim of the storm. Loudon gives the height as being from 20 to 40 feet, but this specimen had an addition of at least 11 feet, while there is another tree close by which appears to be somewhat taller, though it is not, by far, so fine a specimen as this was. Loudon says it is somewhat tender, but no injury happened to these trees during the severe winters of the last few years. It is one of the most handsomely umbrageous trees that I know, and its fine pinnate leaves, in one case I have measured 22 inches long, have often been the subject of remark. I notice the interesting peculiarity that each leaf has two buds, the one in its axil, the other a quarter of an inch or half an inch immediately above, and that the upper bud is usually the one to grow. In some cases both of them grow, when one is ultimately superseded by the other. Of course there are other instances of the same thing; I notice it in three species of Juglans, and Sachs mentions Aristolochia Sipho, Gleditschia and Lonicera, but there is none more striking than this because of the distance there is between the two buds, though in Gleditschia I find a near approach. *R. Irwin Lynch.*

Nepenthes bicalcarata.—I have sent you a box containing a pitcher of Nepenthes bicalcarata. This pitcher was fully matured at the end of June, so that in colour (being old) it is a darker brown than a freshly matured pitcher would be. Since June the plant has made three more pitchers, and the following figures will show the increase in the size of the pitchers and leaves, from the first week in June to the last week in September:—The largest leaf, from the stem to the end of the pitcher, measured at the beginning of June 36 inches, and 4 inches in breadth, and when the leaf was matured at the end of September it measured, from the stem to the end of the pitcher, 53 inches, and 5¼ in breadth. The height of the stem at the end of June was 18 inches, and since that time it has grown to 28 inches.

	Circumference of Pitcher.	Length of Pitcher.
	Inches.	Inches.
First week in June	9¼	5¼
Last week in June	11	6¾
	12	7
	12¼	7½
Last week in September ..	12¾	8

The plant is in perfect health, and since I bought it, a small plant, at Whitsuntide, 1882, it has always done well. As you will see, bicalcarata is a grand representative of the Nepenthes family. *Jos. Broome, Didsbury, Manchester.* [The pitcher, which approaches in size the native specimen in Messrs. Veitch's possession, and which was figured by us at p. 201, vol. xiii., is certainly the finest we have seen of home growth. Ed.]

Ixora Duffii. — The plant alluded to in these pages three weeks since as being in flower at Kew, has been determined at the Kew Herbarium to be Ixora macrothyrsa of Teysmann and Bennendyk, and should therefore in future be known under that name. It is a very grand species. *N. E. Brown.*

Garden Anemones.—My beds of these, which gave such grand bloom last spring from eight months plants, now illustrate the value of leaving the roots in the ground all the summer. Instead of being just replanted, as is too often the case, my beds are one mass of leafage, and already are throwing up flowers; indeed if we have an open winter the beds will not be without flowers from now till the end of May or June next. Two months of the hot dry weather which prevailed here during the summer amply sufficed to rest the roots, and now from out of the baking drought they have come under the influence of the autumn rains like giants refreshed. Three years is ample for the duration of a bed of Anemones, because so freely do they seed and so readily are they reproduced from seed that no useful purpose is answered by keeping the roots longer. Seed saved this summer and sown as soon as ripe have given myriads of plants, and these, dibbled out in beds a few weeks since, are growing well, and, unless hard weather supervene, will grow all the winter. It is surprising to note how fine the plants will become in a few months, and how grandly they will bloom in the spring. Gardeners who want a big lot of cut flowers should grow plenty of Anemones. *A. D.*

How to Preserve Mountain Ash Berries.—I have been told, but I have not tried it, that if you make a strong solution of salt and water, boil it, and let it cool, then lay freshly-picked bunches of the Ash berries in it; they will keep red and plump for several months. One lady told me that she put the berries into jars, and suspended the bunches in it, but this plan entails more trouble, besides which you could not preserve so many bunches as in a large shallow dish. The brine must cover the bunches. They will only need careful wiping when taken out. *Helen Watney.*

Erigeron mucronatum.—This pretty little pink and white Australian Daisy, formerly named Vittadenia triloba, is well known, but thirty years' experience as a schoolmaster has taught me that it is not superfluous frequently to call attention to things which are or ought to be well-known. No flower is more admired by floral critics of good taste, forming as it does neat procumbent bushes a few inches high, covered from early summer to late autumn with its flowers varied from pure white to bright pink. I cannot discover that the whiteness or pinkness is subject to any rule, as both the white flowers and pink flowers have their own colour from first to last. It is said to be killed by severe winters, but it comes up so abundantly from self-sown seed, and makes such good flowering plants in a year, that I have never missed it. This free growth from seed is perhaps its chief objection; for though it is easily weeded-out, one feels disposed to spare so pretty a plant where it seems to be doing no harm; but in the jungle of autumnal growth it becomes too large for the allotted space and overgrows alpines which ought to be left bare. For early flowering, plants may be pulled to pieces in autumn, and kept many in a pot in a cold frame to be planted-out in April. For covering tile edging, where the border is a little above the level of the walk, this plant is excellent. *C. Wolley Dod, Edge Hall, Malpas, Oct. 6.*

Seedling Nepenthes.—Amongst many real and some imaginary likenesses between insectivorous plants is a curious one between the petiole of Dionæa and the leaf of seedling Nepenthes. As in seedlings of Darlingtonia and Sarracenia, the first leaves after the cotyledons are pitchered; some of these leaves are not over half-an-inch long, the petiole being very broad in proportion, and the hairs also strongly developed on both lid and wings. The midrib of the leaf is continued up the back of the little pitcher, but on the upper side of the leaf it, at first sight, appears as if divided into two branches, having the pitcher placed between them. Hundreds of seedlings of N. Rafflesiana × N. Chelsoni, from less than 1 inch to about 3 inches across, are now growing in the Nepenthes-stove in the Edinburgh Gardens. *C. M. O.*

Crocus speciosus and Colchicum speciosum.—The first named deserves all that has been said in its favour at page 428. It is really a very pretty species, and propagates itself at a great rate. The Cochicum flowers at the same time, is a very showy species, and a beautiful border flower. In its way it is quite as desirable as the Crocus. *J. D.*

Afforestation in Ireland (p. 400).—Although personally disinterested, Irishmen should be grateful to you for not losing sight of the advantage tree planting in Ireland would confer, not only in the immediate employment it would give, but in the manner it would change the appearance of the whole face of the country in a few years. Prospectively, as you point out, the advantages would be still more apparent, not only enriching the owner, but giving employment to numberless artisans and others who use timber trees as their raw material of workmanship, &c. I would, with your permission, take exception to your recommendation to sow the seed in preference to using established plants, in case of the Oak and other similar forest trees in cultivated lands, for these reasons:—1st, such land will not be used for such a purpose; 2d, nurseries are full of trees frequently transplanted; 3d, where seed is used there may be unseemly blanks; and 4th, some years would be lost in growth. *W. J. Murphy, Clonmel.*

Hop "Condition."—I observe in a German brewing journal that it is asserted by Dr. Broignart, of the Agricultural Research Station at Wichenstephan, that the golden microscopic dust on Hops, generally known to English growers as "condition," and in which the finest properties of the Hops are supposed to reside, does not increase in quantity with the growth of the inflorescence. It is, he maintains, present in full quantity at the first development of the latter, and does not increase, though the chemical properties may be modified by growth. This idea is ridiculed by some, who maintain that both the quantity and quality of the "condition" depend on the age of the inflorescence. Can you give me any information on this point, or refer me to authentic data bearing thereupon? *H. M., Chichester.*

Bombax pentandrum. — A plant of Bombax pentandrum in the Palm-house in the Edinburgh Botanic Garden has flowered this season, whether for the first time here Mr. Lindsay is not sure, but certainly it has not done so for many years. The leaves are digitate, 4 to 6 inches across, with seven to nine leaflets. The flower is very peculiar, more curious than pretty. The cup-shaped calyx is hardly 1 inch in length. The five narrow strap-shaped, greenish-white petals, hardly half an inch wide, are over 6 inches long. The stamens form a tassel at the end of a tube 2½ inches long; they are divided into several phalanges, the filaments of these phalanges bifurcating, and having the two anthers at their extremities. This tree has been grown here for very many years, and is about 60 feet high. *C. M. O.*

Iron *v.* Shade in Effecting a Change of Colour in Hydrangeas.—There has been a little difference of opinion on this subject amongst the contributors to *Land and Water* during the last two months, and the matter seems as far from being decided as ever, so being one of the parties concerned in the discussion, I would fain solicit the opinion of some of the scientific contributors to the *Gardeners' Chronicle.* I believe—and my belief is drawn from experience—that pink flowering Hydrangeas will bear blue blossom when grown in soil that has iron in it [there are not many without], although they are exposed to the full glare of the sun. Another writer in *Land and Water* affirms that the change of hue is effected by shade. I will not assert that shade does not change the colour of Hydrangeas, for I know a pink one bore creamy-white blooms in my little greenhouse this year, and when the foliage of the overhanging Vine was removed to allow of the Grapes ripening, the white Hydrangea changed again to a pale green spotted with pink blotches, but never a trace of blue can I find. Will some of your readers kindly give their experience? I am no geologist; I know nothing of science; but I do know that years ago some pink Hydrangeas in the old garden at home bore blue flowers when planted on a portion of the grounds called "The Old Tip," because it had formerly been the spot, or "tip," where the refuse from my father's (Mr. Raby's) iron furnaces had been cast out; and when we removed any of these blue Hydrangeas from the "tip" to other parts of the grounds they reverted to pink again. *Helen E. Watney, Tip, Hampshire.* [Your contention is the correct one. Shade of itself will not cause the flowers to come blue, but if too dense will prevent the plant from flowering at all. Watering Plants with sulphate of iron will cause the flowers to come blue; but the exact proportions applied we do not know. Ed.]

Campanula hederacea.—This pretty little native Campanula is seldom seen in great quantity, and usually in rather damp, marshy ground; but judge of my surprise to find a patch 4 yards square growing on a dry bank beneath Beech trees. When seen in good-sized patches this plant has a very pleasing appearance, the drooping bell-shaped flowers almost hiding the miniature Ivy-like foliage from view. It is readily transplanted, and soon forms one of the best carpets for the taller growing plants or Ferns with which I am acquainted. *A. D. Webster.*

Prunus Pissardi.—Seeing the remarks in your paper of the 6th inst. by "G. N." respecting Prunus Pissardi, I may just say that no plant in my nursery in this part of "the garden of England" has attracted the attention of visitors more than this beautiful foliaged plant, which thrives so well in this healthy locality. When better known it will, no doubt, be wanted in nearly every garden of those who value such sterling novelties. *Wm. Potten, Camden Nursery, Sissinghurst, Kent.*

Aster lævis.—This is one of the most beautiful of all the Michaelmas Daisies, and there are several forms of it flowering at different times, earlier or later in the autumn. Mr. Parker sent me the finest variety I have yet seen; it is a dwarf form. The plants are now in full beauty, about 18 inches high, and flowered almost to the ground. I saw a tall form last year in Mr. Cannell's nursery at Swanley with flowers exactly like our own variety, but more than as tall again. Thinking it was the character of the soil I had a plant of it for comparison, but I find the difference in habit is the same here. They are both well worthy of culture. *J. D.*

Shelters and Wind-guards.—Your interesting note on Sir W. Armstrong's glass shelters reminds me of a wish I have often felt for some cheap handy

movable wind-guard for garden use during the winter and early spring. In the neighbourhood of Bournemouth the gardens are everywhere fenced in with wattled hurdles, about 3 or 4 feet high, made in long lengths, and fastened to stout posts to give them steadiness. Now these are the very things we want, and if some poor people could be set to work in districts where coppice wood abounds to make wattled hurdles in lengths of 6 and 9 feet by 3 feet wide, there would, I feel sure, be a large demand for them. I understand the Bournemouth fencing, 3 feet high, costs 15*d.* a yard, or say half-a-crown for a 6 feet hurdle, closely wattled. With these you could break the force of east winds in March and April at exposed points. You could in winter make snug squares wherein to shelter Roses, and in autumn they would furnish admirable shade for Auriculas and Polyanthuses. They would make picturesque fences in your flower gardens, whereon could be trained Roses, Clematises, &c., and for espalier work in the fruit garden they would serve admirably. I shall be very glad if any one can help me to a few dozens of these wattled hurdles. *W. Brockbank, Brockhurst, Didsbury.*

Michaelmas Daisies.—As these are not confined to the genus Aster perhaps the above collective title suits them best, especially as those are most valuable for garden decoration which come in flower during September, and for nearly two months form the chief ornaments of the herbaceous border in autumn. Boltonia latisquama seems to be nearly as variable a plant as B. indica. It grows 6 feet or more high, with many stems, having upright branches and smooth lanceolate leaves. I have three distinct forms, one with white flowers the size and shape of a common Daisy; a second has flowers twice the size, with long wavy rays of light pink—this is the best form; a third is intermediate between them. Aster lævis var. decorus.—I raised a very distinct and elegant Aster last year from Mr. Thompson's seed with this name. Mr. Thompson tells me the seed was from Paris. The plants have now several stems 3 feet high, the heads being nearly as much across. The flowering branches make a close hemispherical mass, covered with flowers about an inch across, with a broad disc of clear yellow, and a dense row of rays very evenly arranged, pale blue-lilac in colour. Its appearance is very distinct from the ordinary type of A. lævis. I sent a specimen to Kew, and was told that it exactly corresponds with a specimen in the herbarium labelled A. decorus, which was obtained from Paris, I think, in 1814. This specimen is referred by Dr. Asa Gray to a variety of A. lævis. Aster versicolor var. niveus.—A very good flower given to me by the late Mr. Harpur-Crewe as A. niveus, but referred at Kew to A. versicolor, niveus being proposed as a varietal name. The flowers are larger than those of the type, and white, from which they never change to purple, as those of the ordinary versicolor do. The variety is not more than half the height of the type, seldom exceeding 3 feet. It is one of the best Michaelmas Daisies I have. I have mentioned these three plants especially to show that horticulturists must be on the look-out for varietal forms of Asters, and that it is not enough to obtain the species correct according to name, as varieties often exist in cultivation which for garden decoration are far superior to the specific types; and horticulture would benefit by their being brought together. I can think of no more suitable place for a collection of good garden forms of Michaelmas Daisies to be exhibited on probation than the garden of the Royal Horticultural Society at Chiswick. No Daisy should be admitted unless it is a flower of decided merit. A border 30 yards long and 3 wide would easily hold a hundred plants, and from these about thirty might in due time be selected for distribution as the best of their kind. I would gladly supply fifty good kinds to commence such a collection, and those of inferior merit might from time to time be eliminated as better varieties were supplied. *C. Wolley Dod, Edge Hall, Malpas, Sept.* 24.

Bedding Dahlias.—Now that Dahlias are again establishing themselves in public favour, and securing that share of attention they so justly merit, the note of "A. D.," p. 377, bringing under notice the great improvement in height of even the exhibition varieties now being sent out, compared with older forms, running up to 6 feet and upwards, is seasonable and well calculated to induce the extended cultivation of dwarfer forms. It may interest "A. D.," however, to know that the one described by him as the *beau ideal* of an effective bedder, viz., Rising Sun, is a comparatively old variety, having been raised by my father over twenty years ago. The immediate influence that such a dwarf form of the exhibition section might have been expected to have exercised was, however, delayed by its persistent refusal for years to ripen sound seed, except where fertilised with the pollen of others; and in the latter case the resulting seedlings seemed to benefit little by the dwarfness of one of the parents. Undoubtedly Rising Sun may have influenced the present race of dwarfer forms as pollen-bearing parent, but until last season I have seen no perfect seed from itself that retained its dwarf character. This season seven seedlings, now flowering, resulting from as many seeds—the whole crop—appear to be of a similarly dwarf habit to the parent, and retain its character of throwing flowers some 6 or 8 inches above the compact mass of foliage, little more than a foot in height. The large-flowering section of Dahlias has been banished from some gardens because of their excessive height, and because of the trouble of keeping them secured from the injury resulting to their brittle stems from high winds. Now, however, there is less need for complaint upon that score, and dwarf or tall, single or double, large or small-flowered sections, all find a considerable number of admirers. *Ralph Crossling, Penarth Nurseries.*

Campanula Van Houttei.—With reference to the statement of M. Rodigas that this plant is a hybrid between C. nobilis and C. grandiflora, if by the latter plant is meant the Platycodon grandiflorum, DC., I for one can scarcely credit the assertion. Van Houtte himself always stated in his catalogues that the cross was between C. nobilis and C. macrantha, which all who are acquainted with the plant will admit is far more probable. *W. T. I.*

Apples at Chiswick.—In addition to those mentioned as having been sent from East Lothian, Mr. McLean Stevenson sent a collection of twenty-four kinds. Some ninety (not forty-six) varieties were also sent from Tynningham. A kind labelled East Lothian Seedling in the Gilmerton collection is worthy of note as a free-bearing good early dessert kind. *R. P. B.*

Larch Tree Struck by Lightning.—During the severe thunderstorm of Thursday night last a Larch tree growing in the centre of one of our largest plantations was struck by lightning, and partially denuded of its bark for a distance of 30 feet from the ground. After careful examination I have come to the conclusion that the lightning struck the tree close to the ground, and travelled up the stem in a spiral form for 30 feet, at which point the intervention of a large branch caused it to change from the regular course and slide off the tree. A strip of bark fully 2 inches wide at the base, and gradually tapering to about half that width at the top, was completely removed from the tree, and strewn in shreds on the ground beneath. Strange to say, the wood of the tree is not in the least damaged, nor has the bark removed by the lightning either a scorched appearance or sulphureous smell. A curious fact in connection with the above is, that the lightning in travelling along the stem diverted several times from a straight course to avoid coming in contact with the branches. *A. D. Webster, Penrhyn Castle, North Wales, Oct.* 8.

FORESTRY.

Forest Work for October: Planting.—All necessary operations as to fencing, draining, and putting in order the ground intended for planting during the present season being now completed, the next few weeks will be a busy time with the forester who wishes to be abreast of his work and determined to carry it through in the most efficient and successful manner. Early planting has everything in its favour, so the largest and finest specimens may now be transplanted with the greatest certainty of success; indeed, at no other season can they be removed at so little risk of failure, and consequently at less cost, since at no time have less labour and attention to be bestowed upon them afterwards to ensure success as the present. Every day of open weather will therefore be of the utmost importance to the planter, and it is to be hoped that all preliminary arrangements have been carefully made so that a day will not be lost now that the season has arrived. Forest trees of all kinds have made a splendid growth in the nurseries this season, and will soon be in a first-rate condition for removal to woods and plantations. The planting of evergreens and Conifers in particular should be proceeded with as early as possible, following with the deciduous trees as soon as they are sufficiently matured to bear removal. The more active and vigorous, however, the growing powers of the plant are when removed, the more fresh roots it will produce immediately after being planted, and consequently the greater will be the ultimate success. All low-lying damp ground, peat bog, and such soils as are of a cold, stiff nature should be reserved for spring planting, when the drains which were cut in the course of preparing the ground will have had time to act, and the soil be in a better and more fitting state to receive the young plants. Where pitting is required for large plants in such soils they should be dug at once so as to receive the full benefit of the winter frosts. During the work of planting proper precaution should be taken not to expose the roots of the plants to the drying influence of the air—neglect of this often leading to serious results, and the failure, as is too often the case, attributed to some other cause. The practice carried out in many public nurseries of tying the plants in bundles previous to being "sheughed" cannot be too strongly condemned, more especially when they are to remain in such condition for any length of time before being planted. When plants are sheughed or "laid in by the heels," as it may be necessary to do when lifting large quantities, they should be laid in thinly so as to preserve them in as healthy a state as possible till they can be planted, bearing in mind that the shorter the period between lifting and planting the greater will be the success attained hereafter.

Nursery.—One of the most important of preliminary matters in forest planting is the selection of a healthy vigorous and hardy stock of young plants, which will be an easy matter where a well stocked well managed home nursery is an adjunct to an estate. In selecting young trees for planting only such as are well rooted, bushy, and vigorous should be chosen, all weak or inferior plants being thrown aside or discarded. When lifting the plants in the nursery they should not be torn from the ground nor subjected to any of the rough usage so commonly practised, but carefully raised with a fork so as to preserve the tender rootlets from unnecessary strain and damage. As many tree-seeds become ripe during the present month the collecting, sowing, or storing of these will require immediate attention, and it is well to bear in mind that seeds collected from medium-sized vigorous trees are preferable, young trees often yielding barren seeds, and old trees cannot be depended upon for seeds that will produce strong plants. Amongst those trees which ripen their seeds during the present month may be mentioned the Norway Maple, Sycamore, Walnut, Beech, Larch, Ash, Alder, and Oak. Acorns, Hazel-nuts, Spanish and Horse Chestnuts, may now be sown in prepared beds of good hazelly loam, and covered to a depth of 2 or 3 inches. Seeds intended for spring sowing should be thoroughly dried and harvested previous to storing, neglect of this generally proving injurious, if not entirely destroying their germinative powers. All vacant plots in the nursery should be deeply dug and roughly laid up to the influence of winter frosts; and where a green crop has been taken therefrom it may be filled up at once with young plants of the Fir tribe. Cuttings of various kinds may be put in early in the month, and layering continued in the woodlands and upon prepared stools in the nursery and plantations.

Thinning.—The thinning and clearing of young plantations may be continued, and the felling of the older Pine trees ought now to be proceeded with. Remove to the roads all thinnings as the work proceeds, taking care that no branches are left in the drains to obstruct the waterflow. Continue to prune ornamental trees, and mark hardwoods intended for removal later on.

Roads.—Repair roads and drives, and if possible have as much material as may be required brought forward and placed in some convenient position while the roads are dry and firm. Ground work of every description may now be pushed on with advantage, farm roads repaired, and all scrapings carted into heaps as compost. Both gravel walks and grass lawns will be much benefited by heavy and frequent rollings, which will tend to consolidate them, as well as produce an even surface. Rough stone roads should be blinded with screenings previous to rolling.

Fencing.—Keep all fences, gates, and hurdles in proper repair; also attend to tree-guards, wire-netting, and other rabbit-proof fences. Much has been written regarding solutions for preventing rabbits destroying young plants, but the most effectual remedy is to clear the ground of these pests previous to planting, and also to keep it so for a few years until the plants have attained some strength. We have applied tar as well as several of the leading composts, but all to no purpose.

Hedging.—The sides of all wood-rides should be closely trimmed preparatory to the shooting season, and the pruning or switching of hedges finished without delay. Overgrown or neglected fences will require to be cut closely back so as to produce a wedge-shaped fence, and all Whins, Brambles, and brushwood cleared out and burned on the ground. Towards the end of the month quick fences may be plashed or layered, especially such as have become bare and hollow at the bottom through neglect. Grub out and remove old hedges; also thoroughly prepare the ground for the reception of new ones.

Draining.—Where drainage is necessary as a preparation for spring planting lose no time in getting it in hand, as by the early removal of water the winter frosts will more completely pulverise the soil, and leave it in good condition for receiving the young plants. Clear the sides of watercourses, scour ditches, and examine the mouths of closed drains, especially in young and recently thinned plantations. *A. D. Webster, Penrhyn Castle, North Wales.*

THE APPLE SHOW AT CHISWICK.

This show, of which we gave a preliminary report in our last issue, has undoubtedly been the event of the week, and we venture to predict that, when we come to sum up the record of the year's work in the realm of horticulture, it will also have to be written that it was the one event that raised 1883 above the dull level of mediocrity. Of the vast amount of practical good that must result from this show we need not now stay to dilate; the fact that it must be so is patent to all who have paid the exhibition a visit, but we are of opinion that the Council of the Society should heartily rejoice in the knowledge that, in its name, a few enthusiastic practical men, aided by the unflagging zeal and energy of Mr. Barron and his assistants, have inaugurated, and are carrying out to a successful issue, a work which in its importance to the community at large, and practical horticulture in particular, completely overshadows anything else the Society has done for a long time past; and we are further of opinion that the Council should bestow its praise on those who have rendered it such valuable service with no uncertain sound. The various Councils of the Society have never had a particularly happy way of showing their gratitude to those who have done thair work for them, but they have a chance now of doing the right thing at the right time, and it is earnestly to be hoped, in the interest of the Society, that they will not fail to avail themselves of the opportunity.

The exhibition has been well attended during the past week, and it is a pleasure to record that the bulk of the visitors have been practical gardeners, who more than any other class may be expected to derive the greatest amount of benefit from the lessons which such an exbition must afford the genuine seeker after useful knowledge. Next week, should the weather continue fine, the increased publicity given to the show will no doubt result in the attendance being even larger, though it is to be hoped none will be disappointed if they do not find at Chiswick the "10,000 distinct varieties," which we have read of in some of our "dailies" during the week. Besides the extraordinary statement just alluded to, some others of an almost equally startling character have appeared during the week, but nothing can possibly beat the assertion of an evening contemporary, on Tuesday, that the somewhat new variety shown by the Cranston Nursery Company under the name of Herefordshire Beefing had been so named in honour of a famous local authority—Dr. Bull!

While the show has been open the committee appointed to examine the collections with a view to correcting faulty nomenclature have made good progress; but at the time of going to press had not completed their arduous labours. Some idea of the task they took in hand may be gathered from the facts that have been ascertained with reference to one or two varieties taken at random. One would have thought that almost every one would have known the Yellow Ingestrie, that brisk, well flavoured little yellow dessert Apple, so popular in its season—September and October. That it is popular is attested by the fact that it appears in no less than fifty-two of the collections—yet in only nineteen instances is it correctly named, and in four cases no name at all is given. Another variety which, like the Yellow Ingestrie, was raised by Thomas Andrew Knight—the Downton Pippin—a small mid-winter dessert variety, resembling the Golden Pippin, is shown in thirty-seven collections, but in only seventeen of them does it bear its right name; while of the Golden Pippin itself there are fifteen samples, of which eleven are correct—a somewhat better percentage. The plan adopted by the committee of experts is to obtain a complete list of each collection, and then to go through them *seriatim*, noting those which are true to name, and, where possible, correcting those that are wrong. Besides the immense number of fruits staged an immense quantity have been sent in to be named, and which have to be dealt with in the fruit-room, these alone adding greatly to the labours of the experts, and whose work has in many instances been rendered the more perplexing by the gross carelessness of the senders, some of whom have sent great packages without putting any numbers by which the different sorts can be identified, while others have not vouchsafed the least information as to whence the packages have come: all which little annoyances should have been saved them at such a busy time. The railway companies, too, must have occasionally been perplexed through the Apple show, if we may judge from the following, which we saw on the lid of one box hailing from a northern county:—"Sectar of the Happle Siety, Chiswick Happles Show." The seedling varieties, and such of the unknown among the local sorts as appeared to possess any value, were examined by the committee on Thursday, but only one certificate was awarded, viz., to Bramley's Seedling, noted below.

Among the new or little known sorts brought to the front are many so evidently good as to warrant a recommendation of them for general cultivation, and of these perhaps one of the very best is a seedling raised at Southwell, Notts, by a shoemaker, named Bramley, and called Bramley's Seedling by two exhibitors—Mr. H. Merrywcather, of Southwell, and Mr. H. Bradley, of Hallam, near that town, both of whom show some fine examples. The Apple, a culinary variety of the form of Small's Admirable, but larger than that variety ordinarily comes, is said to bear profusely every alternate year when the tree attains the age of ten or twelve years. It is not an early bearer, but the tree is stated to be hardy and robust, makes a fine orchard specimen, and produces one of the finest types of market fruits. An old variety, new to most of the visitors we suspect, but a good dessert sort as regards quality, and very pretty as to colour, is the Nanny Apple, a variety which it is stated is peculiar to the neighbourhood of Midhurst, Sussex, where it has been grown for the last century, but is said to be now fast becoming extinct—a contingency which it may be hoped its exhibition here by Mr. G. Chorley, of Midhurst, will prevent. It is ripe now, and does not keep well beyond Christmas, and the tree is a good bearer. Another very pretty Apple which appears in two Sussex collections is a variety which Mr. Ford calls King, and which the Messrs. Cheal, of Crawley, who show a handsome dish grown by R. Hoper, Esq., of Cowfield, Horsham, label as the Ramboon, Cider Steer, or King Apple.

Of the varieties which have been put into commerce during the last few years, not long enough, say, for them to have acquired many synonyms—perhaps none have more decidedly made their mark than Peasgood's Nonsuch, which is largely exhibited, and for the most part by remarkably fine specimens. This large and handsome Apple, it will be remembered, was raised by Mr. Peasgood, of Stamford, and was certificated by the Fruit Committee eleven years ago, the possessors of the stock at that time being Messrs. W. & J. Brown. From Stamford now also comes a grand sample, viz., that shown by Mr. Gilbert, of Burghley, who has unearthed a good many seedlings in the cottagers' gardens round that town, and who exhibits a considerable number at this meeting. The Worcester Pearmain also makes a good show, being represented by many very handsome examples. Other sorts also make a good appearance, but until the evidence of the exhibitors as to their respective merits under different conditions is made known, it would not be prudent to further comment on them now.

Of most of the old and well tried sorts there is an abundant representation, some couple of dozen or more appearing in most of the larger collections, and a reduced number of them in the smaller ones, without regard to geographical limits. Among these may be enumerated (having regard to the old adage that "Too much of a good thing cannot be known") such prime sorts as Cox's Orange Pippin, and Ribston Pippin, both sorts which as regards size show as wide a range as almost any other two sorts that could be named. The dish of Ribstons in the Barham Court collection is one of the finest we remember to have seen at any time, both in size and richness of colour being simply perfection, while the poorest sample would, by comparison, hardly be taken for a Ribston at all. Lord Suffield, Stirling Castle, and Ecklinville appear in grand form, and exceptionally so does Mère de Ménage. Belle Dubois is very conspicuous by reason of its wondrous size and great depth—a characteristic which makes it appear somewhat head and shoulders above its neighbours. Golden Noble, beautifully regular in outline, pure in colour, and of good size, needs no recommendation as a culinary variety; neither do Cox's Pomona, the Old or the New Hawthornden, the gorgeous Emperor Alexander, or the highly-coloured Hollandbury. The variety Annie Elizabeth, sent out some fifteen years ago by the Messrs. Harrison, of Leicester, makes a good show in many collections, and, as a late keeping sort, either for the dessert or the kitchen, appears to be worthy of a good recommendation. Beauty of Kent, Tower of Glamis, Jolly Beggar, and Hoary Morning, also demand mention, the latter especially being much higher coloured than usually—some of the samples indeed being among the prettiest in the show. Blenheim Orange also "needs no bush" from us; but if there are such things as good and bad forms, or types of particular sorts, then the Blenheim Orange, as here shown, affords a striking illustration of the fact. An Apple, about which there appears to have been a considerable amount of doubt and confusion, is the Yorkshire Beauty, which is shown under other names in many collections, and while handsome in appearance has other qualities which make it a fine early cooking variety. The very old Royal Russet, or, as it is sometimes called, Leather Coat, is grandly shown among others by the Messrs. Cheal; and in other collections such sterling dessert sorts as the Cornish Gillyflower, Adams' Pearmain, Mickleham Pearmain, Fearn's Pippin, Braddick's Nonpareil, Wyken Pippin, Cockle Pippin, and Dutch Mignonne frequently make their appearance. These, of course, are not a tithe of the sorts that could be named, but must suffice for the present.

A few lines may, we think, be profitably devoted to what we will call pretty Apples, of which the exhibition affords many striking examples. Most of the sorts we shall name are of first-rate dessert quality, while some others, if only for their high colour, may well deserve to be grown for decorative purposes. Thus among pretty Apples may be named the Summer Strawberry, Fearn's Pippin, very rich in colour sometimes; Worcester Pearmain, Duchess Favourite, Hall Door, an exaggerated Adams' Pearmain in shape and size, and pale greenish-yellow in the ground colour, handsomely striped with crimson; Cowen's Victoria, small, but very pretty; Forge Apple, of which the same remark may be made; Crimson Queening, Jefferson, an exceedingly pretty variety in the Frogmore collection; Washington, the handsome American variety alluded to last week; Sheep's Nose, an odd shaped sort belonging to the Pearmain section, and remarkably prettily streaked crimson in colour; Clifley's Seedling, a small, somewhat flat sort in the Cranston Nursery Company's collection, a very pretty fruit; and Honeymoon, a very handsome crimson-coloured sort which comes from the Messrs. Jefferies, Cirencester, and which in flavour is the equal if not the superior of the Worcester Pearmain, to which it bears some resemblance.

The cider Apples, as a rule, run small, but there are many pretty sorts among them, included in this category being that fine old Herefordshire sort, the Foxwhelp (why Foxwhelp? Can anybody explain the name?); Steward's Kernel, and Forest Styre, all in the Hereford division; and another famous variety is shown by Mr. Garland in the collection from Sir Thos. Dyke Acland's garden at Killerton, near Exeter, which has been added to the Devonshire Apples since our last. This is known as Tremlett's Bitter, the original tree of which grows in the neighbourhood of Killerton, and which is said to have produced enough Apples in one year to make four hogsheads of cider. Judging by the branches sent, it must truly be an enormous bearer. It is a Pearmain in shape, and highly coloured.

In our hurriedly written notice of the show last week, it seems that we made too free use of the word "only" as to the number of contributions from each county, many more being in the gardens than we saw. Several strong collections have been set up since, strengthening some of the weak places, and adding to the number of localities represented.

Thus we note a considerable assortment of Jersey Apples, sent by Mr. C. B. Saunders, and which by comparison bear no resemblance to Jersey Pears in quality, most of the sorts well known to us being inferior to our own English-grown fruits. Emperor Alexander was certainly fine in size, and so were the Ribstons, the next being Minchall Crab, Royal Russet, the Peach Apple, and Scarlet Nonpareil. The Messrs. Pearson, of Chilwell, Notts, have sent a collection of about ninety sorts from their orchards; and to the Lincolnshire division a small lot has been added which comes from Mr. Chaplin's garden at Blankney.

Monmouthshire is represented by a collection from Mr. W. Jenkins, The Willows, Abergavenny, which includes about a dozen sorts, all remarkable for their fine high colour, denoting a good free soil,

moderate rainfall, and clear atmosphere. The Worcester collections have had a material addition made to them in a fine lot of fruits sent by Mr. R. Ritchie, The Gardens, Eardiston.

The Scottish Apples have been somewhat rearranged and supplemented by the large Dalkeith collection, the fruits in which generally run small, the orchards, we believe, being old ones. The Orkney Islands are now represented by an interesting collection sent by Mr. J. McDonald, gr. to Colonel Balfour, M.P., of Balfour Castle, Kirkwall. The Apples were grown on a strong clay soil on a southern exposure, and the climate has so changed the appearance of some of the sorts that one would scarcely recognise them, and notably is this the case with Stirling Castle and Gloria Mundi. The other sorts represented are Boston Russet, Nonpareil, Ribston Pippin, Keswick Codlin, Yorkshire Greening, Brabant Bellefleur, and Gogar Pippin—a local Scotch variety.

MOVING LARGE TREES.

"That tree is not in the right position; I should like to put it in another place, but is it not too big to bear moving?" Such questions as the above are frequently put, and as frequently require different answers, according to the different circumstances of the individual case, such as the distance proposed to move the tree, its present condition, and other local matters that may have an influence on the particular case. We are now speaking of trees that are too big to admit of their being conveyed on any wheeled machine that can lift and carry them bodily from one point to another, consequently it will be seen that the distance from where the tree stands to where it is to be replanted is the first consideration that needs to be taken into account.

When a tree has attained a size such as to require, say, from 15 to 30 or 40 tons of earth being moved intact with its roots, it is obvious that it cannot be moved a long distance with any reasonable amount of labour; but there is nothing to prevent trees of such size being moved from one position to another within the range of an ordinary lawn or stretch of pleasure ground, Condition is another important matter. A tree that has been stunted and weakened by standing too closely confined near other trees is not in a state to thrive and make a handsome example of its kind likely to repay the trouble of transplanting. The same holds good of old trees that have passed the meridian of their existence, and show signs of decay—a state which the unavoidable interference with their roots is the reverse of being calculated to improve. Where there exists nothing such as here shown in the shape of distance or condition the answer may be safely given in favour of moving the tree with as much certainty of its living and thriving satisfactorily as if it were a young example such as ordinarily planted, with this proviso, that the work is properly done, and that the requisite attention be given afterwards. It is scarcely necessary to say that this last is an essential without which it is useless to expect results of a favourable nature.

The illustration on p. 469 (fig. 77) represents a successful operation in the transplanting of large trees; it is one of two moved by Mr. Baines, of Southgate, in February, 1882, at Broxbournebury, Broxbourne, Herts, the beautiful seat of Horace Smith-Bosanquet, Esq. They had been planted on the lawn near on fifty years ago, and had grown so as to obstruct the view of the park from some of the windows, and as they were of importance for shade on the lawn they were moved some 60 or 80 yards from where they stood. The work was effected by rollers, with the aid of powerful crabs and pulleys; the position they were moved to is on higher ground than where they originally stood, consequent on which, and to reduce the amount of excavation, it was necessary to have a sharp ascent of one in eight for half the distance, which, as will be easily understood, required powerful hauling tackle.

In the June following—that was, sixteen weeks after removal—they were considerably fuller of leaf than the tree here represented, as they suffered a good deal after that time through not having sufficient water, which caused the leaves to fall off sooner than they should, or were expected to have done; hence the photograph was not taken until this summer, when the effect of being allowed to get dry was apparent by the much shorter wood growth, and consequently smaller quantity of foliage than was made the summer after removal.

In the removal of large trees an abundant supply of water all through the ensuing summer, and, if dry, the summer following, is of the greatest possible importance; without it, cut off as the roots are from all supply except that which is held in the limited extent of earth of which the ball moved with them is composed, the leaves have nothing to sustain them, and consequently die off before their time, to the detriment of both the season's shoot growth and the young newly formed roots, which the tree, in its efforts to repair the loss inseparable from removal, makes. The tree figured measures 62 feet across, from outside to outside of its branches; the ball of earth was 11 feet by 10½ feet, and 4½ feet thick, or about 518 cubic feet, or a little over 19 yards. The other tree was of a like size, and moved in every way similarly.

Reports of Societies.

Royal Horticultural: *Oct. 9.*

Floral Committee.—Present: G. F. Wilson, Esq., in the chair; Messrs. T. Moore, J. Laing, H. Bennett, W. Bealby, J. Wills, Shirley Hibberd, H. Eckford, G. Duffield, J. Fraser, H. Ballantine, H. Turner, J. Dominy, J. Douglas, H. Cannell, J. McIntosh, J. James, F. R. Kinghorn, and H. Ebbage. At this meeting, held in the conservatory at South Kensington, the floral display was certainly not eclipsed by the now all pervading fruit, but had several noteworthy subjects on view, Mr Bull showing Eucharis Sanderi, a small, useful type of this popular stove plant, with funnel-shaped white flowers; and Crinum ornatum, a handsome Amaryllid with creamy-white blossoms, having crimson stripes on the petals. Among Mr. Bull's miscellaneous plants were nice young specimens of Anthurium splendidum (see *Gardeners' Chronicle*, p. 381, vol. xix.), a species with the tall leaf-stalks marked by numerous longitudinal undulate wings, and by bold cordate leaves of a deep green colour much puckered on the upper surface. Calamus ciliaris, a Palm, with oblong, deeply pinnately cut leaves, the segments much crowded, linear oblong, ciliate on both surfaces, and with numerous spines on the leaf-stalk. Calamus sikkimensis is another Palm of the same character, with pinnately divided leaves, the pinnæ narrow, covered on both sides with small prickles; the young foliage is bronzy-red. Panax Victoriæ, a form with much cut foliage, like Parsley, of a deep green colour with a narrow white edge. Mr. Bull also showed the very remarkable Saxifrage-like plant, Davidsonia pruriens, often alluded to in these columns. Messrs. Veitch & Sons, Chelsea, showed an elegant Adiantum named Weigandi, and the grand Nepenthes Northiana, together with two enormous pitchers of the same variety, laid alongside, measuring almost 9 inches in length (figured in *Gardeners' Chronicle*). A very pretty and useful plant is Medinilla Curtisii, shown by Messrs. Veitch. Its small glabrous dark green leaves are sessile ovate, the flowers in much branched panicles with coral-red flower-stalks, ivory-white cup-shaped calyces and white circular five-parted corollas, half an inch in diameter, and with a central tuft of purplish stamens. The flowers open on the plant at one time are not many, unless the weather is bright, when they open rapidly, but they are produced in quick succession, as in Impatiens Sultani; and coming into flower at a dull season, as well as lasting in flower some considerable period of time, it should prove to be of great value in warm houses and for use in dwelling-rooms. Other plants shown by Messrs. Veitch were Begonia Brongniart, with obliquely ovate acute undulate leaves, with a green ground thickly sprinkled with minute milky-white spots and with a purple edge. Begonia Zenobia, shown by the same firm, has oblique cordate ovate leaves with a purple disc bounded by a broad intra-marginal belt of milky-white, the narrow edge itself being purple. W. Lee, Esq., Downside, Leatherhead, showed the fine Vanda Sanderiana, figured in our last issue (fig. 68, p. 441). Miltonia Blunti was also shown by Mr. Lee. Its flowers are about 1½ inch across, with lanceolate sepals and petals of a creamy-white tint, heavily spotted with dull lilac. The lip, which is much broader, oblong obovate obtuse, is pale violet, with stripes of deeper violet near the base. Trichocentrum orthoplectron, in Mr. Bull's collection, is a very remarkable species with narrow-pointed segments of a dull olive colour, and a broad obovate obtuse lip of a rosy-lilac colour, having a central blotch of creamy-white. Messrs. Cannell & Son, Swanley, showed a pretty rosy-purple tasselled Chrysanthemum, named Mons. Dufour, and a good collection of autumn blooming Asters. An excellent assortment of single Dahlias was shown by Mr. T. S. Ware, of Hale Farm, Tottenham. Messrs. Rawlings Bros, Romford, staged a beautiful lot of show and pompon Dahlias. Mr. H. Chamberlaine, gr. to G. F. Wilson, Weybridge, sent some pretty spikes of Odontoglossum tigrinum, O. Alexandræ, and Oncidium unguiculatum. From Mr. Wilson, gr. to H. M. Pollet, Esq., Bickley, came two varieties of Zygopetalum, with longish brown sepals and lilac lip dotted with white, one being much less distinct in its markings than the other; and Oncidium prætextum, with massive spikes carrying three rows of blossoms each, an unusual occurrence. Mr. G. W. Cummings, gr. to A. Smee, Esq., The Grange, Wallington, sent cut blooms of various Orchids; Mr. Turton, gr., Maiden Erleigh, staged some well-grown specimens of a showy Celosia pyramidalis coccinea; and Mr. R. Dean, Bedfont, an excellent strain of bedding French Marigolds; also some very fine pretty seedling Pentstemons and Antirrhinums. A telling scarlet form of Begonia nitida, called coccinea, likely to prove a useful autumn and winter-flowering plant, was shown by Mr. Eckford, gr. to Dr. Sankey, Boreatton Park, Shrewsbury. Messrs. Crosse & Steer brought a perpetual flowering white Pink, with a Clove scent, the flower being full and fringed.

The following awards were made:—

First-class Certificates.

To W. Lee, Esq., for Vanda Sanderiana.
To Messrs. Cannell & Sons, for Chrysanthemum Monsieur Dufour.
To Mr. Bealby, for double Begonia Monsieur Duvivier.
To Mr. Bull, for Eucharis Sanderi.
To Mr. Bull, for Crinum ornatum.
To Mr. Bull, for Adiantum Weigandi.
To Messrs. J. Veitch & Sons, for Medinilla Curtisii.
To Messrs. J. Veitch & Sons, for Nepenthes Northiana.

Bronze Banksian Medals.

To Mr. T. S. Ware, for single Dahlias and Asters.
To Messrs. H. Cannell & Sons, for collection of Asters.
To Messrs. Rawlings Bros., for collection of Dahlias.
To Mr. Nicholas, Castle Hill, for Pine-apples.

Cultural Commendations.

To Mr. H. Chamberlain, for cut spikes of Orchids.
To Mr. Cummings, for cut spikes of Orchids.
To G. F. Wilson, Esq., Wisley, for cut blooms of Orchids.

Votes of Thanks.

To Mr. Turton, for Celosia pyramidalis coccinea.
To Mr. T. S. Ware, for new single Dahlias.
To Mr. Wilson, gr. to H. M. Pollet, Esq., for cut blooms of Orchids.

Highly Commended.

Mr. R. Dean, for Marigolds.

Fruit Committee.—Present: H. Webb in the chair; Messrs. P. Crowley, G. Goldsmith, A. W. Sutton, L. A. Killick, J. E. Lane, H. Howcroft, W. Denning, H. J. Veitch, G. Bunyard, J. Burnett, and J. Willard. Fruit was sent in considerable quantities by Messrs. Lane, Great Berkhamsted, consisting of a capital collection of Apples grown in their nurseries, Grapes in pots, very well fruited, for which Messrs. Lane were awarded a Silver-gilt Banksian Medal; and cut bunches of Gros Colmar, Black Hamburgh, Muscat of Alexandria, Alicante, and others. Some of the best grown Pines seen at any London show for some years past were shown from Lord Fortescue's gardens, Castle Hill, Devon; three of them were of the Charlotte Rothschild variety, two of which weighed 8 lb. each and one 7¾ lb.; one was a Smooth Cayenne, weighing 8 lb. 2 oz. All had moderate-sized crowns, and were in eatable condition. Some seedling Apples came from Mr. Cooper, Calcot Gardens, Reading, who also showed six varieties of Cobs and Filberts. Mr. Dean brought a fine collection of his seedling Potatos, which received much attention from visitors to the show. Being chiefly the products of crosses between the Woodstock Kidney on the one side, and the Vicar of Laleham, Success, King of Potatos, and Early Rose on the other; they exhibit much smoothness and evenness of form, together with, it is stated, excellent cooking qualities. They showed generally white skins, which were in some instances slightly tinged with red colour. One sort, The Dean, is a useful looking every man's Potato. Messrs. Veitch & Sons staged thirty-one varieties of Tomatos, ripened out-of-doors at their grounds at Turnham Green; the same firm showed some good samples of Endive and Savoy Cabbages.

Woolhope Fungus Foray.—This is the sixteenth year of the fungus forays of the Woolhope Club. The first one of which we can find any account was held in the October of 1868, since which time they have been continued without interruption. For some time after they were instituted the forays of this Club were unique, they were not fashionable, however successful they might have been, and no Society followed the example. When, however, the Woolhope Club came to be celebrated for its fungus forays, and their repute floated abroad through the continent of Europe, other societies were inspired with a desire to emulate the Hereford Club, and gradually of late years fungus forays have sprung up in all directions. If imitation be the sincerest of flattery, then the Woolhope Club has been flattered, for it certainly has been imitated, with some amount of success, although not with equal success, because the plan has been so modified that in most instances the "imitation forays" have only been imitations. The whole method has only been followed by the Cryptogamic Society of Scotland

and the Botanical Society of France, but the latter only attempted the forays for about two years, and then they ceased altogether.

The characteristic features of the Woolhope forays consist in bringing together, by invitation, all the principal botanists who devote themselves to the study of fungi for a week's holiday, four consecutive days being devoted to excursions in neighbouring woods in search of fungi during the day, and in the evening or early morning the specimens are examined and determined, and papers read on mycological subjects. The objects, therefore, which the Woolhope Club keep in view are to bring together the students of fungi, for social intercourse and exchange of ideas, from all parts of the country, to organise for them excursions on four consecutive days for the purpose of collecting specimens, to provide for them a large room in which to deposit and arrange the fungi for exhibition, to entertain visitors from a distance, to provide a *conversazione* for each evening where all the excursionists may meet and read or hear papers on kindred topics; and, finally, a public dinner. All these objects being most successfully accomplished.

The forays which have of late years been organised by some half dozen societies have been much less ambitious. These forays are limited to a single day, or in most cases the latter half of one day, and therefore, if that proves to be a wet one, a complete damper is put on the foray for the year; but when the forays extend over three or four days, it is most probable that if some days are wet, there will be one or two dry ones for a change, and the foray in the end has its object achieved. Under these circumstances it is scarcely too much to claim for the Hereford gatherings that, in spite of imitations, the genuine article remains unique.

During the first week in October the sixteenth annual forays of the Woolhope Club have been held, and in results are behind none of their predecessors, thanks to the presiding genius, who has undertaken all the labour and responsibility of arranging the entire series from the first to the last.

Monday, October 1, was announced on the programme as the day for the arrival of visitors, and the majority followed the programme; those who did not, met the excursionists at Ludlow the next morning. Amongst these were:—Messrs. Broome, Bucknall, Carlyle, Cooke, Canon Du Port, Rev. W. Houghton, Howse, Lees, Phillips, Plowright, Soppitt, Wharton, and Rev. J. E. Vize.

The excursion for Tuesday was by rail to Ludlow for Moor Park and Woodeve's Coppice. Omnibuses in waiting at the station conveyed the party to their destination and awaited their return. The hunting ground was a good one, almost unlimited in extent, and the day as favourable as could be desired. By 2 P.M. all the baskets were filled to overflowing, and their owners making the best of their way in one direction—towards Moor Park, where Mrs. Foster had kindly provided a most substantial luncheon, to which the assembled party did ample justice, although a peremptory signal to be "ready in ten minutes," which fell like a thunderbolt in the middle of the repast, startled some of the novices, who were not prepared to experience a practical joke from the "presiding genius" at such a solemn moment. After this interlude followed a stroll through the gardens and park to regain the carriages, and pick up the stray specimens to be met with in the way. At the entrance to the park flourished quite a colony of some twenty or thirty specimens of Boletus satanas, some of them being 8 or 9 inches in diameter, and over them some discussion was proceeding, when a member of the party was discovered staggering along under the weight of a mass of Polyporus giganteus, nearly 30 inches in one direction and 2 feet in the other. The "presiding genius" bore aloft another smaller, but somewhat neater specimen of the same Polyporus, whilst others of the party followed bearing large masses of Polyporus dryinus, and other fungi. One after the other, the three waggonets were loaded up, and started on the return journey to Ludlow. The "presiding genius" occupied a box-seat on the front carriage with his own open basket at his feet filled with the treasures collected during the day. As this, which was the foremost vehicle, rushed down a steep hill close to Ludlow, the occupier of the box-seat turned round sharply to see what had become of the other two carriages, when, by some unlucky mishap his foot disturbed the equilibrium of the basket, and the whole contents fell like a shower of toadstools into the road, some under the wheels, others broken by the fall—here a cap and there a stem—"white fungi and red, brown fungi and grey, mingled, mingled, mingled, in an unexpected way." Going rapidly down hill, with the "skid" on, and other carriages following, there was no hope of stopping till at the bottom, and then, at length, some one returned to collect the basket, and gaze upon the ruins of Boletus, Agaricus, Hygrophorus, Cortinarius, Strobilomyces, and Crab Apples, which imparted to the road a most picturesque appearance.

Soon after 5 o'clock, the entire force collected around the hospitable table of the Messrs. Fortey, enjoying a high tea, and looking back with equanimity upon the crowning disaster of the day. A graphic account might nevertheless be written of the Herculean labours of Mr. Moore, as he struggled under the weight and the responsibility of the gigantic Polyporus, till it was safely deposited in the Museum. How it travelled to the Ludlow Station in a wheelbarrow; what astonishment it created in the railway station; the suspicious remarks which rough country youths did not hesitate to employ; and the yells of sundry small boys whenever it became exposed to their gaze;—all this, and more, might be recorded, had we not other and more prosaic details still to furnish of the results of the various expeditions.

Wednesday, October 3, maintained, as it was bound to do, the juicy features of the Woolhope excursions. The morning dawned, if it could be called a dawn, in a universal sombre grey, which matured into a persistent drizzle, with now and then an earnest downpour, and was in all respects a miserable day. Some of the enthusiasts, encased in waterproofs and leggings, made their way to the station to procure tickets for Dinmore, but only four of them succeeded in overcoming their prejudices and entered the train, the rest returned to the Museum, to their pipes, to their drawing materials, or to their correspondence, and the elaboration of excuses for staying in town. Those who went, brought back Hygrophorus discoideus, and Agaricus (entoloma) lividus, and some other interesting species. Then arose a vigorous discussion on the meaning to be attached to the word "lividus," the majority holding to an opinion, which had to be abandoned the next day, after finding and consulting a *Latin Dictionary*. Then it was discovered that "lividus" and "luridus" had got mixed up, and the wrong word came to the top. At 8 o'clock, after several private dinner-parties, the mycologists were assembled again in solemn conclave, with the President in the chair, in the Woolhope Club Room, at the Free Library, to hear two papers read on the chemicaal constituents of fungi, and a new way to battle with the Potato disease. *Apropos* of the latter a waggish visitor's suggestion, that the cause of the Potato disease was the ro-tatory motion of the earth, was not accepted by the commen-tator who had explained Jennsen's process.

Thursday, October 4, was the Club day, and opened with sunshine, which was fairly maintained throughout the day. The excursion was undertaken in waggonets, and considerable delay was experienced by those who had filled the first two vehicles, and looked down for half-an-hour on their disappointed friends, standing in melancholy expectation on the pavement, waiting for the advent of the third vehicle. This was a source of great delight to the small boys in the streets, and the chambermaids at the windows, who looked up to, or down upon, the party with as much interest as if they had been a regiment of soldiers on parade, or a batch of "Invincibles" starting for the county gaol.

The Club excursion was first made to Haywood Forest, through which the call of the whistle, and the familiar "For-ward!" hurried the party to the common beyond, where the carriages were again in waiting. Agaricus Bloxami and Cortinarius Bulliardi were amongst the most cherished of the "finds." After a very pleasant drive the party again dismounted at Bryngwyn, and roamed over the park without securing any fungi, or anything else, except the pleasure of waiting for a truant member of the party who unfortunately missed his way, and was found to be absent when all the rest had comfortably seated themselves in the vehicles. Notwithstanding a considerable amount of vigorous shouting, whistling, and the dispatch of a mounted horseman in pursuit, it was some time before the delinquent was observed in the distance quietly marching at the rate of 2 miles an hour, as calculated by pedometer, towards his vacant seat.

Returned to town once more, but half an hour behind time, the annual meeting of members was held, the President for the ensuing year elected, the honorary chaplain, the Rev. Canon Du Port duly elected an honorary member, and the members, visitors, and friends adjourned to the "Green Dragon" for the dinner.

There is a great similarity in all public dinners, and one Woolhope dinner is very much like another, so that there is nothing very special to record. After some preliminaries, including the presentation of an excellent portrait of the venerable Fries, sent to the Club by his sons, came the reading of two or three papers. One of these, entitled "A Missing Chapter from the Tramp Abroad," gave some humourous illustrations of recent mycological theories. The others were on "Fish Culture as Practised by the Ancients," and some observations by Mr. Edwin Lees, F.L.S., now in his eighty-third year. Subsequently the members and friends adjourned to a reception at the house of Mr. Thomas Cam, where the remaining papers were read, and some drawings exhibited, including some characteristic sketches by Mr. C. B. Plowright, and a large folio of drawings sent for exhibition by Mr. George Massee, of Scarborough. This brought the official meetings of the week to a conclusion, with the exception of the final excursion to Ledbury on the morrow, and a last cup of coffee with the "presiding genius" under the shadow of his own roof.

The papers communicated during the week were the following:—

"A Missing Chapter from the Tramp Abroad:" by Dr. M. C. Cooke, M.A., &c. "Jennsen's Discoveries concerning the Potato Disease:" by Mr. Charles B. Plowright. "Fish Culture, as Practised by the Ancients:" by the Rev. Wm. Houghton, M.A., &c. "On some Fish-eating Birds at the Fisheries Exhibition:" by Mr. E. Cambridge Phillips, F.L.S., &c. "On the Colours of Fungi, as indicated by the Latin Words used by Fries:" by the Rev. Canon Du Port, M.A. "Mr. C. G. Stewart's Notes on the Alkaloids and other Substances that have been extracted from Fungi:" by Mr. Henry T. Wharton, M.A., Oxon. "Some Remarks on Polycystina::" by the Rev. J. E. Vize, M.A. "Notes on some Species of Tricholoma not easily distinguished from each other:" by the Rev. Canon Du Port, M.A. "Researches upon the Uredines:" by Mr. Charles B. Plowright. "Notes on the Chroolepus iolithus and other Algoid Colorific Plants:" by Mr. Edwin Lees, F.L.S., F.G.S., &c.

Friday, Oct. 5.—The final trip by rail to Ledbury was somewhat modified on account of the funeral of Earl Somers, which took place on the same day, in consequence of which the visit to Eastnor Castle was abandoned. After a short ride by omnibus from Ledbury the visitors alighted at the corner of an unpretending country lane, which promised to lead to nowhere, and commenced scrambling through the wood close by—a process persevered in for an hour or two without any perceptible results, fungi being very scarce, and the species very common, not a single one of any interest having been found at noon, when the party retreated towards Ledbury Park and woods with manifest satisfaction. Here the ground was evidently good, and some few species were found which had not previously been collected during the forays. A quiet walk through the gardens and grounds was duly appreciated as a *finale* to the week's engagements, the weather having become very unsettled in the afternoon; and, to the surprise and satisfaction of the foragers who, under the care of the gardener passed out at an unexpected corner, they found themselves in the streets of Ledbury not far from the President's residence, where dinner was in course of active preparation on their account.

Even as the season has been somewhat unusual or abnormal in its character, so in the neighbourhood of Hereford there has been an undoubted peculiarity in the fungus flora. The species of Russula, for instance, which are generally exceedingly plentiful both in species and individuals, were comparatively rare. Of the Lactarii also only a few species were observed, and those not very prolific in individuals. Lactarius pubescens was plentiful in one locality only, whilst three or four species so common in previous years were not seen at all. The white-spored Agarics were certainly scarce, except perhaps Agaricus terreus and a few Mycenæ, whilst the sub-genus Amanita was represented by its noblest example, A. muscarius, in rather more than an average number, and A. vaginatus by a few scattered specimens, the common A. rubescens being almost absent, and a few others represented by a single specimen. In like manner there were none of the larger species of the sub-genus Lepiota, not a single A. rachodes or A. procerus, but the pretty little A. Bucknalli turned up at Ledbury for the first time out of the Bristol district. Even amongst Armillariæ the ubiquitous A. melleus was by no means common.

To make up for these deficiencies it soon became evident that the experiences of the first day were to be repeated in the succeeeding excursions, that Cortinarii were the ruling genii of the woods. Never perhaps were the species of Cortinarius in stronger force than this season, and fully compensated by their interest for the absence of other fungi. This was characterised by one of the excursionists as a Cortinarius year, and he was not far wrong in his estimate, as the following enumeration will testify. The first section, called Phlegmacium, which is characterised by a glutinous cap and a dry stem, contains some of the largest and most attractive species. C. triumphans, so well figured by Mrs. Hussey, was found in one or two places. On the last excursion of the week C. claricolor several times went into the baskets. C. sebaceus was at home in Haywood Forest, one specimen over 8 inches high. C. varius was reported from Ledbury. C. cyanopus on one or two occasions. C. anfractus was brought from Shrewsbury by Mr. Phillips, and during the week was met with in two Herefordshire localities. C. multiformis turned up on the last day, as did also C. glaucopus and one solitary specimen of C. caleochrous found a place on the table for exhibition, whilst the golden C. fulgens was bagged in or three localities.

The next section, Myxacium, with a slimy stem as well as a glutinous pileus, is a much smaller one, and had less numerous representatives. Of course the common C. elatior was collected, together with two or three small specimens of C. mucifluus, and one or two of C. Reedii, and this completes the list. There is a species called C. salor, which was not present, although it was announced one day, with a flourish of trumpets, and repudiated the next. By some misadventure names got a little mixed and "salor" became a joke for the week.

The section Inoloma, and those which follow, are not glutinous, either in cap or stem, but either silky or scaly. The most attractive of its species, C. violaceus, was not found, but C. albo-violaceus was present in too forms; C. Bulliardi, with its brick-red stem was collected in Haywood Forest, and C. pholidens was one of the commonest species in the first day's excursion. The fourth section is Dermocybe with a smooth cap and stem. Of these C. ochroleucus was one of the most plentifnl. C. caninus was discussed more than once, as was also C. anomalus, and both were doubtless represented, although some uncertainty still prevails whether all the specimens called by these names were fully entitled to them. Of the bright coloured species there was one solitary C. miltinus, a few C. sanguineus, and a pile of C. cinnamomeus of variable forms, sizes, and tinting. In this section C. infucatus was found for the first time in Britain, in Haywood Forest.

The fifth section is named Telamonia, characterised more or less distinctly by a double veil. The species found were C. bulbosus, not uncommon; C. torvus, in considerable quantity, though small in size; a single and perhaps doubtful specimen of C. scutulatus; almost an unlimited quantity of C. armillatus, with red bands round the stem; C. hinnuleus in profusion, and of all sizes; and the pretty little C. paleaceus, with its pileus silky with minute white hairs.

The last section is Hydrocybe, and most of the species are small. C. subferrugineus was not uncommon in Haywood Forest. The shining chestnut coloured C. castaneus, which has the reputation of being edible, if only a sufficient quantity for a meal can be found, but only very few were seen. To these must be added C. erythrinus, in two or three places; C. decipiens, not uncommon; and two or three other species not yet accurately determined.

From the above enumeration it will be evident that the genus in all its sections was unusually well represented, and as it is allowed to be one of the most critical and difficult of the genera of gill-bearing fungi, there was

plenty of occupation in discussing equivocal forms. A new "crux" was constantly on hand awaiting its turn.

In the course of this report the most important species have been mentioned which were found during the week, except perhaps Hygrophorus calyptriformis, with its conical amethystine cap. Hygrophorus cossus, with an odour resembling that of the caterpillar of the cossus or goat-moth. Russula drimeia, an acrid purple species, with persistently sulphur-coloured gills, only found previously in Black Park, Berks. Agaricus laxipes a small species, with dark velvety stem, found only previously at Holm Lacey.

Visitors also brought for exhibition Sparassis crispa, excellent for the table; Agaricus sarcocephalus, from Bristol; Agaricus (armillaria) constrictus, from Epping; and others of less interest.

There can be no doubt that, although the present year has proved somewhat better than the last, it is in most localities a very unproductive one for fungi. Since the sharp winter of two or three years ago the number of fungi developed have been very much diminished. This is not an individual opinion, but one in which all persons present at the above forays concurred. Let us hope, like the farmers, for better luck next year. *M. C. C.*

LIST OF GARDEN ORCHIDS.

EPIDENDRUM.—*Continued from p.* 244.

129. E. (EUEPIDENDRUM—SUBUMBELLATÆ) LONGICOLLA, Lindl., *Bot. Reg.* 1838, Misc., p. 34; *Fol. Orch.*, n. 255; *Bot. Mag.*, t. 4165; *Walp. Ann.*, vi., p. 404.—Guiana. Introduced by Schomburgk; flowered at Kew in 1844. Near E. nocturnum, though less ornamental. "What it lacks in beauty is made up in fragrance."
E. LONGIPETALUM = alatum.
E. LONGIPETALUM, Rich. and Gal. = antenniferum.
E. LUTEO-ROSEUM = seriatum.
E. MACROCHILUM = atropurpureum.
E. MACULATUM, Hort. = prismatocarpum.

130. E. (EUEPIDENDRUM — SPATHACEÆ) MANCUM, Lindl., *Bot. Reg.* 1844, Misc., p. 83; *Fol. Orch.*, n. 136.—Peru. Hartweg introduced this for the Horticultural Society. Flowers rather small, orange and yellow.
E. MARGINATUM = radiatum.

131. E. (AULIZEUM—HOLOCHILA) MARMORATUM, A. Rich. and Gal., *Ann. Sc. Nat.*, série 3, iii., p. 21; Lindl., *Fol.*, n. 132; Rchb. f., *Xenia Orch.*, iii., p. 32, t. 211; *Gard. Chron.*, n. s., v., p. 688.—Mexico. Introduced by Mr. Roezl, and flowered in the Hamburg Botanic Garden. A very distinct and pretty species. Leaves short, 1—3 at the top of each pseudobulb; flowers about an inch across, transparent, white, with dark crimson markings.

132. E. (BARKERIA) MELANOCAULON, Rchb. f., *Walp. Ann.*, vi., p. 375. *Barkeria melanocaulon*, A. Rich. and Gal., *Ann. Sc. Nat.*, série 3, iii., p. 22; *Ann. de Gand*, iv., p. 297, t. 212.—Mexico. Cultivated in Belgium in 1848. Flowers dark purple, less ornamental than the other members of this section.

133. E. MELIOSMUM, Rchb. f., *Gard. Chron.* 1869, p. 989.—Mexico. Imported and cultivated by W. W. Saunders.

134. E. (ENCYCLIUM—HYMENOCHILA) MICROBULBON, Hook., *Ic. Pl.*, t. 347; Lindl., *Fol. Orch.*, n. 46; *Walp. Ann.*, vi., p. 334.—Mexico. Introduced by Mr. R. Smith of Oaxaca to the gardens at Woburn. Flowers of the size of E. aciculare, rose-coloured; lip yellow with red dots.

135. E. (AULIZEUM) MICROCHARIS, Rchb. f., *Gard. Chron.* 1870, p. 1246; *Xenia Orch.*, iii., p. 12, t. 208.—Guatemala. Imported and cultivated by Mr. W. W. Saunders. A small though pretty species, having small yellowish flowers dotted with purple.

136. E. MICROPUS, Rchb. f., *Hamb. Gart. Zeit.*, xix., p. 13.—Native country not recorded. Cultivated by Mr. Borsig, Berlin. Rather a pretty species, near E. Linkeanum.

137. E. (EUEPIDENDRUM) MOLLE, Rchb. f., *Linnæa*, xli., p. 84.—Brazil? Cultivated in the Hamburg Botanic Garden. Flower solitary, yellow.
E. MUSCIFERUM = fuscatum.

138. E. (EUEPIDENDRUM — PANICULATÆ) MYRIANTHUM, Lindl., *Fol. Orch.*, n. 184; *Walp. Ann.*, vi., p. 378; *Bot. Mag.*, t. 5556.—Guatemala. Originally discovered by Mr. Klee, and subsequently introduced by Mr. Skinner for Mr. Bateman, in whose garden it first flowered in 1866. Similar to E. paniculatum, but having even more numerous rosy-purple flowers. Stems a yard high, bearing narrow leaves, conspicuously spotted on the sheaths, and enormous panicles of flowers. The plant figured as E. paniculatum in the *Ill. Hort.*, n. s., t. 211, is very much like this.

139. E. (ENCYCLIUM—HOLOCHILA) NÆVOSUM, Lindl., *Fol. Orch.*, n. 6; *Walp. Ann.*, vi., p. 321; *Gard. Chron.* 1846, p. 167.—Mexico, at 4000 feet. Imported and cultivated by Mrs. Lawrence. Flowers white, with a crimson anther and yellow lip richly dotted with crimson.

140. E. (EUEPIDENORUM—PANICULATÆ) NAUCRATES, Rchb. f., *Bonplandia*, 1854, p. 20; *Walp. Ann.*, vi., p. 412.—Cultivated by Consul Schiller, of Hamburg.

141. E. (ENCYCLIUM—HYMENOCHILA) NEMATOCAULON, A. Rich., in *Ram. de Sagra Fl. Cub.*, t. 79; *Walp. Ann.*, vi., p. 334.—Cuba. Cultivated in the garden of the Medical Society of Paris.

142. E. (ENCYCLIUM—HYMENOCHILA) NEMORALE, Lindl.; Hook., *Journ. Bot.*, iii., p. 82; *Fol. Orch.*, n. 60; *Walp. Ann.*, vi., p. 339. *E. verrucosum*, Lindl., not of Swartz, *Bot. Reg.* 1844, t. 51; *Bot. Mag.*, t. 4606; Lemaire, *Jard. Fleur.*, iii., t. 253 (copied from *Bot. Mag.*, and badly coloured or faded).—Mexico. Imported and cultivated by Messrs. Loddiges. One of the handsomest of the genus, having almost wholly purple flowers about 3 inches across. The scape and pedicels covered with small warts. Hort. Kew.
E. NIGRO-MACULATUM, Hortul. = prismatocarpum.

143. E. (ENCYCLIUM—HOLOCHILA) NONCHINENSE, Rchb. f., *Walp. Ann.*, vi., p. 324; *Refug. Bot.*, ii., t. 139. *Broughtonia chinensis*, Lindl., *Lond. Journ. Bot.*, i., p. 492. *Lælhopsis chinensis*, Lindl.; Lindl. and Paxt., *Fl. Gard.*, iii., p. 156.—Central America, erroneously reported as Chinese by the discoverer, Hinds.

144. E. (EUEPIDENDRUM—SUBMUBELLATÆ) NOCTURNUM, Linn., *Jacq. Stirp. Amer.*, t. 139; Lindl., *Fol. Orch.*, n. 254; *Walp. Ann.*, vi., p. 404; Lodd., *Bot. Cab.*, t. 713; *Bot. Mag.*, t. 3298; Link and Otto, *Ic. Pl. Sel. Hort. Berol.*, t. 9; *Bot. Reg.*, t. 1961 (β *latifolium*). *E. discolor*, A. Rich. and Gal., *Ann. Sc. Nat.*, série 3, iii., p. 22. *E. tridens*, Poepp. and Endl., *Nov. Gen. et Sp.*, ii., t. 103. *E. Spruceanum*, Lindl., *Fol. Orch.*, n. 253; *Gard. Chron.* 1872, pp. 699 and 763.—Widely spread in tropical America. Loddiges had it in cultivation in 1823. Flowers white or yellow, and white or greenish yellow, very fragrant, especially at night, 5 inches across; sepals and petals very narrow; lip with a long awl-shaped central lobe. Hort. Kew.

145. E. (EUEPIDENDRUM—PANICULATÆ) NUTANS, Swartz, *Fl. Ind. Occ.*, iii., p. 1499; Hook., *Exot. Fl.*, t. 50; *Bot. Reg.*, i., t. 17; Maund., *Botanist*, v., t. 226; Lodd., *Bot. Cab.*, t. 645; Burm., *Pl. Util.*, iii., 79 b (copied from the *Botanist*); Lindl., *Fol. Orch.*, n. 173; *E. dipus*, Lindl., *Bot. Reg.* 1845, t. 4.—Tropical America. Originally introduced into this country in 1793 by Admiral Bligh. Flowers yellow or greenish-yellow; the variety dipus brown and green with a white labellum. Hort. Kew.

146. E. (ENCYCLIUM—HYMENOCHILA) OBTUSUM, A. DC., *Pl. Rar. Genev.*, 8 not., p. 17; Lindl., *Fol. Orch.*, n. 47; *Walp. Ann.*, vi., p. 334.—Mexico. Cultivated in the Geneva Botanic Garden. Flowers greenish-brown with a dirty white labellum streaked with purple. Hort. Kew.

(*To be continued.*)

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, OCTOBER 10, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Oct.	In.	In.	°	°	°	°	°	°	°		In.
4	29.51	−0.18	51.9	40.0	11.9	47.2	− 0.3	40.7	75	N.	0.04
5	29.90	+0.21	54.1	44.3	9.8	48.0	− 4.2	41.9	80	N.; WNW.	0.05
6	30.12	+0.44	57.2	41.0	16.2	48.8	− 4.1	42.8	81	E.; E.N.E.	0.00
7	30.26	+0.57	54.0	42.5	11.5	49.0	− 3.6	41.5	75	W.; N.N.E.	0.00
8	30.35	+0.60	60.0	50.2	9.8	55.2	+ 3.0	51.7	88	W.	0.00
9	30.14	+0.45	57.5	52.0	5.5	54.1	+ 2.2	49.9	83	W.; S.W.	0.00
10	29.82	+0.13	62.0	44.5	17.5	52.8	+ 1.2	48.2	84	E.; E.S.E.	0.00
Mean	30.01	+0.33	56.7	44.9	11.8	50.7	− 1.7	45.2	81	W.	0.09

Oct. 4.—Du'l day; gale of wind; slight showers at times. Dark sky at night.
— 5.—Dull day; cold wind. Dark sky; rain during the evening.
— 6.—Fine bright day, deep blue sky. Fine night; partially cloudy.
— 7.—Fine day and night; dull.
— 8.—Dense fog in morning; dull day. Fine mild night; dark sky.
— 9.—Dull day and night; nearly calm.
— 10.—Thick fog in morning; fine day, sun shining. Fine night, dark and cloudy.

LONDON: *Atmospheric Pressure.*—During the week ending October 6 the reading of the barometer at the level of the sea increased from 29.23 inches at the beginning of the week to 30.01 inches by midnight on October 2, decreased to 29.43 inches by midnight on the 3d, and was 30.44 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.84 inches, being 0.15 inch higher than last week, and 0.04 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 57°.2, on the 6th; the highest reached on the 3d was 48°.5. The mean of the seven high day temperatures was 53°.3.

The lowest temperature in the week was 40°, on the 4th; the lowest, on Oct. 1, was 46°. The mean of the seven low night temperatures was 42°.8.

The greatest range of temperature in one day was 16°.2, on the 6th; the smallest was 6°.5, on the 3d. The mean of the seven daily ranges was 10°.5.

The mean temperatures were—on September 30, 48°.8; on October 1, 48°.8; on the 2d, 46°.6; on the 3d, 45°.2; on the 4th, 47°.2; on the 5th, 48°; and on the 6th, 48°.8; and these were all below their averages by 5°.5, 5°.6, 7°.6, 8°.7, 6°.3, 4°.2, and 4°.1 respectively.

The mean temperature of the week was 47°.6, being 9°.2 lower than last week, and 6° below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 104°.5, on the 6th. The mean of the seven readings was 85°.6.

The lowest reading of a thermometer with its bulb on short grass was 34°, on the 4th and 6th. The mean of the seven readings was 36°.4.

Rain.—Rain fell on six days, to the amount of 0.60 inch.

ENGLAND: *Temperature.*—During the week ending October 6 the highest temperatures were 59° at Brighton, 58°.8 at Cambridge, and 58° at Plymouth and Hull; the highest at Wolverhampton was 52°.8, at Sheffield 53°.5, and at Bradford 53°.6. The general mean was 56°.1.

The lowest temperatures in the week were 33°.7 at Wolverhampton, 35°.8 at Bolton, and 36° at Bristol; the lowest at Truro was 45°, at Liverpool 42°, and at Bradford 39°.5. The general mean was 38°.8.

The greatest ranges of temperature in the week were 21° at Brighton and Bristol, and 20 at Cambridge and Hull; the smallest ranges were 11°.9 at Liverpool, 13° at Truro, and 14°.1 at Bradford. The general mean was 27°.3.

The mean of the seven high day temperatures was highest at Truro, 57°.3, at Plymouth 56°.4, and at Bristol 54°.9; and was lowest at Wolverhampton, 50°.8, Bolton 52°.2, and at Bradford 52°.4. The general mean was 53°.8.

The means of the seven low night temperatures were highest at Truro, 47°.3, at Liverpool 44°.5, and at Plymouth 43°.6; and were lowest at Wolverhampton, 38°.7, at Bolton 39°.8°, and at Hull 41°. The general mean was 42°.4.

The mean daily range of temperature was greatest at Hull, 13°.6, at Brighton 12°.9, and at Cambridge 12°.8; and were least at Liverpool, 8°.2, at Truro 10°, and at Bradford 10°.1. The general mean was 11°.4.

The mean temperature was highest at Truro, 51°.2, at Plymouth 48°.9, and at Liverpool 48°.6; and was lowest at Wolverhampton, 43°.6, at Bolton 45°.7, and at Nottingham 46°.2. The general mean was 47°.1.

Rain.—The largest falls of rain were—at Nottingham 1.63 inch, at Cambridge 1.10 inch, and at Hull 1.02 inch; the smallest falls were 0.30 inch at Bradford, 0.49 inch at Brighton, and 0.59 inch at Wolverhampton. The general mean fall was 1.80 inch.

SCOTLAND: *Temperature.*—During the week ending October 6 the highest temperature was 60°.5, at Paisley; at Aberdeen the highest was 55°.9. The general mean was 58°.6.

The lowest temperature in the week was 32°, at Perth; at Leith the lowest was 39°.5. The general mean was 35°.3.

The mean temperature was highest at Leith, 48°.9; and lowest at Perth, 46°.1. The general mean was 46°.9.

Rain.—The largest fall was 0.34 inch, at Leith; and the smallest was 0.05 inch at Dundee. The mean fall was 0.12 inch. No rain fell at Glasgow, Paisley, or Leith.

JAMES GLAISHER, F.R.S.

Obituary.

WE regret to record the sudden death, on the 1st inst., of Mr. THOMAS GELLATLY, gardener at the Mote Park, Maidstone, aged 48 years. Mr. Gellatly, who was for several years gardener to the Earl of Wemyss, at Gosford, in East Lothian, had only left that place to take charge of the gardens at Mote Park about two months, and was in the presence of his employer, Lady Howard de Walden, when he fell, and suddenly expired, his death being due to heart disease.

—— We have also to record the somewhat sudden death, lately, of Mr. HENRY HOOPER, of the Vine

Nursery, Widcombe Hill, Bath, a noted grower of Pansies and other hardy florists' flowers, whose familiar form was frequently seen at metropolitan shows.

Enquiries.

He that questioneth much shall learn much.—Bacon.

Renanthera Lowii.—This is in flower with me, having the three upper flowers yellow. Will any reader kindly say if the third yellow blossom is unusual? *C. K. D., Yokohama, Japan.*

Answers to Correspondents.

American Newspaper: *A Lincolnshire Gardener.* We can only refer you to the *American Agriculturist*, published in New York by the Orange Judd Company.

Chrysanthemums: *H. R. M.* The insects eating your Chrysanthemum buds may be one or other of the two figured and described in our number for October 22, 1881, p. 537, viz., Anthocoris minutus, and Phytocoris campestris, but without specimens we cannot be certain.

Cucumbers (see Enquiry, p. 409).—In answer to enquiries as to the greatest number of Cucumbers cut from one plant, I may say that I have a house 25 feet long filled with one plant of Rollisson's Telegraph, from which we have already cut 292 fruit, and more to come. Our place is 700 feet above sea-level, close to the Grampians, and not the very best district for Cucumber growing. *John Kitley.*—Mr. H. Dickinson, Shardlow, Derby, wishes to communicate with "A. B."

Errata: Lælia Wyattiana.—Mr. Neville Wyatt informs us that this plant was not imported by Mr. Wills, but was purchased at one of Mr. Sander's sales at Stevens' Rooms.—In "Travelling Notes," for "Cape Chestnut," at p. 439, read "Café Chantant"! and for "Chamonix" read "Chaumont," near Neuchatel, a locality rich in interesting plants.

Greenhouse: *W. H.* If an ordinary cool greenhouse, do not let the night temperature fall below 45°, nor get much above it. In the daytime about 60° would be best, or even a few degrees less at mid-winter.

Mushrooms: *H. C.* The Mushroom sent from the Fen Country is the common Horse Mushroom (Agaricus arvensis), the variety most largely represented in the London markets in the autumn, and largely used in the manufacture of ketchup.

Names of Fruits: *F. W. Plum*, Belle de Septembre. —*A. T. S. Pear*, Marie Louise. *Apples:* 1, Yorkshire Beauty; 3, Sturmer Pippin; 4, Golden Reinette; 5, Tewkesbury Baron, a local sort; 6, Scarlet Nonpareil.—*H. S., Mitcham. Apples:* 1, Kentish Codlin; 2, Emperor Alexander; 3 and 4, Reinette du Canada; 6, Yorkshire Greening; 8, Cox's Pomona; 9, Wellington; 10, Cox's Orange Pippin.—*H. C. R. B. Pears:* 56, Nouveau Poiteau; 204, Beurré Hardy; 123, not known.—*No.* 438. *Apples:* 3, Nonsuch; 4, Cox's Pomona; 5, Cox's Orange Pippin; 6, Golden Noble.

Names of Plants: *D. S.* 1, Aster lævigatus var. minimus; 2, A. novæ-angliæ var. ruber; 3, A. versicolor; 4, A. lævigatus; 5, A. vimineus; 6, A. vimineus var. horizontalis; 7, not recognised; 8, Centranthus ruber.—*H. H. D'Ombrain.* Cosmos bipinnatus, Mexico.—*W. L.* 1, Cystopteris fragilis; 2, Polypodium vulgare cambricum; 3, Polystichum aculeatum lobatum; 4, Lastrea Filix-mas cristata; 5, Asplenium marinum; 6, A. Adiantum nigrum; 7, Platyloma rotundifolium; the last comes from New Zealand.—*J. C. M.* Send a fresh specimen with leaves.—*Lindsay.* Send a better specimen.—*A. M.* Acacia alata. —*H. King.* Tecoma radicans.—*Enquirer.* 1, Robinia Pseudacacia; 2, Perhaps Diervilla (Weigela sps.); 3, Castanea vulgaris, an American variety, not determinable without blooms; 4, Thuia occidentalis; 5, Azalea; 6, Pinus Strobus.—*Trees: Hon. Mrs. R. C. Boyle.* Abies amabilis, Pinus excelsa.—*C. W. Strickland.* Planera Richardi.—*G. T. B. P.* 1, Populus alba; 2, Pyrus torminalis; 3, P. pinnatifida; 4, Acer campestre.—*R. T.* 1, Juniperus recurva; 2, not recognised; 3, Thuiopsis borealis; 4, Cryptomeria japonica; 5, not recognised; 6, Alnus laciniata; 7, Forsythia viridissima; 9, Abelia uniflora; 10, Cratægus pyracantha; 11, Cotoneaster sp.—*C. W.* Escallonia rubra.—*C. B. C.* 1, Leycesteria formosa; 2, Retinospora obtusa; 3, R. plumosa; 4, Taxus adpressa; 5, Skimmia japonica; 6, Cornus mas variegata; 7, Hibiscus syriacus (Althea frutex); 8, Alnus glutinosa var. laciniata.—*R. S.* 1, Geranium dissectum; 2, Anthemis arvensis; 3, Galium saxatile; 4, Malva rotundifolia; 5, Daucus carota; 6, Cerastium vulgatum; 7, Poa aquatica; 8, Polygonum lapathifolium; 9, Myosotis silvatica; 10, Veronica agrestis. Another time do not send more than four at once. Our time is valuable.—*J. A. K.* The yellow flower is Helianthus multiflorus; the Dracæna, D. rubra; the white flower, Chrysanthemum uliginosum. The Crotons we do not recognise. Please add numbers to all the next time you send to us.

Roses for Market: *Enquirer.* You will never learn how to grow Roses profitably for market through the medium of a brief answer to inquiries. You had better get one or other of the several books on Rose culture now to be obtained, and pick up what information you can by visiting Rose-growing establishments.

Spiræas: *W. E. J.* Your gardener's advice is sound. Pot them up at once.

Squirrels: *J. Mullins.* Squirrels, as a rule, are dreadful depredators when the fruit is about, and where they exist in any numbers are formidable pests in a garden.

Strawberries: *Old Subscriber.* The foliage is marked with the usual signs of autumnal decay, and there are also great numbers of the red-spider on the leaves, and they are rather weak for quite healthy plants. Do you use soot sprinkled on the soil in the pots, or what kind of manure? Cold well-water is injurious to all plants, and more so if "hard."

Tree Fern Dying Off: *Constant Reader.* There is no apparent disease in your Fern to account for its dying off in the manner you describe. We should be inclined to attribute the failing of the plants to over-syringing, which stimulated the trunks to throw out the splendid heads you describe, before they had made any or sufficient roots to keep this excess of foliage in a freely growing state. Try a drier *régime*, but do not go to extremes in that direction.

☞ Foreign Subscribers sending Post-Office Orders are requested to send them to the Publisher of this journal, 41, Wellington Street, Covent Garden, and to make them payable to William Richards, at the post-office, Drury Lane, London, W.C.

CATALOGUES RECEIVED.

Wm. Paul & Son, Waltham Cross, Herts—Illustrated Catalogue of Roses, Vines, Fruit Trees, Ornamental Trees and Shrubs, &c.

Constant Kerkvoorde, Wetteren, Belgium—Fruit Trees, Roses, Hardy Trees and Shrubs, &c.

Joshua Le Cornu & Son, St. Helier's, Jersey—Fruit Trees.

George Cooling & Son, Bath—Roses, Fruit Trees, &c.

Cranston Nursery and Seed Company, Hereford—Forest Trees, Fruit Trees, Roses, &c.

André Leroy, Angers, France—Hardy Trees and Shrubs.

Communications Received:—J. K.—E. V. B.—Marshall Wilder.—H. M. C.—W. H. F.—J. P.—E. J. B.—J. W.—E. J. R.—Sir T. L.—C. M. O.—W. L.—W. J. M.—A. Z.—G. F. G.—R. B.—J. McP. (next week).—J. M.—H. & S. (next week).—C. P.—Chislehurst.—J. R. P. & Sons.—R. McM.—E. V. B.—M. McL.—H. J. V.—F. N.—T. N.—H. R.—Sir J. B. Lawes—T. C.—A. E. R.—J. C.—G. S.—W. H. F.—J. H. Krelage.—N. E. B.—J. J.—F. G.

Markets.

COVENT GARDEN, October 11.

[The subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. Ed.]

Trade still very quiet, with heavy supplies. Pines in demand. *James Webber, Wholesale Apple Market.*

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	1 0– 2 6	Lemons, per case	20 0– 30 0
Cob's, per 100 lb.	100 0–116 0	Melons, each	1 0– 3 0
Figs, per dozen	1 0– ..	Peaches, per doz.	2 0–12 0
Grapes, per lb.	1 0– 3 0	Pine-apples, Eng., lb.	2 0– 5 0

Vegetables—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 5 0	Horse Radish, bund.	3 0– 4 0
Beans, French, lb.	0 6– ..	Lettuces, Cabbage, per dozen	1 0– ..
— Scarlet, per lb.	0 3– ..	— Cos, per dozen	1 6– ..
Beet, per doz.	1 0– ..	Mint, green, bunch	0 6– ..
Cabbages, per doz.	1 0– 2 0	Mushrooms, p. baskt.	1 0– 2 0
Carrots, new, p. bun.	0 4– 0 6	Onions, per bunch	0 6– ..
Cauliflowers, English, dozen	2 0– 3 0	— Spring, per bun.	0 6– ..
Celery, per bundle	1 6– 2 6	Parsley, per bunch	0 4– ..
Cucumbers, each	0 4– 0 8	Radishes, per doz.	1 6– ..
Endive, English, per dozen	1 0– ..	Small salading, pun.	0 4– ..
Garlic, per lb.	1 0– ..	Spinach, per bushel	3 6– ..
Herbs, per bunch	0 2– 0 4	Tomatos, per lb.	0 6– 0 9
		Turnips, new, bun.	0 4– ..
		Vegt. Marrows, each	0 2– 0 4

Potatos.—Kent Kidneys, £4 to £4 10s. per ton; do., Regents, £3 5s. 10s. to £4 10s.; Champions, £3 10s. to £3 15s. per ton.

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, doz.	12 0–24 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 0
Asters, per doz.	4 0– 9 0	Fuchsias, per dozen	4 0– 9 0
Begonias, per doz.	6 0–12 0	Liliums, various, per dozen	12 0–30 0
Bouvardia, doz.	12 0–18 0	Marguerite Daisy, per dozen	8 0–12 0
Caladiums, per doz.	6 0–24 0	Mignonette, doz.	4 0– 6 0
Chrysanth., per doz.	6 0–18 0	Myrtles, per doz.	6 0–12 0
Coleus, doz.	2 0– 6 0	Palms in variety, each	2 6–21 0
Dracæna term. doz.	30 0–60 0	Pelargoniums, scarlet, per dozen	2 0– 6 0
—viridis, per doz.	12 0–24 0	Solanums, per dozen	8 0–15 0
Erica, various, doz.	9 0–18 0		
Euonymus, various, per dozen	9 0–18 0		
Evergreens, in var., per dozen	6 0–24 0		

Cut Flowers.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Liliums, 12 blooms	0 6– 1 6
Arum Lilies, 12 blms.	4 0– 6 0	Marguerites, 12 bun.	6 0– 9 0
Asters, 12 bunches	4 0–12 0	Mignonette, 12 bun.	2 0– 6 0
— French, per bun.	3 0– 4 0	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 0
Azalea, white, 12 spr	1 0– 2 0	Pansies, 12 bunches	0 9– 1 6
Bouvardias, per bun.	1 0– 1 6	Pelargoniums, 12 spr.	1 0– 1 6
Camellias, per doz.	3 0– 6 0	— zonal, 12 sprays	0 3– 0 6
Carnations, 12 blms.	1 0– 3 0	Primula, double, bun.	1 0– 1 6
— 12 bunches	3 0– 6 0	Roses (indoor), doz.	2 0– 6 0
Chrysanth., 12 blms.	2 0– 6 0	— (outdoor), 12 bun.	3 0– 6 0
— 12 bunches	4 0– 9 0	— coloured, doz.	3 0– 8 0
Cornflower, 12 bun.	1 6– 4 0	Stephanotis, 12 spr.	4 0– 6 0
Cyclamen, 12 blooms	0 3– 0 6	Sweet Peas, 12 bun.	2 0– 4 0
Dahlias, 12 bun.	3 0– 6 0	Tropæolum, 12 bun.	1 0– 2 0
Eucharis, per doz.	4 0– 6 0	Tuberoses, per doz.	1 0– 2 0
Gardenias, 12 blms.	4 0– 6 0	Violets, 12 bunches	1 0– 1 3
Gladioli, 12 spikes	1 0– 3 0	— French, per bun.	1 0– 1 0
Heliotropes, 12 sp.	0 6– 1 0	— Parma, per bun.	4 0– 5 0
Lapageria, white, 12 blooms	3 0– 6 0	Wallflower, 12 bun.	3 0– 4 0
— red, 12 blooms	1 0– 3 0	White Jasmine, bun.	0 6– 1 0
Lilac, white Fr., bun.	8 0–10 0		

SEEDS.

London: *October* 10.—The market for farm seeds continues to rule exceedingly quiet. The late rains, both here and on the Continent, although somewhat injurious to the red Clover crops, have not hardened values. White Clover seed is more firmly held. The demand for winter Tares has fallen off. There is no variation in seed Rye. Some 2000 quarters of Essex white Mustard have just been bought by the manufacturers. Rape seed continues steady. The imports last month into the United Kingdom of Clover and grass seeds (according to the Board of Trade returns just published) were 12,248 cwt., value £16,979, against 10,677 cwt., value £17,361 for September, 1882. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday English Wheat met a very dull, dragging sale, at prices the turn in favour of buyers. Foreign Wheat was unsaleable in quantity, and consequently quotations were impracticable, but in some cases 1s. under late normal rates was accepted. Flour was exceedingly dull of sale, and lower to sell. Good qualities of malting Barley were rather firm, but grinding descriptions were the turn lower. Beans tended upwards in value. Peas were firm and in moderate supply. Maize was 3d. to 6d. lower on the week for flat corn, round was drooping. For Oats there was a quiet steady trade at unaltered prices.—On Wednesday transactions were too small to establish quotations, but in some cases lower rates were taken. The quantity of English Wheat fresh up was small, but foreign arrivals continued heavy. Flour met very little inquiry, and was without quotable change in value, but the market had a drooping tendency. Beans and Peas were steady, and Oats quiet and unchanged.—Average prices of corn for the week ending Oct. 6:—Wheat, 40s. 2d.; Barley, 34s.; Oats, 19s. 11d. For the corresponding period last year:—Wheat, 39s. 6d.; Barley, 34s. 4d.; Oats, 19s. 10d.

CATTLE.

At the Metropolitan Market on Monday the trade was depressed by the weight of supplies and the dull state of the dead meat markets. The assortment of cattle was improved. Danish sold at 4s. to 4s. 10d.; Swedish at 4s. 4d. to 4s. 8d.; and Canadian at 4s. 8d. to 5s. 2d. Sales were extremely slow. The primer kinds 2d., and plainer sorts 4d. lower. Sheep were also in larger supply. Danish sold at 5s. 8d. to 6s. 4d., and Canadian at 5s. 8d. English sheep barely supported late value. The calf trade was dull, and prices 2d. to 4d. per stone lower. Quotations (average):—Beasts, 4s. to 5s. 6d., and 5s. 8d. to 6s.; calves, 5s. to 6s.; sheep, 5s. to 6s. and 6s. 4d. to 7s. 2d.—Thursday's trade was very quiet. Beasts sold slowly at about Monday's prices. In sheep transactions were limited. Prime breeds were steady, but inferior drooping. Calves were dull, and lower to sell. Pigs flat.

HAY.

Tuesday's Whitechapel Market report states that the supplies were large, especially of meadow hay, which was rather lower in price. Quotations:—Prime old Clover, 100s. to 112s.; inferior, 60s. to 75s.; prime second cut, 90s. to 108s.; best meadow hay, 80s. to 88s.; inferior, 40s. to 65s.; and straw, 30s. to 39s. per load. On Thursday Clover and straw were rather dearer, otherwise trade was quiet.—Cumberland Market quotations:—Superior meadow hay, 84s. to 92s.; inferior, 65s. to 74s.; superior Clover, 105s. to 114s.; inferior, 70s. to 95s.; and straw, 35s. to 40s. per load.

POTATOS.

The Borough and Spitalfields Markets reports state that there were moderate supplies, and a limited demand. Quotations:—Magnum Bonums, 70s. to 80s.; Regents, 60s. to 80s.; Champions, 55s. to 65s.; kidneys, 70s. to 85s. per ton.—The imports into London last week consisted of 2402 bags from Hamburgh, 150 from Stettin, and 8 bags from Amsterdam.

COALS.

The following are the prices current at market during the week:—East Wylam, 17s.; Ravensworth West Hartley, 15s. 9d.; Walls End—Hetton, 20s.; Hetton Lyons, 18s.; Lambton, 19s. 6d.; Wear, 18s.; South Hartlepool, 18s.; Thornley, 18s. 9d.; Tees, 20s. 3d. and 20s.

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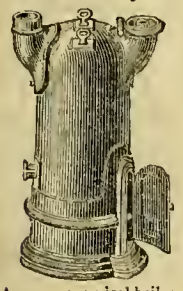

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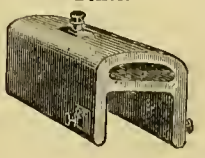
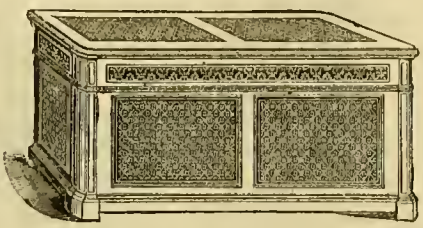
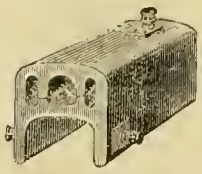
No. 28.—Terminal End Boiler.



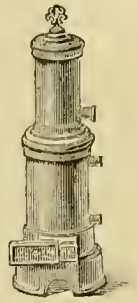
Coil Cases.



No. 18.—Gold Medal Boiler.



No. 52.—Star Boiler.



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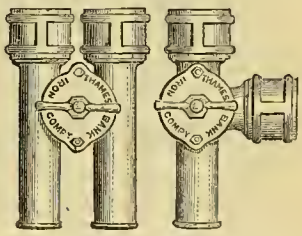

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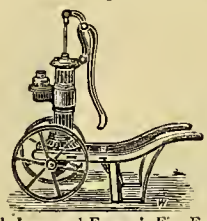

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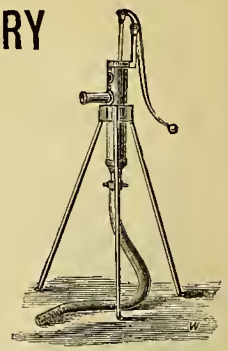

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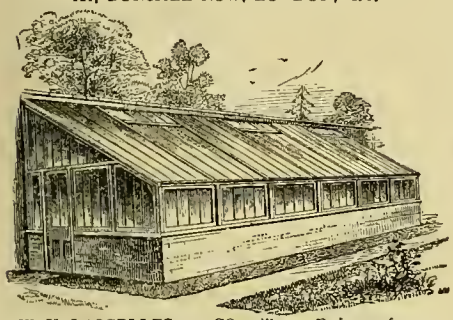

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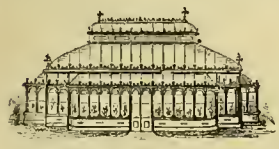

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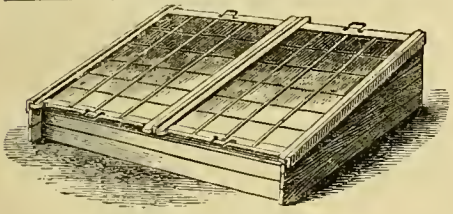

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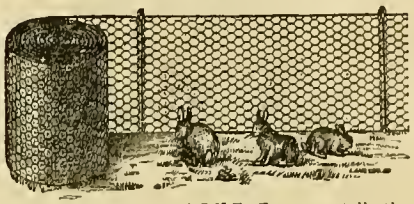

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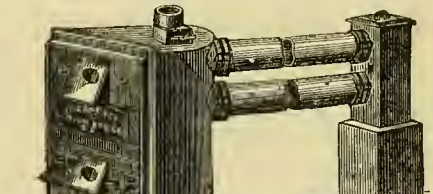

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NEW EARLY RHUBARB, "PARAGON."

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THIS is unquestionably the finest variety of Rhubarb ever offered; in mild seasons it is ready to pull in February. The crowns and stalks are produced in such profusion that more than twice the weight can be pulled from this than from any other sort. The colour is a splendid red, flavour excellent, and it has this qualification over all others, **IT NEVER SEEDS.** The illustration is taken from a plant not two years old.

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Brighouse, October, 1882.

"For several years, during the season, Mr. Chas. Kershaw has supplied me in quantity daily with his New Rhubarb—there is no sort that I am acquainted with that can equal it in colour or quality. I believe it to be the best Rhubarb grown. I cannot speak more highly of it than it deserves.—(Signed), JONATHAN MARSDEN, Wholesale Fruit and Potato Merchant."

From the GARDENERS' CHRONICLE.—"*Report of the Fruit Committee of the Royal Horticultural Society, April 11, 1882.*"

"Mr. CHAS. KERSHAW, of the Slead Syke Nurseries, Brighouse, sent samples of a very good seedling Rhubarb, which the committee seemed to think well of."

Belsfield Gardens, Windermere, October 25, 1882.

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This magnificent variety, which Chas. Kershaw sent out for the first time last autumn, has fully proved to be all that was then said of it. He has abundant testimonials to this effect. The following is one:—

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Mr. ALFRED LEGERTON, 5, Aldgate, London, E.C.
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Messrs. HOOPER AND CO., Covent Garden, W.C.
Messrs. NUTTING AND SONS, 60, Barbican, London, E.C.
Messrs. RICHD. SMITH AND CO., Worcester.
Messrs. JAS. BACKHOUSE AND SON, York.
THE LIVERPOOL HORTICULTURAL COMPANY.
THE LAWSON SEED COMPANY, Edinburgh.
Messrs. DANIELS BROS., Norwich.
Mr. SAMUEL YATES, 16 and 18, Old Millgate, Manchester.

Or, direct from—CHARLES KERSHAW, The Slead Syke Nurseries, BRIGHOUSE.

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STANSFIELD BROS., Southport.

PICOTEES, CARNATIONS, CLOVES, &c.—My Annual Autumn CATALOGUE is now ready, and contains all the best of the above families, and in addition Collections of ROSES, TREE CARNATIONS, CLIMBING PLANTS, PÆONIES, SHRUBS, PINKS, &c.
THOS. S. WARE, Hale Farm Nurseries, Tottenham, London.

DESCRIPTIVE CATALOGUE of Roses, Fruit Trees, Rhododendrons, Deciduous and Evergreen Trees and Shrubs, Forest Trees, Azaleas, Camellias, Grape Vines, &c., free by post.
H. LANE AND SON, Nurseries, Berkhamsted, Herts.

SURPLUS STOCK.—Handsome and Choice Evergreen and Deciduous TREES for Avenues, Parks, Gardens, Streets, &c. Very good and cheap. LIST free by post.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

KELWAY AND SON, Langport, Somerset, offer GLADIOLI SPIKES, HERBACEOUS PLANTS, PYRETHRUMS, single and double; PHLOXES and TEA ROSES, CALCEOLARIA and CINERARIA SEED and PLANTS.

Orchids, Bulbs, Lilies.
THE NEW PLANT AND BULB COMPANY, Lion Walk, Colchester, have just published their AUTUMN LIST, No. 64, containing more novelties and rarities than ever.

Deutzia gracilis.
WILLIAM FLETCHER has many thousands to offer. Fifteen to thirty branches on each plant. Price on application.
The Nurseries, Ottershaw, Chertsey.

Special Culture of
FRUIT TREES and ROSES.—A large and select stock is now offered for sale. The Illustrated and Descriptive CATALOGUE of Fruits, post-free for threepence. The Descriptive CATALOGUE of Roses post-free.
THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

FOR SALE, 100 Bushels of Aberdeen Green-top Yellow TURNIP SEED. Warranted true and the Stock of 1883.
C. WILSON, Seed Grower, Langford, Beds.

SALES BY AUCTION.

Dutch Flower Roots, every Monday, Wednesday and SATURDAY.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely, a large consignment of first-class DOUBLE and SINGLE HYACINTHS, in all colours; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, Early ROMAN HYACINTHS, and other BULBS, just received from well known farms in Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale, and Catalogues had.

Monday and Tuesday Next.
ENTOMOLOGICAL BOOKS, INSECTS, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY and TUESDAY NEXT, October 22 and 23, at half-past 12 o'Clock precisely each day, the COLLECTION of ENTOMOLOGICAL BOOKS and INSECTS formed by the late John Gray, Esq., of Claygate, Esher (formerly of "Wheatfield House," near Bolton). The books are noteworthy for their excellent binding and condition. The COLLECTION of INSECTS is extensive and valuable, consisting chiefly o fEuropean Coleoptera, contained in splendid mahogany boxes; also several parcels of NATURAL HISTORY BOOKS from the Libraries of Messrs. F. Bates and C. P. Gloyne. On view from 10 to 4 o'Clock the Saturday prior and mornings of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6499.)

400 Bulbs of the famous BERMUDA LILY, and
4000 LILIUM TENUIFOLIUM, from America;
5000 ROMAN HYACINTHS, 2000 ROMAN NARCISSUS,
And 700 LILIUM CANDIDUM, from France.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, October 24, the above consignments of Bulbs.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6497.)
ORCHIDS, STOVE PLANTS, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, October 24, at half-past 12 o'Clock precisely, a small COLLECTION of ESTABLISHED ORCHIDS and STOVE PLANTS, including many fine specimens; an importation of Lælia anceps, L. autumnalis, L. albida, Odontoglossums, Oncidiums, and other Orchids from Messrs. F. Horsman & Co.; also the remaining portion of the grand collection of new hybrid SARRACENIAS raised by the most successful grower in the country, O. O. Wrigley, Esq, of Bury, consisting of many very distinct varieties not yet in commerce, and in splendid condition, including the gems of the collection, being the finest lot ever brought to Auction, and sold by order of Mr. G. Toll, who has purchased the entire stock from the raiser; 400 bulbs of the famous Bermuda Lily, 4000 Lilium tenuifolium, 700 L. candidum, 5000 Roman Hyacinths, 2000 Roman Narcissus.

On view morning of Sale, and Catalogues had.

Sarracenias.—New Varieties.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, October 24, a Grand Collection of New Hybrid SARRACENIAS, raised by the most successful grower in the country, O. O. Wrigley, Esq, of Bury, consisting of many very distinct varieties, not yet in commerce, and in splendid condition, being the finest lot ever brought to auction, and sold by order of Mr. G. Toll, who has purchased the entire stock from the raiser.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6497.)
PLANTS and BULBS from Holland.
GREENHOUSE PLANTS from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, October 24, at half-past 12 o'Clock precisely, a consignment of choice named CAMELLIAS, Indian AZALEAS, well set with buds, 200 FICUS ELASTICA, and PALMS from Ghent; Standard, Dwarf, Climbing and Weeping ROSES, of sorts; FRUIT TREES, Flowering SHRUBS, FOREST TREES, &c., from Holland; a small collection of STOVE and GREENHOUSE PLANTS the property of a Gentleman; a consignment of choice named Double and Singls HYACINTHS, TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, and other DUTCH BULBS.

On view morning of Sale, and Catalogues had.

Thursday Next.
VANDA SANDERIANA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October 25, at half-past 12 o'Clock precisely, by order of Messsrs. Hugh Low & Co., a grand lot of VANDA SANDERIANA, of various sizes, amongst them a marvellous established specimen with five growths and forty leaves, measuring over 3 feet across, specially remarkable by reason of its unusually vigorous habit and broad leaves. Every one of the plants offered has sound, healthy roots, made in this country, and leaves which would not be easily surpassed in established collections. At the same time will be offered established plants of VANDA CŒRULEA in flower. On view morning of Sale, and Catalogues had.

Thursday Next.
CATTLEYA MENDELII.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October 25, at half past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., splendid imported specimens, specially selected, of CATTLEYA MENDELII, amongst them some received from Mr. G. T. White, collected in the same locality where Mr. Blunt found the only plant yet known of Cattleya Bluntii, the grand white form of Cattleya Mendelii formerly in the collection of John Day, Esq.

On view morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS has received instructions from J. Grimshaw, Esq., of Leeds, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 25, at half-past 12 o'Clock precisely, his entire COLLECTION of ESTABLISHED ORCHIDS, comprising about 800 plants, including specimen Vandas, Dendrobiums, Cœlogynes, and Cattleyas; Stanhopea Wardianum, in bloom; Phalænopsis amabilis, with spikes; some of the finest Cattleya Mossiæ and Trianæ ever flowered, C. speciosissima in sheath, &c.

On view morning of Sale, and Catalogues had.

Thursday, November 1.
NEW VANDA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 1, instead of date previously announced, at half-past 12 o'Clock precisely, by order of Mr. F. Sander, a grand importation of a most beautiful VANDA from the island of Bali, in the Javanese group. This splendid Vanda produces, as will be seen, as many as twenty-four flowers on the spike, and is extraordinarily free-flowering. In habit it resembles cœrulea, but the flowers are near insigne; the colouring is chaste and striking, sepals and petals being carmine, spotted and striped on white ground, and the lip violet. See Drawing. ONCIDIUM ARMILLARE, a lovely new introduction; flowers yellow, with brown stripes. Also other valuable importations. The Vandas are in specially fine order; all have sound roots, and among them will be found specimens of rare excellence and size.

On view morning of Sale, and Catalogues had.

Important Sale of Established Orchids.

MR. J. C. STEVENS has received instructions from H. Harkewitz, Esq., of Middlesborough, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 7, at half-past 12 o'Clock precisely, his extensive COLLECTION of ESTABLISHED ORCHIDS, comprising about 600 plants, all in fine condition, and including some good specimens of the following varieties:—Aërides, Angræcums, Anguloas, Calanthes, Cattleyas, Cœlogynes, Cymbidiums, Cypripediums, Dendrobiums, Epidendrums, Lælias, Lycastes, Odontoglossums, Oncidiums, Phaius, Saccolabiums, Stanhopeas, Vandas, Zygopetalums, Phalænopsis, &c.; also a few STOVE PLANTS and PALMS.

On view morning of Sale, and Catalogues had.

Dutch Bulbs.—Great Unreserved Sales.
Every MONDAY, THURSDAY, and SATURDAY.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every MONDAY, THURSDAY, and SATURDAY, at half-past 11 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other ROOTS from Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Edgware, N.W.
By order of the Mortgagee.—Clearance Sale.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, The Stone Grove Nursery, Edgware, N.W., on TUESDAY, October 23, at 12 o'Clock, without reserve, the beneficial INTEREST in the LEASE of the NURSERY; also, in separate lots, the whole of the GREENHOUSE PLANTS, the Erections of Ten GREENHOUSES, two PITS, 2000 feet of 3 and 4-inch HOT-WATER PIPING, BRICKWORK, BOILERS, and numerous effects.

May now be viewed. Catalogues may be had on the Premises, of J. H. BRIDGFORD, Esq, Solicitor, 58, Lincoln's Inn Fields, E.C.; and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Important Sale of First-class Dutch Bulbs;
500 Standard, Dwarf, and other ROSES, of the best varieties; Hardy CONIFERÆ, SHRUBS, AMERICAN PLANTS, selected FRUIT TREES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, October 23, at 12 o'Clock precisely.

May be viewed the morning of Sale. Catalogues had at the Rooms.

Wednesday Next.

CAMELLIAS, AZALEAS, FICUS, and other Plants from Belgium; STOVE and GREENHOUSE PLANTS in variety; Fine TEA ROSES in pots; HERBACEOUS and ALPINE PLANTS; CLEMATIS; a choice assortment of Standard and Dwarf ROSES, hardy SHRUBS, and a variety of BULBS and PLANTS for the Garden.

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

On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Westbourne Nursery, Harrow Road, W.
CLEARANCE SALE ENTIRELY WITHOUT RESERVE.
SALE of the whole of the GLASS ERECTIONS, HOT-WATER APPARATUS and EFFECTS, by order of Messrs. Woodroffe & Sons, who are about letting the Land for Building Purposes.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises as above, on THURSDAY NEXT, October 25, at 12 o'Clock precisely, the erections of seventeen GREENHOUSES, containing a superficial area of nearly 17,000 feet of glass and woodwork; 220 FRAME and PIT LIGHTS, about 3500 feet of HOT-WATER PIPING, mostly 4-inch; BOILERS, BRICKWORK, and STAGING; capital Market VAN, PONY CARRIAGE, Coke CART, HARNESS, 50,000 FLOWER-POTS, and numerous other effects; also the remaining GREENHOUSE PLANTS, including three extra large Stephanotis.

May be viewed the day prior to Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Friday Next.
LÆLIA ELEGANS variety, in flower.
ODONTOGLOSSUM ALEXANDRÆ variety, in flower.
ODONTOGLOSSUM PESCATOREI variety, in flower.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. F. Sander to include in their SALE on FRIDAY NEXT, several extra forms of LÆLIA ELEGANS in flower; also a variety of the broad-petalled type of ODONTOGLOSSUM ALEXANDRÆ, flowers very dark, margined light rose; together with a fine plant of O. PESCATOREI VEITCHII, in flower.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Friday Next.
MASDEVALLIA SCHLIMII.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, at half-past 12 o'Clock precisely, a fine lot of MASDEVALLIA SCHLIMII, one of the most extraordinary species ever introduced and one of the very finest of the genus; together with other very valuable importations.

On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Orchids in Flower.

MESSRS. PROTHEROE AND MORRIS beg to announce that they have made arrangements for holding a special SALE of ORCHIDS in flower at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, October 30, at half-past 12 o'Clock precisely.

The Catalogue is now being prepared, and the more valuab'e plants will be notified in the Advertisement next week. Gentlemen desirous of including lots are respectfully requested to send the particulars not later than Tuesday Next, to ensure their publication in the Catalogue.

Coventry.
UNRESERVED CLEARANCE SALE of 1000 beautifully-grown TREES and SHRUBS.

MESSRS. PROTHEROE AND MORRIS (in conjunction with Mr. Jas. Whittindale) will SELL by AUCTION, on the Premises, The Jeffery's Wood Cross and Payne's Lane Nurseries, Coventry, about a mile and a half from the Railway Station, on TUESDAY, October 30, at 11 o'Clock punctually, in consequence of the large number of lots, the whole of the unusually well grown NURSERY STOCK, comprising about 2500 Variegated Hollies, 1 to 7 feet, a magnificent lot, and including many splendid specimens; 4000 Green Hollies, 1 to 5 feet; 1200 Variegated YEWS, 1 to 6 feet, including many fine named specimens; 1000 common and Irish Yews, 2 to 5 feet, many of them worked; Fruit Trees, Conifers, and other stock.

May now be viewed. Catalogues had of Mr. J. WHITTINDALE, Auctioneer, 29, Hertford Street, Coventry; or of Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Lower Streatham, S.W.
UNRESERVED CLEARANCE SALE, by order of Messrs. Peed & Son, in consequence of having to give up possession of the Land.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Norbury Nurseries, Lower Streatham, S.W., opposite the Norbury Station, on THURSDAY and FRIDAY, November 1 and 2, at 12 o'Clock precisely each day, the whole of the well-grown NURSERY STOCK, all of which has been recently transplanted, comprising a fine lot of specimen Conifers and other Shrubs in the borders; Aucuba japonica in large quantities, Ornamental Trees, Trained and Standard Fruit Trees, Roses, Climbing and Herbaceous Plants; also the remainder of the Specimen Greenhouse Plants, including fine trained Azaleas, Camellias, and Ericas, three grand Specimen Anthurium Scherzerianum (Veitch's variety), Exhibition Plant VAN, HANDLIGHTS, and BOXES, and numerous effects.

May now be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Lee, S.E.
SALE of beautifully-grown NURSERY STOCK, nearly the whole of which has been transplanted within the last two years.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Manor Lane Nursery, Lee, S.E., on TUESDAY, November 6, at 12 o'Clock precisely, by order of Messrs. W. North & Son, a large quantity of well-grown NURSERY STOCK, including about 3000 fine specimen Evergreens, from 3 to 7 feet high; 1000 Thuia Lobbii, 4 to 8 feet; 2000 bushy Common Laurels, 3 to 4 feet; 1000 Standard and Dwarf Roses, 5000 small Evergreens for pots, 2500 Gooseberries and Currants; also 500 Ampelopsis Veitchii, 500 Erica hyemalis, large Camellias, a few Orchids, and other Greenhouse Plants.

May be viewed. Catalogues may be had on the Premises; and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Milford Nurseries, near Godalming, Surrey,
Within a mile of Milford or new Godalming Stations.
Highly important Four Days' Sale of FIRST-CLASS NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Maurice Young to SELL by AUCTION, on the Premises, as above, on TUESDAY, November 6, and three following days, at 12 o'Clock precisely each day, several acres of beautifully grown NURSERY STOCK, in fine condition for removal, and lotted to suit the Trade and Private Buyers, comprising 4000 Specimen Evergreens, 1500 fine Variegated Hollies, 2 to 4 feet; 500 Green Hollies, 2 to 8 feet; 5000 Dwarf Roses, of the best sorts; 10,000 Green Hollies, 1 to 1½ foot, for hedges; 3000 Green and Variegated Aucubas, 1 to 2 feet; 3000 fine named and other varieties of Rhododendrons, 9000 Evergreen Privet, for hedges or cover planting; 9000 Laurels, of sorts; 3000 fine Ornamental Park Trees, 6 to 15 feet; 1500 Limes, 7 to 10 feet; 8000 Flowering Shrubs, 7000 Red and Black Currants, for Market Gardeners; Fruit Trees, Climbers, Clematis, and other stock too numerous to mention.

May now be viewed. Catalogues may be had on the Premises, or of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B. The Auctioneers beg to call the special attention of intending planters to this important Sale. The stock is in fine condition and worthy of an inspection.

Eaton Nurseries, near Norwich.
GREAT CLEARANCE SALE.
THIRD PORTION of the BEAUTIFULLY GROWN NURSERY STOCK, by order of Messrs. Ewing & Co., who are giving up their Business.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, the old-established Nurseries at Eaton, near Norwich, on WEDNESDAY and THURSDAY, November 7 and 8, at 12 o'Clock precisely each day, the Third Portion of the Valuable NURSERY STOCK, comprising about 10,000 choice Conifers and Evergreens, in immense variety; a fine collection of Ivies and other Hardy Climbers; many thousands of Fruit Trees, beautifully grown and trained for Pyramids, Bushes, Walls, open Standards, &c., and consisting of the finest sorts of

APPLES, PEARS, PLUMS, CHERRIES,

Peaches, Nectarines and Apricots, Filberts and Nuts, Walnuts, &c; 10,000 Red and White Currant Bushes; 10,000 Roses of the best sorts of Hybrid Perpetuals, Teas, Noisettes, Mosses, Climbing Roses, &c.

Many thousands of Ornamental Trees, of large and small sizes, deciduous flowering Shrubs, Forest Trees, including a fine lot of young Spruce Fir, Chestnuts, Hazel, &c. The lots will be so arranged as to suit both Wholesale and Retail Buyers.

May be viewed any working-day prior to the Sale. Catalogues on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Gravesend.

By order of the Executors of the late Mr. Thomas Eves.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Nursery, Wrotham Road, Gravesend, on WEDNESDAY and THURSDAY, October 31 and November 1, without reserve, the valuable NURSERY STOCK, extending over 20 acres.

Further particulars will appear next week.

May now be viewed. Catalogues had on the Premises, or of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

October 23 and 24

SPECIAL CLEARANCE SALE.

MR. F. J. THORNBER has received instructions from Charles Wilson, Esq., who is retiring from business, to SELL by AUCTION, at the Summerhow Nurseries, Kendal, on the above dates, the whole of his valuable stock of STOVE and GREENHOUSE PLANTS, comprising many thousands of Tea Roses, large specimen Camellias, Gardenias, Stephanotis, Eucharis, Adiantum, Palms, &c.

The whole of the Stock will be Sold without the slightest reserve. Also TOOLS and WORKING PLANT.

The Sale will commence each day at 11 A.M. prompt. Luncheon will be provided. Conveyances will run from the Station.

Catalogues may be had on application to Mr. WILSON, or the Auctioneer, Exchange Chambers, Kendal.

The SUMMERHOW ESTATE, with or without the whole or part of the Glass, will be Offered on the first day of Sale, at 3 P.M. Full particulars from the Auctioneer, or of Messrs. ARNOLD AND GREENWOOD, Solicitors.

Exchange Chambers.

Tanshelf Nurseries, Pontefract.

MR. THOMAS BARKER will SELL by AUCTION, at the above place, on WEDNESDAY NEXT, October 24 and following days, the Entire Stock.

Catalogues on application to Messrs. STANSFIELD, Pontefract.

Southbourne, Augustus Road, Edgbaston, Birmingham.

PRELIMINARY ADVERTISEMENT.

UNRESERVED SALE of RARE and VALUABLE STOVE and GREENHOUSE PLANTS, by order of Walter Showell, Esq., who is changing his residence.

MESSRS. LUDLOW, ROBERTS AND WELLER will SELL by AUCTION, in the Grounds as above, on WEDNESDAY, October 31, at 11 o'Clock punctually, the STOVE and GREENHOUSE PLANTS, comprising fine specimens of Crotons, Dracænas, Anthuriums, Orchids, Palms, Ferns, Camellias, &c, many of which have taken valuable prizes at local shows.

Full particulars in next week's advertisement.

Wonersh Nurseries, Guildford, Surrey.

THREE DAYS' NURSERY SALE.

MR. H. W. COPUS is instructed by Mr. W. Virgo to SELL by AUCTION, on WEDNESDAY, THURSDAY, and FRIDAY, October 31, and November 1 and 2, a very fine assortment of NURSERY STOCK, comprising Dwarf Standard and Climbing Roses, Portugal and common Laurel, Cupressus Lawsoniana, Retinospora, Thuias, Abies Douglasii, Euonymus, Deutzia gracilis, Cotoneaster Simmonsi, Pinus austriaca, green and variegated Hollies, Manetti Stocks, Privet, Sweet Briers, English Yews, Gueldres Roses, bedded Quicks, Virginian Creepers, 100,000 transplanted Forest Trees, Mountain and Weeping Ash, Birch, Purple and common Beech, Horse Chestnut, English Elm, Limes, Balm of Gilead Fir, Laburnum, Norway Maple, Sumach, Sycamore, Walnut, Poplar, Black Italian and Abele; Scarlet Oak, Alder, Hazel, Larch, English Oak, Spruce and Scotch Fir, Withy; extra strong Black Currants, Red Currants, and Gooseberries, Standard and Pyramid Apples, Plums, Medlars, Quince, and others.

Catalogues in due course, of the Auctioneer, 16, Friary Street, Guildford, Surrey.

Farncombe Nursery, near Godalming.

London and South-Western Railway, close to Broadwater Cricket Ground, about eight minutes from Old Station.

MR. H. W. COPUS is instructed by Mr. Kaile to SELL by AUCTION, at the above Nursery, on MONDAY, November 5, at 12 o'Clock precisely, an assortment of fine grown NURSERY STOCK, comprising thousands of very fine bushy Spruce Fir, Cedrus Deodara (2 to 6 feet), Cupressus Lawsoniana (2 to 6 feet), ditto erecta viridis, Irish Yews (1 to 3 feet); bushy Common, Caucasian, and Portugal Laurels (1 to 3 feet); Ligustrum ovalifolium (2 to 3 feet,) Green and Variegated Euonymus, Irish and other Ivies, Deutzia gracilis for potting, Thuia aurea, Abies Douglasii, Picea Nordmanniana, Pinus austriaca, Rhododendron ponticum, Variegated and Green Hollies, Box, amongst which will be found fine specimen Border Plants; Currants, Gooseberries, Rhubarb Plants, 8000 Asparagus (2-yr.), Seakale, Limes (4 feet), Norway Maple (8 to 10 feet), Laburnum, Italian Poplar, and clean-grown Standard and Pyramid Fruit Trees.

A Conveyance will meet the up train arriving at 11.25, and the down train arriving at 10.30 at New Godalming Station. The Nursery is within a few minutes' walk of the old Station.

Catalogues may be had (post-free) of the Auctioneer, 16, Friary Street, Guildford.

London, East.

Only 5 miles from the Bank of England.

TO BE SOLD, for the low sum of £750 (part of which could remain), to effect a speedy sale, or would be LET ON LEASE at £70, a well established NURSERY in a densely populated district—an Acre of Land, Cottage, and six Greenhouses.

Full particulars of Messrs. PROTHEROE AND MORRIS, 8, New Broad Street, E.C.

Surrey.

Market Garden Ground, close to Beddington Railway Station, and about 2 miles from Croydon.

TO BE LET, 16 Acres of LAND, well Planted with Fruit Trees, &c.

Apply to BLAKE, HADDOCK, AND CARPENTER, Estate Agents, &c., 21, High Street, Croydon; and 32, Nicholas Lane, E.C.

To Florists, Nurserymen, and Others.

TO BE LET, with Immediate Possession, adjoining Wood Green Potteries, Honey Lane, Waltham Abbey, Essex, five large and substantially built HOTHOUSES, with Furnace, &c., complete, also a COTTAGE residence, SHEDS, STABLING, and about 1½ acre of productive Garden Ground.

Further particulars may be obtained, and plans seen at the Office of Mr. JOHN HUDSON, Architect and Surveyor, 80, Leman Street, London, E.

Middlesex.

To FLORISTS, MARKET GARDENERS, &c., near London.

TO BE LET, on Lease, from 10 to 16 acres of suitable LAND, with 1 or 2 Cottages if required.

For particulars, apply to F. N. KINGCHURCH, 2, Southampton Street, Bloomsbury, W.C.

In the High Court of Justice, Chancery Division.

Mr. JUSTICE CHITTY.

In the Matter of the Companies Acts, 1862 and 1867, and

In the Matter of the GENERAL HORTICULTURAL COMPANY (John Wills), Limited, in Liquidation.

THE VACATION JUDGE at CHAMBERS has by an order dated the 22d day of August, 1883, appointed FREDERICK WHINNEY, of 8, OLD JEWRY, in the City of London, Chartered Accountant, to be Official Liquidator of the above named Company, in the place of HENRY SMITH, of 169, Wool Exchange Buildings, in the City of London, Accountant, and GEORGE STAGG, of 23, Craven Hill, Paddington, in the County of Middlesex, Merchant.

Dated this 5th day of October, 1883.

C. HARWOOD CLARKE, *Chief Clerk.*

A. TOOVEY, 18, Orchard Street, Portman Square, W. } *Solicitor to the Official Liquidator.*

MESSRS. PEED & GREAVES,

AUCTIONEERS AND ESTATE AGENTS,

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THE above Firm will be happy to Furnish Estimates or Terms for the SALE by PUBLIC AUCTION of all Classes of NURSERY and FLORIST STOCK, either at the Nurseries of Clients, or to be removed to the Sale Rooms, as above. Mr. W. G. PEED (son of Mr. John Peed, the well-known Exhibitor, Nurseryman, and Florist), by his practical knowledge of the Trade, the nomenclature of all classes of Plants and Trees, as also his intimate knowledge of the value of every variety of Nursery Stock, can guarantee a like competency and thoroughness of Sale only possessed by one well-known firm in the Trade, and Messrs. P. & G. will undertake any such Sales at lowest possible terms.

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SPECIAL OFFER at REDUCED PRICES, Delivered free to London.

30,000 ROSES, fine standards, No. 1 and No. 2, choice.
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45,000 ,, fine low-budded on Manetti, No. 1 and No. 2, choice.
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50,000 ,, fine, own roots, well assorted. [choice.
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100,000 PEARS, PEACHES, PLUMS, APRICOTS, APPLES, and CHERRIES, fine 1-yr. budded.
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15,000 PEARS, APPLES, PEACHES, APRICOTS, PLUMS and CHERRIES, formed in pyramids and palmette, fine extra transplanted, ready to give fruits.
2,000,000 FRUIT TREE STOCKS, of every kind and choice, such as Quince; Apple, 1-yr. and transplanted; Pears, 1-yr. and transplanted; Plums, St. Julien, Myrobolan, Mahaleb; common Cherries (Cerasus avium).
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This splendid ornamental tree, with its red leaves and black wood foliage, keeping red until frost, is offered per 100 and 1000, at low prices. A few hundred fine Specimens on standards.

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Persons wishing to be assured of being supplied in full for the next season, must direct their demands and orders at the earliest moment. Mr. L. PAILLET is ready to make immediately a contract for any quantities of the above stocks.

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HERBACEOUS, ALPINE, and ROCK PLANTS.

Collections of 100 choice varieties .. 30s.
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Packing free and extra plants sent to compensate for carriage.

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Beautiful Flowers for Gardens.

POTENTILLAS, PYRETHRUMS, DELPHINIUMS, lovely hardy flowers for Cutting or Garden Bloom. Named, 5s. per dozen.

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Order Early and Plant in October and November.

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NEW FRENCH ROSES for 1883, 36*s.* per dozen
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GARDEN ROSES, suitable for Bedding or Massing, 60*s.* per 100.

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PRICE—per Plant, 1s. 6d.; per Dozen, 15s.

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We can also offer the other leading varieties.

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EXTRA QUALITY.

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HYACINTHS, choice named sorts	.. per doz.	6	0
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JONQUILS, sweet-scented	per doz.	0	8
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LILIUMS, EARLY GLADIOLUS, AMARYLLIS, WINTER ACONITE, BEGONIAS, TUBEROSES, CROWN IMPERIALS, IXIAS, &c.

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SEEDS of MAIZE for Field or Garden, PEAS, BEANS, CUCUMBERS, PUMPKINS, SQUASH, CANTALOUPES, WATER MELONS, TOMATOS, OKRA or GUMBO, COTTON SEED, TOBACCO, OSAGE ORANGE or MACLURA, TREE SEEDS, AMERICAN GARDEN TOOLS, BOOKS, &c.

All offered by the *oldest and ever the most extensive* Seed Farmers in America.

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Most of the plants being in pots may be despatched at any time, or by Parcels Post when fit.

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CHOICE FLOWER ROOTS.

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Of Choice Hardy Flower Roots for Spring Gardening, contains the following well selected first-class sound Bulbs, viz. :—

36 HYACINTHS, mixed, in distinct colours.
50 TULIPS, single, early, best mixed.
50 ,, double ,, ,,
30 NARCISSUS, POLYANTHUS, best mixed.
30 ,, Incomparable, yellow, double.
50 ANEMONES, double, best mixed.
50 RANUNCULUS, double, best mixed.
400 CROCUS, in 4 distinct colours.
36 GLADIOLUS, best mixed.
50 SNOWDROPS, single.
Half this quantity for 10*s.* 6*d.*
} 782 Bulbs in all.

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EIGHTY THOUSAND CLEMATIS, in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants.
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For all classes of Plants, Bulbs, Seeds, Fruit and other Trees, Shrubs, or Garden Sundries, see our Catalogues.
Many acres of ground and many thousand feet of glass are stocked with the best of everything in the respective classes.
Visitors invited.
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HOLLIES, Common Green, 3, 4, 5, 6, 7, 8 to 10 feet high.
,, laurifolia, ditto.
,, Hodgins', 3, 4, 5 to 8 feet.
,, myrtifolia, ditto.
,, Saw-leaved, ditto.
,, Scottica, 3 to 8 feet.
,, Yellow-berried, altaclarense and others.
} many thousands.
,, Variegated, of sorts, 3, 4, 5, 6, 8 to 10 ft.
,, Waterer's, splendid plants, 3, 4, 5 and 6 feet, 8 to 15 feet in circumference.
,, Golden Queen, 3, 4, 5, 6, 7, 8 to 10 feet, hundreds of beautiful specimens.
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BOX, Green and Variegated, 3, 4, 5, 6, to 7 feet, many thousands.
YEWS, Common, 3, 4, 5, 6, to 10 feet, thousands.
,, Golden, of all sizes up to 10 feet. We have many thousands as Pyramids, Globes, Standards. In point of variety and size unequalled.
CUPRESSUS ERECTA VIRIDIS, 3, 4, 5, 6, to 8 feet, thousands.
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THUIOPSIS DOLOBRATA, 3, 4, and 5 feet, hundreds.
RHODODENDRONS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet. The plants are covered with buds.
AZALEAS, Hardy, the finest varieties known, 2, 3, 4, and 5 feet high, thousands.
JUNIPERS, Chinese, 7, 8, and 10 feet high.
PICEA PINSAPO, 6 to 8 feet.
,, NORDMANNIANA, 6, 7, and 8 feet.

Knap Hill Nursery, Woking Station, Surrey.

NEW LILIUM HARRISII (True).

We were the introducers of this distinct and floriferous variety of L. eximium last year.

Extract from *Gardeners' Chronicle*:—"Lilium Harrisi.—We have received a two-flowered stem of this Lily from Messrs. Watkins & Simpson, who introduced it into the London market, and which is the second flower-stem produced this season in the manner described by Mr. Clausen, at p. 53, by a second-sized bulb in the possession of Mr. Walker, of Whitton, near Hounslow. The flowers are very fine, and evidence seems to be accumulating that it is distinct from L. longiflorum, or at least a well-marked variety of that species. It does not appear to do well out-of-doors, preferring the shelter of a cool greenhouse; and it stands forcing well.

"*We understand that one of the most extensive growers of plants for market has given a large order for bulbs for forcing next spring.*"

Price of Bulbs of the above and many other Lilies on application to

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Seed & Bulb Merchants, Exeter Street, Strand, W.C.

SPECIAL OFFER OF CARNATIONS and PICOTEES.

SHOW VARIETIES, all the best sorts.
BORDER VARIETIES, to name, a selection of fine free-flowering and distinct coloured varieties.
BORDER VARIETIES, unnamed, all good double varieties.
TREE VARIETIES, the leading sorts.
NEW WHITE CLOVE, Gloire de Nancy.
Special prices (for immediate delivery) on application to
THOS. S. WARE, Hale Farm Nurseries, Tottenham, London.

To the Trade.
HOME GROWN VEGETABLE and FIELD SEEDS.
H. AND F. SHARPE are prepared to make special offers of all the varieties of VEGETABLE and AGRICULTUAL SEEDS they have grown this season from choice selected stocks. The quality of the seeds is excellent, and the prices are very low.
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AZALEA PONTICA, 1 to 1½ foot, 20s. per 100, or 190s. per 1000; 1½ to 2 feet, 30s. per 100, or 280s. per 1000.
BERBERIS DARWINII, 1 to 1½ foot, 18s. per 100, or 160s. per 1000; 1½ to 2 feet, 25s. per 100, or 220s. per 1000.

PANSIES.—The largest Amateur Pansy Grower in this country has authorised his Gardener to SELL SURPLUS PLANTS from his Stock, which comprises over 400 Exhibition Varieties, and which have taken First-class Certificates and Prizes all over the country. The Pansies will be offered at Prices far below what they can be obtained from Nurserymen for. Particulars on application to
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SEND FOR A CATALOGUE.

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SURPLUS STOCK.

ISAAC DAVIES & SON

Have the following Plants, in which they abound, to offer at reduced prices:—
RHODODENDRONS, Hybrid Seedlings, fine plants, a large proportion well set with buds, 2 feet high, 12s. per dozen; 2½ to 3 feet, 18s.; larger, very fine, 24s., 36s., to 42s. per dozen.
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Our choice named RHODODENDRONS and AZALEAS are this season remarkably fine and well budded. For Description and Prices see our new CATALOGUE, which will be sent to any address on application.
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DAPHNE MEZEREUM, red and white, covered with flower-buds, 15 to 18 inches, bushy, 4s. per dozen; larger, 6s. to 9s. per dozen.
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,, on Brier } ,, ...	12s.	,,	£4 0s.	,,
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THURSDAY NEXT.

VANDA SANDERIANA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, October 25, at half-past 12 o'Clock precisely, by order of Messrs. HUGH LOW & CO.,

A grand lot of VANDA SANDERIANA, of various sizes,

amongst them a marvellous established specimen, with five growths and forty leaves, measuring over 3 feet across, specially remarkable by reason of its unusually vigorous habit and broad leaves. Every one of the plants offered has sound healthy roots made in this country, and leaves which would not be easily surpassed in Established Collections. At the same time will be offered Established Plants of VANDA CŒRULEA, in flower.

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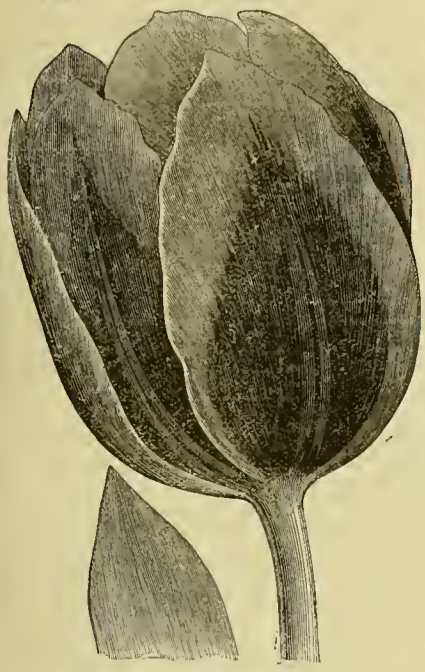

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THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 20, 1883.

TREES AS ARTISTS' MODELS.

THE nave of the cathedral at Worcester offers a fine illustration of the possible origin of the earliest models of architects. The columns that support the roof, with the arches that spring from them, and the ribs and the crossing stones are beautiful imitations of the trunk, boughs, and foliage of the Sweet Chestnut. Only a tree could have suggested this natural and noble form of architecture, these vaulted arches springing from their supporting columns precisely as boughs spring from their trunk, or lesser stems from the main bough. It is said that the power of pleasing is natural to certain shapes, and colours, and sounds, and that it is not a quality derived from mere habit or association. We are habituated to the blue sky, yet we never tire of it; blue remains for us as beautiful as ever. The powers of association and beauty, as some have argued, are distinct forces which may act together, or may, on the contrary, neutralise one another, and accordingly the charm of association may enhance, or it may overpower, that of beauty. "You love many things," says the metaphysician, "because you are accustomed to them; and are pained by many things because they are strange to you; but that does not make the accustomed sight more beautiful, or the strange one less so." The charm was there, he insists, before we discovered it—that is, beauty is inherent in some things. It is certainly a pleasing thing that certain natural objects, and especially trees and flowers, are endowed with beauty which can never weary us, their beauty depending on their perfect forms. In the case of plants each leaf of those we most admire terminates in the form of a pointed arch, vegetation offering very few examples of square leaves. It was perhaps a special adaptation which removed the point of the leaf of the Tulip tree, and gave it a form which is less beautiful and perfect than that of other leaves, though not unwelcome as a novelty. The true artist, especially if he be a landscape gardener, does not forget that, however much custom may deaden our perceptions in some cases, and reconcile us to the ugliness of squares and straight lines, Nature herself has laid down the laws of beauty. Square leaves are violations of her laws of growth; the pointed form is the type of beauty because it is the strongest—the square head, in building, being both weak and ugly. Those at any rate are the views of certain metaphysicians, and there may be something in these sayings, besides the expression of mere lop-sided hypothesis, and the stringing together of words and sentences. At any rate these ratiocinations all redound to the honour and glory of the art to which these columns are specially dedicated. Whether beauty is inherent in plants or not—and some plants might be named, perhaps, in which it is non-existent—it cannot be doubted that the earliest architecture was copied from the living models that have been mentioned. The leaves of the Acanthus,

Branca ursina, were imitated in decorating the capitals of Corinthian columns, and in the Grecian Doric, the earliest and simplest form of columnar architecture, the column represents the trunk of a tree, and it may be added that its proportions frequently resemble those of that other beautiful column—the body of a man. A well-proportioned column of this last-named kind measures six times the length of the foot, hence the Doric columns were made six diameters in height. On this idea the Greeks composed temples which other artists have never surpassed for their harmony, simplicity, and boldness.

Having measured many admirable specimens of trees in all parts of Great Britain, from John o' Groat's, where fine timber does not abound, to the sheltered coast of Devonshire, where it flourishes close to the sea, we have been interested in measuring, for the sake of comparison, the beautiful columns at Worcester. Girth 20 feet! The Chestnut avenues at Cowdray or Bretby boast of trees 20 feet in girth, the biggest of them, and they are about 18 feet high to the crown, exactly the same as the height of the columns at Worcester from the base to the point where the arches spring. The other measurements correspond with the same precision, the Chestnuts having several principal branches, which break up into smaller limbs at about 16 feet, carrying a head which reaches about 74 feet in height from the ground, while the arches of the columns, the "main limbs" as we might say, extend 16 feet from the crown or top of the column to the "centre" of the arch, the total height to the ceiling being as nearly as possible 74 feet. In looking up the architectural avenue from the western towards the eastern end its resemblance to a Chestnut avenue is perfect. There are the same clustered columns, the springing limbs and the canopy above high-reaching to the ceiling, with the sun entering the small windows of the aisle and glinting among the leaves, or tracery which may pass for leaves, rendering the illusion perfect.

Though it be the work only of human hands the best architecture borrows its beauty from its close resemblance to God's own work as displayed in a tree. The tree planter who selects a proper soil, a good warm hazel loam, may hand down to posterity Sweet Chestnuts 18 feet in the trunk with a noble canopy of tufted foliage above. And if he wishes for an avenue of such trees he cannot do better than imitate the distances from column to column in the nave at Worcester, placing the rows and plants exactly as the columns stand, so that the branches of the growing trees shall meet together between the rows—meet and not interlace—and just sufficiently intertwine to form a covered way roofed in by spray and foliage.

If he measures across the nave from centre to centre of the opposite columns, he will find the distance 42 feet, and that should be the width of his avenue. With regard to the distance apart in the rows, he should follow the same rule, and set his trees 21 feet from tree to tree, which corresponds with the distance apart of the columns in that direction, from centre to centre. If he wishes for a double avenue he should measure the width of the aisles, that is, the distance from the columns to the outer walls—22 feet, which will instruct him in planting his outer rows. The distances need not be altered an inch. *H. E.*

A Pretty Combination.—This was as simple as it was effective. Two or three plants of Tropæolum peregrinum planted at the base of a single pink Dahlia had grown up in among the branches, and so formed a dense bush, the leaves and flowers of the Dahlia showing through the wreaths of yellow flowers of the Tropæolum. It made a charming floral picture. Some of the choice varieties of Convolvulus major, Sweet Peas, and other plants of a clinging habit can be used in this way, or to furnish the naked stems of standard trees, with great advantage.

New Garden Plants.

A NEW HYBRID HEDYCHIUM.

Through Sir Joseph Hooker we have received a specimen of a very handsome Hedychium, said to be of hybrid origin and to have been raised in the Edinburgh Botanic Garden. Professor Dickson, who sent it to Sir Joseph, writes that it was raised in the Botanic Garden, in 1879 or 1880, from seeds of H. Gardnerianum, which had been fertilised by pollen of H. angustifolium, taken from a plant growing in his greenhouse at Hartree. "The result," he goes on to say, "is somewhat remarkable. In almost all respects it takes after the male parent, in the leaves and in the shape of the individual flowers; but it resembles the female parent in the general character of the inflorescence, the flowers being closely set, quite unlike the sparse arrangement of the flowers in H. angustifolium. The colour of the flowers is perhaps somewhat paler than that of those of H. angustifolium. Altogether the hybrid is an improvement on both parents—the colour being better than that of H. Gardnerianum, and the inflorescence better than that of H. angustifolium."

We quite agree with Dr. Dickson that this hybrid is far superior to the ordinary H. angustifolium; and if it prove as hardy as H. Gardnerianum it will be a valuable acquisition. The flower-spike, though not so large as that of a vigorous H. Gardnerianum, is large enough—the one sent being 9 inches long—and it is very compact; and the colour of the flowers is a rich, soft, shining, somewhat pale scarlet, the orange element being slight.

Regarding its parentage, we should have said, had the female parent been H. angustifolium, that it was no hybrid, but a fine form of that species. Sir Joseph Hooker remarked that he had not seen H. angustifolium for many years, but his impression was that the present plant was very much like what he had met with in India and taken for that species; and on looking over the large collection of drawings of Hedychiums at Kew, we found almost an exact counterpart of the hybrid in a drawing made in India by Sir Joseph himself, and provisionally named H. angustifolium. We had not time for a critical examination of the numerous drawings and dried specimens of this beautiful genus; but we were struck with the great similarity of many of the forms which have been given the rank of species, colour being in many instances the only evident difference. On the other hand, among the specimens and pictures named H. angustifolium there are considerable deviations in the width of the leaves, in the size of the flower-spikes, and in the shades of colour in the flowers. In the majority of specimens the leaves are much narrower than those of Dr. Dickson's plant, and the flower-spike scarcely half so large. The three upper leaves in the specimen sent are from 15 to 18 inches long, and 2½ inches across in the widest part. If there has been no mistake respecting the origin of Dr. Dickson's plant the result, as a seedling of H. Gardnerianum, is very surprising and interesting. Whatever its real origin it is a very showy and striking variety. We may mention that pure seedlings of H. Gardnerianum present considerable variety in the foliage and colour of the flowers, two rarely being found exactly alike.

Dendrobium polycarpum, *n. sp.**

A new Dendrobe of the affinity of Dendrobium Mirbelianum, Gaud. and Rimanni, Rchb. f., introduced by Messrs. J. Veitch & Sons from the Sondaic area, no doubt, it having been sent by Mr. Curtis. The stems are said to attain 3 feet in length. They are as thick as a swan's quill, and shining like a Bamboo. As to the leaves I have nothing to say. The flowers stand in lax racemes. They are yellowish, with purple-red borders to the side laciniæ. The trifid lip has somewhat round angulate side laciniæ, and a rounded triangular undulate central lacinia. There are five parallel appressed keels, which disappear in the centre of the mid lacinia. The lateral veins of the side laciniæ, spreading at a right angle and much branched near the margin, are covered with ramentaceous keels, and little keels occur even free between them. There is scarcely any interspace between the bases of the mid lacinia and the anterior parts of the side laciniæ. Mr. Harry Veitch informs me this plant has a wonderful tendency towards self-fertilising, and thus I have before me seven sterile and twelve fertile flowers. In a short time Mr. Seden might produce home-grown thousands of the plant for amateurs of Dendrobes. *H. G. Rchb. f.*

* *Dendrobium polycarpum*, n. sp.—Affine Dendrobio Mirbeliano, Gaud. et Rimanni, Rchb. f. Caule teretiusculo valido elongato vernixio; foliis adhuc incognitis; racemis plurifloris, mento acutangulo; sepalis ligulato triangulis; tepalis ligulato spatulatis longioribus; labello trifido, laciniis lateralibus semiovatis antice angulatis, lacinia mediana oblongo-triangula acuta isthmo subnullo a laciniis lateralibus separata, carinis quinis parallelis longitudinalibus, venis laciniarium lateralium ramentaceo carinatis, carinulis aliis libris spissis; androclinio paucidentato.—Ex insulis Sondaiis importaverunt cl. Veitch. *H. G. Rchb. f.*

Cypripedium tessellatum porphyreum, *Rchb. f.*, *Gard. Chron.* 1881, January 8, p. 41.

If I ever saw an Orchid improved, it is this. I have before me an inflorescence of three flowers, each twice as large as the typical flower, kept and signed in my herbarium. It appears the hybrids develope better and quicker than the species, perhaps because they do better in our stoves, having originated there, and no tropical impressions having ever been experienced by their mother plants. It came, of course, from Messrs. J. Veitch & Sons.

Cattleya Brymeriana, *n. sp.* (?), *seu hybr.* (?)

This is a fine novelty. My materials are some wild-grown, ill-dried flowers, a description prepared by its lucky discoverer, Mr. White, and now a couple of fine fresh flowers, for all of which I have to thank Mr. H. Low, my oldest English correspondent.

I know nothing about the occurrence of the plant, whether a large supply came, or whether it is one of those isolated plants which form a section apart from those species which appear regularly and in masses.

The dedication is made to W. E. Brymer, Esq., M.P., Ilsington House, Dorchester.

The plant itself is described by Mr. White to be like a short-bulbed Lælia elegans.

My two flowers are exceedingly beautiful. Sepals and petals rosy-purple, much like those of an extra good Cattleya Walkeriana. The lip is unusually broad, side laciniæ blunt-angled, mid lacinia projecting, obcordate. The mid-area from the base of the lip to the base of the anterior lacinia is fine orange, a broad line going out in a toothed hemicyclical disc in the base of the lacinia. The margins of the side laciniæ and of the mid lacinia before the orange area are of the warmest purple-mauve, making one think of Cattleya superba. The parts of the side laciniæ between the edges and the orange lines rosy, fading inwards into white. When the flowers were quite fresh I saw some fine purple stripes outside on the side laciniæ, which later appeared light purple. The column is white, and has the energetic retuse apiculus of Cattleya Eldorado. *H. G. Rchb. f.*

PYRUS PINNATIFIDA.*

It will be seen from the synonymy cited below that considerable doubts exist as to the exact nature of this tree as a wild species. By some it has been considered as a hybrid between the White Beam, P. Aria, and the Mountain Ash, P. aucuparia, but there is no certain evidence as to this, nor can we be quite sure that this is the form reported to grow wild in Arran, and nowhere else in Britain. In any case in gardens it is pretty generally known under the name here adopted, and is a tree of moderate height, with oblong leaves pinnately cut, especially towards the base, and with the lower surface covered with hoary down. The white flowers are borne in loose corymbose clusters, and are succeeded by scarlet fruits, as represented in our figure (fig. 78, p. 493). As an ornamental tree it is amply worth growing for the sake of its foliage and the rich colour of the fruit. The tree is perfectly hardy, and deserves to be more widely known.

Buttonholes.—The French papers state that large use is made of the half expanded buds of Paul Neyron Rose for this purpose. A box of twenty such buds recently sold for 15 fr.

* *P. pinnatifida*, Ehr., Smith, *Engl. Bot.*, t. 2331; De Candolle's *Prodromus*, ii., p. 263. Sorbus hybrida, Linn., ex Loudon, *Arboretum*, ii., p. 915. Pyrus fennica, Bab. Sorbus fennica, Kalm, ex Syme. Sorbus hybrida, Fries, ex Syme Cratægus Aria, var. γ, Linn., ex Syme. Pyrus Aria, sub sp. fennica, Hook. f., *Student's Flora*, p. 126.

A BUCKINGHAMSHIRE GARDEN.—XII.

September 17.—That is not to-day! Time has since been sliding on faster and further away from summer into autumn. Yet I have a fancy to mark the date of as sweet a September day as ever shone upon this garden. I believe the people who got the most enjoyment out of the sunshine of that marvellous day were the butterflies. There was a real butterfly's ball held in the long border of single Dahlias. An hour before noon the flowers, beautiful in all the brilliance of their rainbow dyes, were visited by a dancing throng of Atalanta butterflies. Yellow, red, orange, lilac, white—every flower, had its Atalanta or two. They were the finest butterflies of the kind I ever saw. Strong on the wing, and faultless in the perfection of their white-edged, black velvet and scarlet suits, they were the very embodiment of joyousness. Not a jot did they care, in their pride and joy of life, though a hundred deaths surrounded them. They knew nothing at all about that indeed. Life in the balmy air with the sunshine and the flowers was all in all to them. A few rather shabby Gamma moths, and hosts of humble-bees combining business with amusement, mixed in with the butterflies. By noon the whole gay company dispersed. Later in the day I found those fickle Atalantas again, disporting themselves upon some yellow everlastings, in another part of the garden. Butterfly life varies with us year by year, but I never saw so many Atalantas. This summer we have seen but few Peacocks or Tortoiseshells. Orange-tips (Euchloe cardamines) were unusually plentiful in the spring, as were also the white Cabbage-butterflies throughout the summer. So much fair weather required a good supply, since two white butterflies in the morning are the sure sign of a fine day—and they had always to be about in pairs. Often, a large brimstone has floated calmly by. The Chalkhill blue (Polyommatus Corydon), however, for many past seasons noted as appearing about the Yew hedges in March, has failed us this year; there have been no Humming-bird Sphinxes, and the far-scented auratum Lilies, where often on warm evenings I have sought great Hawkmoths, seem to have attracted nothing but scores of very inferior looking Gammas. It is an intense pleasure to watch these various, most beautiful beings in all the freedom of their wild garden life. No inducement would to me seem powerful enough—now that the barbarity of youth is past—to cause their capture and death were they never so rare as specimens.

And now the rain and the falling leaves recall but too vividly the true date (Sept. 28), reminding me that I have to tell of the garden's autumnal desolation, yet if the days would only keep fair and bright, enough still is left there to make one happy. The single Dahlias, which began to bloom rather late with us, have won their way quite since last I wrote. They are alone sufficient to light up half the garden. Our chief border of them is made up of seedlings, an exquisite variety of colours, in which mauve or rosy-lilac (a seedling from Mauve Queen) comes least often, and a yellow with reddened or burnt-sienna tipped petals is the loveliest. Named varieties are with the Sunflowers in the opposite border. White Queen I like the best—such large pure flowers. A White Queen with an Atalanta butterfly settling on it is a perfect little bit of contrasted colour. I am schooling myself to say Dah-lia, but habit is strong, and Daylia will persist in coming out! In Curtis' *Botanical Magazine* of 1803, vol. xix., p. 762, "Dahlia coccinea, scarlet flowered Dahlia," is figured. There is a note—"So named in honour of Andrew Dahl, a Swedish botanist . . . not to be confounded with Dalea, a plant named after Dale, the friend of Ray." The pronunciation settled, the *Magazine* goes on to say the Dahlia is "a native of South America, and may be considered as a hardy greenhouse herbaceous perennial." These beautiful flowers are especially valuable since rain has no effect on them, though winds so easily break the brittle stems. The double Dahlia is unknown in our garden: it has never been admitted. Fine as it certainly is in form and colour the dislike seems unreasonable, yet through some far-off association, I can never disconnect the double Dahlia from a sort of mixture of earwigs and penwipers. The clumps of Japanese Anemones, both white and rosy-grey, are, as always, full of an unfailing charm. We try to prolong their existence by snipping off the round seed-heads as they appear. One might as easily make ropes of sand. The same service done to Dahlias is, however, just within human possibility. The dark red-mauve variety, now that the plants are grown to some size, shows an individuality which gives it great value in the autumn borders. The irregularly-shaped flowers, whose narrow petals manifest an inclination to double, last longer than those of the other two kinds. Rain and wind have, for the moment, destroyed the beauty of Salvia patens; it will bloom out again after a while. The rich blue of this Salvia goes well with white Anemones when mixed in the flower-glasses. As for cut flowers, they are at most only a doubtful pleasure. I gather them with a pang, and would rather enjoy them blooming their full time out in the garden. And yet what other ornament is there—even of finest porcelain—to compare at all with glasses of freshly cut flowers? Nor are rich pictures, nor satins of Italy, sufficient without flowers to make your room look bright and habitable. Even that best decoration—walls well lined with books—is the better for a few flowers on the table. So that I am not prepared to go so far the other way as the old lady who never allowed one flower in her garden to be cut, and filled her glasses with artificial Roses! Sunflowers are sprouting round their strong straight stems, and surrounded thus by constellations of smaller suns, are, perhaps, even handsomer than before. There are two curiosities of Sunflower at this moment—curious both as demonstrating a resolve to exist and flower under any circumstances whatever. One is a large thick-stemmed plant, which must have met with some violent discouragement; it lies curled round flat on the earth, looking almost like a poor starved cat with a large head, for, though quite overgrown with summer Phloxes and Roses, &c., it has one large flower at the end of the stalk trying to look up, while two or three of smaller size along the stalk do the same. In contrast to the deformity below it, a miniature Sunflower, slenderly graceful, with blossom no larger than a florin, springs out of the mortar between two bricks high up on the wall. There is no visible crevice, but some tiny nail-hole there must be in which somehow a seed had lodged.

Though many borders have now begun to look forlorn, we feel the garden has done well. It is still quite full of flowers; in some parts gay even, as it could never have been with the dulness of the most brilliant "bedding out." The square beds in the entrance court are bright with Nicotiana, scarlet Pelargoniums, Zinnias, and blue Lobelias. The pink China Roses, once intended for these beds, could not be had from the nurseries where we sought them. There is no demand now, it seems, for so simple a flower! Torch plants (Tritoma) are alight in all the edges of distant shrubberies. There are Japan Anemones and Œnothera everywhere. The Sweet Pea hedge by the tennis-court is out again in bloom. Marigolds, like Œnotheras, take care of themselves. They keep going off and coming on again, shining out in the dark where least expected. Our Marigolds are the deepest orange-gold. The seed was brought five years ago from Cannes, where their colour is always so splendid. They incline to turn pale with us, so we have to weed out pale faces in order to keep the stock black-eyed and fiery. Golden Rod is not very showy, but it is plentiful and useful, and I like it for

Fig. 78.—Pyrus pinnatifida: berries scarlet. (see p. 492.)

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the sake of old remembrance. Eighty years ago, as I have often heard, the gardens at Hampton Court knew no other flowers at all. The great square beds along the broad walk were simply filled with Golden Rod. Those must have been happier days, at Hampton Court, before carpet bedding was known—when the old Yews were in all their beauty, and the fountain sent up its single lofty jet, and children played upon the mimic harp wrought in the beautiful iron gate of the Pavilion Walk, or peeped through the bars at the browsing deer.

Amongst what may be called the ruck of flowers, throughout the garden, are deep crimson Snapdragon, Zinnias, of all shades of colour; Verbenas, pink, white, red, striped and purple; low Phloxes, more beautiful than they ever were in the bed by the south wall; flesh-coloured and crimson — Musk — Michaelmas Daisies, Cuphea platycentra, Mignonette, Lobelias, blue, and bronze-leaved scarlet; lilac and white and pink everlastings, white Marguerites, and red Pyrethrums, Princes' Feather, yellow Heartsease, and Mrs. Sinkins Pink, in a grand dash of second bloom—an endless variety, all making the effort to put forth their best, now the last times draw so near. We might gather armfuls of flowers, and fill the house with them, were we so minded, and yet hardly miss them from the garden. And yet, has it not been said, "Bright tints that shine, are but a sign, that summer's past." And full well I know the garden's dear delights are even now growing towards the end. Roses, it need scarcely be said, abound, even Charles Lawson is, at least in one instance, bright with a second bloom. A few Damask Roses are coming out by mistake. They look very strange, putting one in mind of a long forgotten Rose, the Rose des Quatre Saisons. I see it clearly now, as I knew it in other days—pink all over with its October blossomings—in a garden whose loveliness lives only in the past; "Quarter Sessions Rose," the ancient guardian of the place used not unnaturally to say! Shall I try to paint that garden? for surely none such exist any more. It was like Shelley's poem of the Sensitive Plant, full of the poetry of trees and grass and flowers. A nearly level space cut in the depths of a hanging wood; no enclosing boundary to be seen, save here and there between the Rhododendrons hints of a mossy low stone wall; or the Sweet Brier hedge at one end, fencing off a stretch of cedarn turf. On the upper edge of the gently sloping lawn, sloping to the south, a grand old Beech tree with silvered bole caught the rays of the morning sun. There was a giant Larch, all bearded with long grey lichens; a Tulip tree, and a standard Magnolia. Here also on this upper side was the orangery; up its columns were twined trumpet Honey-suckles and Passion-flowers. In front, a sunny plot—oblong beds, with narrow walks between—was devoted to Carnations, Ranunculus, and many choicest favourites. A serpentine walk wound round the lawn, and upon the smooth grass were beds full of lovely old-fashioned flowers. Large tree Roses, yellow Briers, and Scotch Roses (white and red), and Queen of Sweden—and tall poles covered with climbing Roses, loose petaled and cherry coloured; Noisettes and Souvenir de Malmaison, grew also on the turf, with arches of Honeysuckle, and thickets of incense-breathing spice plants. On the lower, shady side, the walk wound on between bosquets of Kalmia and Azalea. Here also great heaped-up limestone rock formed a sort of natural wall between the garden and the wood. Every cranny was filled with rare and delicate Ferns and all shade-loving alpine plants, while double white and blue Periwinkles streamed down everywhere. Alpine Roses, too, flourished here luxuriantly. At one corner, a vista was cut through the trees, so that, over the Rhododendrons, here kept quite low, one looked through a frame of Beeches far away across the wide sunlit valley, across the corn and pastures, hedge-rows, coppice, and farm roofs, to the long range of wooded hills, and the grey tower cresting the distant headland. A little wire gate, hid behind the rocks, gave access to the garden from the house by a narrow pathway in the wood. I never knew the garden in its prime. When I remember it the sweetest flowers grew amid long weeds and grasses, and it had all the wild grace of a deserted garden; for those who loved it were gone, and the old gardener could scarce hobble round to tend his "Quarter Sessions" Roses; and now he, too, is long dead, and the place is—modernised.

The "Fantaisie" has been an unfrequented spot of late. It is a wilderness of flower and seeding plants, rather damp and overgrown. "The Forest" will have to be remodelled, and we contemplate an annexe on the north side. Such rapid growth is made that soon the character of both garden and "Fantaisie" must wholly change. The larger trees are fast losing that look of smiling youth which so enchants us in young newly planted wood. Each little tree is growing tall, and each begins to spread itself in uncompromising isolation. Evergreens encroach more and more upon the borders, crowding out the flowers, and crowding each other, so as to render necessary many a painful sacrifice. Twelve months ago signs of the coming change were hardly visible. Since regret is unavailing, new plans must be laid to draw new pleasures from the inevitable. I note with some pride that the experiment of beheading Cryptomeria elegans succeeds so far that in every instance the trees bush out healthily, instead of running up into brown raggedness. As I write, near the library window, a dim glory seems to be stealing round. The light from a stormy sunset has fired the Virginian Creeper, and the Apples on a large old tree beyond the stone ball at the corner of the wall. The leaves glow blood-red, and the fruit shines like molten ore. The tree is decaying with a huge brown fungus feeding on its heart. It is so old that a Virginian Creeper was planted to grow up the gaunt trunk, and Mistleto is let to flourish over all the branches as it lists. Yet in a good Apple year like this the fruit clusters from the top of the tree down almost to the ground. And growing on its green lawn thus, one dreams a passing dream of the Apples of the Hesperides—and the red Virginian climber is the great fiery scaled dragon gliding up through the leaves to gaze with dull eye seawards. But there are no maidens dancing in a ring, and I have just seen three hungry thrushes attack the Apples unforbidden.

Nothing is so uncertain as Pears. There has been a first-rate lot on a young Flemish Beauty, growing against the gardener's cottage. They have been gathered earlier than usual, which may be the reason they surpass in flavour and juiciness those of last year. Williams' Bon Chretien, always good, is this year somewhat impaired in outward appearance by black dots all over the fruit. Can these dots be caused by the age of the trees? In one half of the Vine-houses long bunches of white Muscats are hanging still. They are crisp and finely flavoured and show well against a purple background of Madresfield Court. Next season we hope for a crop of Frontignacs from a few new ones put in to satisfy the wish for old-fashioned, thin-skinned Grapes. Round the windows the Vine wreaths are already yellowing and green bunches ripening fast. These are unusually sweet for outdoor Grapes and have yielded a fair wine in their time. Green Apples (Reinette du Canada) in the walled garden, are nearly as beautiful as the trees of Blenheim Orange, which are reddening in the orchard.

Very pleasant and Arcadian in the mellow autumn sunshine are these days of Apple gathering! There is no undue haste; the man on the ladder up in the tree leisurely fills his basket. Baskets half full of fruit stand near upon the leaf-strewn grass. Children are sure to gather round, and there is an odour of ripe Apples upon the air. After an indecision of some years' duration my bill of fare for September in Arcadia is at last arranged! Grapes and Pears to look at, Nectarines and the "curious Peach" to smell. Figs to feed on in the morning, Golden Drop Plums all day long!

But, ah! there has chanced just now a golden drop of quite another kind. The last gold sand has fallen of the last hour of these dear garden days, and only one more word must now be said—Farewell! *E. V. B.*

The Arboretum.

Kalmia andromedifolia, a pretty useful shrub, covered with bright rosy-purple blossoms. It will grow wherever Rhododendrons and the like succeed. The height when it commences to flower is about a foot. The plant grows but slowly, eventually reaching a height of about 4 feet. It is well adapted for forming a small bed for the front lines in Rhododendron beds and for planting on the rockery.

Osmanthus myrtifolius.—One of the late Mr. John Veitch's introductions from Japan is a very neat growing variety of this useful class of evergreen shrubs. It is equally effective grown as a bush or pyramid, or worked on a moderately tall stem to form a standard. It will prove an excellent subject for winter gardening, for miniature parterres, and as a "starer" in flower beds in summer arrangements.

Phillyrea Vilmoriensis, syn. laurifolia, is a first-class large-growing evergreen shrub, with large handsome bright green cheerful-looking leaves, which deserves to be largely planted, and, being a quick grower, might often be employed to the exclusion of the ubiquitous Laurels. It is quite hardy, and will grow well in almost any sort of soil that will grow other kinds of shrubs. So distinct is it from other Phillyreas that at a little distance we took it to be a Portugal Laurel.

Cistus crispus is a charming shrub of about 2 feet in height, belonging to a class of flowering plants which await a revival, for they are capital things for sunny borders and the rock garden in open spots. This species of Cistus has broad salver-like blossoms of a pretty mauve colour, which, although lasting but for a short period, and closing in cloudy weather, are produced in such quick succession that there are always a good many open on the plant during June and July.

Andromeda speciosa pulverulenta.—This is a strong-growing shrub for the American bed, or for a peaty soil. The foliage is small and hard, and somewhat glaucous in hue, so that in masses it has an effect that is very striking. Its blossoms are creamy-white, of the shape of the Lily of the Valley, and nearly as large as the common Snowdrop, are arranged on elegant risps of 1½ foot in length, giving the shrub a very handsome appearance during its flowering period—June and July. It is well adapted for cutting from for bouquet arrangements for the house.

THE HANDSWORTH NURSERY.

In the immense stock of Lapagerias grown by Messrs. Fisher & Sibray there are now several distinct varieties. Amongst these is one with large, bright red flowers, the petals of which reflex much more than in the ordinary forms. The white spotting is pure in colour and well defined. Another form, which bears unusually large flowers, is a deep shining crimson in colour, the whole interior surface of the petals freckled with small white spots. There is also a new white, an advance on the old forms—a profuse bloomer, pure in colour. In addition to these is one intermediate in colour between the white and the red varieties, quite distinct from the many undecided coloured seedlings that have appeared; the ground colour is of the brightest pink, the white marking distinct. The white variety is now much in demand here for funeral wreaths, than which nothing could be better adapted, lasting, as it does, without water, in a way that few flowers will do; its purity of colour and elegant form also especially befit it for using in this way.

In addition to the ordinary trade stock of Eucharis amazonica, E. candida, and E. Sanderiana, there are quantities of large specimens grown for the production of flowers for cutting; the two latter appear to be never out of bloom, especially E. Sanderiana, which, grown as it is here, is all but continuously flowering, seeding freely, its large pods yielding a score or more each of its curious seeds, which grow so freely that the variety cannot fail to become plentiful. Some of the stock raised from seed are nearly large enough to bloom. Pancratium fragrans, which for perfume, pure white colour, and elegance of form, stands unrivalled as a bouquet flower, is grown in quantity.

One-half of the roof of a large cool house is covered with Clematis indivisa, another excellent white flower, alike beautiful either on the plant or in a cut state.

A large number of the largest examples of greenhouse Rhododendrons, comprising the most distinct varieties, have just been moved into good-sized pots to be grown on for the International Exhibition, proposed to be held in London in 1885; these have been slightly trained by bringing the strongest shoots down so as to keep the base of the plants furnished, after which they will be allowed to grow at will. The free flowering disposition of this section of Rhododendrons cannot fail to bring them into general use for greenhouses and conservatories. When the plants have attained size, many of the varieties keep on flowering at intervals through the year in a way that few things do; open flowers with buds in different stages, and

shoots in course of formation, may be seen on the same plants. The most important matter in the cultivation of these Rhododendrons, is getting the right sort of stock on which to grow them: without this they make indifferent progress.

The forcing varieties of Azalea raised by Mr. Carmichael are grown in large numbers; the case with which this distinct section of Azaleas can be had in flower with little forcing, makes them very useful for winter blooming. Daphne indica is made a speciality, a considerable part of a large house being occupied by the best lot of this favourite plant that I have seen for many a day; two years from grafting, and grown on freely, they have now from three to four shoots each, from 10 to 12 inches long, the strength of the plants being evidenced by the number of leaves with latent buds at their base—a certain indication of strength in this desirable plant which deserves to be in every greenhouse in the country.

Orchids, both the warm and the cooler species, continue to grow freely; a small low old-fashioned house here seems to just suit Phalænopsis—all the kinds appear alike at home in it; the different forms of P. grandiflora, P. amabilis, and P. Schilleriana, are in quantity, large and in beautiful condition; the strongest example of P. Schilleriana has leaves 14 inches long. Not a trace of spot is visible in the collection. Amongst a number of plants in flower were several fine forms of Cattleya pumila, and an excellent variety of C. gigas; the handsome Miltonia Regnelli purpurea, an exceptionally fine Vanda insignis, Zygopetalum maxillare, and its variety Z. Gautieri; of the last a fine specimen was bearing a dozen spikes with from six to nine flowers each. Dendrobiums of the crassinode and Wardianum type make extraordinary growth, plants of the latter in small pots having bulbs as much as 4 feet long and proportionately stout.

The more elegant kinds of fine-leaved plants are well done, especially such things as the Aralias and the beautiful Delabechia rupestris, which is quite equal in appearance to the best of the Aralias, with this advantage, that it will grow in a lower temperature. The handsome ornamental-leaved Cossignia borbonica, scarce on account of the difficulty most growers find in propagating it, is here increased readily. Asparagus plumosus scandens is bearing berries, which, if they turn out fertile, will soon cause this most elegant plant to become more plentiful. Dipladenia hybrida was flowering freely on the roof of the stove; this is the most telling in colour of the now numerous varieties of these beautiful twiners, which, in addition to the splendid flowers they bear have the further merit of producing them in continuous succession for half the year.

Amongst the immense stock of trees and shrubs which go to fill the 200 acres of ground, or more, devoted to them, small Conifers and other evergreens, so much in use for window-boxes and like purposes are particularly well done. Especial attention is taken of the preparation of the liliputian plants, so as to get them densely furnished from bottom to top; such kinds are selected as have been found best adapted to the purpose, and that will bear without injury transferring even in the growing season from the open ground to pots. The demand for plants of this description, especially in the neighbourhood of towns, is continually increasing. Those who are fond of variegated coniferous trees could not fail to be pleased with the golden variegated Austrian Pine that has here made its appearance; the yellow colouring is decided, and in such proportion to the green parts of the branches as to be very effective. *T. B.*

FLOWERS IN SEASON.

Sedum Telephium Bordieri.—A fine form of the Telephium section, sent us by Mr. Ware, with oblong obtuse sinuately-toothed leaves, and rounded clusters of deep rosy-purplish flowers. One of the handsomest of its class, and perfectly hardy.

Sedum spectabile.—One of the very best of the larger Sedums—a great favourite with bees and butterflies, and so hardy that it is a good plant for towns or in pots for windows. It forces well also, but there are some varieties darker in colour than others, and these should be preferred.

Lespedeza bicolor.—Messrs. Veitch send from Coombe Wood a hardy papilionaceous shrub, loosely branched, with scattered leaves, each supported by a long, very slender stalk. The glabrous leaves themselves are three-foliolate, the leaflets 1 by ½ inch, oblong, somewhat rounded at both ends, the central one separated from the two lateral ones by a long stalklet. The flowers are in long-stalked axillary racemes, individually small, papilionaceous, rosy-lilac. The shrub is well deserving of a place against a wall.

Ceanothus Marie Simon.—A form with shortly-stalked, ovate-acute, finely-toothed leaves, and terminal panicles of very numerous small rosy flowers. It is one of the most attractive of its class, and well worth growing against a wall where the situation is otherwise too exposed for its safety.

Androsace lanuginosa.—A lovely little alpine with procumbent stems, purplish, and covered with woolly pubescence. The violet-lilac flowers are in close heads at the ends of the stalks, and might by a careless observer be taken for those of an Aubrietia, but they have a five-lobed corolla and other marks of the Primrose family, and none of those of a Crucifer. As a dwarf rock plant there are few more beautiful gems than this. Flowering so late in the season as this gives it an additional value. It was received from Mr. Ware.

Boussingaultia baselloides is wonderfully fine now in the Cactus-house of the Cambridge Botanic Garden, and the long slender sprays of small white fragrant flowers seem to fall like cascades wherever they are allowed to grow. These large pendent masses of white blooms are very handsome. It is not easily understood why this plant is not more generally recognised as ornamental. The leaves are cordate ovate, somewhat fleshy. In a pot it grows for years without flowering, but on planting out it becomes at once luxuriant in flower and foliage. *R. I. Lynch.*

FRUIT NOTES.

The Herefordshire Beefing Apple.—This is one of the many local Apples that have been more widely introduced into notice by the great collection at Chiswick. It is not, however, a new variety, but one that has kept its position in the orchards purely on its own merits, without any public notice or record. It is figured in *The Herefordshire Pomona* (1881), plate xxxv., and in the letterpress it is said:—"Nothing is known of the origin of this Apple." Dr. Hogg first saw it at the Apple show of the Woolhope Naturalists' Field Club, held at Hereford in 1876. It was then named simply Beefing. To distinguish it from Norfolk Beefing Dr. Hogg called it the Herefordshire Beefing, a name which was adopted by the pomological committee of the Club. Some months afterwards, when referring to some pomological MSS. which belonged to Forsyth, the author of a *Treatise on Fruit Trees*, Dr. Hogg found amongst them a record of a collection of fruits that had been sent to him in the year 1801 by a Mr. Stroud, from Dorsetshire, and of these one was "the Hereford Beefing," a flat Apple of brownish-red, with some yellow on the side from the sun. This is very different from the Norfolk Beefing, keeps "till the end of April." It is also added that "the tree is very hardy and so prolific that in the miserable seasons of 1879 and 1880 the Herefordshire Beefing trees were conspicuous for their crops of fruits, whilst all the surrounding trees in the orchard were barren. It is an excellent culinary Apple, and, like the Norfolk Beefing, has the very valuable property of drying well in the oven." *H. E. B.*

Keeping Apples.—It is not general that Apples which are kept in fruit-rooms "dry and airy" (as often recommended) do so well as when they are stored as Potatos are by many of the large fruit growers. If they wished to store them in thin layers with plenty of air they would require a street of buildings to contain their stock. We have seen in fruit farmers' storehouses long ridges which kept far into the season; the faulty ones were very few. It is worthy of remark that the greatest importance should be paid to the keeping of early and late hard or soft kinds separate. Our best lessons in Apple keeping were from the barrels of fruit which we have seen come from America, and left to be used as they were required, never handling the Apples except when removing a portion for use. The laying of them thin on shelves has some advantages; one can see the best of the fruit, and pick them out for special purposes without having to remove the whole stock. Pears we never (except with a few lots of inferior late ones) put into heaps for any length of time. This year, having filled a goodly sized new fruit-room, we are obliged to pile them up, and then there are many hundredweights to spare for the various schools of the district, which (to me) is a rather more pleasant way of disposing of "surplus stock" than going into competition by marketing with heavily assessed market growers. It may be well to add, that when the fruit-room is filled the air should be left on till the moisture from newly gathered fruit (sweating) has passed off: then keep the whole close, dark, and dry. *M. Temple, Stirlingshire.*

Yorkshire Beauty Apple.—Whatever confusion may have arisen with regard to this Apple, no doubt need exist as to its origin. Yorkshire Beauty was raised from a pip with two others by a jobbing gardener named James Elsworth, who resided for many years within a stone's-throw of the parish church of Burneston, about a mile from here, and where, six years ago, the original tree still stood. It was named by myself, with two others, Elsworth and Thos. Simpson, at the house of the last named, who kept the village inn, and where we often met to discuss the latest novelty in the plant world, and as often to look over the fine collection of British plants which Simpson had. He is now living in the town of Ripon. I well remember drinking the old man's (Elsworth's) health, with the remark that Yorkshire Beauty would be heard of after that night. I put the first grafts in myself from the original tree about the year 1853 or 1854. The Apple was put into commerce by my brother-in-law, the late Henry May. We had it, I think, at the time it was sent to Dr. Hogg, in whose *Fruit Manual* the outline was given. I send this for insertion in justice to the old man, who has been dead some years, and whose grandson is now working in my nursery. *William Boston, Manor Farm Nurseries, Carthorpe, Bedale.*

Grape Abercairney Seedling and Others.—Whether this excellent Grape is a distinct kind in the hands of all who have been fortunate enough to secure it from the original stock, or whether it is not, I am not prepared to say, but lately I received a sample from Mr. Brown at Abercairney, and its excellence is superior to what I had hitherto conceived. It was thin-skinned, juicy, and sugary, altogether superior to the usual class of late Grapes we meet with during the autumn months (which are not fit for use till they have hung well into the winter months). Soil and general treatment of Grapes and many other fruits make marvellous changes in appearance and flavour. Never have we seen this better exemplified than with Gros Colmar, which has been fired hard with abundance of air on long after the fruit had attained a deep black colour, and left on the Vines till the leaves had fallen. The flavour compared with examples of the same kinds grown under different conditions, was very decidedly superior. The large Vine at Harewood in Yorkshire is pronounced by many to be the Tokay; it is certainly very different from any Tokay which I have tasted, and this I told Mr. Fowler when in his vineries making comparisons; and subsequently when the fruit was at its best I had samples kindly sent to me by Mr. Fowler, and after comparing it with what I considered good Muscats, the alleged Tokay seemed to be no other than juicy well flavoured Muscat of Alexandria. An example of another kind is now before me, regarding flavour, &c. Tomatos grown in our Peach-houses are vastly superior to those grown in vineries. In the former, light and abundance of air give the advantage. *M. Temple, Stirlingshire.*

Peach Sea Eagle.—This, one of the late Mr. Rivers' varieties, is highly spoken of by Mr. Roberts, who is growing it at Gunnersbury Park on his late Peach wall covered with glass, when by reason of the draught constantly passing through it the Peaches are later than when growing on a wall. Mr. Roberts states that it is one of the latest—later even than Barrington; that it possesses every good quality; a good outdoor Peach, doing as well as the Late Admirable. It is a variety that should be made a note of for late work.

Nectarines Humboldt and Darwin.—These fine varieties were raised by the late Mr. Thomas Rivers. The former is a very large variety, obtained from the Pine-apple, of excellent flavour, and a good bearer; ready in September. The latter is an Orange Nectarine from Rivers' Orange crossed with the Stan-

wick; handsome in appearance, and rich in flavour. Both are doing well on the late Peach wall at Gunnersbury Park, and are highly spoken of by Mr. Roberts.

AMERICAN NOTES.

Hon. Marshall P. Wilder.—Without overestimate, says an American journal from which we quote, it may be questioned if there is one man in America whose life covers so wide a scope and such varied objects in all of which he is conspicuous as the Hon. Marshall P. Wilder; and hardly one could be found to evoke such an assemblage as that which greeted his eighty-fifth birthday recently at the Parker House, Boston. In a life spanning almost the whole life of the Republic, connecting the days of Washington with the present, he has been a pioneer in Boston trade, a promoter of agriculture, horticulture and pomology, as the father of the Massachusetts Agricultural College and State Board of Agriculture; and either the founder or the most active worker in the United States Agricultural Society, the Massachusetts Horticultural Society, and numerous other organisations directed to improving the condition of the community. He is now one of the oldest living ex-commanders of the Ancient and Honourable Artillery, and ex-President of the Massachusetts Senate. The banquet tendered to him drew a correspondingly interesting and varied company. The tables were decked with rich groupings of flower and fruit, and each guest was presented with a nosegay of Grace Wilder Carnation. At the close of the banquet Mr. Wilder spoke with much feeling in response to the congratulations given him, and his speech is interesting, not only from its personal reminiscences, but as a sketch of the progress that has been effected in one man's lifetime:—

"Language is too feeble to express the gratitude I feel for this too generous ovation with which you are crowning this anniversary of my birth. And could I believe that I was worthy of the praise which you have so kindly bestowed upon me, I should feel that my mission on earth was nearly ended, and that I was about ready to be gathered to my fathers, like a shock of corn, fully ripe in its season. But no, no; and although I am somewhat advanced in years, I do not feel that my work is done; no, no; I have something more to do before I go home for those great interests to which I have given so much of my life. You have alluded to me and my connection with various institutions and callings, and I thank you for remembering me as an old merchant of Boston, for it is from this calling that I have derived the means to aid these other interests. Yes, I am an old merchant; I have been constantly in business for nearly threescore years in this city, and I beg to assure you, my friends, that there is no title that I prize more highly than that of being called an upright, intelligent and enterprising merchant of Boston. It is our good fortune, my friends, to live in an age of remarkable progress and activity; in a nation whose growth, prosperity, and power are the wonder and admiration of the world. Much of this progress I have witnessed in my own day. At the time of my birth the population of this nation was only about 5,000,000; now it is more than 50,000,000. When I came to this city there was not a mile of railroad on this continent; now there are 120,000 miles. Mr. President, you have referred to me in connection with those great industrial interests on which depend, more than any other, the prosperity and happiness of the world. It is true I have done something for these, believing that I could do nothing better for my fellow men. At the time of my birth there were not half a dozen agricultural, and for nearly a quarter of a century afterward not a horticultural society in our land. Now there are more than 1500 of these and similar associations recorded in the Department of Agriculture at Washington. Then the products of our soil were not deemed worthy of a place in the statistics of our nation; now we produce more than 2,000,000,000 of bushels of grain, with a constant reserve sufficient to supply the deficiency of the Old World. When I came to this city no steamship had ever reached our shores, now there is not a day in the year when many of them do not enter or depart from our ports. But I need not prolong this strain of remarks. Suffice it to say that, in science, art, and civilisation, and everything that pertains to the comfort and happiness of mankind, the present age is transcendently superior to any that has preceded it. When I review the past history of our country, and look forward to its future greatness and glory, my soul yearns for another fourscore and five years, that I might see its 200,000,000 of happy freemen rejoicing in the blessings of liberty, peace and union—all united in one great circle of life and love—one in interest, one in destiny, one in a glorious Union, never to be broken!"

A TRANSFIXED BULB.

Mr. Evershed has sent us from Messrs. Carter's nursery a bulb of Nerine sarniensis, grown in a pot plunged in a cold frame, completely traversed by the rhizome of Couch-grass—Triticum repens. The simplest explanation of such cases would seem to be, that the tip of the growing shoot rested on the bulb in an early stage of its growth, and has become gradually overgrown by the bulb coats. But this explanation will not suffice in the present case, for the state of the tissues in the interior shows that the wound is one that a surgeon would call penetrating, and that the growing tip of the grass has actually forced its way through the bulb coats.

Thanks to the labours of Charles Darwin, it is now well known that the growing ends of shoots of roots, radicles, and leaves, have a rotary movement, so that the growing tip not only lengthens but revolves. If it come in contact with a sufficiently yielding substance it gradually perforates it much as a gimlet would do in the case of a board. The nearest roots of the Couch would serve as the fixed point, and if the bulb

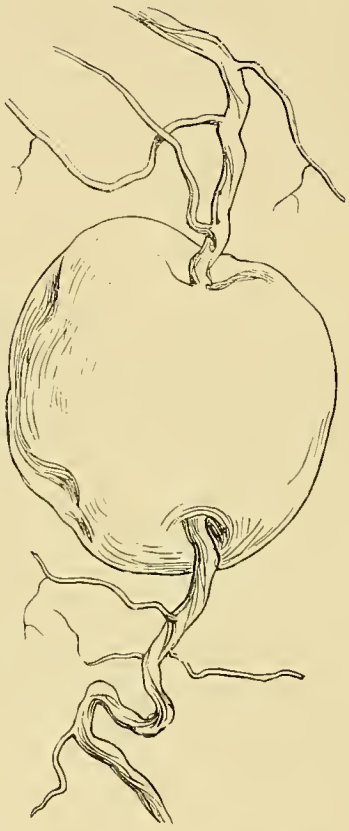

Fig. 79.—Potato perforated by growing shoot of couch-grass.

were fixed in its position against a hard mass of soil or a stone, or, as in this case, against the side of a pot, the perforation would be so much the easier. To those conversant with the movements that take place in growing plants, and the sometimes immense force exerted in lifting superincumbent weights, there is nothing very extraordinary in such a case. As economy of force, however, is a very general principle in Nature, it is not easy to see why in these cases what we may term the law of least trouble (we hope Mr. Herbert Spencer will forgive us) is not acted on. It would seem easier for the tip of the root or shoot in such cases to wriggle its way round the obstruction (as in point of fact it usually does) rather than to force its way through. We reproduce from an earlier volume a corresponding instance in the case of a Potato (fig. 79).

Carbolic Acid and Leaf Fungus.—A committee appointed in Ceylon for the purpose of inspecting Mr. Schrottky's experiments on the use of carbolic acid powder dusted over the leaves of the infected Coffee trees, has reported unanimously "that carbolic acid, as hitherto applied, cannot be regarded as supplying any practical cure for leaf disease." The full report is given in the *Tropical Agriculturist* for June.

ARRANGEMENT OF PLANTS IN CONSERVATORIES.

A more natural style of placing together the inmates of conservatories and other plant structures is often mooted in gardening journals, and finds many advocates, for all must admit that the stiff and methodical way in which beautiful plants are arranged on tables and stages is not one likely to recommend itself to persons of taste. The more free our arrangements of these plants which we choose to cultivate in such houses can be made, the more will they be enjoyed by those for whom primarily they are grown. We are not advocating the culture of exhibition plants in this way, although there are some of them which, when not too stiffly trained, could be found to work in harmoniously. Its admirers do not seem to have given the matter proper consideration, when by natural arrangement they insist on plants being planted out in beds of suitable soil; for if Palms, Tree Ferns, Yuccas, Ficuses, Camellias, Acacias, Eugenias, Clethras, and many others, greenhouse and stove, were so planted out, they would soon outgrow their bounds in houses of the size usually seen, and suffer from overcrowding with its ordinary results—the survival of the strongest. A mode that will be found to yield better results, as I know from experience, is that in which nearly all the decorative plants are grown in pots and tubs, which, by the way, may be manufactured of pleasing forms and colour. The floor of the conservatory may consist of gravel of moderate fineness above, but coarse below, and it should be of a kind that will bind well when rolled or rammed, and then, if the size of the house admits of it, the direction of the paths may be varied every season, or oftener if it be desired, but the best time is when the plants, that have been standing out-of-doors, or in cooler structures during the summer months, are brought indoors for the winter. This will enable the plants to be formed into various groups of different sizes, and differing also in their component parts. The pots may be sunk to their rims, or but half-way, as may be desirable: and then if the drainage be good, as it ought to be, the plants will not be subjected to the drying and fluctuating air and temperature of the building, and not only will the unsightly pot be got rid of, but the labour of watering will be reduced. The foreground of borders and groups may be occupied by clumps, lines, or other methods of placing flowering plants of a dwarfer habit than the rest, and the margins, as well as other parts, be hidden and defined by Selaginella dentata planted on a thin crust of rich soil laid on the gravel.

The portion reserved as path may consist of the same gravel as the rest of the floor, and will need to be well rammed, and to be kept slightly moist to prevent the surface getting loose. A movable water basin may be used, which can be shifted about into any part of the house, and which can easily be kept supplied with water by an indiarubber or other pipe. This may be made to serve a fountain or waterfall. By making serpentine paths the house may be made to appear larger than it really is, and different aspects can be obtained for plants, as well as more privacy than one is accustomed to find.

The only plants that would require to be planted out are the roof and wall creepers, which should have well-drained, walled-in receptacles made for them, sufficiently large to grow healthy plants, without needing annual re-planting or tubbing. The labour involved in managing these houses is much less than in those where the plants are placed on staging or tables.

HARDWICK HALL,

The seat of W. C. E. Kynaston, Esq., is situated in one of the prettiest vales in the county of Salop, bounded on either side by splendid timber, consisting chiefly of Oak and Beech, the latter of which attracts attention as you approach the Hall by their stately majestic appearance. The Hall itself is a square block of modern design, and very pleasing to the eye at a distance. Adjoining the Hall is a large conservatory, the walls and roof of which are covered with Tacsonias, Swainsonias, Passifloras, Lapagerias, and Cobæa scandens, the most noticeable plants in the body of the house being fine specimens of Alsophila australis, Dicksonia antarctica, and Cycas revoluta, the latter of which has over forty fronds.

Leading from the conservatory through the terrace

garden, which looked very gay, we passed on through a grotto clothed with Ferns, Ivy, and the pretty berried Gaultheria shallon, into the Conifer grounds, where we found several good specimens, including Sequoia gigantea (70 feet), Araucarias (50 feet), Abies lasiocarpa, A. grandis, A. Nordmanniana, A. Pinsapo; Cedrus Deodara, C. Libani; Cryptomeria elegans, Pinus austriaca, and Liriodendron tulipiferum, the latter being very luxuriant, and are dotted here and there on the park.

Leaving these beautiful Conifers we approach the rockery, which looks very natural, with its caves and passages of rock, some of the largest fragments of which weigh upwards of 9 tons. The different varieties of Ferns seem quite at home, especially Asplenium trichomanes, A. Ruta-muraria, and Thalictrum flavum, which thrives well in the crevices, and is much prized among cut flowers owing to its lasting properties, which is a great boon when so many Fern fronds are required.

The Rose garden is next visited, and, judging by the appearance of the plants, they have afforded a good display; but the flowers at the time of our visit were mostly over, and the strong shoots breaking again to become clothed afresh in the autumn.

The Peach-houses and vineries are in one continuous range, and the fine crops in each compartment show to advantage the skill and attention they have received from the able gardener, Mr. Williams, who manages the trees so well, and keeps them in such luxuriant health. In front of this range is a fine ribbon border some 80 yards in length, and two magnificent Aster beds, the latter of which Mr. Williams manages to perfection, as evidenced by the number of prizes he has won for the flowers.

In the stove are some good specimen Crotons and Dracænas, also a lot of small stuff for furnishing, and to provide cut blooms. Adjoining the stoves are some useful pits filled with Melons, Eucharis, Poinsettias and Euphorbias, all of which looked healthy and strong.

The kitchen garden is formed into squares, each being well cropped and very neat in appearance. Wall-fruit was very thin, but Pears and Apples on Pyramids are a fair crop. The large beds of Lily-of-the-Valley and Spiræa for forcing shows what may be done at home to get a plentiful supply of bloom, so often disappointing with imported stuff. Mr. Williams grows these under an east wall, in a strong loam enriched with well-rotted cow-manure. Some distance from the Hall, on a sheltered slope to the south, we found a fine orchard filled with young healthy trees, which promise to well repay the outlay in their planting. *Wm. Sheppard, Birkfield Lodge, Ipswich.*

The Liverpool Horticultural Association propose to hold an exhibition of Hyacinths and other spring flowers in March next.

Fig. 80.—A transfixed bulb of Nerine sarniensis. (see p. 496.)

FORESTRY.

The Redwood.—In a series of letters to the *Northwestern Lumberman* Mr. G. W. Gray gives some particulars respecting the Redwood tree (Sequoia sempervirens), which we reproduce in a condensed form:—

The Redwood is peculiarly a Californian tree, being found nowhere except on a small portion of the coast of this State. The whole belt is confined between the 37th and 42d parallels north latitude, or between Monterey Bay on the south and Crescent City on the north, an extent of country about 400 miles long. The width is irregular, following the conformation of the mountains, but will average about thirty miles. Below Monterey Bay there is but little timber of any kind, while at the northern extremity of the belt the Redwood gradually disappears, and Pine, Fir, and Spruce take its place.

The whole belt of Redwood lies upon the western slope of the coast range. Throughout the section named the rains are heavy in winter, and fogs, dense in summer, coming in from the ocean with the wind very regularly every afternoon, and during the whole year the climate is mild and even in temperature. Not that the section named is one vast forest; these were the original boundaries of the Redwood belt. In Santa Cruz county there is considerable standing timber, but north of there until you reach the Russian River the country has been stripped. Between the mouth of Russian River and Crescent City the country is by no means one vast forest. There are large tracts of fine farming land, extensive sheep and cattle ranges, as well as large areas that have been denuded of their native forests.

A careful estimate of standing Redwood places the amount at about 26,000,000,000 feet; certainly not a large supply when it is considered that the present yearly consumption is not far from 200,000,000 feet, and the demand each year increasing.

The size of the Redwood tree varies greatly with the locality. In the southern part of the timber belt, where the rains and fogs are lighter, the timber will not average more than 2 or 3 feet in diameter, and the lumber manufactured is generally hard and flinty; but farther north the trees increase in size, the character of the wood changes, until in Humboldt county is found probably the finest belt of timber in the world; trees 12 to 18 feet in diameter, and from 150 to 250 feet high, being no rare occurrence. In this part there are large tracts that have been estimated to have 250,000 feet to the acre, and single acres could be selected that would double or treble that amount; and the lumber is of the finest, softest quality, equal to the best Eastern White Pine. The dimensions of these large trees are given, but these are the prevailing sizes. While such trees are not rare, the average size of saw-logs is from 6 to 8 feet in diameter, and most of the mills on Humboldt Bay were built with reference to handling logs of that size. Throughout the Redwood belt there is but little other timber. Some little Pine, Fir, and Spruce is cut, but no great amount of either.

Redwood, as the name indicates, is of a dark reddish colour. It is soft, coarse grained, and very brittle. The grain usually runs very straight, and it splits readily, it being no difficult matter to split out a board 1 inch thick, 8 to 10 inches wide, and 10 to 15 feet long. When dry it is much lighter than Pine, but of the logs cut from a newly fallen tree the butt log, thrown into the water, will often go to the bottom like a stone, while the top logs will float like cork. It is of slow growth. Of timber now being cut the circles indicate that many of the trees have been standing thousands [?] of years. The bark of the tree is very thick, soft, and fibrous in character, and contains no resin or pitch; hence fires that frequently run through the underbrush of Redwood forests have no effect on the standing timber.

Redwood, being very durable both below and above ground, is in great demand for railroad uses, for which purpose in 1881 over 70,000,000 feet were used. It is also in great demand for roofing of houses; and when a man has covered his house with Redwood shingles he considers that matter settled for life.

For tannery tanks it is peculiarly adapted, as the wood resists the action of the tanning solution. At a tannery the same tanks have been in use for ten years, and they are apparently as good as ever they were. The wine merchants now use Redwood vats entirely, because a certain insect found in the new juice of the Grape, which destroys the Pine vats by boring through them, dislikes the taste of Redwood, and lets it alone. As Redwood much resembles Spanish Cedar in colour, and imparts no odour to affect the taste of tobacco, it is now being shipped quite extensively to New York to be used in the manufacture of cigar boxes. But the principal use to which Redwood lumber is put on the coast is the outside and inside finish of houses, as from 40 to 50 per cent. of the lumber sawed is perfectly clear, without knot or blemish, and much of this can be cut into planks 6 inches and under thick, and from 24 to 60 inches wide. It is well adapted for brackets, ornaments, and mouldings of all kinds. While much of the grain runs straight, curly Redwood can be selected which, when polished and varnished, rivals Rosewood in its beauty.

To the extensive use of Redwood in the buildings is due, in a large measure, the immunity from large fires in San Francisco and neighbouring cities. There being little or no resin in the wood a fire is easily put out, and when once extinguished it is with difficulty ignited.

There are about forty mills engaged in cutting Redwood. The largest have a capacity of 75,000 or 80,000 feet per day; perhaps the average would be about 40,000 feet daily. The amount of Redwood lumber sawed by these mills in 1881 was not far from 140,000,000 feet; of this 95,000,000 feet came to the port of San Francisco, 4,500,000 feet being reshipped to New York and foreign ports. The balance of 45,000,000 feet, manufactured, was distributed to the lower ports in California, Mexico, South America, Sandwich Islands, Society Islands, and Australia, vessels going direct from the mills.

Among the many interesting facts in the foregoing extracts there is one matter for regret, and that is the apparent certain complete destruction of the Redwood forests within a very short period. It is not likely that the Redwood will very soon become extinct, but all the grand forests will go.

Instruction in Forestry.—At a meeting of the Education Section of the Social Science Congress Sir R. Temple reviewed the present state of forests in various parts of the world, and urged the study of forestry in England with special reference to the application of the knowledge to India. He said:—In no country was forestry so little thought of as in England, because, in the first place, we had a superabundance of rain; in the second, this rainfall, and the prevalent vegetation which it caused, preserved from destruction the rich *humus* with which our land was covered; and, lastly, because the Gulf Stream moderated our climate. Scotland was richer in forests than this country, having about 1,000,000 acres, or one-twentieth of its total acreage, under

forestry. Nevertheless, despite the efforts of Scotch arboriculturists and public-spirited men generally, that million of acres was being slowly reduced. When he was at the meeting of the Scotch Arboricultural Society at Edinburgh, two years ago, it was stated that only about three-quarters of a million acres of forests remained. Sir Richard Temple gave the results of his observation during recent travels as far as it bore upon forestry. In the south of Norway, and throughout Sweden, the forests were preserved in the most patriotic manner for the augmentation of the national wealth. In Germany and Western France, also, forests formed a profitable part of the national material possessions. In Southern France, Italy, and Spain, however, tourists could not fail to note the reckless destruction of forests which had taken place. If a forest was destroyed twenty other things disappeared with it; but the most disastrous effect was that destruction of forests entailed long periods of drought, followed by those excessive inundations which had of late been so common in certain parts of Europe. In Russia, too, reckless and unscientific felling of forest trees was very frequent. Russia was naturally a country of Pine forests, but these latter had been largely replaced by Birch. The meaning of that was that when Pine forests were felled without proper provision being made for the reproduction of the Pines, Birch trees grew up in their stead. The beautiful countries on both shores of the Bosphorus, once the home of the greatest nations, and the scenes of the greatest events of history, were now but the shadow of their former selves, solely on account of the reckless destruction of their forests. The once famous harbour of Ephesus has silted up because of the destruction of the forests near the sources of the rivers which flowed into the sea at that point. The sylvan glories of Cyprus, too, the latest region which had passed under British sway, had entirely departed. After alluding to the aridity and sterility which had been brought about in Palestine and Persia by the destruction of their ancient forests, Sir Richard Temple passed on to British India, where, he said, the English nation possessed a forest department greater than that of any other people in the world. Although the forest department was far short of what it should be, it was among the administrative glories of England. There were 75,000 square miles of forests there, of which 25,000 were under scientific care, and the remaining 50,000 were under tolerable care and preservation. Sir Richard Temple showed that otherwise forestry was not cultivated, other countries having already lost their timber, and others having been blessed with such a store that it still remained in great quantities, but was slowly but surely diminishing. In North America and Canada the forests were being greatly diminished; but the most melancholy case was that of the West Indies, for there the destruction of forests meant not only the loss of a source of material wealth, but also permanent injury to the climate and the fertility of the soil. This destructive process had not hitherto been visible in Australia, because the forests there were so far inland that destructive agencies could not reach them. But if ever a reckless destruction of Australian forests should commence it would be fraught with the gravest danger to the community. The great problem of the future for Australia was the water supply in the centre of the island, and that problem could only be met by carefully preserving the forests near the sources of the scanty Australian rivers. For the practice of forestry there were three chief reasons—first, the extension of the national wealth; second, the retention of moisture in the soil; and, third, the moderation of the climate. Sir Richard looked upon the judicious use of forests as analogous to the employment of interest and capital, the same principles applying to both; and he also observed that, if forests which had disappeared could not be replaced by properly conducted arboriculture, many new trees could be naturalised or acclimatised in a country. Adequate provision for the instruction of forestry was wanted, for the great reason that forestry was nearly connected with national progress, and such instruction was divisible as follows:—Method of preparing the land for forests, the art of planting, the art of thinning and pruning, the utilisation of limbs and branches, felling, barking, leaving standards for reproduction (in which was comprised the most important of all the operations), gathering pollards, sawing and manufacturing, and rearing and propagating in nurseries.

At the close of a brief discussion, which took a very general tone, Sir Richard Temple said it had not been his object to add another subject to the curriculum of elementary schools, but to advocate the preservation of forests at home and abroad, and the establishment of forestry schools to disseminate the practice of forestry both at home and abroad, this country having a world-wide interest in the development of the timber supply. Besides, each country had its self-interest in the preservation of forests for climatic reasons, and for the maintenance of its national prosperity.

Orchid Notes and Gleanings.

Work in the Houses.—The greater part of the Dendrobiums will now have completed their season's growth, and the opportunity should now be taken to regulate the young growths. Where they are principally grown in pots a few of the oldest bulbs may be removed and the young bulbs should be lightly tied to neat stakes to prevent them receiving any injury when moved about. Before being tied the plants should be carefully sponged and all traces of dirt and insects removed from them, when they will be in good condition to go into their winter quarters. No attempt should be made to stake those that are grown in baskets, as they never look better than when depending from the latter. Those who have a late vinery where a little fire is used to maintain an equable temperature for the preservation of the Grapes, will also find it a very suitable structure for many of the Dendrobes during the autumn months. All the D. nobile, D. Wardianum, D. crassinode, D. moniliforme, D. Parishii, D. Pierardi, also D. densiflorum, D. Farmeri, and others of this section. With the removal of the Dendrobes from the growing house, the latter becomes available for the collection of winter-blooming Calanthes. These are fast pushing up their graceful spikes, and are well worthy of a special structure during the dull autumn months, as they are much more effective in a mass with a few foliage plants amongst them than as isolated specimens scattered through the warm houses. Keep them moist at the root for the present, and do not allow the temperature to fall below 60°, otherwise their foliage will soon turn yellow and decay. The late potted batch of these must be kept under growing conditions a little longer, also the late blooming C. Turneri, when they will come in useful to succeed the earliest lot. In the East Indian-house the earliest form of Angræcum sesquipedale, also A. eburneum, will be fast approaching the flowering stage, and should be placed in the driest part of the house, to preserve their beauty as long as possible. The winter-flowering Saccolabiums must be looked over occasionally, and as soon as their spikes are seen they should be protected. In this house, where the ventilation requires to be very carefully carried out during the winter season, it will be advisable to tack a piece of coarse open tiffany over the ventilators to prevent cold currents of air from passing over the plants, and also as a preservative of the moisture in the house, which soon gets condensed on the glass during cold weather, and causes another danger in drip. The latter must be carefully watched to see that it does not get into the hearts of the plants. To make sure of the latter, some strips of zinc should be cut about 3 inches wide, and pressed into the shape of the letter V, and then tacked under the sash bars to carry the superfluous moisture down to the front of the house. Any plants of Saccolabiums and other tender subjects that have been hanging close to the glass during the summer months, will be safer now from vicissitudes of temperature by being lowered a foot or so from the glass. *J. Roberts.*

Vanda cœrulea and Pleiones at Mr. Bockett's.—There are few Orchids known in collections that exhibit more variable results in their cultivation than the blue Vanda. With some growers it never seems to do well, with many others it thrives freely for a time—long enough to excite hopes that are ultimately dispelled, for although root and leaf growth go on for a year or two as well as could be wished, afterwards the leaves begin to show the dreaded disease at their points, not unusually before they are fully grown—a condition that often spreads so as to end in the destruction of the plants. This is the more regrettable as in the whole Orchid family there are few more lovely flowers, and in addition to their exquisite shade of soft blue they have the merit of blooming at a season when flowers are scarcest. At Stamford Hill the cultivation of this Vanda appears to be just hit upon, as the plants keep on year after year increasing in size without sign of disease, fresh and green in their foliage, although the leaves individually are not so large as sometimes met with—a circumstance that points to the presence of abundance of light, and an absence of over-exciting heat. The plants of this Vanda collectively are carrying some twenty-seven spikes, most of them fully open; they occupy the end of the centre stage in one of the span-roofed houses, presenting a variety of shades of delicate blue colour such as few families of plants afford; equally variable are the flowers in size, on some of the plants being twice as big as others. The Pleiones occupy a portion of a side stage in another house, standing as close as the pots in which they are grown admit of, and smothered with bloom, so as to hide the surface; they form a mass of colour which at a short distance looks like a bed of pink Colchicums. The principal sorts are P. Wallichiana, P. Reichenbachiana, P. maculata, and P. lagenaria; they are grown in a mixture of peat, loam, and sphagnum, and kept in the Cattleya-house through the growing season. Amongst other things in bloom are Lælia elegans, a grand form with four spikes, three of which have five flowers each, the fourth three; L. Perrinii, the right variety; some pretty forms of Cattleya, including C. speciosissima and C. Dayanum, and the white Trichopilia. Of Phalænopsis, P. grandiflora, P. amabilis, and P. violacea, a good many are in bloom; the collection of Phalænopsis has been treated so as to get them into flower early, to as far as possible have them before the fog season, so destructive of their flowers, comes on. In this house are a long double row of Cypripedium niveum and C. Spicerianum, that thrive beautifully; and on a broad shelf close up to the roof, with the pots half plunged in growing sphagnum, are a number of plants of Odontoglossum Roezlii, in such vigorous condition as rarely met with, the heat, light, and the moisture about the pots exactly suiting them. This, with other Odontoglossums, Phalænopsis, and any species that are at all affected with the troublesome yellow thrips, are dipped freely in a solution of nicotine soap. *T. B.*

Masdevallia Davisii.—Mr. Roberts appears to think (p. 431) that this is the only Masdevallia which flowers in autumn. I have, however, in flower at the present moment:—M. Davisii, M. chimæra, both upright and pendent; M. bella, M. Reichenbachiana, M. Lindeni, M. amabilis, M. ignea, and M. Wagneri. *H. J. Ross, Castagnolo, Lastra a Signa, Italy.*

—— We have at the present time the following species in bloom:—M. Lindeni, Davisii, Harryana, ignea, and Veitchii. The two last mentioned will give us fresh flowers until Christmas, and we always found chimæra and bella decidedly autumn-flowering Masdevallias. *T. N., The Gardens, Ferniehurst, Shipley.*

Oncidium flexuosum is a bright and attractive species, now flowering in the Cambridge Botanic Garden. The labellum is pure yellow, and the colour with which the rest of the flower is spotted is better than brown, being rather of a brownish-red. It is a free-flowering plant, not very common perhaps, though, according to one of our best authorities, it is "a good old species, from Brazil."

Vanda Sanderiana.—At Stevens' Rooms, on the 11th inst., a unique specimen of the newly introduced Vanda Sanderiana, received from Messrs. H. Low & Co., measuring 2 feet 10 inches across, with ninety leaves and numerous roots made in this country, fetched 200 guineas.

Cattleya Trianæ var. formosa, *Orchid Album*, t. 108.—Flowers between 6 and 7 inches across, with linear oblong obtuse pale violet sepals, broadly ovate sub-stipitate undulate petals; lip convolute at the base, with the terminal lobe undulate; rich magenta-crimson, with a broad orange blotch in the throat.

Maxillaria luteo-alba.—This plant is figured at t. 106 of the *Orchid Album*. It is useful for cutting purposes, as it flowers when the plants are small. The flowers are nearly 6 inches long, with narrow pointed pale brown sepals, similar, but much shorter petals, and a lip convolute and purple, and striped at the base, with an oblong recurved yellow anterior lobe.

Saccolabium curvifolium, *Orchid Album*, t. 107.—A dwarf plant, with the habit of a Vanda, and a dense many-flowered spike of orange-scarlet flowers. The plant requires the temperature of the East India-house.

Odontoglossum Londesboroughianum, Rchb. f., *Illust. Horticole*, t. 497.—See *Gard. Chron.*, t. xvii., p. 772.

The Flower Garden.

Every means should now be employed while the weather continues favourable to effect the necessary changes in the flower garden. As the summer plants die, or become shabby, they should be immediately cleared away. Re-pot those which are somewhat tender, before the approach of frost, and also those which are required for future stock.

Where Palms and other tender tropical plants are employed for outdoor decoration they should also be conveyed to their winter quarters, as by allowing them to remain out too long in the autumn they frequently receive injuries from which they never recover. The beds when cleared should be immediately prepared for the reception of those subjects already in store for them. For winter decoration nothing produces so fine an effect as a choice selection of the most ornamental foliaged dwarf varieties of shrubs, and there is now such an endless variety not only in respect to habit, outline, and general appearance, but the form, texture, and colouring of the foliage is so diversified and beautiful that almost any and every shade may be readily obtained in these hardy winter gems. Some of them, it is true, require a little special treatment in respect to soil when being potted, they also require a little occasional attention in respect to spring and summer pruning; but this is very little, and they amply repay by their bright and beautiful charms in winter for any attention which may be paid to them. If purchased from the nurseries in a small state and potted into suitable pots, not too large, they remain, by slight annual pruning, convenient and shapely plants for many years, simply requiring transference to the reserve nursery when spring or summer approaches. As an economical, at the same time most interesting and beautiful means of furnishing a winter and spring garden, they are, even when alone, most useful and very charming, but when judiciously associated with spring bulbs or plants the effect really is beautiful, as they afford a variety and relief which is very acceptable, and which tends greatly to enhance the pleasing effect produced by spring bulbs. The most suitable kinds of shrubs for this purpose are Andromedas, Cotoneaster microphylla and thymæfolia, Cræ agus pyracantha, Pernettya, floribunda and mucronata, Cupressus erecta viridis, albo-variegata, Nutkaensis and compacta; Cryptomeria nana, Euonymus radicans variegata, latifolius aureo-marginatus, and argenteo variegatus; Erica vulgaris aurea, herbacea, carnea, mediterranea rubra and alba; Aucuba, berried, especially vera nana; Ilex myrtifolia, aurea picta, argentea variegata, also the bronzed variety, and marginatus; Buxus japonica aurea and suffruticosa argentea, Juniperus Sabina variegata and tamariscifolia, Retinospora ericoides, obtusa aurea nana, and plumosa; Vinca elegantissima, Thuiopsis dolabrata, Skimmia japonica, Taxus elegantissma, Yucca recurva, the Myrtle-leaved Portugal Laurel, Veronica decusata, Rhododendron Willsonii, ovatum, myrtifolium and Daphnoides; also the gold and silver-leaved as well as the yellow-berried Ivy. Many more might be enumerated, but these kinds will give great variety, and as they are all hardy and of suitable growth they may be the easier managed. In grouping them their habits and colours must of course be considered, so as to form a suitable and pleasing arrangement. Care should be taken to plunge the surface of the pots just under the soil, so as to prevent them from being visible. When judiciously grouped and suitably associated with the various kinds of spring bulbs the effect is most charming. This is perhaps the best, as it is the most convenient season for performing any alteration required either on the lawn or in the shrubbery; it is especially suitable for transplanting either trees or shrubs of nearly every kind. If performed now they have ample time to establish themselves before the severity of the winter approaches, and consequently be the better able to withstand the trying effects of the spring weather.

The mowing machine will soon be at rest, but in order to make the dull autumn season more cheering the lawn should by no means be neglected; frequent brushing and rolling will be required, and all walks must be regularly edged and rolled in suitable weather, so as to give a trim and neat appearance. Shrubs and late flowering plants, such as Dahlias and Chrysanthemums, should receive due attention in respect to tying; and all decaying flowers and leaves should be daily removed. Without strict attention to those details the lawn and shubbery quickly become at this season very unsightly and unenjoyable. *T. S. C.*

Grapes and Vineries.

The earliest house must be pruned at once, if not already done. After pruning dress the cuts over with styptic, to prevent bleeding; if the Vines are clean no painting will be necessary, but if there is any mealy-bug on them, take off all the loose bark with the thumb and finger, but do not scrape them, and wash the Vines with Gishurst Compound, 8 oz. to the gallon of hot water. Be careful to thoroughly dissolve it and let it get cold before using. When the Vines have been washed and are dry, paint them with a mixture of clay, sulphur, soot, and Gishurst Compound, working it well into every crevice; wash the walls, woodwork, and glass thoroughly, tie the Vines in a horizontal position, and leave the front and back ventilators open night and day until the house is started. Any borders that are in a bad state can be treated as advised in my last Calendar. Succession-houses from which the fruit has been cut must have an abundance of air night and day, and sufficient water at the roots to keep the Vines healthy. Houses of late Hamburghs that have to be kept as long as possible, must have plenty of air when the external atmosphere is bright and dry, but on dull or foggy days very little air must be given. Protect the outside borders with shutters to throw off the autumn rains, and the inside border should be covered with straw or Fern to prevent evaporation. Muscats can be kept at a night temperature of 50° to 55° according to the state of the weather outside, for if too much fire-heat is used the berries will shrivel. Give sufficient water at the roots to keep the berries plump, choosing a bright day when a little extra air can be given so that the extra surface moisture will dry up before evening. Leave a little air on the back ventilators all night when the weather is mild. All late varieties of Grapes can be kept at a night temperature of 50° while the mild weather lasts, but if the nights are cold a few degrees lower will be advisable. Pot Vines for early forcing should now be pruned, and if the canes are too long for the house they have to occupy do not shorten them back much, for they invariably show better bunches towards the top where the buds are made in the long summer days. They can be tied in a slightly horizontal position, so that there will be room for them. They will be better left outside until they are started. The present is a good time to get some fermenting materials mixed together. It will then be in good order for use when the Vines are started early next month. *Joshua Atkins.*

The Orchard House.

No time should be lost now in plunging the pots containing the trees out-of-doors in Cocoa-nut fibre refuse, the best of all materials for this purpose. The house may be devoted to any other purpose until it is time to place the trees into it again; and there is nothing better than Chrysanthemums. They occupy the house from the first week in October until January, when it will be time to clear the house for the fruit trees. Those who intend to purchase any new trees should lose no time in doing so; as, the sooner after this time of the year they are potted the better. The pot culture of fruit trees admits of a very large number of distinct varieties grown from a young state into fruiting size; and it is not a very great sacrifice to destroy those that do not turn out so well as might be expected, to make room for other varieties it may be desirable to test. At this season of the year it may not be amiss to give a selection of the best varieties of trees adapted for orchard-house culture. Of Peaches: Alexander, Hale's Early, Early Grosse Mignonne, Bellegarde, Goshawk, and Princess of Wales, are a good selection. Of Nectarines, the best six are Lord Napier, Stanwick Elruge, Humboldt, Violette Hâtive, Downton, and Victoria. Plums: Angelina Burdett, Golden Esperen, Jefferson, Kirke's Golden Drop, Transparent Gage, Green Gage. Pears: Williams' Bon Chrétien, Beurré d'Amanlis, Madame Treyve, Louise Bonne of Jersey, Conseiller de la Cour, and Doyenné du Comice. Where Apples do not succeed well out-of-doors a few of the best grown in pots in the orchard-house will produce very superior fruit.

Kerry Pippin from the orchard-house and Early Strawberry have been very useful indeed for dessert purposes early in the year. I was rather disappointed with Cox's Orange Pippin in pots, and it is more to the purpose to get in a few very early sorts before they can be obtained from trees out-of-doors. Cox's Orange Pippin can be obtained of such good quality from pyramid or bush trees on the dwarfing stocks, that its partial failure in pots is not of much consequence. *J. Douglas.*

The Hardy Fruit Garden.

The gathering of Apples and Pears for dessert and culinary purposes should now be completed. Fortunately for us ours are all in, as our coast has been visited with tremendous gales of wind and rain during the past week, which blew down and injured to a great extent what were left on the trees. The present season being a most prolific one, especially as regards Apples—though with us Pears have been the same, and the quality better than usual, which may be attributable to our favourable climate—the fruit-room will be filled to overflowing. In order to meet this boxes and barrels, as recommended in my last Calendar, may be used, and very advantageously, for storing late keeping varieties. About a fortnight after housing the usual sweating will have taken place, and any fruit liable to decay can now be easily detected, which will enable only sound fruit to be thus stored away, and the losses from decay will be considerably reduced, for in this case a frequent looking over to remove decaying fruit cannot be performed so easily as when laid out singly on shelves, neither is it necessary, as seldom with late varieties does decay affect other fruit in contact with them. Of course the above is subject to the conditions before mentioned, that rooms used for storing be dry and cool, and means for ventilating be secured. The most satisfactory position for a fruit room is that of an underground cellar, which can be perfectly and well drained, and with good ventilation, so that the necessary dry and cool atmosphere can be maintained, and perhaps the most unsuitable, and which is not unfrequently met with, is that of rooms built over boiler sheds and others at the back of ranges of houses, when the atmosphere and temperature are affected by every external change in the weather. Press on the preparations for planting. In heavy soils and low wet districts provide for good drainage, and if drains can be laid from each pit to the mains so much the better. Clayey and heavy soils should be supplemented when trenching with a good dressing of a light soil, or even brick rubbish and mortar, and in the case of very light sandy soil, that of a heavier nature applied, a medium being the most desirable for fruit growing purposes. Where there is a great depth of soil, or the subsoil is uncongenial to the growth of fruit trees the bottom of the pits taken out for the trees should be paved with slabs, bricks, or other material from 4 to 5 feet in diameter, which will arrest the downward course of any roots and direct them horizontally. Where the soil is heavy and the locality low the pit should receive about 9 inches of broken bricks also, which drainage immediately affects the tree so planted. Whether planting new trees or root-pruning, be careful to sever all damaged portions of roots with the knife, otherwise the root may decay more than is desirable. To facilitate the operation of planting, if time and weather will permit, the pits may be filled with soil, as very little will be required to be moved, for it is preferable that the roots in all cases occupy a position only a few inches beneath the surface. If this is done, planting may proceed immediately the trees are ready.

The Raspberry thrives in a heavy and rather damp soil better than in a very light kind, which latter should always be kept thickly mulched.

The copings on walls, if movable, may be taken in, and give employment in wet weather in the way of painting, &c., which will thus place them in readiness for use when required. *D. C. Powell.*

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Oct. 22	Continuation of the Apple Show, at Chiswick, till the 25th inst. Sale of Bulbs, at Stevens' and Protheroe & Morris' Rooms.
Tuesday,	Oct. 23	Sale of Glass Erections and Plants, at the Stone Grove Nursery, Edgware, by Protheroe & Morris. Sale of Roses, Conifers, Bulbs, &c., at the City Auction Rooms, by Protheroe & Morris.
Wednesday,	Oct. 24	Fruit Show at Hereford (two days). Sale of Orchids, Stove Plants, Hardy Plants and Bulbs, &c., at Stevens' Rooms. Sale of Camellias, Azaleas, and other plants, Roses, &c., at Protheroe & Morris' Rooms
Thursday,	Oct. 25	Sale of Imported and Established Orchids, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms. Sale of Glass Erections, at the Westbourne Nursery, Harrow Road, by Protheroe & Morris.
Friday,	Oct. 26	Sale of Imported Flowering Orchids, at Protheroe & Morris' Rooms.
Saturday,	Oct. 27	Sale of Hardy Plants and Bulbs, at Stevens' Rooms, and Dutch Bulbs, at Protheroe & Morris' Rooms.

WHAT the immediate future of SYSTEMATIC BOTANY is likely to be is a question of no small importance, not alone to horticulturists, but to all concerned in the products of the vegetable kingdom, whether they minister to the wants or to the pleasures of mankind. In former years we had repeatedly to deplore the little attention that was paid in this country to physiological botany, but the tide has turned, and now we have to call attention to the growing neglect of descriptive botany. In Germany especially, in most of the centres of learning there has arisen a thorough contempt for systematic botany, and those pursuing it are disdainfully styled "florists." For them the student of the histology or physiology of plants is a botanist, and those branches of botany are alone considered worthy to be classed under the head of science! A few of those who have condescended to study systematic botany have so charged and complicated their work with superfluous matter as to render it impracticable. It is a pity that one branch of knowledge should suffer in consequence of a number of professors giving exclusive attention to other branches; and we are glad to see that a German botanist and traveller of note like Dr. G. SCHWEINFURTH has had the courage to speak out boldly on the subject before an audience comprising many of the leading professors of botany in Germany. In saying this we do not intend to disparage German botanists, many of whom have done most excellent work, and are unsurpassed for painstaking research. Dr. SCHWEINFURTH, however, was very severe, and we are not surprised that his animadversions gave some offence to those against whom they were directed.

At a meeting of German naturalists and physicians at Fribourg on the 21st ult. Dr. SCHWEINFURTH delivered an address dealing with his recent explorations in the island of Socotra and the present state of botany in Germany. After expatiating on the primary importance of systematic botany he declared that there were everywhere traces of the Consequences of the exclusive cultivation of the anatomical and physiological branches of botany. Teachers were wanting, he said, and botanic gardens were falling into decay (continental gardens of this description, with some exceptions, were never very brilliant within our recollection); while the directors of these establishments assumed airs of superiority and looked down with contempt on those few representatives left of the old school of botanists. Every branch of scientific research has its justification, and he who raised his own particular branch to a monopoly is guilty of a crying injustice. Geography and other sciences were suffering through the inactivity of travellers in botanical investigation. To give an example of what remained to be done in relation to cultivated plants he mentioned Penicillaria, a tropical grass which affords food for fifty or perhaps even a hundred million persons, as practically unknown, and not alluded to in the most recent works. As to the students of one branch of botany or geography arrogating to their particular branch the exclusive right to the title of scientific, Dr. SCHWEINFURTH characterised it as ridiculous, deprecating altogether the employment of such definitions as scientific geography, zoology or botany, because botany is a science, or it is not.

We quite agree with Dr. SCHWEINFURTH, and we think it good that such truth should be spoken out fearlessly. Fortunately, although botanical teaching has much widened and improved in this country within the last twenty years, it has not been, in most places, at the expense of systematic botany. Never, perhaps, was there greater activity in this branch of botany, whether in relation to purely descriptive work, to the dispersion of plants over the surface of the earth, or to the elucidation of the sources of useful vegetable products. In a very great measure this is due to the excellent provisions for studying systematic botany, and the encouragement given to it by those who have had and who have the management of our central establishment at Kew, which have also borne good fruit, even among amateurs. We have only to instance Mr. MAW'S labours on the genus Crocus, Mr. ELWES' on Lilium, and Professor MICHAEL FOSTER'S on Iris. Practical Englishmen recognise that neither systematic nor physiological botany can be neglected without serious injury to both as departments of pure science, or as essential to the progress of the applied sciences of horticulture and agriculture.

—— MAURANDYA ERUBESCENS.—The genus Lophospermum, to which this plant was formerly referred, is now considered by Mr. BENTHAM (*Genera Plantarum*, vol. ii., 1876, p. 935) to be merely a section of Maurandya distinguished from the true Maurandyas by the broader calyx segments and winged (not wingless) seeds. Unfortunately, this is not the only change required, for the plant we now figure (fig. 81) and which is generally grown as Lophospermum scandens, should, it appears, be more properly called Maurandya erubescens, the true L. scandens being different. Maurandya erubescens, then, is a beautiful herbaceous climber, raised originally from Mexican seed in the garden of the late P. NEILL, Esq., at Canon Mills, near Edinburgh. It is best treated as a greenhouse plant, but when grown out-of-doors, as it may be during the summer months, the colour of the flowers becomes much richer, almost purple. The roots are fleshy and may be preserved in winter like Dahlia tubers, or it may be treated as an annual and grown from seed on a hotbed. A beautiful hybrid, called L. Hendersoni ×, was once in cultivation, but we do not know if it is now to be found. It was raised in the Bury Botanic Garden between L. scandens (female) and L. erubescens (male), and is recorded as very free-flowering and as an improvement upon either of its parents. See *Gardeners' Chronicle*, 1842, p. 254. For our present specimen (fig. 81) we are indebted to Mr. LYNCH, of the Cambridge Botanic Garden, whose zeal in cultivating novelties and bringing old favourites again into notice is worthy of all praise.

—— THE APPLE SHOW AT CHISWICK. — The authorities, having regard to the vast amount of work that yet remains to be done, and to the fact that public interest in the exhibition shows no abatement, have wisely determined to extend the period during which the exhibition will be kept open until Thursday next; and we are requested to state, that exhibitors who may desire to do so, may remove their fruit on Friday the 26th inst. Considering the amount of handling that has been going on since the exhibition was opened, the fruits have still a remarkably bright and fresh appearance, and there is scarcely a day that does not bring some additions of interest and value. Another pleasing fact in connection with the show is, that notwithstanding the total absence of police, and the frequent absence of the *employés* from the houses attending to other duties, it is believed by the authorities that not a single fruit has been purloined by visitors—a fact which we suppose we must take to mean, that the morals of boys have improved, since we foraged for "scrunchers."

—— PRESENTATION TO MR. BARRON. — At a dinner of the promoters of the Apple Exhibition, held in the rooms of the Horticultural Club, at Ashley's Hotel, Covent Garden, on Thursday night, Mr. BARRON, the Superintendent of the Royal Horticultural Society's Gardens, and upon whom the greater part of the labour involved in this most successful exhibition has devolved, was presented with a gold watch and chain. Never was a compliment of this kind more richly merited, nor more ungrudgingly awarded.

—— THE NATIONAL ROSE SHOW.—Salisbury is the chosen city for holding this show in 1884. The exact date is not yet definitely arranged, but it will most probably be early in July. Let us hope that the show may be one worthy of this popular Society, an honour to the name of KEYNES, who did so much to make the Rose popular, and a credit to the lovely city that KEYNES made so floriculturally famous.

—— THE PHYLLOXERA LAWS.—The arguments that have been used, and the evidence that has been afforded, of the futility for the purpose intended of these laws, have proved of no avail. It becomes now a question, whether those of our horticulturists who are concerned in the importation of living plants into Germany and other Continental countries should give in their adhesion to the Treaty of Berne. If they do, they must be prepared to act loyally up to its terms, however burdensome they may prove to be. The only alternative is to lose their Continental trade almost entirely. We have on several occasions published the requirements of the treaty, and those who wish to know under what conditions plants may be introduced are referred to p. 557 of our vol. xviii. for 1882. We may add, however, that from what we learn the execution of the law is carried out sometimes in a very arbitrary manner, while at other times a certain laxity of practice has been observed.

APPLE SHOW AT MANCHESTER.—We understand that Mr. BRUCE FINDLEY is organising a large Apple Show, to be held in the Manchester Town Hall, and to be opened to the public on Thursday, November 1.

—— THE TEMPLE CHRYSANTHEMUMS. — We understand that the Chrysanthemums in both the Inner and Middle Temple Gardens promise an unusually good display this season, and as the buds are developing fast, they will be in bloom earlier than usual.

—— DUNDEE HORTICULTURAL SOCIETY.—The annual meeting of this Society was held on the 10th inst., Provost MONCUR, the President, in the Chair. The accounts showed the income to be £954 12*s.* 7*d.*, which gave a profit of £53 9*s.* 8*d.* on the year, bringing up the balance at the credit of the Society to £378 0*s.* 10*d.* The membership this year was 719, a decrease of two as compared with the number last year. The number who visited the show this year was nearly 20,000, and the amount of admission money was £416, the largest sum in the history of the Society with the exception of the sum drawn at the International Show some years ago. Among the reasons for the success of the show were the excellence of the exhibition itself, the electric lighting, the quality of the music supplied, and the return of prosperity to the industries of the town. The accounts were unanimously adopted, and the committee cordially thanked for their services during the past year. On the motion of Mr. DOIG, Rossie Priory, the Earl of CAMPERDOWN was re-elected Honorary President of the Society. On the motion of Mr. JAMES JOHNSTONE, Ashludie, Provost MONCUR was unanimously re-elected President. The Provost expressed his pleasure in accepting the office, and said they were to have an International Show next year, and he would have great pleasure in doing what he could for its success. They were for some time threatened with opposition in London. That had now been withdrawn, so that they had the whole field to themselves, and it would be their own fault if they did not make the International Show a thorough success, and even more successful than the former International Shows they had held.

—— GOVERNMENT PLANTS.—Owing to the wide publicity given just recently to the announcement that the surplus plants from the beds in our public parks were again to be distributed amongst the poorer classes of our metropolis on application, it would seem as if there must be some good reasons for this annual offer,

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and that it is largely availed of. We should, therefore, like to learn something of the applications made, their numbers, the class of people who apply, and for what particular plants, and, not least, when obtained, with what success or otherwise the plants are kept. It must be admitted that bedding plants, such as Pelargoniums, Verbenas, Petunias, Fuchsias, Calceolarias, Lobelias, and similar things are in about the worst possible condition for winter keeping under any circumstances. When fresh lifted from the beds, and when gardeners with proper appliances find them to make for the winter most truculent material, what amount of success can be looked for when town dwellers have to keep them in their close rooms or windows, and under the most trying conditions as best they may? If at the end of the winter one half of these plants are found alive the result would be most creditable to those who have been their cultivators. Succulents of a fairly hardy kind may be housed with ease, but of these we fear the poor applicants get few. All the tender Coleuses, Iresines, Alternantheras, and subtropical plants are valueless to any one, and may be put aside at once. The selection, therefore, becomes necessarily a limited one, and much interest must attach to reliable information as to what kinds are most sought for in the first instance, and to those which are most successfully kept and grown afterwards. There can be no doubt but that a distribution of surplus bedding plants in the early summer from the public parks would prove a boon, and thousands might hope to grow these with success. Still it would be a question how far Government benevolence should interfere with the plant hawker's vocation.

—— Next Year's Fruit Prospects.—It may be not exactly in place to refer under this heading to a suggestion already thrown out, that what is being so well done for Apples at Chiswick, should be supplemented next year in the case of Pears, but it is evident that such a work, if undertaken—and there is no reason why it should not be—must be largely contingent upon the nature of the crop of that fruit the coming season may give us. Perhaps exception may be taken to the exhibition of Pears on a similar plan, for but a limited time, on the ground that Pears have shorter seasons than Apples, especially the early sorts, and that therefore many of these useful kinds would remain unrepresented. That difficulty, however, might be overcome by starting the exhibition at a somewhat earlier period and by keeping it open for, say, six weeks, the earlier kinds bein g removed at the end of a fortnight, to be replaced with the mid-season kinds, and these again to be followed by the late keepers. As in the case of Pears merit is so much contingent upon flavour and delicacy of flesh, that full permission should be given that samples might be tasted by the committee. These suggestions will no doubt receive due weight when the proper time arrives. In the meantime it is not possible to omit notice of the unquestioned fact, that the grand summer weather of July and August, allied to the truly warm and delightful autumn we have been enjoying, have tended to produce on all our fruit trees—present heavily laden Apple trees alone excepted—a show of fruiting-buds that has rarely been excelled. Pears, especially, are in that respect in grand form, the buds big, firm, and well ripened, so that barring accidents, which are only too likely to occur, the coming year may be looked for as a Pear season *par excellence*. If we get plenty of Pears we are almost certain to get an abundance of other fruits; and but half a crop of Apples, if of fine quality, will be a grand crop none the less. We, therefore, look hopefully for the fruit crop of 1884.

—— Single Dahlias.—What a charming lot of these Mr. T. S. Ware, of Tottenham, staged in the conservatory at South Kensington last week! There were something like fifty bunches, nearly, if not quite distinct, and they were most effective even under the sombre aspect of a dull October day. The following varieties, mainly new, can clearly lay claim to novelty and distinctness:—George Clarke, maroon, with side margins of magenta, of the type of Paragon, and very pleasing; In Memoriam, magenta, with dashes of crimson-maroon; H. W. Petitt, crimson, with side margins of delicate lilac, distinct, and very pretty; Beacon, rich crimson, very striking and fine in colour; Cherry, having a ring of cherry-ruby round the centre, the petals finished off with a deep edging of pinkish-lilac; Mrs. Burbidge, deep purple, very rich in colour, and extra fine; Victory, pure white, a seedling from White Queen, but with stouter petals and better form; Highland Chief, pale buff-brown, flushed with pink, very distinct and pleasing; Mrs. Castle, intense lake, with slight tips of magenta, novel and distinct; Beauty of Uplands, pale red, tipped with yellow, and with a golden zone round the centre; Silver King, orange-cinnamon, flushed with silver, and distinctly edged with pale yellow; and Freedom, deep bright orange-scarlet, one of the small-flowered type, and very promising. But all were fine throughout, and this fine collection commanded universal admiration.

—— Hardy Flowers in the Cambridge Botanic Garden for the most part show plainly that the late weather has been distressing to them, but it cannot be said of Sternbergia lutea var. angustifolia, Tritonia crocata, the Asters mentioned in another paragraph, Phygelius capensis, and Zauschneria californica, which flower amid the gloom as brightly as possible. Between the Sternbergia just mentioned and the proper S. lutea there is a great difference, as the former blooms most profusely, while it is rather uncommon to see a flower on the latter. The Zauschneria holds its own in a dry place where scarcely anything else would grow.

—— Perennial Asters.—Messrs. H. Cannell & Sons, of Swanley, as well as Mr. T. S. Ware, did good service in bringing representative bunches of some of the best of these to the last meeting of the Royal Horticultural Society. Messrs. Cannell & Sons' exhibit was particularly good, and comprised such fine forms as Novæ-Belgii, mauve-purple, large and fine; Amellus major, clear mauve, very pretty; Formosissima, pale mauve; lævigatus, delicate lilac; Lævis, delicate mauve, very pleasing; longifolius formosus, soft rosy-pink, very pretty; Novæ-Angliæ pulchellus, rosy-pink, very pretty and distinct; polyphyllus, white, tinted lilac with age; and ericoides, small, white, very free. In Mr. Ware's collection Amellus bessarabicus, deep mauve-purple, represented the deepest coloured of all.

—— Dwarf French Marigolds.—Whether the fine and useful types of dwarf Marigolds shown by Mr. R. Dean, of Ealing, lately, will induce people to attempt their culture in pots for flowering in late autumn remains to be seen. But they are exceedingly bright and effective in the open ground, and any one who may be disposed to try them in beds will find them remarkably enduring. They are the result of not a few years' careful selection, and it is something to find the tall-growing striped French Marigolds of old reduced to a height of from 12 to 15 inches, and with a remarkably close and compact habit of growth—and such flowers, too! The striped forms appeared to be as perfect as one could well desire to see them.

—— The Serra da Estrella.—The botany of this range, which stretches across Portugal obliquely, from south-west at Lisbon to north-west on the Douro, has lately been investigated by Professor Henriquez, under the auspices of the Geographical Society of Lisbon. Unfortunately the report is written in Portuguese, but we gather that it contains an historical sketch of the botany of the country, followed by an account of the botanical regions of the Serra—six in number; the total number of species being twenty-six Ferns and higher Cryptogams, four Gymnosperms, 271 Monocotyledons, and 932 Dicotyledons. The detailed catalogue of species is in Latin, and comprises the name, the locality, collector's name, and general area of distribution. The six botanical regions are as follows:—The lowest, up to a heigth of 400 metres, characterised by the growth of Agave americana, Orange and Opuntia; the second, from 400 to 800 metres, in which Pinus Pinea, P. Pinaster, and the Sweet Chestnut are the characteristic trees; the third region extends from an altitude of 800 metres to one of 1500. Potatos and Maize are cultivated as high as 1000 metres. Rye extends to 1500 metres, and this, too, is given as the limit of Pteris aquilina. The fourth region extends from 1500 metres to over 1700. This is the region of Heaths, E. arborea, lusitanica, &c. The trees are Birch, Holly, and dwarf Junipers. In the fifth region, from 1750 to 1850 metres, Juniperus nana is still found. The highest region, from 1850 to nearly 2000 metres, is characterised by the entire absence of arborescent vegetation. Genista Boissieri grows in this region, as well as numerous cellular Cryptogams. Of all the species enumerated, seven are exclusively Portuguese, eighty-four Peninsula, ninety-eight Mediterranean, and 1036 of general European distribution.

—— Michaelmas Daisies.—Among the best Asters flowering in the Cambridge Botanic Garden are the following:—Aster Chapmani, of loose habit, but good, 4 feet high, with pale lilac flowers-heads, an inch across; A. sparsiflorus, with immensely profuse flowers of pale lilac colour, rather small, being only three-eighths of an inch across, height about 3 feet; A. puniceus, about 4½ feet high, with rosy-lilac flowers an inch across; A. miser, bright, with multitudes of tiny white-rayed flower-heads, with wine-purple centre florets, in racemose branches, height about 2½ feet; A. Reevesi, of dwarf habit and wiry stemmed, bearing a fair profusion of white flowers; A. dumosus, less than a foot high, forming quite a hummock of rosy-lilac flowers, through which scarcely any foliage can be seen; A. Amellus, one of the best of all, with blue-purple flowers, 2 feet high; a kind called A. amethystinus, of blue colour, about 1½ foot high; the varieties of Novæ-Angliæ, and some of A. Novæ-Belgii, to which may be added some fine kinds without names.

—— Tritoma uvaria from Seed.—Noticing a very fine and effective batch of plants in Messrs. Sutton & Sons' nursery at Reading, a short time since, we were informed that they had been raised from seed; and that the plants grow into great size and flower freely the second year. In the case of this particular batch of plants the seed from which they were raised was sown in January in strong heat, and when the plants are large enough they are pricked off four or five plants in a 4½-inch pot; here they remain all the winter, being kept in a cold frame away from frost, and they are then planted-out in a well prepared bed, where they come into flower in September. In this way a large supply of plants can be obtained in a comparatively short time. It is obvious that such a strong growing plant requires a deeply dug and substantial soil in which to bring it to perfection.

—— Delphinium nudicaule.—The remark is often made that gardeners do not succeed with this interesting perennial Larkspur. Plants are raised from seeds, put out in the open ground, where they flower; they are left there during the winter, and in the following spring it is found that many of them have disappeared. If any one will examine a root of Delphinium nudicaule he will find that if the roots are somewhat slight, and not of a character to fasten themselves deeply into the soil, during winter they are loosened by frost, and lifted out of the ground by sweeping winds. It is a plant that will not live in heavy soil or in bad weather. The best thing to do is to lift the roots in autumn, preserve them through the winter in sand, and plant out in spring; or, better still, start the plants into growth in pots, grow them on a bit, and then plant out in the proper season in a prepared bed of light rich soil.

—— Cotoneaster congesta.—This, as seen at the Chiswick Gardens, makes a capital plant for clothing rockwork. It requires to be planted in a position slightly elevated, when it can fall down over a face of stone, to which it will cling with singular persistency. it is of a very dense growth, and being evergreen, its value is greatly enhanced.

—— St. Helena.—The authorities of the Colonial Office are to be congratulated upon a plan they have lately adopted, of sending specialists to various colonies with a view to affording the residents information in cultural matters: Mr. Morris, after doing good service in Ceylon, was drafted off to Jamaica, where he still holds the post of Director of Public Gardens and Plantations, and latterly he has been despatched to St. Helena to report on the agricultural capabilities of the island. Mr. Morris, among other things, recommends the culture in that island of Fourcroya gigantea for the sake of the fibre produced by its leaves, which is worth, when prepared, about £37 per ton. The plant grows luxuriantly in wild rocky parts of the island; its cultivation, therefore, need not encroach upon the more valuable parts. Aloe vulgaris, which also grows plentifully in waste ground in the island, might be utilised for the supply of bitter Aloes. The soil and climate of the island are adapted for the culture of Coffee, Tobacco, Oranges,

Sorghums, Carob tree (Ceratonia Siliqua). The introduction of the Guango (Inga Saman) was recommended, for the sake of the nutritious fruit, said to be the basis of "Thorley's Food for Cattle." The Cushaw (Prosopis juliflora) is so valuable in times of drought that Mr. Morris recommended its introduction into St. Helena. The visit of Mr. Morris is the direct result of those efforts to promote the practical application of botany in the colonies which were made by the late Sir William Hooker, and which have been continued with such signal success by his son and successor, Sir Joseph Hooker.

—— Apples and Pears.—A correspondent sends us some deformed fruit of General Todtleben Pear with the information that a particular tree always produces these malformed fruits. Instead of the ordinary large turbinate fruit cylindrical or club-shaped abortions are produced. On cutting them across the cause of the deformity is easily seen to be that the fruit has never properly set. The fruit, in popular language, of the Pear and Apple is botanically no fruit at all, but only the swollen end of the fruit-stalk in which is embedded the "core," which, botanically speaking, is the true fruit. Now in the samples before us the fruit has not been formed, or at any rate it has not ripened, and we have, in consequence, merely the club-shaped end of the stalk without any core at all, thus bearing out the correctness of the botanist's views. The succulence has developed to a certain extent, but has stopped at a certain point, producing the deformity in question. Probably many have dropped off before arriving even at this stage. Possibly the club-shaped specimens, having already arrived at a good size, would ripen and prove of equally good flavour as the more perfect samples; but as such imperfect specimens are obviously undesirable, it might be well in the case of trees known to be prone to this defect to secure proper fertilisation by artificial means at the blossoming period. It may happen, however, that the pollen is in these cases deficient in quantity or quality. This is a matter to be ascertained when the tree is in bloom, and if this be found to be the case, then it would be well to destroy the tree, and avoid propagating from it. It may, however, be a reversion to a diœcious condition, where the sexes are separate—a common condition in the order—and then the indication for the practical man would be to secure fertilisation by using the pollen of some other plant of the same, or even, it might be, of some other variety.

—— Abrus precatorius.—Many of our readers must be familiar with the small glistening seeds, scarlet at one end and black at the other, used as necklaces, and stated to be used in India as diamond weights (carats). Of late a preparation made from these seeds has been used in certain cases of inflammation of the eye and eyelids. Baron Von Müeller, writing on the subject in the *Australian Medical Gazette* says:—

"The leguminous climber, Abrus precatorius, though only now brought into notice as an important medicinal plant, was descriptively rendered known by Dr. Leonhard Rauwolf, who travelled from 1573—1575 in Arabia, Syria, and some adjoining countries, and who published a work on these journeys in 1582 (*Beschreibung der Reiss in die Morgenlaender*); in the fourth part of this publication the Abrus occurs first under that name, together with a woodcut of the plant. Rauwolf was medical officer (Physicus) of the town of Augsburg, and it reflects credit on Bavaria, that fully 300 years ago some legal control was exercised over the practice of medicine. Of the various plants discovered by Rauwolf, and noticed in his work, about 200 specimens, nicely glued down on paper (the Abrus among them), are still preserved—as one of the earliest of any herbaria—in Leyden. Allusion to this plant is made by Gesner and De l'Lobel even somewhat earlier, but under different names. The specific appellation was given by Linné in 1767. The Abrus precatorius ranges widely through the tropical regions as well of the eastern as of the western hemisphere, reaching extra-tropical latitudes in China and Natal. As Australian, we know the plant from various places of Queensland, and I saw it also on the litoral regions of North Australia. Captain Dampier, when exploring on our north-western coast as long ago as 1699, noted the Abrus as occurring also in the Archipelago which bears his name. The beauty of the seeds, which suggested the generic appellation (Greek *abros*, splendid), is not always of the normal scarlet with a black base, as they occur occasionally white with a black spot, or whitish, or quite black. The use of the seeds for rosaries in some of the churches of South America gave rise to the specific name. The only allusion to the medicinal value of the seeds, so far as I am aware, is in Dr. Rosenthal's *Synopsis Plantarum Diaphoricarum*, p. 1022 (published 1862), where it is simply stated that they are employed in diseases of the eyes; but he adds that their internal use produces anguish, oppression, and spasm. Possibly this information may have been obtained from Martius' *Specimen Materiæ Medicæ Brasiliensis*, issued in 1824. The foliage and root contain a sweetish principle, which is alluded to at p. 94 of my enlarged English edition of Wettstein's *Organic Constituents of Plants*; but neither this nor the active ingredient of the seeds have hitherto undergone accurate chemical examination."

—— Pinus Banksiana.—In the July number of the *Bulletin* of the Torrey Botanical Club (p. 82), Mr. N. L. Britton calls attention to the fact that botanical writers have commonly understated the size of Banks' Pine (Pinus Banksiana, Lambert), Gray describing it as "a straggling shrub or low tree," and other authors giving its maximum height at from 20 to 40 feet. Mr. Britton then states that he has found trees, in the vicinity of Marquette, on Lake Superior, that measured 70 feet in height; but he overlooks the detailed observations of Mr. Bell, who tells us that on the southern branches of Albany River, south-west of Hudson's Bay, he saw "large groves of these trees about 70 feet in height and 2 feet in diameter at butt, with straight trunks nearly free from branches for the first 20 or 30 feet." I have myself seen Banks' Pine growing in abundance at various places along the lower River and Gulf of St. Lawrence, and at Newfoundland; and have found many trees at Godbout and Seven Islands that were upwards of 50 feet in height, and some that exceeded 60 feet. In the province of Quebec it is largely used for firewood, and along the north shore of the river it has become an article of commerce of no inconsiderable value, thousands of cords being shipped annually to Quebec. It is here called "Cypress"! In our manuals the species is commonly, though very improperly, termed the "Northern Scrub Pine." Its habitat is in the far North, where it attains its maximum development, constituting one of the larger forest trees. Only beyond the limits of its proper range does it occur as "a straggling shrub," or merit the appellation of "scrubby." Mr. J. A. Allen, in treating of the correlation of size with geographical distribution in mammals, has tersely formulated the following law, which is as strikingly applicable in the present case as in any member of the group for which it was particularly framed:—"The maximum physical development of the individual is attained where the conditions of environment are most favourable to the life of the species. Species being primarily limited in their distribution by climatic conditions, their representatives living at or near either of their respective latitudinal boundaries are more or less unfavourably affected by the influences that finally limit the range of the species." *C. Hart Merriam.*

—— Eucomis punctata.—A bulbous plant often met with in old-fashioned gardens or in places where the love of novelty has not quite banished many old worthies from cultivation. There is nothing showy in flower or foliage, and it has nothing more than its quaint colouring to recommend it, beyond the ease with which it may be grown. The flower-stalk is cylindrical, and spotted with black, and will reach the height of 3 feet in strong specimens. The foliage, which is nearly 1 foot long and 2 inches in width, is spotted with black likewise. The flowers, which are greenish-white, edged with brown, are arranged in a spike, as in a Hyacinth, and appear in summer and autumn. There is a variety of punctata named striata, so-called from its having purple spots arranged in bands on the under-side of the leaf, but differing in no other respect from the type. Some cultivators take the bulbs out of the pots after the plant has flowered and dry them thoroughly for a week in a shady but airy place; still, this does not seem to be essential to their flowering, as I found they did quite as well by withholding water for four or five weeks previous to repotting them. For potting, good sound loam, with a fair proportion of sharp sand, should be used, and merely a slight addition of manure or leaf-mould; but this is not requisite if the loam is from the top-spit of pasture-land. The bulbs are better planted six in a 24 or four in a 32-sized pot, keeping them a good distance apart, and with the neck just out of the mould. But little water is necessary till the roots have begun to move, and the plant has made some leaf progress, which under greenhouse treatment will be in early spring; the plants must then have the benefit of full light and sun, with abundant ventilation when the weather is mild. They will require more and more water as the pots fill with roots, and in full growth in dry weather copious waterings will be requisite. It is not advisable to place the plants in the greenhouse or cold pit directly they are repotted, but they may stand on a dry bottom of cinders till danger from early frost approaches. There is another species named purpureocaulis, which has large spatulate foliage, a short club formed flower-spike, and greenish flowers, the leaves that grow on the apex of the flower-shaft being purple edged with green—hence the name. The flowers in this kind appear in March and April. The plant is not so desirable a one to grow as punctata. The two first-named kinds are worthy of a place in lists of plants suitable for cultivation in windows or rooms, for which purpose they lend themselves if the undue forwarding of the growth during the winter months can be hindered. The plants should not receive a higher temperature then than 40° to 45°.

—— What is Distinctness?—The wording of prize schedules so as to prevent all possible misapprehension as to their meaning, seems still to be a matter of difficulty. The dissatisfaction that arises when the judges' reading of the words of a schedule literally disqualifies a competitor who has read them perhaps figuratively, and who therefore feels wronged, leads to no end of bickering and ill-feeling. The fault usually lies with the framers of schedules, because they employ words that admit of various interpretations. In all well ordered schedules it is the rule to use the word "distinct" only, and nothing more, when any one kind of plant, fruit, or vegetable is referred to. As this:—Twelve Roses, distinct; or twelve dishes of Potatos, distinct; or twelve Fuchsias, distinct, or, to adopt the language of the Auricula Society, "dissimilar." When, however, a collection of several diverse things is invited then the simple word "kind" is generally found to sufficiently explain it. Thus twelve vegetables, distinct kinds, is held to mean what it says, and not that two varieties or sorts of one kind are asked for; the word "sort" should be excluded entirely as open to various interpretations, but whilst the word "kind" is always held to convey the greatest distinctness, the term "variety" is held to mean diverse sorts of any one kinds, such as varieties of Potatos, Apples, Grapes, &c. Twelve "sorts" of vegetables, for instance, is wording that may admit of any interpretation, but twelve "kinds" is clear and precise. Surely, if a little common sense were exercised in the wording of schedule controversies need not arise. The term "species" is one that has occasion very rarely to appear in flower show schedules—which is fortunate, for no one could define the term to satisfy all parties.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Oct. 15, issued by the Meteorological Office, London:—The weather has been cloudy or dull in all districts. During the earlier days of the period fog was rather prevalent over England, but as the week progressed squalls and heavy rains were experienced in all parts of our islands. The temperature has been about equal to the mean in "England, S.W.," and "Ireland, N.," but a little above it in all other districts. The maxima, which were registered on the 9th in Scotland and on the 14th in England, varied from 68° in "England, N.E.," and 67° in "Scotland, E.," to 61° in "England, N.W.," and "Scotland, W." The minima were generally recorded on the 12th or 13th, and ranged from 40° in "England, S.," and 38° in "England, E.," and "England, S.W.," to 31° in "Ireland, N.," and 30° in "Scotland, E.," and "England, N.E." The rainfall has been less than the mean over the North of England, and about equal to its normal amount in "England, E.," but more in all other districts. Bright sunshine percentages, which show a considerable decrease in nearly all places, ranged from 12 in "Ireland, N.," to 32 in "England, S." Depressions observed:—During the first few days of this period barometric pressure over our islands was uniform and comparatively high, while some depressions were travelling in an easterly direction far to the northward. By 8 A.M. on the 13th, however, the barometer had fallen very briskly in Ireland and Scotland, while it had risen quickly, and was highest in Sweden. From this date until the close of the period rather deep depressions skirted our western and northern coasts, some subsidiary disturbances at the same time passing across England. The wind, which was at first light and very variable, subsequently blew from the southward or south-westward in all districts, reaching the force of a gale in some parts of Ireland and Scotland on the 13th, and a fresh to whole gale on nearly all our coasts during the 15th.

Home Correspondence.

White Czar Violet.—During the last two years we have been very much puzzled with our White Czar Violets. Sometimes a whole bed will produce every flower purple, and no trace of white will be visible, while in other seasons it will turn back to its proper colour. Just now it is throwing up a fair quantity of white blooms, but both last and the previous autumn we took out what we thought the rogues, but at last all were rogues, and we were compelled—notwithstanding our previously held convictions that such a thing could not be—to admit that this variety, the best of all single white Violets, does at different seasons change colour. We should be glad to hear if the same freak has occurred in other places. *H. Cannell & Sons, Swanley.*

Prunus Pissardi.—Having grown it, we can corroborate all that has been said by your correspondents in favour of this newly introduced, and as yet rather rare, ornamental tree. Its foliage is as striking in colour as that of Acer polymorphum atro-purpureum. It may interest "G. N." and other of your readers to know that it succeeds well, growing vigorously so far North as this. *W. P. Laird & Sinclair, Monifieth Nurseries, Forfarshire, N.B.*

Chrysanthemums Flowering Early.—These are certainly more forward than we ever remember at this season, and many varieties that are usually shown in competitions will be past their best before the shows. We would advise that the later kinds should receive every attention, for, depend upon it, we shall see more of the late sorts than usual this season. The dry sunny summer ripened the wood weeks before the usual time; this, together with the mild growing autumn, promises to make the bloom both very fine and early, and those who wish to retard their growth should adopt every means to do so. The following is a list of the varieties that are in flower now:—*Japanese:* Lady Selborne, white; Souvenir d'Amèlie, white and rose-violet; Lord Beaconsfield, salmon-red and amber-yellow; Mdlle. Louise Sabatie, violet-rose, shaded white; Early Red Dragon, deep crimson, golden tips; M. Delaux, reddish-crimson; Mr. J. Starling, rosy-lilac, shaded white; Chang, dark orange-red; Gloire Rayonnante, rose, shaded lilac; Red Indian, red; Riche Bouquet, white, lilac and rose; La Charmeuse, rich purple, tipped white; Rose Mignonne, soft rose, striped white; M. E. Pourquiè, reddish-brown; Mdme. B. Rendatler, nankeen-yellow, shaded rose; James Salter, clear lilac; M. Richard Larios, dark rose and bright violet; L'Isle des Plaisirs, brownish-crimson; Progrès Toulousain, reddish-crimson; Belle Gabrielle, deep rosy-violet; Boule d'Argent, purple-amaranth; Souvenir de la Reine Marie, rosy-violet; R. Ballantine, rich carmine, bishop's violet; Jane Salter, white, striped rosy-lilac; Chinaman, violet-purple; Constance, deep crimson; La Bien Aimée, white, tinted lilac; Nuit d'Hiver, bronze, tinted brown; Soleil Levant, canary-yellow; Source d'Or, orange and shaded yellow; M. Planchenan, mauve, shaded rose and silver; Alexandre Dufour, bordering on bishop's violet, very early. *Hybrid Pompons:* Golden Trevenna, yellow; White Trevenna, white; Rose Trevenna, rose; Autumnum, buff. *Incurved:* Mr. Bunn, golden colour; Mr. Geo. Glenny, straw colour; Novelty, blush. *H. Cannel & Sons.*

Sun Shades.—Having found the webbing sold for shading glass-houses very troublesome, owing to the constant giving way of some portion of its attachment from the weight of the pole, notwithstanding that this weight was taken off by strong broad tapes, I was at a loss what to use. A friend recommended light cotton canvas, and it may, perhaps, interest some of your readers to know that this fabric answers admirably. It is more flexible, softer, and not so heavy as the ordinary sail canvas, at the same time it possesses the requisite strength. *H. E. C., Liverpool.*

Ranunculuses in Pots.—A Chislehurst correspondent asks, if there is any reason why Ranunculuses may not be grown fairly well in pots, to which we reply, "No"; but if required to do so it is advisable for that purpose to select the very strongest roots, so that evenness of growth and bloom may be secured; 6-inch or 8-inch pots are equally useful, and these should be perfectly clean. As the Ranunculus is very chary of moisture the pots should be well drained with not less than 1 inch thickness of broken rubble, over which should be laid a thin piece of moss to keep the soil from washing into and choking the drainage. The compost or soil to be good should consist of two-thirds moist turfy loam and the remaining portion made up of thoroughly rotted manure and sharp white sand. Fill the pot with this compost to within 1 inch of the top, pressing it gently down, and then place the selected roots on it, using five for 6-inch pots and eight roots for the larger size. Sprinkle some dry sand about the crowns, and then fill up with fine soil, gently pressing it down, and leaving sufficient depth of rim of pot to hold water, but not a great deal If there be no room to stand the pots where frost cannot be excluded, we should prefer not to plant till February; but if a light, heated greenhouse is at disposal some roots may be potted now, and others at intervals through the winter. The chief drawback Ranunculuses, Anemones, and similar roots have to encounter when grown in pots is the tendency of the leaves and flower-stalks to draw and lengthen. That can only be met by keeping the pots very near the glass and giving plenty of air. A good collection of Ranunculuses well grown in pots would make a charming novelty. Ed.

Celosia pyramidalis.—For summer and autumn blooming the three varieties, C. aurea, C. coccinea, and C. plumosa, are all well worthy of extensive cultivation; and by sowing the seed, say, at four different times a succession can be kept up from the beginning of June till the end of November, or even till Christmas, if required. Either for cutting or for greenhouse and conservatory decoration they make a grand display, when grown in 8 or 9-inch pots, three plants in a pot. When about 1 foot high the points should be pinched out, when they will branch out and give some most useful stuff for cutting and moving in amongst other cut flowers. They require a good strong compost, such as good loam and leaf-mould, with a good sprinkling of horse-droppings, a sufficient quantity of sand to keep the whole in growing condition, and they require to be frequently syringed overhead to keep down insects. *R. M.*

Malformed Tomatos.—The flowers of the Tomato are very subject to various deformities, generally consisting in an increased number of parts, or of the union of two or more flowers at an early stage of growth. The consequences of these deformities are seen in the irregular mis-shapen fruits which are so common. In the case now before us, a double row of carpels has been formed one above the other—a condition sometimes referred to median prolification of the fruit, but more simply to a mere increase in the number of the carpels. In the present case (fig. 82) the supplementary carpels have burst through the older ones, and appear as a ring at the top of the fruit.

Fig. 82.—A malformed tomato.

Variously-coloured Hydrangeas.—Under certain circumstances the flowers of the Hydrangea turn quite blue, others partly blue and partly the normal colour. The cause of this change has produced great diversity of opinion, but it is generally supposed to be the result of growing this plant on certain classes of peat earth, or where aluminous salts are present in excessive quantity in the soil. We have also learned on good authority that watering with alum-water during summer will cause the succeeding flowers to become blue. It is also a singular fact that the flowers on the same plant are frequently pink, blue, or of a creamy-white colour, and on some occasions we have noticed a single flower-truss composed of two distinct colours. This seems to be a peculiar feature of the Hydrangea, that has been noticed and commented upon ever since its introduction in 1788. Hundreds of these plants occupy prominent positions alongside the walks and drives in the park here, and it is curious to note the lovely pink of one clump, while within a few yards those of another are of a deep azure-blue. Even in the nursery lines, under apparently similar circumstances as regards soil, there is frequently a marked difference as regards colour, pink and blue flowered plants frequently growing side by side. After carefully watching this plant for a number of years, I have come to the conclusion that the blue colour is but natural, and not the result of any particular soil or mode of cultivation. I may be wrong, as difference in soil is said to change the colour in case of bushes of wholly different tints; and this may be so, but I would be glad to know what causes flowers of all colours to come on the same bush, and even on the same truss of bloom. Shade has nothing whatever to do with the colour of flowers, and in the case of your correspondent the white-flowered plant would in time have changed to its original pink colour whether the Vine leaves had been removed or not. It should be remembered that the Hydrangea is, at different stages of growth, of different colours. *A. D. Webster, Penrhyn Castle, North Wales.*

Darlingtonia californica—I read with interest the remarks of "J. D." at p. 440. Pitchers 3 feet long! That is very large. Our Darlingtonias are known to be the best in Germany, but they do not exceed 2 feet 3 inches in length. We grow them in a cold frame in a southerly aspect, give them a light, porous, turfy soil, and, especially during the summer time, plenty of water. During spring we keep them somewhat shaded, close, and warm, to cause the pitchers to come up quickly. Later on we harden them off, so that we can grow them without the protection of lights, and almost without shading during July, August, and September. The plants remain in this pit throughout the year, the temperature in winter being kept just above the freezing-point, though 2° or 3° of frost do not harm the plants. In the same pit we grow Cephalotus follicularis, Dionæa Muscipula, different Sarracenias, &c., all of them feeling quite at home. Cephalotus is removed to a temperate-house during winter. *C. Wissenbach, Royal Gardens, Wilhelmshöhe, near Cassel, Germany.*

Diseased Conifer.—I enclose a small branch taken from a young tree of Pinus calabrica about 15 feet high, and growing singly on the margin of a carriage drive, showing the disfiguration of a part of its foliage from some unknown cause. It was first observed on a few of the under branches on one side only, and the same on another tree near it, also fully exposed, the sort being Pinus Laricio, three years ago; but little notice was then taken of it, thinking it might proceed from the severity of the frost the previous winter, when the mercury fell to zero. The second, however, it increased considerably, while this year they are nearly alike from top to bottom, which gives the trees an unsightly and an unhealthy appearance. The dying back of a part of the needle-like foliage seems to take place after the growth has been fully developed, as the withered full-lengthed and full-sized growth will show. No insect of any kind has been observed. The most striking part of the affair is that only one of the leaves, which are in pairs, is affected, and dies partly, and some wholly back, while the other remains healthy and green. I shall be glad to have an opinion as to the cause. A number of other kinds of Conifers on the same drive are perfectly healthy, soil and situation being about the same. *John Webster, Gordon Castle Gardens, Oct. 16.* [A very singular case, for which we are quite at a loss to account. The leaves die off mostly from above downwards, the base being healthy. In some cases, however, the disease shows itself in the middle of the leaf. Although, as our correspondent states, as a rule only one leaf in each pair is affected, yet occasionally both are diseased. We can trace neither insect nor fungus. The appearance is like that produced by some noxious gas, but the partial nature of the injury precludes the supposition that this is the cause of the mischief. What is the condition of the roots? Is there any fungus-spawn in the soil? Ed.]

Colletia horrida.—It may be interesting to admirers of curious plants to know that Colletia horrida proves to be quite hardy in the garden here. It was planted some six years since against a wall, and this season's growth is much more vigorous than that of former times. The shoot just completed measures 13 inches long. It does not receive the least protection, and is simply planted in garden soil, which has a liberal mixture of lime. The acids and smoke in the air of this neighbourhood do not appear to injure it in the least. Branches of former years still retain their dark greenness: only those round the base of the plant showing the least sign of becoming disfigured by turning brown. *A. E. Ratcliff, Calthorpe Road, Edgbaston.* [It was killed near London after the winter of 1881. Ed.]

Conna Hill.—We have read with much interest the account, by Mr. J. Douglas, in the *Gardeners' Chronicle* of October 6, of our old friend's garden at Old Conna Hill, Bray. As his remarks upon Polypodium v. cornubiense, Fowler, may be construed into a reflection upon our good faith, we trust you will allow us space for a short statement of the facts in regard to this plant. Mr. Douglas infers from its abundance at Old Conna Hill, that it is not a new form, although exhibited and certificated as such last

year. The fact is that all the plants in existence of this form (including those of Mr. Riall), have been sent out by us within the last three years. Mr. Douglas is right in saying there are two forms, one finer than the other, of P. cornubiense, but only one of these (the finer one) is Fowler's variety. The coarser one is P. cornubiense of Moore (called also elegantissimum), which was sent out by our late father's firm from Todmorden many years ago. The newer and finer form was raised from spores by the late George Fowler of Brierfield, near Burnley, from whose executors we purchased the whole stock three years ago. We sent it out, not as a new variety, but as a new strain of the old cornubiense, and for this reason we did not alter the name cornubiense, but simply added the raiser's name to distinguish it from the older form. *F. W. & H. Stansfield, Nurseries, Sale, near Manchester.*

Carnation Louisa Ashburton.—At the Ford Nursery, near Salisbury, Messrs. Cross & Steer have raised from seed a pure white fimbriated, Clove-scented, perpetual flowering Tree Carnation, of great beauty. A low span-roofed house now contains about a thousand plants in 5-inch pots which were propagated in the spring and remained out-of-doors till the middle of September. At the present time they are about 18 inches in height, and bear from three to five expanded and partially expanded blooms, the former measuring fully 3 inches in diameter. From every joint along the stem proceed numerous young growths each of which bears flower-buds in varied stages of development. The foliage is fresh in colour, rather narrow, and particularly neat and elegant, resembling a Pink rather than a Carnation in texture and fineness. As an autumn and winter flowering plant suitable for home decoration and for market it must undoubtedly soon obtain a pre-eminent position. At the time of my visit a few days ago the effect produced by the numerous superb, delicate yet delicious flowers of this the purest gem amongst perpetual flowering Tree Carnations, was perfectly unique. *T. Challis.*

The Winter Treatment of Gladioli. — The time for the lifting of the choicer hybrids of G. gandavensis will soon come, and as I maintain that the perfecting of the ripening process should then be completed, the winter treatment should be considered from that standpoint. I should like if Mr. Douglas (*vide* p. 430) would permit me to say, from many years' experience, and with some of the finest varieties, I wholly differ from his practice of "cutting the plants over close to the crown of the bulbs at once." This would defeat my object—the completing of the ripening process. Why, some of my best, as Duchess of Edinburgh, Democedes, Electra, and James McIntosh, are only commencing to bloom. My plan, as often stated, is to lift before December, ripe or not, leave the stems attached and labels, place standing upright in a dry loft, airy, surrounding with moist river sand—I mean the corms—and then allow stems, corms and sand to slowly dry out. I never lose one. *W. J. Murphy, Clonmel.*

Carnations and Pansies at Pilrig Park Nursery, Edinburgh.—Carnation Belle Halliday is one of the best introductions at Pilrig Park this season. It is bright clear yellow, and blossoms profusely. Amongst good kinds grown here are Dominie Sampson, Heaton Hall, Hindoo, deep red; Purple Gem, Gog, Albert, Cremorne, purple; Fire Eater, Constance, Marshal, Coroner, scarlet; Bridesmaid, Miss Wyatt, white; Adonis, crimson flaked; Eurydice and Prince Hal, purple flaked; Lord Stamford, white, striped rose; Morning Star, rose-edged Picotee; and the well known Picotee Red Braes, one of the most vigorous and easily grown. Though too late in the season to see Scotch Pansies in full beauty the following are especially good kinds:—Earl of Beaconsfield, pale yellow and black; there is another Pansy in cultivation under the same name, and also a good kind, the flower of which is purple; Mrs. Jamieson, Mrs. Douglas, Mrs. Tinley, Joan Young, Prizetaker, Garnet, Hugh Clarke, James Gardener, Mrs. Mitchell, President Kirkman, and Mrs. W. H. Miller. Pinks are made a speciality in this nursery, and the many good kinds raised here are a valuable addition to hardy plants, and very easily grown if a good supply of young plants is kept up by layers or cuttings. There is a very large stock of these beautiful summer flowers, containing both old and new kinds. *C. M. O.*

Boltonia indica and Aster japonicus (see p. 375).—The plants known under these names are so distinct that they cannot be regarded as one—at any rate for garden purposes. I have the first, and have seen the second (Mr. Wolley Dod's plant), and believe that, under all circumstances of cultivation, they would remain distinct and distinguishable. My opinion is that they would not occur as forms of seedling variation, though Asters are very variable from seed, as shown by an instance in A. Townshendi, lately sent me by Mr. Wolley Dod. While bearing in mind what Asters are, I look upon these as belonging to distinct species, and Mr. Brown allows that it may be the correct view. I am not, however, in a position to know how comprehensive Boltonia indica may be as a species, but it would be unusually comprehensive, perhaps, to include both these plants. In any case, distinguishing titles appear to be necessary, because in garden botany an aggregate specific title frequently fails to serve the purpose of a name. It often leads, as in this case it would do, to some confusion among horticulturists. Two plants, for their purposes absolutely different, should not be known by the same name. Mr. Brown is an expert at pushing to ultimate conclusions, and he does great service to garden botany when he names and describes those distinct forms which are important in a garden, though not of any consequence so far as known scientifically. I am always thankful when names and distinctions, necessary in the gardens of those who do not run to the extent of florists' varieties or the like, are made according to the rules of botanical nomenclature. In botanic gardens we ought to distinguish, perhaps, for instance, between a Cineraria maritima, which is sub-shrubby, and another which is completely herbaceous, though the one I have no doubt (implictly relying upon my authority) is conspecific with the other. In all this there is undoubtedly great difficulty and much labour, and we cannot be too thankful to those who, like Professor Reichenbach for Orchids, go to the extent of discrimination which serves the full purpose of the horticulturist, while it includes every scientific requirement. *R. Irwin Lynch.*

Hyacinth Pots.—We have received from Messrs. Stevens & Williams, of the Brierly Hill Glass-

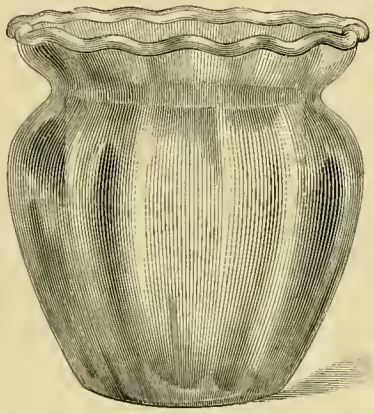

Fig. 83.—A new hyacinth pot.

works, Staffordshire, a sample of a new Hyacinth pot with Minton linings that they are now manufacturing, and the shape of which is represented at fig. 83. The pots are being made of rose, electric-blue, and orange-coloured glass, and are inexpensive, besides having an advantage over ordinary Hyacinth glasses, in being available for the cultivation of Ferns and other plants suitable for table decoration.

Apple Culture.—The various systems of culture have been sufficiently tested throughout the length and breadth of the land. For ordinary garden culture standard trees on the Crab stock are out of the question; they grow too much, and not only exhaust but overshadow the ground. They are adapted for orchard culture, or as isolated specimens on the lawn. Many varieties of Apples are exceedingly well adapted to plant on the lawn. There are very few flowering trees can equal, and none surpass in beauty, an Apple tree clothed with its delicate pink tinted blossoms. Besides the blossoms we have the richly coloured fruits in autumn, which are useful as well as ornamental. Trees grafted on the Paradise stock and trained either as pyramids or in the bush form, are well adapted for large or small gardens, and they are so easily managed, producing in most cases excellent fruits. The single cordons have not become popular, nor are they likely to do so; they are adapted for certain positions in the kitchen garden, such as edgings to borders or paths; but who would like to trust to such a system of culture to fill the fruit-room shelves? The bush and pyramid forms have in many cases supplanted the more ancient system of espaliers; and certainly well grown and regularly trained trees of this kind are both interesting and beautiful in the garden. But I question very much whether such good fruit can be gathered from them, and of equal quality to that which may be obtained from the old system of espaliers. The old trees in many gardens bear annually excellent crops, and those who have planted young trees and trained them in this way may now be reaping the fruits of their wise adherence to the old system. There is a famous example of the espalier method of training Apple trees in the kitchen garden at Bodnant Hall, Eglwysbach, R.S.O., Denbighshire, the seat of Henry D. Pochin, Esq., J.P. The trees are in the best of health, and are trained to wires about 9 inches apart. There are seven wires, and the height of the trelliswork is about 6 feet. Very seldom does one see better fruit than those trees have borne this year. Mr. Pochin kindly gave me specimens of about a dozen distinct varieties. I send you examples of Newtown Pippin, Blenheim Pippin, Ribston, and Beauty of Hants. The last-named weighed 13 oz.; and such well-grown fruit of Ribston Pippin is exceptional, unless it is obtained from wall trees. Other noteworthy varieties were Tower of Glamis, Winter Pearmain, Duke of Devonshire, Alfriston, and, indeed, most of the popular varieties. The system of training is of the simplest kind, and it is managed in such a way that the fruit is exposed on all sides to the sun and air. Indeed, this exposure of the fruit and bearing wood is one of the greatest recommendations of the system. The trees are planted about 4 feet from the garden paths, and this space can be utilised to grow any small vegetable crops. The training consists of taking one main shoot for the centre, and a lateral branch for each of the wires. The trees may be planted about 7 yards apart, and each branch or cordon must be kept rather closely cut-in. If the spurs are allowed to straggle too far from the main stem the trees look untidy. I find also that the fruit is not blown off such trees so very much by high winds as it is from those that sway about in a gale. The advantages of espaliers may therefore be briefly summed up—1st, the trees bear more fruit and of better quality from a given space than bush or pyramid trees; 2d, they do less injury to growing crops by shading them; and 3d, the fruit is easier to gather, and the trees are easier to prune and train. *J. Douglas.*

Wood Samples.—I beg to send you a pattern of wood in book form. So far as I am aware the first wood books were designed by myself for the London Exhibition of 1862, but I adopted for the imitation books then a case form; this being somewhat expensive, and the wood apt to warp, I have for the exhibitions of Amsterdam and Calcutta used the wood in solid pieces, such as you see now, the size adopted as a standard being 7 by 4½ inches by 1¼ inch. The sides and back show the wood in a polished state, but the marginal portion (corresponding to the leaves of a book) is left simply planed, so as to show the wood in an unpolished state. As the book's title gives the scientific name of the wood represented, and its native countries, any "wood libraries" could be arranged either geographically or systematically, or, better still, two collections could be made. I know of no other form to exhibit woods in an equally handy and elegant way, and if great museums were gradually to gather up all accessible sorts of woods from the about 16,000 different trees of the world, most instructive collections would be brought together. For this purpose, however, and for facilitating extensive interchanges, some standard size ought to be adopted, and the present is suggested. Woods too small for books can be used for a variety of turnery — rulers, handles, little implements and utensils, according to fitness—a method carried out for the Amsterdam and Calcutta Exhibitions, each article carrying an elegant label setting forth the name of the tree or shrub, and its nativity. *Ferd. von Mueller, Melbourne.*

British Queen as a Late Pea.—This and Ne Plus Ultra were on June 4 sown here side by side under exactly the same conditions in every respect, and, to my surprise, the former proved in this instance a more satisfactory late Pea than the latter. We began gathering from it in the last week of August, and it continued bearing throughout the whole month of September. The pods filled well, and it was very free from mildew. I would strongly advise those who have to supply Peas in quantity during September to give British Queen a trial, and if it turns out as it has done here they will not regret doing so. *H. Henderson.*

Apple Trees Too Deeply Planted.—Just now, when special attention is directed towards the Apple, it will be useful to draw attention to one fact in connection with the planting of these trees which has—take the country through—an immense bearing on the productiveness and the longevity of an untold percentage of the trees planted and grown. I have found in my peregrinations in various counties that where the trees were not thriving—where, in fact, many of the younger shoots at the points were dead and dying and the American blight was most prosperous—that the cause of these evils arose from the too deep planting of the trees. Rarely is proper, or sufficient, preparation made for this work. A few spadefuls of turf—or

surface soil where such does not exist—are turned over, then a hole is made and the roots are thrust down thereinto. Another spadeful or two is tossed upon them and they are trodden down more as if the intention was to keep them from rising above-ground than for any other reason, and the operation is considered finished. In the result the roots and bole sink deeper rather than otherwise, until a few inches of bole is buried, and in the result thrifty trees are impossible. I have often bad spitfuls of soil dug from around the boles of trees which did not thrive and which proved to be so buried. The effect of freeing the collars from that cold soil was increased activity. I am not writing of trees or their planting in well devised and treated gardens, but of the thousands planted by farmers, orchardists, and cottagers, and upon which the country relies for its gross supplies of home-grown fruit. Better place the roots on the surface of the soil and heap them over with a mound of good soil, than bury them so. *William Earley, Ilford.*

Autumn Strawberries.—We have received some fruit-stalks of the Strawberry James Veitch, carrying fruit in various stages of growth, some of them just showing traces of colour. Our correspondent says that they are the produce of forced plants transferred to the open quarters in June last after enduring much rough usage. They show the ease with which autumn and early winter fruit can be obtained from plants that have borne a crop six or eight months before—a fact that has been already well established in practice, but which notwithstanding gets too little attention from gardeners. By taking this or Vicomtesse Héricart de Thury, Marguerite, President, Keens' Seedling, or that very early sort, Black Prince, which have been previously forced, and planting out in early summer—taking care to remove the runners and the earliest blooms, and then taking up early in September and potting them—fruit can be had successionally from the end of September till January. By planting them in beds in hot-water pits at first they could be forced without any removal or potting, and might then be brought forward in batches. For very early work the merely placing of shallow hotbed frames over them, where they stand in the open border, would answer the purpose. The chief items of successful culture are those mentioned above, although it may be added that mulching during the hot weather with half-rotten manure and occasional soaking with water will add much to the strength of the plants. [See the note on Mr. Roberts' practice at p. 437. Ed.]

Ornithogalum gracile.—Under this name Messrs. Roth & Collingburne, seed merchants, &c., of Cape Colony, are offering through a Belgian agent large quantities of bulbs for winter forcing. In a circular containing a figure and description of the plant Messrs. Roth & Co. state "there has never been a plant grown better adapted for florists and bouquetists. The pure snow-white glittering flowers are produced in great abundance, are very fragrant, and last about six weeks. A great deal has lately been said about Ornithogalum arabicum, which, however, is not to be compared with this plant. The spike is about 1 foot long, bearing on the upper half about forty flowers, each about an inch in diameter, and star-shaped." It seems strange that so useful a plant should have escaped the notice of the many collectors who have visited the Cape, especially as from its plentifulness it does not appear to be at all uncommon there. I suspect Messrs. Roth & Co. have got hold of a form of O. thyrsoideum, a common Cape species, and about the most ornamental of the genus. It is well known in gardens here, but so far as I know its usefulness as a plant for winter forcing has not been tested, so that possibly Messrs. Roth & Co. may be right in speaking so highly of it as a winter-flowering bulb. There is no reason why this, along with O. arabicum and several other of the finer species, should not prove serviceable when grown in such a way. O. thyrsoideum varies in colour from yellow to greenish-white, and it may be that this new one may be a pure white variety, or that its purity may be owing to forcing. The name O. gracile is a misnomer, as Mr. Baker has already described in the *Journal of Botany*, 1874, p. 366, a plant with this name which is a small weedy species by no means useful as a garden plant. To prevent any confusion of names it would be well if any one who possesses plants from Messrs. Roth & Co. would, when they flower, send specimens to Mr. Baker for determination. *W. Watson.*

Victoria Regia. — I believe this noble and gigantic Water Lily is generally believed to be an annual, and grown as such, with only a few records of its living two years. The plant here, which is three years old, is now in good health, carrying ten leaves, measuring from 5 feet to 6 feet 8 inches in diameter, and some idea of its beauty may be formed from the fact that it has made sixty-six leaves, measuring from 6 feet to 6 feet 8 inches in diameter, this summer, and produced fifty-two flowers about 15 inches in diameter. Last year the same plant produced sixty-five of its highly scented and magnificent flowers, carrying ten to twelve of its gigantic leaves throughout the summer, making a total of over seventy. The previous year the same plant produced fifty flowers, and about as many leaves. Thus it will be seen that there have been produced 186 of its gigantic leaves, and 167 flowers from the same plant during three years. The tank in which the plant is growing is 30 feet in diameter, and the Victoria is planted in five cartloads of soil, viz. :—to every ten barrowloads of loam one of horse and cow droppings, with the same amount of fibrous peat and some sand, all well mixed together. Some have made objection to pipes being carried under the plant, but as this one is doing so well, and it has a flow and return pipe directly under it, there is little to fear on this score, indeed, I think our success is partly due to this, provided care is taken not to over-heat the pipes at any time, for it must be remembered that the least check to the plant throws it back very much, and will soon be seen in the shape of deformed leaves. The temperature of the house fell to 50° on a few occasions during cold nights in winter, but it will not be safe to subject it long to so low a temperature—60° will be found more suitable for night temperature during winter, with a rise during day to 65°; summer heat 68° to 70° by night, and a rise to 85° by day. *C. Penford, Leigh Park, Havant.*

Water-Supply for Gardens. — An adequate supply of water is one of the principal requirements of gardens, and specially is this the case in fruit-growing establishments, where, as is usual now, the roots of Vines, &c., are wholly confined, or partially so, to well-drained internal borders. Vines, Peaches, and Figs require an abundance of moisture during their growing season, and unless borders of the above description containing their roots are frequently and copiously drenched, fruit of excellent quality cannot be produced. It is, therefore, important in selecting a site for a garden that the means of affording it an unlimited amount of water should receive consideration. Important as this matter is, however, it is sometimes overlooked, and we frequently meet with instances where considerable inconvenience and perplexity arise therefrom. Few, perhaps, are more favourably situated than ourselves in having command of plenty of water, as well as convenient means for applying it to its several uses. The following description of this convenience may be interesting to some :—A large uncovered tank, capable of holding enough to thoroughly saturate an ordinary Vine or Peach border, is placed at an elevation higher than any of the borders, and receives through a ball-tap a never-failing supply from a reservoir. The tank is fitted with a coil of hot-water pipes, having valves to regulate the heat to any temperature desired, and from it are laid 1½ inch galvanised iron pipes, which branch into each block of houses, where taps are arranged to which a hose can be secured to distribute water over the borders, or be drawn from for other purposes. The above is a simple yet useful contrivance, the advantageous service of which all will readily see. The water employed is strongly impregnated with lime, and is consequently undesirable for syringing purposes, but am I right in believing water of this nature to be preferable to that which falls from the clouds for watering the roots of Grapes, and other stone fruits? It is well known that these require a soil more or less constituted of lime, and is not this mineral equally beneficial in water? To insure an abundance of tepid rain-water, we have adopted a plan also very satisfactory—a large brick cemented tank is formed underground, and is so situated that the flow and return pipes from the boilers pass through it immediately over the surface of the water, imparting sufficient heat to chill the whole body, thus giving us a constant supply. The tank is fed from the glass structures, each range being fitted with spouting, and underground pipes for the purpose of conveying water ot it. *Thos. Coomber, Hendre Gardens, Monmouth.*

The Phylloxera Laws.—As attention is again called to this subject, it may, perhaps, interest the readers of the *Gardeners' Chronicle* to become acquainted with the position Holland has taken in this matter. The horticultural trade had already suffered by the first Convention of Berne of 1878, by which the introduction of rooted plants with the smallest portion of earth on them was forbidden. This regulation proved impossible to be maintained in execution, and to make some alteration on this point the Convention of 1881 was called together. By this Convention horticultural trade was made possible for those States which had given their adhesion to the Treaty of Berne, and it was to be expected that the new regulations being practicable, the consenting Governments would be inclined to put them more strictly into execution than before. There is one article in the Treaty which enacts that the Governments that have given adhesion to the Treaty are not to be allowed to treat non-conforming States on terms more advantageous than those which apply to those who have given their adhesion. Till last summer in general those States which had not given in their adhesion were treated on the same system as those that had done so by the greater number of Governments. The Dutch horticulturists who export had from time to time difficulties with the introduction of plants, &c., into Austria, Hungary, France, and Belgium, but these, although giving much annoyance, were only temporary, and by private attempt as well as by the interference of the Dutch Government, they were obviated. Since that time the introduction of vegetable products became possible under the protection of the usual certificates without any further difficulty. Meanwhile the Dutch horticultural trade, as well as the Belgian, feared that such facilities might only be temporary, and foresaw that there was always a great chance for the prohibition to be put in execution at the slightest pretext; therefore there was a pressure exerted by the Dutch horticulturists on their Government to give its adhesion to the Berne Convention. In May, 1882, the General Society for the Promotion of Bulb Culture was the first to send a petition for this purpose to the King of the Netherlands, as well as addresses to the ministers, and this example was followed by the leading horticultural societies. Although the Government took these demands into consideration, it hesitated to take steps, as up till that moment all the difficulties could be put aside, and as the German Government till lately had not put in execution the terms of the Treaty, allowing every introduction of plants, &c., to be made even without any certificate. By the law and the regulations of the German Empire of July 4, 1883, however, the execution of the Berne Treaty was enacted, and in the regulations was found one article more severe than any other country had put in execution. By that famous section (sect. 2), the introduction of any rooted vegetable into the German Empire from countries which had not given their adhesion to the Treaty of Berne was forbidden, the Chancellor of the Empire being alone authorised to grant exceptions. In consequence of this, the Dutch horticulturists again sent petitions to their Government requiring it to conform to the Berne Treaty; the horticultural societies again sent addresses, and the agricultural corporations did the same. In the middle of August the new German regulations were put into execution as rigorously as possible. As usual in such cases, where new laws are put in force of which it is difficult to judge the real interpretation, many products were at first refused on the German frontier, which could by no means be fairly classified under those of which the introduction was forbidden by the said sect. 2. Bulbs without roots were among these, and as bulb exporters, in conformity with the regulations of the Empire, were of opinion that bulbs could be freely introduced with certificates, the usual large number of cases with bulbs was sent to Germany; these were allowed to enter till September 4, when the Prussian Government suddenly refused to permit their entrance any longer. Immediately afterwards numerous petitions were sent to the German ministers, and they considered the matter properly, and decided that dry bulbs without roots could not be brought under the same case as the rooted plants of sect. 2, but must be considered like seeds, the introduction of which was allowed with the usual certificates, but only through those particular custom-houses indicated in the regulations. This resolution of the Reichsamt was given about September 8, but it lasted till September 17, on the evening before the German frontiers were again opened for dry bulbs without roots. The introduction of plants, trees, &c., with roots, however, is still not allowed in Germany, and up to this time all demands for exceptions have been refused. The introduction of Sugar-Beet and similar plants is also forbidden, to the great prejudice of agriculture, as Sugar-Beets are grown largely in the Netherlands for German manufacturers. Under these circumstances the Dutch Government has resolved to give its adhesion to the Treaty of Berne. In the session of September 25 of the second chamber Mr. Verbrugge, honorary member of the central committee, and formerly President of the Dutch Society for Horticulture and Botany, put a question about the matter to the Government, and to this interpellation the Minister for Foreign Affairs replied that the Dutch Consul-General at Berne was authorised to include the Netherlands in the Berne Treaty, and that a law to that effect was in preparation to be offered to the house for approbation. Meanwhile new difficulties have arisen in the Government of the Grand Duchy of Luxembourg. This Government made regulations nearly the same as those of Germany, and has forbidden the entrance of all plants with roots. In practice the custom-house agents there have done the same as was done in Germany, and refused several cases of dry bulbs without roots. A petition was sent to the Luxembourg Government to request a more accurate carrying out of the law, and the Dutch Government was informed of the matter and requested to intervene. As soon as Holland shall have put in execution the require-

ments of the Treaty of Berne the other countries forming the league will be obliged to accept every vegetable product, plants with roots and earth included, when protected by the usual certificates, and therefore the compliance of the Treaty of horticultural countries becomes necessary from the press of circumstances, as it is not impossible that in addition to Germany and Luxembourg, other governments might strengthen their measures and so make regular horticultural trade from non-conforming countries impossible. *J. H. Krelage, Haarlem, Oct. 6.* P.S.—To complete my note of last week, I now can state that the Dutch Government has given official information in the *Staats Courant* that the temporary Consul-General of the Netherlands in Switzerland has, on the part of the Dutch Government, given adhesion to the Phylloxera treaty of Berne of October 5 last. The Government of the Grand Duchy of Luxembourg now allows entrance of bulbs without roots, with the usual certificates, through the custom-house of Luxembourg only. *J. H. K., Oct. 12.*

Pelargonium Fairest of the Fair.—This is one of the zonal section, and is one of the prettiest and perhaps dwarfest of the whole family. I saw it in bloom at Ryde during the summer, and begging a plant, as gardeners' visitors will do, brought it home, and for the past two months it has been blooming exquisitely. It belongs to the oculate division, for the flowers are pearly white, and on each is a distinct bright carmine circle round the eye. There are several others in this division, but none are prettier, and certainly none have a more compact and robust habit. *A. D.*

Wasp and Bee Stings.—Having lately observed two paragraphs in the daily papers respecting fatal cases caused by the stings of wasps, I have thought of a remedy which completely neutralises the strength of the poison and prevents swelling upon myself, and which may have the same effect upon others, and I therefore offer it for insertion in your columns. While looking over the apiary here last May, with the object of getting hives, &c., cleaned out and put in order for the approaching swarming season, I found in looking into an empty super which rested on the flat top of a hive—one on Neighbour's principle—a wasp nest, about the size of a large Walnut, attached to the top. It was not destroyed then, as I was desirous of having a good specimen for preservation. The outer casing of the nest was one of the shell pattern sort, and not very common, the super being about 14 inches in diameter. I did not destroy the wasps until the second week of September, expecting then to have a neatly formed nest. I undertook the task of taking it alone, provided with brimstone rags, spade, several slips of paper well twisted, and a lantern, and well protected with a gauze cover over my head, strong thick gloves on my hands, and coat sleeves fastened to prevent them getting up my arms. Thus provided I set to work, by the light of the lantern, to dig a pit close up to the apiary. Two pointed sticks with brimstone rags wedged into their cleft tops were then stuck into the bottom of the pit and the rags set on fire. The hive containing the wasp nest was lifted over the burning brimstone, but in lifting it off a large piece of comb was left on the board, the hive being filled and the lower comb sealed to the board. This caused a large number of wasps which were upon it to be set at liberty, and they immediately attacked me. I then lifted the twisted scrolls of paper and worked it over the detached piece of comb, and also around those flying about, to scorch their wings. In twisting and wriggling about my arms my coat-sleeves had become drawn up a little at the wrists, leaving a space between them and the gloves. Some of the scorched wasps having fallen on the exposed parts, I had four stings on one wrist and one on the other. This caused me to lay down the burning paper to crush them. Wasps, unlike bees, will sting two or three times in quick succession, the bee invariably leaving its sting behind. In my determination not to be defeated I lighted another paper, and held it to those flying about overhead; in looking up one had settled on my forehead, close to the brim of my hat, and stung me sharply. This caused me to retreat and get uncovered as quickly as possible. By the time I got into the house all the parts had swollen considerably, especially the inner part of the wrist, which had three stings close to each other. A teaspoonful of whisky and some common washing soda having been procured, the swollen parts were rubbed over with spirits first, and then dabbed over with the soda; as soon as it became dry a fresh application of each was continued for about twenty-five minutes. During this time I rested myself quietly, and at its expiry the swelling had all but disappeared; a sharp stinging sensation, however, made itself felt occasionally for about two days. A sample of the two kinds of outer covering of the nest is sent for inspection; the grey one is commonly found hanging on trees and shrubs. The wasps of the shell pattern are darker than the common ones, with broader black bars across the abdomen. *J. Webster, Gordon Castle.*

THE APPLE SHOW AT CHISWICK.

Another visit to the wonderful collection of Apples at Chiswick suggests a question that should be asked of Apple growers all over the kingdom, viz., To what extent are you prepared to abide by or receive the revised nomenclature of the committee appointed to that office? The industry that has most conscientiously been expended by experts over the satisfactory elucidation of the nomenclature problem merits a lasting monument. Is that monument to take the form of kicks or thanks? If the grower who has sent his fifty or more kinds of Apples under designations that are neither recognisable nor correct, and has got them all named in accordance with established usage by the committee, refuses to recognise such revised nomenclature, and still adheres to his old appellations, that man deliberately kicks the committee by his crass obstinacy. The grower who would join in promoting a worthy monument to the efforts of the committee, on the other hand, will not only thankfully receive the revised nomenclature, but also will do his utmost to make it known in his locality. The show exhibits plainly enough that one half of our kinds of Apples might be buried or burned and we should be none the losers, indeed, greatly the gainers. It is therefore bad enough to have a needlessly extended list of correctly named sorts, without having that list doubled by incorrect duplicate designations.

Whilst the subject of nomenclature is so much in the ascendant, we are tempted to ask another question. Will any learned philologist kindly tell us the origin of the peculiar designations of Pippin, Pearmain, Codlin, Quoining, Beefing, Nonpareil, and similar appellations that characterise certain kinds or sections? In what respect does a Pearmain differ from a Pippin, or the latter from a Nonpareil? Are these sectional designations really clear, defined, and arbitrary, or are they thus employed at the will of the namer of any new kind of Apple? We understand what is meant by Russet, and know that it signifies a group of excellent kinds that have brown or russety skins. Nonesuch, modernised Nonsuch, we may take to mean "None other such"—rather an egotistical form of naming, but thoroughly characteristic of people who always think their own children the very best. A dictionary informs us that Pippin means a small Apple, and Pearmain a kind of Apple, but neither are very lucid explanations. As Pippin was an ancient form of designation for a jolly good fellow, perhaps it also means a jolly good Apple; still, there are other jolly good Apples not called Pippins. Pearmain may be intended to apply to Pear-shaped Apples, but if so, then, as in the case of Adam's Pearmain, it is a Pear-shape reversed. A full discussion of this subject of nomenclature could hardly fail to be of interest just now.

High-coloured Apples. — Being undesirous of adopting what may be called the common methods of classification, or of anticipating any classification that may be adopted by the committee, we have again looked through the collection all those kinds which gave general high colour, and this led to a wider selection than we made last week. Some are more richly hued than others, but all have the unmistakeable hue of the Siberian Crab, without, as suggested in *Funny Folks*, having first been boiled. *En passant*, we may say that here and there some kinds not usually associated with high colour showed very ruddy cheeks, and we much doubt whether any one ever saw richer hues on the Ribston Pippin than grace the dish of that kind in the Messrs. Cheal's collection. There is no mistaking the fact that Sussex and Kent with their chalky subsoils, free pure currents of air, and ample sunshine, are pre-eminently the counties in which colour is the most abundantly created. Now, dealing with a selection of twelve dessert kinds in the show that are rich in crimson and red hues, we found perhaps the handsomest to be that particular "Honeymoon" before alluded to, as in the collection sent by Messrs. Jefferies from Cirencester. This is so beautiful that it attracted our attention the first day, and we have learned since that it has been found to be but a small though a wondrously coloured Hoary Morning, that through obscure writing had got thus transposed. Some samples of Red Astrachan, our earliest deep-coloured Apple, are in the show, but they are too far gone. Red Quarrenden is still fairly good. Duchess' Favourite, or less well known as Duchess of Gloucester, very handsome, medium in size, and of very moderate quality. Worcester Pearmain, the handsomest of all the early reds, and a worthy successor to that new and beautiful kind Mr. Gladstone, which is too precocious in ripening to enable it to be seen in October. Then Colonel Vaughan is a smallish, conical-shaped kind, superbly coloured, but of no great merit otherwise. Sops in Wine is a very ancient uneven sort, richly coloured, but of capital quality, as also is the Summer Strawberry; Court Pendu Plat, and its near relative, Fearn's Pippin, are too well known to need further reference, but Calville Rouge Précoce in the Chiswick collection bears considerable resemblance to Fearn's Pippin, and is a very handsome Apple. A very beautiful kind is to be found in Cheal's Ede's Beauty, which has a primrose skin, heavily striped with red, and is in form roundish angular. Finally, the dozen includes Baumann's Red Reinette, shown by the Messrs. Veitch & Sons, a fine-coloured late-keeping kind, that should make a capital market variety.

Then of kitchen kinds of remarkable colour are Mère de Ménage, Cox's Pomona, Hoary Morning, a very odd name for such a rich-coloured Apple; Hollandbury, sometimes known as Scarlet Admirable; Emperor Alexander, Tom Putt, very old, intensely coloured, and of irregular form; Premier, not unlike the previous one; Winter Quoining, an ungainly Apple; Rosenberger, in Mr. Loney's Swedish collection, richly striped and coloured like Pomona, but less ribbed; Cellini Pippin, generally in southern districts rich in colour; Striped Beefing, so good a keeper; and that excellent kind, Beauty of Kent. We are tempted to ask here, whether it is not the case that high colour and good quality are seldom associated? Of all the kinds just mentioned hardly one can be termed first-class, and few are firm good keepers. Colour may be a profitable market commodity, but it is not the only feature to be sought for in furnishing a selection of good Apples. Probably the more select the kinds as regards quality and general excellence the less will colour be found in the list.

Well-shaped Apples. — Closely allied to the high coloured fruits come the handsome ones as distinguished from colour, those of particularly good form that have pretty markings and are always admired for their beauty. In this selection also we do not find the best quality, though many are very good in their season, but it is too often a short one. Thus we take the Queen, broad, handsome, beautifully striped; Peasgood's Nonsuch, the handsomest of all big Apples, but not a keeper; Washington, a very beautiful Apple, but is already past its season; Grenadier, a noble-looking fine yellow-skinned kind, that is a beat upon Lord Derby in form; Warner's King, always a handsome and very good in its short day; Stirling Castle, a wonderfully prolific early kind; Frogmore Prolific, a very handsome sort that well justifies its name, and which is very good to the end of the present month; Lord Suffield, invariably handsome when it puts on its ripened hue of primrose-yellow; Winter Hawthornden, one of the best of the batch as a keeper; Golden Noble, the handsomest yellow-skinned Apple we have, and which ought to be classed, for the behoof of all those who like a little brisk acidity in their fruits, as a dessert kind; Blenheim Orange, our ever acceptable friend, but of the two better as a cooker than as a dessert kind; and, lastly, that very handsome prolific Apple, of which yet growers generally know so little, Lane's Prince Albert. All these are fairly handsome, and whilst some are good only for a short time others are so over a lengthened period.

Then there is a similar selection of pretty dessert kinds in which we place Duchess of Oldenburg, Jefferson, Nonsuch, and Kerry Pippin, all handsome striped sorts; indeed, those who saw samples of the old Nonsuch would readily admit that the very handsome Peasgood's Nonsuch is of the old one an enlarged *fac simile*. Cowan's Victoria, about the size of fair Cox's Orange Pippin, is a very handsome kind, and our useful friend, King of the Pippins, must, too, come into the group of pretty ones. Swedish Pearmain in the Chiswick group, and also found in Mr. Loney's collection, is a very handsome Apple that is but yet little known. Court of Wick, Golden Reinette, and Wyken Pippin are all pretty and really good dessert Apples; and Mabbet's Pearmain — speckled with russet, but handsomely flushed with colour, on a yellow skin—is a little grown variety.

Cooking Apples.—There yet remain selections of both sections that, though, as all Apples are, more or less, good-looking, are yet held to be more serviceable than beautiful; and in the kitchen class we find that

capital early kind, Lord Derby; Waltham Abbey Seedling, of all good cooking kinds one of the best and most prolific; Alfriston, so big, so good, and so enduring, though the trees are not of the hardiest; Reinette du Canada, a splendid keeper; Gloria Mundi, sometimes confounded with Belle du Bois, a very fine variety, and keeps well; Stone's Apple, a fine market variety, that is very prolific; Wellington, one of our most regular croppers and best keepers; Ecklinville, very fine early and certain cropper, but though of good form it is almost always spotted, as though it had been peppered with hailstones; Nelson Codlin, a green conical fruit, covered with bloom, and both a marvellous cropper and good keeper; Small's Admirable, not unlike Hawthornden, but a hardy, robust kind, and a splendid cropper and keeper; Bedfordshire Foundling, a well-known fine kind; and last, that fine old sort, Norfolk Beefing, that keeps so well for summer use.

Dessert Apples.—The last dessert selection is made chiefly to show table quality and flavour, although it includes some kinds that are of excellent shape, though, perhaps, not termed pretty. Ribston, Cox's Orange, Cornish Gilliflower, Sturmer, and Cockle's Pippins are absolutely unsurpassable for flavour, the two latter kinds being excellent late keepers. Irish Peach is one of our best early dessert Apples, and a fine cropper; Cornish Aromatic has soft flesh and a delicate balsamic flavour; Scarlet Nonpareil is so good that it better befits this selection than the coloured one; Margil is as good as it is old, and the American Mother Apple is a fine flavoured kind that seems to be but indifferently known. It certainly is one of the hardiest of all the American sorts. Rosemary Russet is a splendid winter dessert Apple, and finally there come the capital Pearmains, Adams' and Mannington's, both fine keeping kinds, and of the best table quality. In these selections we find we have swallowed up seventy-two kinds, and still leave myriads of very good sorts unmentioned. To not a few readers there will crop up sorts that might have been placed here and there; but our selections were carefully made at the show with myriads of dishes before us from various parts of the kingdom, and average character naturally forms a more reliable test for selection than do mere local features.

Foreign Apples.—During the present week the exhibition has been enriched by a remarkably fine and interesting collection of Apples sent by Mr. G. R. H. Starr, of Port William, Nova Scotia, whose London agents, Messrs. Nothard & Lowe, have admirably set up, and further increased the value of the collection by indicating those sorts which are generally sent from Nova Scotia to the English market. These are the Baldwin, Rhode Island Greening, Cooper's Russet, Blue Pearmain, Talman's Sweet, Gravenstein, Flushing Spitzenberg, King of the Pippins, Willoughby, Golden Russet, King of Tomkins County, Sweet Russet, Pomme Gris, Golden Pippin, Ribston Pippin, and Mammoth Russet. Most of these are of medium size, and several of them highly coloured, but all, by comparison with home-grown samples, are of low specific gravity. As regards handsome appearance, these Nova Scotian Apples compare most favourably with the best of our own, but contain much less water and sugar. Such varieties as the Emperor Alexander, Fall Pippin, Chebucto Beauty, Dutch Codlin and Cat's Head are finely represented.

Another collection, which has only been mentioned *en passant*, but which calls for fuller notice, is that sent by Mr. Loney, gr. to Oscar Dickson, Esq., Gothenberg, Sweden, and which consists of twenty-eight dishes of Apples and a dozen of Pears—all the results of orchard-house cultivation, and superb in quality. Among the Apples are grand samples of Cellini, Calville Blanche, Red Astrachan, Rasenbäger, a handsome crimson-striped flattish-round variety; Margil, Rosen Gyllen, handsomely striped or streaked; Court Pendu-Plât, and Winter Pearmain. Among the Pears are large examples of Duchesse d'Angoulême, Beurré Bachelier, Pitmaston Duchesse, Maréchal de la Cour, Marie Louise, Souvenir du Congrès, Doyenné Boussoch, Huyshe's Bergamot, Bonne d'Ezi, and Josephine de Malines. The whole collection reflects high credit on their cultivator, and adds much to the interest of the exhibition.

New Varieties.—It is surprising that of the many new and old, but not much known varieties that have been sent to Chiswick, only two have been deemed by the committee to be worthy of First-class Certificates. One of these, Bramley's Seedling, we noticed in our last; the other is the Grenadier, shown by Messrs. G. Bunyard & Co., of Maidstone. It is of the first size, somewhat flat round in shape, and angular or ribbed, with a clear yellow skin, small, closed eye, and short stalk. A first-rate culinary variety, in use during October and November.

Foreign Correspondence.

Kieff.—The town of Kieff, in the south-western part of Russia, is noted chiefly for its churches and monasteries, and consequently it has for centuries been a point of attraction for devout pilgrims, who flock to it every year from nearly all parts of the empire. In the spring, especially, many thousands of poor peasants, after journeying for the most part on foot for several months, come here, and at last realise the dream of their life—to offer up their prayers to Heaven in the sacred temples of this Rome of the Sclavonic world.

But, apart from its fame as a great ecclesiastical centre, the town itself is only of recent date, for it is chiefly during the last fifteen years that it has attained its present large proportions. Before the opening of the railway, and the increase of steamboats on the river, Kieff was only a small and very ordinary provincial town. At the present day it contains at least 150,000 inhabitants, and it is distinguished for its university, Government schools for both sexes, numerous banks, spacious hotels, splendid streets, and fine architecture. In the latter respect Kieff has a great advantage over other places, for here the clay is such that bricks may be burned hard enough to stand all weathers and yet preserve their original colour, which is that of light sandstone, so that no plastering is necessary, and the houses appear as if really built of stone; but of late years the style of architecture has undergone a complete change. Formerly houses in Russia were built in the primitive form of a simple box, with rarely any variation, except, perhaps, here and there some Roman pillars in front, to form a balcony, and that only in the case of public buildings or the houses of the rich. Now a thorough innovation, and it must be allowed a great improvement, has taken place in this town. Under the direction of the chief architect, M. Nicolaiff, from the Imperial Academy, the designs of the street *façades* have been elaborated with great artistic skill and good taste; so that Kieff has become a splendid town, with a fine climate, and all the comforts and luxuries that wealth can require.

Standing on an elevated site, with hills and valleys everywhere, studded with innumerable shining spires and cupolas, and commanding views of the most charming perspective twenty miles in extent, Kieff presents attractions of a very picturesque kind. The climate is something like that of Paris or Vienna, and the soil in the plains around it is fertile enough. There is plenty of rain; the winter is not so severe, and the summer not so hot and dry, as in some of the neighbouring provinces. Melons of all sorts are cultivated in the open fields, and Vines, if properly grown, ripen by the end of August. Peaches are rarely seen in the shops or markets, but Cherries, Apricots, Plums, Apples, and Pears, are very abundant. Pine-apples are sometimes found in the shops, but they are only of small size. In general there is nothing in respect to cultivation which indicates either taste or skill; ordinary routine appears to be all that is aimed at.

Even in vegetables only the commoner sorts are required. Blanched Celery, Seakale, and Kohl Rabi are unknown; but Beetroot is extensively grown, as it forms the chief article in the Russian soup called "hortch." Cauliflower, Asparagus, and Artichokes, are only grown by professional gardeners. All other vegetables, such as Cabbages, Carrots, Potatos, &c., are grown by everybody, whether gardeners or peasants.

With such a vast population it is easy to understand that gardening and husbandry occupy a great number of people in the environs of the town, and five or six markets are well supplied with all kinds of field and garden produce. Besides the regular markets, there are in all the principal streets some hundreds of poor people who get a living by selling fruit, flowers, and plants for window cultivation. Window-gardening here is especially in great favour. The plants in most request are Ficus elastica, Philodendron pertusum, Agapanthus umbellatus, Phœnix dactylifera, Latania borbonica, Hibiscus rosa sinensis, Hoya carnosa, Dracænas, Cycas revoluta, Chamærops excelsa, and a good many more, as Myrtles, Roses, Pelargoniums, Fuchsias, Heliotropes, Begonias, and the like. Sometimes one or two fine Orange trees, or other large handsome plants, occupy spare corners near the windows.

There are some five or six nurserymen on a large scale, such as Wesser, Struss, Krister, Kristyanin, Krüger, Benedickt, of course all Germans, and perhaps as many more on a smaller scale among the Russians. In some of the private gardens, too, the cultivation of flowers and plants for sale is extensively carried on.

There is a gardeners' society, but it is but little known; it gives no signs of life, either by monthly meetings or yearly exhibitions. It is possible enough that there exists something like national antagonism among the great body of practical men here, chiefly composed of Germans, Russians, and Poles; but general indifference to everything out of the old routine is a more serious impediment in the way of improvement.

It is well known, however, that gardeners' societies, whether on a large or small scale, are but rarely kept in movement by professional or practical men only. The success of such a society depends chiefly on one or two earnest men having time and means capable of giving life and soul to all its members—in other words, men capable of keeping up friendly intercourse among gardeners, and bringing their productions before the notice of the public through occasional meetings and exhibitions. As yet there has been nothing of the kind in this part of the country, where the conditions of success are certainly not wanting. It is to be hoped that new life may be infused into the gardeners' society of Kieff, and that next year there will be something like a grand exhibition of flowers and plants for both gardeners and amateurs. The best place for such an exhibition would be the Botanic Garden, just behind the University, where there is a vast level space of ground very suitable for two or three marquées, besides a good number of borders and clumps where all kinds of plants in pots might be conveniently placed.

The Russians are very fond of rich showy colours, and yet gardeners here devote but little attention either to colour or form. Excellence in the cultivation of beautiful flowering plants, such as Roses, Azaleas, Pelargoniums, Ericas, Dahlias, and a great many more which bring fame and fortune to gardeners in England and elsewhere, is but little understood or aimed at in this country, where people do not readily leave the old beaten track of common routine. In general apathy and indifference to change and improvement are only to be overcome by the influence of powerful extraneous impulse.

At the present time there is a striking instance which confirms the accuracy of this statement; for since I began to write the present communication an extensive agricultural exhibition has been opened in the centre of the town, and vast numbers of people go to see it every day, so that it proves to be a very successful undertaking, due to the initiative of some of the leading members of the Agricultural Society here, among which the Prince of Raepnine occupies the very first place. Apart from his position as a wealthy landed proprietor in the province of Poltava, and President (or, as it is called in Russian, "predvodityel") of the nobility here, the Prince is distinguished for his enlightened and generous views of public utility and improvement. He is, besides, a thoroughly practical man, and has great experience and knowledge respecting all technical details. It would be difficult to find another more capable of organising such a splendid exhibition as that which has just been opened—it may be said, for the first time in this part of Russia.

There are always fairs (called "yarmarks") everywhere, but a strictly agricultural exhibition like a vast museum, where everything relating to the field and garden, as well as housekeeping, may be seen, has never been known till now; and though probably it was only intended for Kieff and the adjoining country, a great many collections of different kinds have been sent from far and near. There are even exhibitors from St. Petersburg, Moscow, Odessa, Warsaw, Berlin, Prague, and other distant places. Of course a great number of the machines and implements are by English makers. There are, besides, a great many interesting collections of seeds, fruit, plants, and vegetables, shown chiefly by the gardeners and nurserymen here, but owing to the lateness of the season there are but very few flowers. In my next I shall send you a few particulars. *P. F. Keir.*

Florists' Flowers.

Azaleas.—Large plants that have been out-of-doors up to this time will have to be placed under glass. The cold nights will not do them any harm as yet, but if they are exposed to rains they may get too much water. Chill October nights, with heavy dews and warm sunshine by day, suits them very well. Thrips and red-spider do not like the cold nights with dew. When the plants are taken under glass the change must be gradual; leave the lights quite open by night as well as by day, and syringe overhead for a few days after the plants are placed inside if the weather is dry and warm. Fumigate with tobacco-smoke to keep thrips from them, and dust with sulphur for mildew. It is just possible that the flower-buds may be too numerous; in that case it is best to thin them out now. One very often sees the flowers heaped one upon another at blooming time; this injures the plants, and is not pleasing. There are some very good semi-double pure white varieties now, they are useful as cut flowers early in the year, and should be grown in the smallest houses.

Calceolarias.—We sowed some seeds of the herbaceous varieties in April this year, and a number of them are flowering; we did not want them to do so, but their richly coloured flowers are handsome and novel at this season of the year. There are plenty of them to flower in the spring and early summer months. Later sowings than those in April form large specimen plants to flower in May and June. The seeds may be sown as late as July for succession. The plants do best at this season in low pits, where they get plenty of air; they must not be exposed to cold drying winds, but a low night temperature will not be injurious, if frost be just excluded; the plants dislike a dry atmosphere, whether it is caused by drying winds or by heated hot-water pipes. Such treatment always brings greenfly in clouds, and it is very injurious indeed to the plants, curling the leaves in a few days. Constantly fumigating with tobacco-smoke will destroy it. The plants should be potted on into 8½-inch pots to flower in. See that none of them suffer for lack of water at the roots.

Cinerarias.—The earliest plants were potted into their flowering pots six weeks ago; the roots have now reached the sides of the pots, and the flower-stems require to be tied out, in order to form good specimens. Later plants must be potted on as the plants require it. They seem to make more rapid growth in September, and also in October if the weather is mild, than they do at any other season of the year, and for this reason they ought to be potted on to prevent their becoming pot-bound. As soon as the flower-stems can be seen in the centre of the plants they ought to be pinched out; this causes them to break out into three or four stems, which will give a greater surface of bloom, and form a dwarfer specimen. Moderate fumigations will prevent or destroy greenfly, and wherever mildew appears dust with flowers of sulphur.

Chrysanthemums.—These are not safe out-of-doors after this time. Heavy rains may be followed by frosts, either of which will very much injure the flowers if they are showing colour; or even if they are not quite so far advanced as that, they may receive a serious check to their growth. Mildew is very injurious to the leaves, and it spreads with amazing rapidity as soon as the plants are placed under glass. They ought to be thoroughly dusted with flowers of sulphur as they are being moved into the house. The stems also should be tied to the sticks finally, as they will not increase much more in height after this. The specimen plants ought to be placed quite close to the glass roof, or as close as it is possible to place them to it. Many of the leaves drop off if the plants are too far from the glass. They require plenty of air and light all round them, and must not suffer for want of plenty of manure-water. A surface-dressing with good rotten manure and loam in equal parts encourages the roots to the surface, and helps greatly to keep the leaves of a healthy green colour.

Pelargoniums.—The show varieties will continue to grow all through the winter months. Those that are to flower early, say from the beginning of May, ought to be potted into their flowering pots without any delay, so that they may become established at once; the growths are now strong and have made considerable progress. Some varieties make too many growths; these require to be thinned out, and those that remain must be tied out and arranged at uniform distances from each other. Large specimen plants must be carefully handled. It is easy to snap off the main stems or some of the growths during the process of tying them out. Potting must also be done very carefully. It is quite necessary that the drainage be kept quite free from the finer portion of the compost by placing fibrous turf over it. The potting material must also be open and porous; broken charcoal and coarse sand is the best material to keep the compost open. "Spot," thought by some growers to be a disease, is often caused by a close compost, or by inefficient drainage, causing the water to be retained about the roots. They do not require very much water, after this time of the year, and the atmosphere ought also to be kept rather dry. Fancy Pelargoniums are not so much grown as they used to be, but they are exceedingly pretty; small plants well furnished with bloom come in well for the front stages of greenhouse or conservatory. They require a little more heat than the large flowered section, and a lighter compost.

Zonal Pelargoniums are now very useful; in the greenhouse they require a little heat as the season advances, to bring them into flower. The plants raised from cuttings put in some time in April, make fine flowering plants now in 6 and 7-inch pots. Large specimen plants intended to flower in the summer must now be kept rather dry at the roots, and in a cool house with plenty of air. *J. Douglas.*

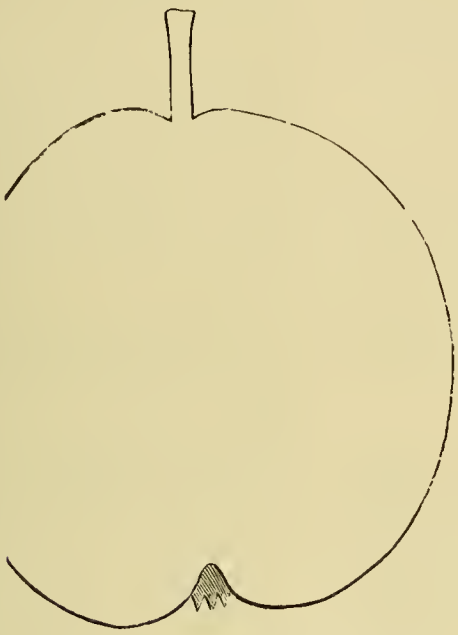

Fig. 84.—Pear Jersey Gratioli.

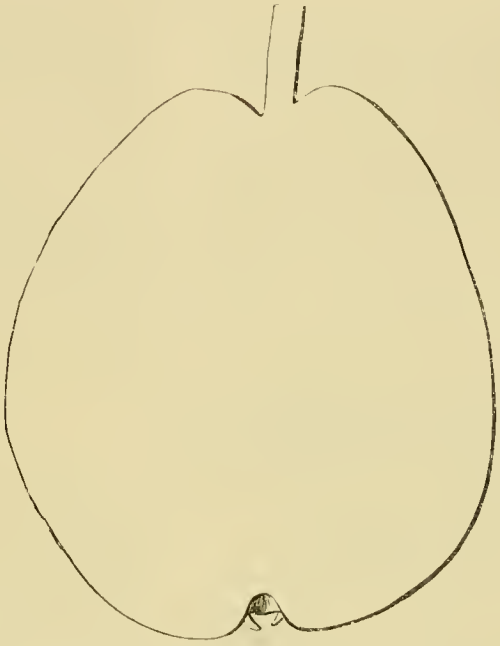

Fig. 85.—Pear Urbaniste. (see p. 510.)

Reports of Societies.

Scottish Horticultural Association.—The ordinary monthly meeting of this Association was held in the hall, 5, St. Andrew Square, on Tuesday, the 2d inst., Mr. Robertson Munro, President, in the chair. The Secretary read a paper, written by Mr. John Webster, Gordon Castle Gardens, entitled, "The Cultivation of Hardy Fruits in the North of Scotland, with the Sorts best Adapted for the Climate." Mr. Webster sent for exhibition, and also to illustrate his paper, about 100 dishes of fruit—viz., Apples, Pears, Plums, Peaches, &c. Messrs. Dicksons & Co. exhibited a collection of seedling Apples; and from Mr. T. S. Ware, London, came a collection of single Dahlia blooms and herbaceous plants; from Messrs. J. Lamont & Son a collection of single Dahlia blooms; and from Mr. J. Addison nine flowers of herbaceous plants.

Obituary.

Professor Oswald Heer, who died at Lucerne a few days ago, was born at St. Gallen in 1816, and being destined by his parents for the pastorate, he entered the University of Halle as a theological student immediately after leaving school. He paid more attention, however, to the study of natural history than to the works of the Fathers, and he became so proficient in his favourite science that in 1836, though then little over twenty years of age, he was appointed to the chair of botany and entomology in the University of Zurich. His vacations were spent in excursions, chiefly in the Alps, in search of specimens. He made a special study of fossil flora, and his monumental work, *The Primeval World of*

Switzerland, has been translated into English, French, and Hungarian; and several others of his books have appeared in Latin and Danish. His last work is entitled *Flora Fossilis Arctica*. It consists of 1300 pages, and contains 300 tables and 3500 illustrations. In Professor Heer the University of Zurich has lost one of its most illustrious teachers. *The Times*.

—— Many of our readers, we feel sure, will regret to hear of the somewhat sudden death, on the 6th inst., at Suffolk Lodge, Wood Green, of Mr. John Cargill, who for many years was connected with the firm of Messrs. Alexander Shanks & Co., of Arbroath and London. Mr. Cargill died of heart disease, aged 44 years.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, October 17, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Oct.	In.	In.	°	°	°	°	°	°	°		In.
11	29.72	+0.01	55.0	48.0	7.0	51.4	+ 0.1	49.4	93	Fog.	0.00
12	29.50	+0.21	55.0	41.8	10.2	47.5	— 1.5	44.2	81	N.: E.N.E.	0.00
13	29.89	+0.19	60.0	41.5	18.5	50.8	+ 0.1	47.1	87	E.S.E.: S.S.E.	0.00
14	29.67	—0.03	64.8	47.0	17.8	55.7	+ 5.3	50.9	84	S.S.W.: S.	0.32
15	29.54	—0.16	58.5	48.0	10.5	52.6	+ 2.4	46.4	80	W.: SW	0.23
16	29.28	—0.42	59.2	50.0	9.2	54.5	+ 4.5	47.8	78	WSW	0.02
17	29.35	—0.35	59.5	45.0	14.5	52.1	2.3	40.0	71	WSW: W.	0.31
Mean	29.62	—0.08	58.8	46.3	12.5	52.2	+ 1.9	46.5	82	Variable.	0.88

Oct. 11.—Dense fog all day; dark, cloudy night.
— 12.—Fine, but dull day; fog at night. Moon visible.
— 13.—Thick fog in early morning. Fine day; sun shining generally. Fine night; moon just visible. Cloudless after midnight.
— 14.—Fine day. Almost continuous rain from 5 P.M. till 11 P.M.
— 15.—Very fine, bright day; at times overcast. Rain from 10 P.M. Strong wind.
— 16.—Slight rain about 8 A.M. Gale of wind all day and night. Fine, clear night.
— 17.—Fine, bright day. Heavy rain from 7 P.M. to 8 P.M. Cloudless and fine at midnight.

London: *Atmospheric Pressure.*—During the week ending October 13 the reading of the barometer at the level of the sea increased from 30.44 inches at the beginning of the week to 30.54 inches by 9 A.M. on the 8th, decreased to 29.88 inches by 9 A.M. on the 11th, increased to 30.11 inches by midnight on the 12th, and was 30.06 inches by the end of the week.

The mean reading for the week at the level of the sea was 30.19 inches, being 0.35 inch higher than last week, and 0.32 inch above the average of the week.

Temperature. — The highest temperature in the shade in the week was 62°, on the 10th; the highest reached on the 7th was 54°. The mean of the seven high day temperatures was 57°.6.

The lowest temperature in the week was 41°.5, on the 13th; the lowest on the 9th was 52°. The mean of the seven low night temperatures was 46°.2.

The greatest range of temperature in one day was 18°.5, on the 13th; and the smallest was 5°.5, on the 9th. The mean of the seven daily ranges was 11°.4.

The mean temperatures were—on October 7, 49°; on the 8th, 55°.2; on the 9th, 54°.1; on the 10th, 52°.5; on the 11th, 51°.4; on the 12th, 49°.5; and on the 13th, 50°.8; of these the 8th, 9th, 10th, 11th, and 13th were above their averages by 3°, 2°.2, 1°.2, 0°.1, and 0°.1 respectively, and the 7th and 12th were below by 3°.6 and 1°.5 respectively.

The mean temperature was 51°.8, being 4°.2 higher than last week, and 0°.2 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 109°, on the 10th. The mean of the seven readings was 76°.9.

The lowest reading of a minimum thermometer with its bulb on short grass was 35°.1, on the 13th. The mean of the seven readings was 76°.9.

Rain.—No rain fell during the week.

England: *Temperature.*—During the week ending October 13 the highest temperatures were 68° at Sheffield, 67° at Hull, and 66°.1 at Nottingham; the highest at Bolton was 57°.4, at Brighton and Bristol 61°. The general mean was 63°.2.

The lowest temperatures in the week were 32°.5 at Sheffield, 34° at Hull, and 34°.3 at Wolverhampton; the lowest at Liverpool was 44°.7, at Bradford 43°.2, and 43° at Brighton. The general mean was 38°.4.

The greatest ranges of temperature in the week were 35°.5 at Sheffield, 33° at Hull, and 30° at Truro; the smallest ranges were 16°.2 at Liverpool, 18° at Brighton, and 18°.9 at Bolton. The general mean was 24°.8.

The mean of the seven high day temperatures was highest at Truro, 62°.4, at Cambridge 60°.3, and at Plymouth and Sheffield 60°.1; and were lowest at Bolton, 55°.9, at Wolverhampton 56°, and at Liverpool 56°.7. The general mean was 58°.3.

The means of the seven low night temperatures were highest at Liverpool, 49°.8, at Bradford 47°.6, and at Cambridge 47°.2; and were lowest at Hull, 51°.7, at Plymouth 43°.2, and at Wolverhampton 44°. The general mean was 45°.5.

The mean daily range of temperature was greatest at Hull, 17°.7, at Plymouth 16°.9, and at Truro 16°.4; and were least at Liverpool, 6°.9, at Bradford 9°.7, and at Bolton 10°.7. The general mean was 12°.8.

The mean temperature was highest at Truro, 53°, at Cambridge 52°.6, and at Liverpool 52°.2; and was lowest at Wolverhampton, 48°.9, at Bolton 49°.4, and at Hull 49°.5. The general mean was 50°.9.

Rain.—The largest falls were—0.58 inch at Truro, 0.36 inch at Hull, and 0.28 inch at Leeds; the smallest falls were 0.01 inch at Plymouth, and 0.04 inch at Cambridge and Bradford. The general mean was 0.16 inch. No rain fell at Brighton, Bristol, or Blackheath.

Scotland: *Temperature.*—During the week ending October 13 the highest temperature was 74°.3, at Aberdeen; at Edinburgh the highest in the week was 61°. The general mean was 67°.8.

The lowest temperature in the week was 31°.1, at Aberdeen; at Greenock the lowest in the week was 39°.2. The general mean was 35°.4.

The mean temperature was highest at Perth, 52°.9; and lowest at Greenock, 50°.6. The general mean was 51°.6.

Rain.—The largest fall was 0.39 inch, at Greenock; and the smallest was 0.20 inch at Glasgow. The mean fall was 0.21 inch. No rain at Leith or Perth.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—Bacon.

Cupressus macrocarpa.—Will some correspondent oblige by stating the height of the largest trees of this species known to them? Is the timber of any use? Have seedlings been raised from home-grown seeds? How did the tree bear the recent severe winters? *X.* [Some fine trees encircle Mr. Tennyson's park at Freshwater, Isle of Wight, but it is probable that larger specimens are to be found in Devonshire, and there are large ones at Castle Kennedy, in Wigtonshire. Ed.]

Sparassis crispa.—Can any good fungiologist explain how to cook and dress up Sparassis crispa, several being found here in most seasons? One, large and fresh, is nearly ready for use. *Agaricus.*

Answers to Correspondents.

*** Names of Flowers and Fruit.—Correspondents are requested to remember that while we are at all times anxious to oblige them, so far as we can consistently do so, it is no part of our duty to name plants or fruit, and especially to remember that to do so involves an expenditure of money, time, and labour on our part which cannot be allowed to interfere with our obligations to our subscribers at large. It is for the most part impossible to give the names required in the current week's issue. Under no circumstances can we undertake to name more than six specimens at one time, and then only when the specimens are well selected, well packed, and carefully numbered. Inattention to these points can only result in disappointment.

Apple Show: *A. O. Walker.* Such a form as you suggest has, we are informed, been sent to all the exhibitors at the Chiswick show, and no doubt most valuable information will be furnished by them; but the labour in compiling is so great, and all extra work as far as the officials are concerned, that we do not think they could be asked to take a wider field than they have done. We earnestly hope that the report may not be shelved, as that relating to the effects of frost was.

Books: *A. H.* The following would all be useful to you:—Johnson's *Gardeners' Dictionary* (Bell & Sons); *The Art of Grafting and Budding*, by Ch. Baltet (*Garden* Office, Southampton Street, W.C.); *A Manual of Coniferæ* (James Veitch & Sons); Thomson's *Gardeners' Assistant* (Blackie & Son).—*W. Reid.* The works you mention are only to be had at second-hand book-stalls. There is no good modern book on the subject.—*T. B.* "Thompson's Dictionary" is unknown to us, but Thompson's *Gardeners' Assistant* is published by Blackie & Co.

California: *A. T. Arthur.* Write to the Editor of the *American Agriculturist*, Broadway, New York. There are no books published in this country likely to be of any use to you.

Cucumber Disease: *W. J. B. B.* The leaf enclosed is very thin and poor in texture, denoting a want of vigour, through which the plants have succumbed. We can only advise you to persevere in the course you have taken, and to get a change of seed, say from healthy plants grown in some other locality.

Double Pink Bramble: *R. P. G.* A very pretty form, figured by us in 1878, vol. x., p. 241. We should be glad if you could verify the allegation that it has been found wild in Perthshire. It is quite possible, but we have no record of it.

Diseased Vine: *A. M.* We do not find a trace of Phylloxera either on roots or leaves. The roots, however, are in a dying state. Is there something wrong with the drainage of the border at the end where the Vines in question are growing?

Eucalyptus Seeds: *J. W. O.* These can be sown in the late autumn or early spring; in the first case, they must be kept in a cool greenhouse till vegetated, whilst those sown in spring can be kept in a temperature of from 55° to 60° minimum. If the seed is very fine, merely sprinkling on a slightly loosened surface is sufficient, afterwards slightly watering; in the case of larger seed they can be covered to about their own depth with soil. Loam, peat, and sand is a suitable mixture, placed in shallow pans or boxes well drained. Keep the soil darkly shaded till growth begins.

Grape Judging at Edinburgh: *Fair Play and No Favour*, if really in earnest, should have made his enquiries earlier, and have addressed them either to the judges direct, or to the Council of the Society. Our correspondent, like ourselves, can perhaps remember many Edinburgh shows at which "a good deal of adverse criticism" was heard, and, on second thought, may conclude with us that the latest instance is a matter of no general public interest.

Grapes at Edinburgh: *Anxious Enquirer.* The show was held in September, 1875, when Mr. Curror showed the heaviest bunch, Trebbiana, weighing 26 lb. 4 oz.; Mr. Dickson being next, with White Nice, 25 lb. 15 oz.

Grass Walk: *E. A. M.* The grass evidently dies on account of the shade and drip from the overhanging trees. Nothing can be done, if you must retain the green walk, but to sow a suitable grass mixture for shady ground, which any respectable seedsman will make up for you; or you can lay fresh turf every spring.

Insects: *Anxious S.* We have ound no trace of insects on either the leaves or roots of your Vines (except mealy-bug), nor any in the pasteboard box. The leaves seem healthy, but on the underside they are thickly covered with very minute green tubercles. These may be the result of the punctures of the bug, but we rather think they result from improper culture or soil. *I. O. W.*

Lapageria: *C. T.* It seems to us that your Lapageria refuses to make good growth from the unsuitability of the soil. If you could plant it out into a specially made border of loam and peat coarsely broken, and with a good portion of sand mixed with it, it would do better. You could then layer a few shoots, and so put, as it were, new roots to it. If you cannot do this try repotting, placing the pot over a large open pan, which must be kept filled with water. Do not let the bottom of the pot touch the water.

Names of Fruits: *H. R. B.* 1, Maréchal de la Cour; 2, not known; 3, Easter Beurré; 4, Ribston Pippin; 5, Golden Russet; 6, Golden Reinette.—*W. H. Godfrey.* 1, Adams' Pearmain; the others apparently all local sorts unknown to us.—*Camjee.* The coloured Apple is Yorkshire Beauty; the green one we do not recognise.—*J. U.* 1, Denyer's Victoria Plum; 2, may be Black Hamburgh, but we are not sure; 3, Wests St. Peter's Grape.—*R. B. Apples:* 1, Golden Noble; 2, Dumelow's Seedling; 3, Old English Codlin; 4, Keswick Codlin; 5, Yorkshire Beauty; 6, not known; 7, Carlisle Codlin; 8, Yorkshire Greening; the others are not known.—*A. Z., Mareyfield.* Burchard's Seedling Apple.—*G. F. G.* 1, Apple not recognised. *Pears:* 2, Doyenné du Comice; 3, Beurré de Capiaumont; 4, not known; 5, Autumn Bergamot; 6, Ne Plus Meuris; 7, Beurré d'Aremberg; 8, Hessle; 9, Marie Louise.—*S. C. H.* Apple, Mère de Ménage.—*W. Markly.* Apple, Cox's Pomona.—*R. L.* Apple not known.—*Barker.* Apple not known.—*H. H., Ealing.* Your two Pears, of which we give outlines at p. 509, are Jersey Gratioli (fig. 84), and Urbaniste (fig. 85); both sorts commonly grown in London market gardens.

Names of Plants: *J. McP.* 1, Populus candicans; 2, P. alba; 3, P. alba var. nivea; 4, P. monilifera; 5, P. grandidentata; 6, P. alba var.—*C. W. D.* Helianthus near Maximilianus.—*Thomas Gregory.* 1, Pyrus Aria; 2, Hornbeam (Carpinus Betulus); 3, no flower—a Chamæranthemum; 4, may be the young leaves of a Jacaranda; 5, Escallonia macrantha, a var. of E. rubra.—*Cecidomyia.* Dogwood (Cornus sanguinea).—*Connon & Reid.* We cannot undertake to name the seeds of weeds.—*B. S.* 1, Euphorbia splendens. Yes, the juice is poisonous, as is usually more or less

the case with milky-juiced plants; 2, Salvia splendens; 3, Achillea millefolium; 4, the golden-leaved form of Lamium purpureum.—*J. H.* Polypodium dryopteris—British.—*Spes Flora, Scarborough.* 1, Retinospora leptoclada; 2, Scabiosa purpurea; 3, Matricaria inodora; 4, Senecio silvaticus; 5, Sequoia sempervirens.—*Halstead & Shand.*—1, Athyrium Filix-fœmina, one of the many tasselled forms; 2, Polystichum angulare cristatum; 3, Polystichum aculeatum multifidum; 4, 5, crested forms of Lastrea Filix-mas. The tips of the fronds are very poor samples for naming, especially in the case of varieties of this character. *C. M. O.* Lycopodium ulicifolium, of which L. Hookeri is a synonym. — *Reginald Young.* A poor variety of Lælia purpurata.—*Delta.* Ampelopsis tricuspidata, commonly called A. Veitchii.

PTERIS SERRULATA SEEDLINGS: *C. P.* 1, Though different, this has too much the general character of Pteris serrulata Pocockii to make it desirable as a commercial plant; 2, distinct—it might be called Pteris serrulata multifurcata; 3, distinct, but not an elegant or attractive form, so far as we can judge from the frond sent.

RUSSIAN NUTS: *E. W. G.* The cones of Pinus Cembra.

SEEDLING APPLE: *F. T. Mott.* Your seedling Apple, named the Plantagenet Pippin, very closely resembles a variety called Queen Caroline; and there are so many better sorts in existence that it is not worth propagating to send out.

TENNIS COURT: *G. G.* The safest and best plan would be to water the court with strong salt brine, as hot as you can conveniently apply it.

TWIN BEAN: *D. L.* The union of two Bean-pods is not unusual. The typical or ideal leguminous flower should have five such, and this actually occurs sometimes.

VINES AND PEARS: *Jackson.* In the case of the Vines, you can strip off the rougher portion of the bark in winter, and then paint them as directed in our Vine Calendar at p. 499. Then remove the upper portion of the inner Vine border, which contains many perfect insects, as well as numerous eggs. Well wash all woodwork with hot water and soda, or soft-soap, and lime-wash all the walls. For the rest look sharply after the bug early in the season, and touch nests of them with methylated spirits. The Pears may be white-washed with quicklime, in which clay, sulphur, and soot have been well mixed; this will suffocate the Pear scale, which will fall off during the summer, or it may be syringed off after it has remained on, from now till the spring.

CATALOGUES RECEIVED.

J. C. WHEELER & SON, Gloucester — Hardy Trees and Shrubs, Fruit Trees, Roses, &c.

J. M. THORBURN & CO., 15, John Street, New York — American Seeds for the European Wholesale Trade only.

THOMAS HORSMAN, 102, Godwin Street, Bradford — Dutch Bulbs, Roses, Fruit Trees, &c.

P. E. FRANCKEN, Steenbrugge, near Bruges, Belgium — Hardy Trees and Shrubs.

R. & G. CUTHBERT, Southgate, N. — Roses, Fruit Trees, Shrubs, &c.

WILLIAM FISHER, Burton-on-Trent — Dutch Bulbs, Trees and Shrubs, &c.

L. SPATH, 154, Köpnickerstrasse, Berlin—Hardy Trees and Shrubs, &c.

THOMAS RIVERS & SON, Sawbridgeworth—Fruit Trees, Selected Roses, &c.

WILLIAM RUMSEY, Waltham Cross, N. — Roses, Fruit Trees, &c.

JAMES WALTERS, Mount Radford, Exeter—Roses.

J. MARGOTTIN FILS, Bourg-la-Reine, near Paris — Roses, Trees, and Shrubs.

KELWAY & SON, Langport, Somerset—Gladioli.

COMMUNICATIONS RECEIVED.—S. H. M. H.—H. S.—G. Wood.—A. N. Jones.—H. L. & Co.—C. M. O.—F. R. (many thanks).—J. H.—T. N.—W. M.—G. Duffield.—W. L.—Dorset.—A. Bishop (you should advertise your new variety, if you wish to make it known).—R. G.—W. S.—W. G. S.—W. B. K.—J.—E. A. M.—H. E.—Paul & Son.—E. V. B.—J. W. O.—E. W. A.—R. S. G.—W. T., Ipswich.—E. J. B.—R. P.—F. W. B.—H. E. B.—D. T.—C. Rana (many thanks).—W. F. G.—J. Carter & Co.—J. H. E. (next week).

Markets.

COVENT GARDEN, October 18.

THE Apple trade has somewhat improved, good samples coming shorter. Hothouse Grapes in full supply. Business generally quiet. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, doz.	12 0–24 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 0
Asters, per doz.	4 0– 9 0	Fuchsias, per dozen	4 0– 9 0
Begonias, per doz.	6 0–12 0	Liliums, various, per dozen	12 0–30 0
Bouvardia, doz.	12 0–18 0	Marguerite Daisy, per dozen	8 0–12 0
Caladiums, per doz.	6 0–24 0	Mignonnette, doz.	4 0– 6 0
Chrysanth., per doz.	6 0–18 0	Myrtles, per doz.	6 0–12 0
Coleus, doz.	2 0– 6 0	Palms in variety, each	2 6–21 0
Dracæna term. doz.	30 0–60 0	Pelargoniums, scarlet, per dozen	2 0– 6 0
—viridis, per doz.	12 0–24 0	Solanums, per dozen	8 0–15 0
Erica, various, doz.	9 0–18 0		
Euonymus, various, per dozen	9 0–18 0		
Evergreens, in var., per dozen	6 0–24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Liliums, 12 blooms	0 6– 1 6
Arum Lilies, 12 blms.	4 0– 6 0	Marguerites, 12 bun.	6 0– 9 0
Asters, 12 bunches	4 0 12 0	Mignonette, 12 bun.	2 0– 6 0
— French, per bun.	3 0– 4 0	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 0
Azalea, white, 12 spr.	1 0– 2 0	Pansies, 12 bunches	0 9– 1 6
Bouvardias, per bun.	1 0– 1 6	Pelargoniums, 12 spr.	1 0– 1 6
Camellias, per doz.	3 0– 6 0	— zonal, 12 sprays	0 3– 0 6
Carnations, 12 blms.	1 0– 3 0	Primula, double, bun.	1 0– 1 6
— 12 bunches	3 0– 6 0	Roses (indoor), doz.	2 0– 6 0
Chrysanth., 12 blms.	2 0– 6 0	— (outdoor), 12 bun.	3 0– 6 0
— 12 bunches	4 0– 9 0	— coloured, doz.	3 0– 8 0
Cornflower, 12 bun.	1 6– 4 0	Stephanotis, 12 spr.	4 0– 6 0
Cyclamen, 12 blooms	0 3– 0 6	Sweet Peas, 12 bun.	2 0– 4 0
Dahlias, 12 bun.	3 0– 6 0	Tropæolum, 12 bun.	1 0– 2 0
Eucharis, per doz.	4 0– 6 0	Tuberoses, per doz.	1 0– 2 0
Gardenias, 12 blms.	4 0– 6 0	Violets, 12 bunches	1 0– 1 3
Gladioli, 12 spikes	1 0– 3 0	— French, per bun.	1 0– 1 0
Heliotropes, 12 sp.	0 6– 1 0	— Parme, per bun.	4 0– 5 0
Lapageria, white, 12 blooms	3 0– 6 0	Wallflower, 12 bun.	3 0– 4 0
— red, 12 blooms	1 0– 3 0	White Jasmine, bun.	0 6– 1 0
Lilac, white Fr., bun.	8 0–10 0		

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	1 0– 3 0	Lemons, per case	20 0– 30 0
Cobs, per 100 lb.	100 0–116 0	Melons, each	1 0– 3 0
Figs, per dozen	1 0– ..	Peaches, per doz.	2 0–12 0
Grapes, per lb.	1 0– 3 0	Pine-apples, Eng., lb.	2 0– 5 0

VEGETABLES—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 5 0	Horse Radish, bund.	3 0– 4 0
Beans, French, lb.	0 6– ..	Lettuces, Cabbage, per dozen	1 0– ..
— Scarlet, per lb.	0 3– ..	— Cos, per dozen	1 6– ..
Beet, per doz.	1 0– ..	Mint, green, bunch	0 6– ..
Cabbages, per doz.	1 0– 2 0	Mushrooms, p. baskt.	1 0– 2 0
Carrots, per bun.	0 4– 0 6	Onions, per bunch	0 6– ..
Cauliflowers, English, dozen	2 0– 3 0	— Spring, per bun.	0 6– ..
Celery, per bundle	1 6– 2 6	Parsley, per bunch	0 4– ..
Cucumbers, each	0 4– 0 8	Radishes, per doz.	1 6– ..
Endive, English, per dozen	1 0– ..	Small salading, pun.	0 4– ..
Garlic, per lb.	1 0– ..	Spinach, per bushel	3 6– ..
Herbs, per bunch	0 2– 0 4	Tomatos, per lb.	0 6– 0 9
		Turnips, new, bun.	0 4– ..
		Vegt. Marrows, each	0 2– 0 4

POTATOS.—Kent Kidneys, £4 to £4 10*s.* per ton; do., Regents, £3*s.* 10*s.* to £4 10*s.*; Champions, £3 10*s.* to £3 15*s.* per ton.

SEEDS.

LONDON: *Oct.* 17. — An increased inquiry for red Clover seed is now manifesting itself, and a few parcels, more particularly French, have recently changed hands. Rather higher prices are this morning cabled from America. More money is asked for white Clover seed. There is nothing doing in Trefoil. For grass seeds there is a slow sale. Trifolium is not now wanted. The trade for winter Vetches is poor. Blue Peas realise last week's currencies. Feeding Linseed is steady. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday, English Wheat being in small supply, was held for steady prices, but hardly met so ready a sale as on the previous Friday. Foreign Wheat was in several instances rather pressed for sale, resulting in irregular and lower rates. Excepting for finest qualities, prices were virtually 6*d.* to 1*s.* per quarter lower on the week. Malting Barley was firm, but grinding sorts were dull, and occasionally rather less money was taken. Beans were firm in value, and English Peas well supported. Maize was firmly held, flat corn in favour of sellers, but round dull. Oats met a slow sale.—On Wednesday transactions in Wheat were of only retail extent, at irregular and at easier prices where sales were forced. Flour was also difficult of sale, and drooping in value. Malting Barley was held firmly, but not much in request; grinding sorts dull, and in favour of buyers. Beans and Peas were inactive, the latter scarce. For Oats buyers were reserved in their operations; for common Revel and Libau slightly easier rates were accepted. American mixed Maize was firm, but the market was dull for other descriptions.—Average prices of corn for the week ending Oct. 13:—Wheat, 40*s.* 8*d.*; Barley, 34*s.* 4*d.*; Oats, 19*s.* 4*d.* For the corresponding period last year:—Wheat, 39*s.* 2*d.*; Barley, 34*s.*; Oats, 19*s.* 1*d.*

HAY.

Tuesday's Whitechapel Market report states that the supplies are good, and trade rather dull. Quotations:—Prime old Clover, 100*s.* to 115*s.*; inferior, 60*s.* to 75*s.*; prime second cut, 90*s.* to 108*s.*; best meadow hay, 80*s.* to 88*s.*; inferior, 40*s.* to 65*s.*; and straw, 30*s.* to 40*s.* per load.—On Thursday there was a good supply. The trade was quiet at late prices. — Cumberland Market quotations:—Superior meadow hay, 84*s.* to 92*s.*; inferior, 63*s.* to 72*s.*; superior Clover, 100*s.* to 112*s.*; inferior, 70*s.* to 92*s.*; and straw, 36*s.* to 40*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that there was a good supply on sale, for which the demand was quiet at the following quotations:—Magnum Bonums, 75*s.* to 85*s.*; Victorias, 75*s.* to 85*s.*; Regents, 75*s.* to 90*s.*; Champions, 60*s.* to 70*s.*; Rocks, 60*s.* to 70*s.* per ton.—Foreign: Blues, 4*s.* to 4*s.* 4*d.*; Snowflakes, 3*s.* 9*d.* to 4*s.* per bag.

Government Stock.—Consols closed on Monday at 101⅞ to 101½ for delivery, and 101½ to 101$\frac{9}{16}$ for the account. The final prices of Tuesday were as on the preceding day for delivery, and 101½ to 101⅝ for the account, and there was no alteration to record on Wednesday. Thursday's closing figures were 101¼ to 101⅜ for delivery, and 101⅜ to 101½ for the account.

To Her Most Gracious Majesty Queen Victoria.

To His Royal Highness the Prince of Wales.

For Beautiful Flowers and Fruits
USE CHUBB, ROUND AND CO.'S PATENT

COCOA-NUT FIBRE REFUSE

By CHUBB'S PATENT PROCESS,

As supplied to all the Royal Gardens and Principal Nurseries of Europe.

GUARANTEED ABSOLUTELY PURE. FREE FROM ANY FOREIGN INTERMIXTURE. Manufactured on the premises from the famous "Laguna" Cocoa-Nut Husks, and can only be obtained from us direct. This article is not to be confused with so-called Cocoa-Nut Fibre Refuse, sold by dealers and others at ridiculously low prices, and dear in the end. Amongst numerous Testimonials and extracts from scientific writers, to be seen at our works, we hold the following:—From Mr. CHARLES PENNY, Head Gardener to H.R.H. the Prince of Wales: "The Gardens, Sandringham, February 28, 1883.—I must say your Cocoa-Nut Fibre Refuse is far superior to any I have ever tried; in fact, it is simply perfection; and the use of your Fibre for so many purposes in Horticulture is a thorough boon. Make what use you like of this letter." Useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bulbs, Mushrooms, Bedding-out Plants, &c.

DESTROYS ALL SLUGS AND INSECTS.

An elegant Bordering to Flower Beds. Combines warmth and cleanliness with valuable antiseptic and deodorising properties.

MOISTENS IN HEAT. HOLDS HEAT IN COLD WEATHER.

Terms, strictly cash with order. Prices as follows:—Sacks, 1*s.* 6*d.* each; 10 sacks, 13*s.*; 15 sacks, 18*s.*; 20 sacks, 23*s.*; 30 sacks, 30*s.* (all sacks included). Truck-load, free on rail, £2. Limited quantities of SPECIAL QUALITY, Granulated, in sacks only, 2*s.* 6*d.* each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from the Manufacturers, **CHUBB, ROUND & CO.,**
Fibre Works, West Ferry Road, Millwall, London, E.

A SPECIALITY.

BEESON'S ROSE, VINE, and PLANT MANURE.

To be had of all Nurserymen, Seedsmen, and Florists.
For all particulars please apply to
W. H. BEESON, Carbrook Bone Mills,
SHEFFIELD.
Also GROUND BONES for Vine Borders, Potting, &c.

GARDEN REQUISITES.

PEAT, LOAM, SILVER SAND,
PREPARED COMPOST, RAFFIA FIBRE,
TOBACCO CLOTH, &c.
Quality **equal to any** in the Market.
(All Sacks included.)

PEAT, best brown fibrous	4*s.* 6*d.* per sack; 5 sacks for 20*s.*
,, best black fibrous	3*s.* 6*d.* per sack; 5 sacks for 15*s.*
,, extra selected Orchid	5*s.* 0*d.* ,,
LOAM, best yellow fibrous	1*s.* per bushel (sacks included).
PREPARED COMPOST, best	
LEAF MOULD	
PEAT MOULD	
SILVER SAND (coarse)	1*s.* 3*d.* per bushel.
RAFFIA FIBRE, best only	1*cd.* per lb.
TOBACCO CLOTH, finest imported	8*d.* per lb., 28 lb. 18*s.*
,, PAPER, finest imported speciality	8*d.* per lb., 28 lb. 18*s.*

COCOA-NUT FIBRE REFUSE (see special advertisement).
Terms, strictly Cash with order.

CHUBB, ROUND & CO.,
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Important Discovery.

For Cleansing Plants from Aphides, and all Parasites. To prevent American Blight, all kinds of Scale, &c., and for Washing all Hard-wooded Plants, always use

HUDSON'S EXTRACT OF SOAP.

A ¾ lb. Packet to 3 Gallons of Water.
A strong solution thickened with clay makes an effective Winter Dressing.

Testimonials.

"Coton Hall Nursery, Shrewsbury, July 28, 1880.
"We find Hudson's Soap a very useful Winter Dressing for all kinds of Fruit Trees; both as a preventive and cure against American Blight and all kinds of Scales. We also use it for Camellias, Azaleas, Rhododendrons, and all kinds of Hard-wooded Plants. We have much pleasure in presenting you with this testimonial, and remain, yours truly,
(Signed) "JOHN JONES AND CO."

"201, Broad Street, Birmingham, August 15, 1883.
"DEAR SIR,—I have lately tried Hudson's Extract of Soap for the mildew on my Rose trees in the greenhouse, and I find that with one syringing it completely cures it instantly. I should say I tried it some time ago with the same result. Yours truly,
(Signed) "W. JAMES."

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REMARKABLE DISAPPEARANCE!
of all DIRT from EVERYTHING
BY USING
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Thomson's Vine and Plant Manure.

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(JOHN COWAN), Limited,

The Vineyard and Nurseries, Garston, near Liverpool,

and Sold by them and all Nurserymen and Seedsmen.

This is the Manure used to produce the splendid Grapes grown by Messrs. Wm. Thomson & Son, Clovenfords.

For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1s., 3s., & 10s. 6d.

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

GISHURSTINE, for dry feet and boot comfort, is much used by Gardeners, Farmers, Ladies, Sportsmen, and Shore-waders; is sold by Nurserymen and Oilmen, with testimonials and directions for use, in boxes, 6d. and 1s. each. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), London.

TOBACCO PAPER (Roll), CLOTH and CORD.—Excellent quality; unique value. LINDSAY and CO., Tobacconists, Leith Walk, Edinburgh.

SILVER SAND.—Coarse, 1s. 2d. per bushel, 25s. per ton. Bags (holding 2 bushels) 5d. each. J. NUNN, Great Clowes Street, Manchester.

Under the Patronage of the Queen.

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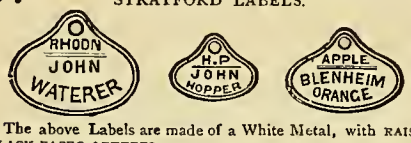

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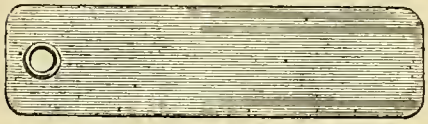

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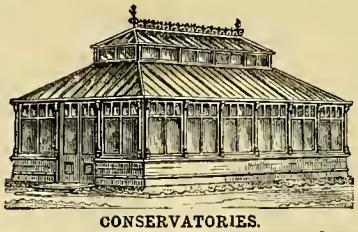

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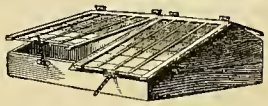

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Cash Prices, Carriage Paid.

No. 2	8 feet long	6 feet wide	£4 15 0
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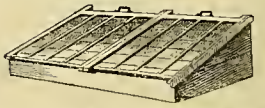
No. 4	16 feet long	6 feet wide	8 5 0

These Frames are 13 inches deep in front, 24 inches deep at back, and 32 inches in the centre. Front or back lights turn over. Set-opes are provided for ventilating. All painted four coats of best oil colour, the lights glazed with best 21-oz. English glass.



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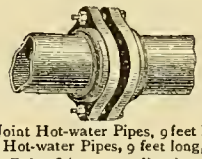

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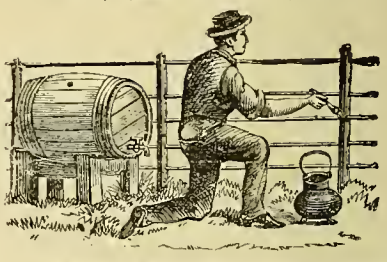

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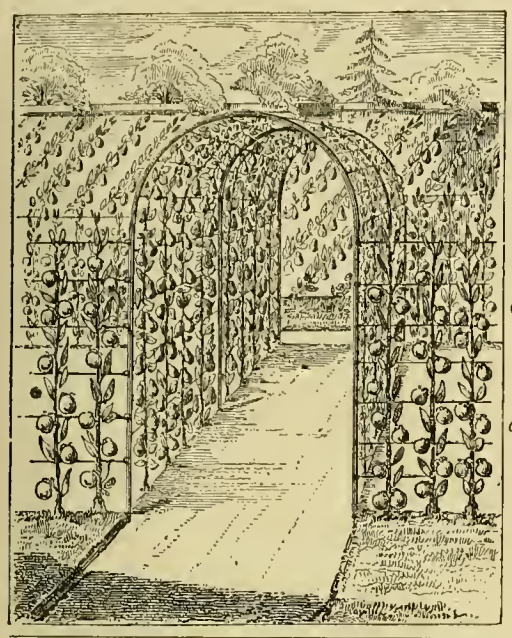

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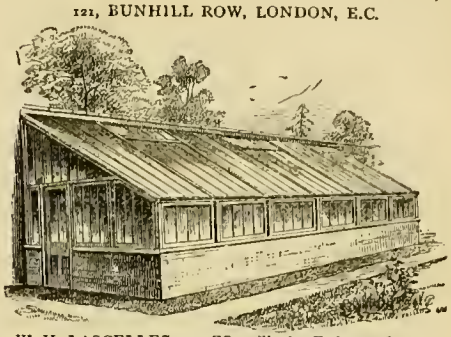

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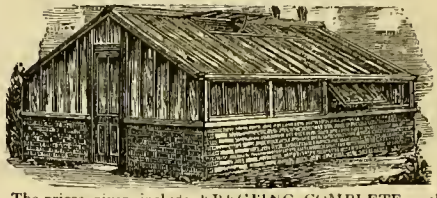

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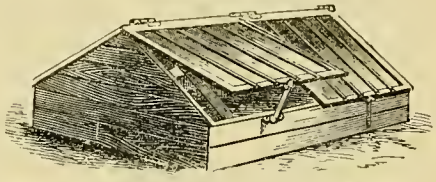

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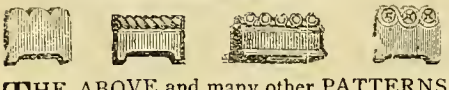

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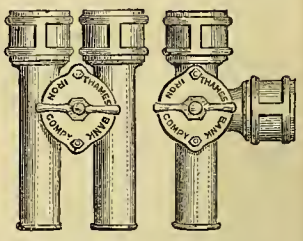

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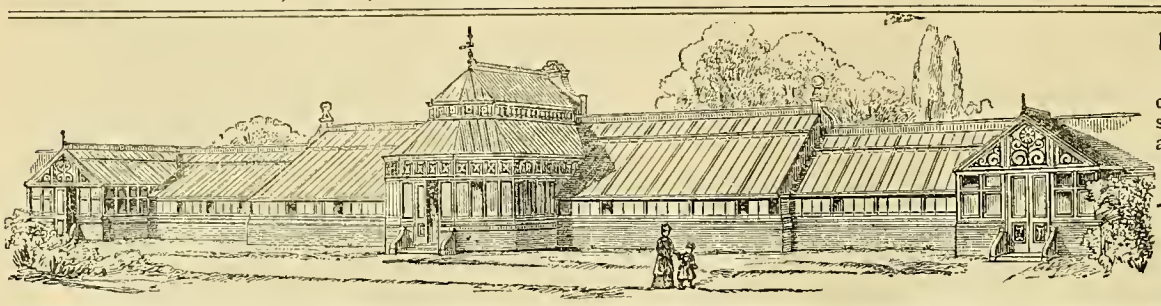

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A. B., 3, Great Queen Street, Westminster, S.W.

Notice to Senders.
WANTED, PEACHES, GRAPES, TOMATOS, MARIE LOUISE PEARS, &c. Also STEPHANOTIS, EUCHARIS, GARDENIAS, TUBEROSES, Maréchal Niel and other ROSES; White CAMELLIAS, &c.
WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, 200 GRAPE VINES, from 20 feet to 25 feet long, half to be Black Hamburgh, and half Alicante. Send price to
W. WILLET, Rosary Gardens, South Kensington.

Potatos Wanted.
WANTED TO PURCHASE, BEAUTY of HEBRON, READING HERO, and WHITE ELEPHANT. State quantity and price for Cash.
BRINKWORTH AND SONS, Royal Berkshire Potato Establishment, Reading.

WANTED, a few Tons of MYATT'S PROLIFIC POTATO. State price, for cash, to
JOHN FRASER, Charlton, Malmesbury.

To the Trade.
DOUBLE and SINGLE SNOWDROPS.
Samples and Prices on application.
EDMUND PHILIP DIXON, Hull.

New Catalogues.
CHARLES TURNER'S New Descriptive CATALOGUES for the season are now ready, comprising Roses, Fruit Trees, and all kinds of Hardy Trees and Shrubs; also Carnations, Picotees, Auriculas, and other Florist Flowers, Bulbs, &c.
The Royal Nurseries, Slough.

CRANSTON'S Descriptive CATALOGUES of Fruit and FOREST TREES, SHRUBS, &c., are now ready, and may be had free on application.
CRANSTON'S NURSERY AND SEED COMPANY (Limited), King's Acre, Hereford.

AQUILEGIA GLANDULOSA (GRIGOR'S, guaranteed true).
Twelve Plants of this beautiful Columbine, to bloom next season, free to any part of the United Kingdom, at 6s. per dozen. Cash with order.
JOHN GRIGOR AND CO., The Nurseries, Forres, N.B.

To the Trade.
GLADIOLI, NAMED and MIXED HYBRIDS.
HOOPER'S LIST is the Cheapest in the Trade. Only First-class Sorts. Sent by return post by
HOOPER AND CO., Covent Garden, London, W.C.

BEECH—BEECH—BEECH.—10,000 2 to 3-yr. Seedling Beech, splendid stuff and well-rooted, 5s. to 7s. 6d. per 1000. Orders executed in rotation.
Apply to E. WILSON SERPELL (late Pontey), Vinstone Nurseries, Plymouth.

FRANCIS BELL, NURSERYMAN, Easingwold, offers for sale 2,000,000 LARCH, 2 to 5 feet, recently transplanted, with good leads and well rooted, at greatly reduced prices.

PRUNUS PISSARDI
The black-foliaged Mirabel.
Extra vigorous, 1-yr. grafts, 4 to 6 feet high, per dozen, 30s. to 40s. according to strength.
ED. PYNAERT, Ghent, Belgium.

To the Trade.
SPIRÆA JAPONICA, 2-yr. transplanted, strong, for forcing, 12s. per 100.
W. C. SLOCOCK, Goldworth Old Nursery, Woking, Surrey.

ACORNS.—Buyers will oblige by sending Address and Requirements to
GEO. P. DARBY, Nurseryman, Watford, Herts.

TWO HUNDRED THOUSAND VIOLAS, BEDDING PANSIES, HARDY PERENNIALS, ALPINES, &c.—One uniform price, 1s. per dozen, transplanted. Land sold for Railway Extension. Guinea Garden Collection increased to thirty dozen, worth £6; half, 12s.
CATALOGUE gratis.
JOHN PIRIE AND CO., Stechford, Birmingham.

HOLLY for HEDGES.—12 to 15 inches, 25s.; 15 to 18 inches, 35s.; 18 to 24 inches, 50s. per 100. Forest LIST, containing heights and prices of well-grown transplanted Quick, Ash, Larch, Spruce, Pines, Oaks, Cover Plants, &c., free.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

BERMUDA EASTER LILY (Lilium Harrisii).—A large stock of excellent bulbs 2s. 6d. each, 24s. per dozen.
LENT LILY—bulbs 3s. 6d per 100, 30s. per 1000.
Priced CATALOGUES of our immense and very varied stock of Bulbous Flower Roots, &c., post-free on application to
JAMES DICKSON AND SONS, Newton Nurseries, Chester

For Present Planting.
GLADIOLUS, THE BRIDE.—This pure white variety is perfectly hardy, and should be planted this month, or early next. Blooms in June, or will stand moderate forcing well. See our Wholesale Bulb Catalogue, to be had on application. Special low prices for large quantities.
WATKINS AND SIMPSON, Exeter Street, Strand, W.C.

STRAWBERRIES—Next Summer, by planting now: capital roots, 4s. per 100; 6d. extra per 100 for delivery by Parcels Post. In a Few Months, by forcing: plants in pots, 16s. per 100. Only the best varieties are offered. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To the Trade.
CUCUMBER SEEDS.—We shall be glad to quote prices of Veitch's Tender and True and Kollison's Telegraph Cucumber seeds, in large or small quantities. Both are very superior stocks, of our own growth, and carefully selected.
GEO. COOLING AND SON, Seedsmen, Bath.

SEAKALE.—For Sale, 4000 Roots, very fine, for forcing. Price 10s. per 100. Apply to
JAMES TURNER, 37, George Street, Richmond, Surrey.

READING HERO.—A few Tons of this famous POTATO for Sale. Price £8 per ton, or 9s. per cwt., on rail. bags included. Cash with order.
J. J. CLARK, Goldstone Farm, West Brighton, Sussex.

SALES BY AUCTION.

Important Sale of First-class Dutch Bulbs;
500 Standard, Dwarf, and other ROSES, of the best varieties; Hardy CONIFERÆ, SHRUBS, AMERICAN PLANTS, selected FRUIT TREES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, October 30, at 12 o'Clock precisely.

May be viewed the morning of Sale. Catalogues had at the Rooms.

Tuesday Next.
SPECIAL SALE of ORCHIDS in Flower.

MESSRS. PROTHEROE AND MORRIS beg to announce, that they have made arrangements for holding a special SALE of ORCHIDS in FLOWER and in BUD, at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, commencing at half-past 12 o'Clock precisely.

The plants will be on view from 11 o'Clock until the time of Sale, and will comprise many special and beautiful varieties from some of the best collections.

Catalogues are now ready, and may be had at the Rooms, or 8, New Broad Street, E.C.

Coventry.
UNRESERVED CLEARANCE SALE of 1000 beautifully-grown TREES and SHRUBS.

MESSRS. PROTHEROE AND MORRIS (in conjunction with Mr. Jas. Whittindale) will SELL by AUCTION, on the Premises, The Jeffery's Wood Cross and Payne's Lane Nurseries, Coventry, about a mile and a half from the Railway Station, on TUESDAY, October 30, at 11 o'Clock punctually, in consequence of the large number of lots, the whole of the unusually well grown NURSERY STOCK, comprising about 2500 Variegated Hollies, 1 to 7 feet, a magnificent lot, and including many splendid specimens; 4000 Green Hollies, 1 to 5 feet; 1200 Variegated YEWS, 1 to 6 feet, including many fine named specimens; 1000 common and Irish Yews, 2 to 5 feet, many of them worked; Fruit Trees, Conifers, and other stock.

May now be viewed. Catalogues had of Mr. J. WHITTINDALE, Auctioneer, 29, Hertford Street, Coventry; or of Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Wednesday Next.
CAMELLIAS, AZALEAS, FICUS, and other plants from Ghent; STOVE and GREENHOUSE PLANTS in variety; fine TEA ROSES and FERNS in pots; a choice assortment of Standard and Dwarf ROSES, HYACINTHS, TULIPS, CROCUS, and other Dutch BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL the above at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, at half-past 12 o'Clock precisely.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Wednesday Next.
SPIRÆA JAPONICA.

MESSRS. PROTHEROE AND MORRIS will include in their Sale on WEDNESDAY NEXT, in five lots, Five Barrels of unusually fine clumps of SPIRÆA JAPONICA, 500 in each lot, received direct; also 200 Clumps of LILY of the VALLEY, for forcing.

On view morning of Sale, and Catalogues had.

Gravesend.
Unreserved Sale, by order of the Executors of the late Mr. Thomas Eves.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, The Pavilion and Nursery Grounds, Wrotham Road, Gravesend, on WEDNESDAY and THURSDAY NEXT, October 31 and November 1, at 12 o'Clock precisely each day, without the least reserve, the whole of the valuable NURSERY STOCK, extending over 11 acres, including a fine assortment of specimen Border Shrubs, adapted for immediate effective purposes; 4000 Aucubas, fine stuff; 3000 Tree Box, 2000 Euonymus, 1500 Fruit Trees, 7000 Gooseberries and Currants, 2000 choice and clean-grown Standard Roses, 2000 yards of Box Edging, Horse, Van, and numerous effects.

May now be viewed. Catalogues had on the Premises; of W. H. RUSSEL, Esq., Solicitor, Windmill Street, Gravesend; and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Lower Streatham, S.W.
UNRESERVED CLEARANCE SALE, by order of Messrs. Peed & Son, in consequence of having to give up possession of the Land.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Norbury Nurseries, Lower Streatham, S.W., opposite the Norbury Station, on THURSDAY and FRIDAY, November 1 and 2, at 12 o'Clock precisely each day, the whole of the well-grown NURSERY STOCK, all of which has been recently transplanted, comprising a fine lot of specimen Conifers and other Shrubs in the borders; Aucuba japonica in large quantities, Ornamental Trees, Trained and Standard Fruit Trees, Roses, Climbing and Herbaceous Plants; also the remainder of the Specimen Greenhouse Plants, including fine trained Azaleas, Camellias, and Ericas, three grand Specimen Anthurium Scherzerianum (Veitch's variety), Exhibition Plant YAN, HANDLIGHTS, and BOXES, and numerous effects.

May now be viewed. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Friday Next.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. F. Horsman & Co., of Colchester, to include in their SALE, at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, IMPORTED ORCHIDS from Mexico, including large masses of Lælia anceps, L. autumnalis, L. albida, Odontoglossum Rossi, O. majus, &c.

On view morning of Sale, and Catalogues had.

Friday Next.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, at half-past 12 o'Clock precisely, by order of Messrs. Shuttleworth, Carder & Co., a splendid lot of ODONTOGLOSSUM CRISPUM, of the best type; O. VEXILLARIUM, O. PESCATOREI, MASDEVALLIA HARRYANA, CATTLEYA CELOSIA (established), LYCASTE SKINNERI (established), and ODONTOGLOSSUM species.

On view morning of Sale. Catalogues had at the Rooms, or at the Estate Offices, 8, New Broad Street, E.C.

Forest Gate, Essex.—Short Notice.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Upton Nursery, Forest Gate, on SATURDAY NEXT, November 3, at 1 o'Clock, by order of Mr. Billing, a quantity of well-grown GREENHOUSE PLANTS, including 1000 Bouvardias, 1000 Ferns of sorts, 500 Cyclamen, fine plants of Camellias, Azaleas, and Gardenias, and other plants in great variety; also several hundreds of fine Standard, Pyramid, and trained APPLES, PEARS, PLUMS, and CHERRIES; 500 Standard ROSES, of the best sorts, &c.

On view day prior to Sale. Catalogues on the Premises, and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Lee, S.E.
SALE of beautifully-grown NURSERY STOCK, nearly the whole of which has been transplanted within the last two years.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Manor Lane Nursery, Lee, S.E., on TUESDAY, November 6, at 12 o'Clock precisely, by order of Messrs. W. North & Son, a large quantity of well-grown NURSERY STOCK, including about 3000 fine specimen Evergreens, from 3 to 7 feet high; 1000 Thuia Lobbii, 4 to 8 feet; 2000 bushy Common Laurels, 3 to 4 feet; 1000 Standard and Dwarf Roses, 5000 small Evergreens for pots, 2500 Gooseberries and Currants; also 500 Ampelopsis Veitchii, 500 Erica hyemalis, large Camellias, a few Orchids, and other Greenhouse Plants.

May be viewed. Catalogues may be had on the Premises; and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Milford Nurseries, near Godalming, Surrey,
Within a mile of Milford or new Godalming Stations.
Highly important Four Days' Sale of FIRST-CLASS NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Maurice Young to SELL by AUCTION, on the Premises, as above, on TUESDAY, November 6, and three following days, at 12 o'Clock precisely each day, several acres of beautifully grown NURSERY STOCK, in fine condition for removal, and lotted to suit the Trade and Private Buyers, comprising 4000 Specimen Evergreens, 1500 fine Variegated Hollies, 2 to 4 feet; 500 Green Hollies, 2 to 8 feet; 5000 Dwarf Roses, of the best sorts; 10,000 Green Hollies, 1 to 1½ foot, for hedges; 3000 Green and Variegated Aucubas, 1 to 2 feet; 3000 fine named and other varieties of Rhododendrons, 9000 Evergreen Privet, for hedges or cover planting; 9000 Laurels, of sorts; 3000 fine Ornamental Park Trees, 6 to 15 feet; 1500 Limes, 7 to 10 feet; 8000 Flowering Shrubs, 7000 Red and Black Currants, for Market Gardeners; Fruit Trees, Climbers, Clematis, and other stock too numerous to mention.

May now be viewed. Catalogues may be had on the Premises, or of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B. The Auctioneers beg to call the special attention of intending planters to this important Sale. The stock is in fine condition and worthy of an inspection.

Eaton Nurseries, near Norwich.
GREAT CLEARANCE SALE.
THIRD PORTION of the BEAUTIFULLY GROWN NURSERY STOCK, by order of Messrs. Ewing & Co., who are giving up their Business.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, the old-established Nurseries at Eaton, near Norwich, on WEDNESDAY and THURSDAY, November 7 and 8, at 12 o'Clock precisely each day, the Third Portion of the Valuable NURSERY STOCK, comprising about 10,000 choice Conifers and Evergreens, in immense variety; a fine collection of Ivies and other Hardy Climbers; many thousands of Fruit Trees, beautifully grown and trained for Pyramids, Bushes, Walls, open Standards, &c., and consisting of the finest sorts of
APPLES, PEARS, PLUMS, CHERRIES,
Peaches, Nectarines and Apricots, Filberts and Nuts, Walnuts, &c; 10,000 Red and White Currant Bushes; 10,000 Roses of the best sorts of Hybrid Perpetuals, Teas, Noisettes, Mosses, Climbing Roses, &c.

Many thousands of Ornamental Trees, of large and small sizes, deciduous flowering Shrubs, Forest Trees, including a fine lot of young Spruce Fir, Chestnuts, Hazel, &c. The lots will be so arranged as to suit both Wholesale and Retail Buyers.

May be viewed any working-day prior to the Sale. Catalogues on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Feltham, Middlesex.
Within 10 minutes' walk of the railway station.
WITHOUT THE SLIGHTEST RESERVE.
GREAT UNRESERVED SALE, under the Will of the late Mr. Charles Lee.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, Lee's Nursery, Feltham, and Hounslow Heath, Middlesex, on TUESDAY, November 13, at 12 o'Clock punctually, a portion of the beautifully grown NURSERY STOCK, which has been carefully prepared for transplanting. It includes a great variety of handsome Specimen Coniferæ, from 2 to 7 feet; 2000 Golden Yews, 1 to 4 feet; 700 Cedrus Deodara, 3 to 7 feet; 100 Wellingtonia gigantea, 2 to 4 feet; 300 Abies Englemanni; 2000 Ponticum, Rhododendrons, 1½ to 2½ feet, many well budded; several hundreds of Common Hollies, 7 to 8 feet, recently transplanted; 3000 Dwarf Roses, and other Stock.

May be viewed. Catalogues may be had on the Premises; of Messrs. LEE AND SON, Royal Vineyard Nursery, Hammersmith, W.; and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Petersfield, Hants.
PRELIMINARY NOTICE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. C. Bailey to SELL by AUCTION, on the Premises, the Petersfield Nurseries, Petersfield, on WEDNESDAY, November 14, a large quantity of valuable NURSERY STOCK, further particulars of which will appear next week.

Dutch Flower Roots, every Monday, Wednesday and SATURDAY.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely, a large consignment of first-class DOUBLE and SINGLE HYACINTHS, in all colours; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, Early ROMAN HYACINTHS, and other BULBS, just received from well known farms in Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale, and Catalogues had.

Imported and Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, October 31, at half-past 12 o'Clock precisely, about 200 lots of CHOICE ESTABLISHED ORCHIDS from Mr. G. Marriott and other growers, including Lælia elegans alba, Dendrobium Brymerianum, D. Schröderi, Vanda Sanderiana, V. Marriottianum, Cattleya aurea, and other rare and valuable species; also a variety of imported and ESTABLISHED ORCHIDS from Messrs. Shuttleworth, Carder & Co.; a choice collection of PALM SEEDS from Queensland, Ceylon, and the Mauritius, and seeds of the extremely rare and choice NELUMBIUM LEICHARDTI, very difficult to obtain; a few ROMAN HYACINTHS, LILIUM HARRISII, &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6503.)
PLANTS and BULBS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, October 31, at half-past 12 o'Clock precisely, Standard, Half-standard, and Dwarf ROSES of sorts, Hardy ORNAMENTAL CONIFERS, Variegated HOLLIES, Standard FLOWERING TREES and SHRUBS from well known Dutch and English Nurseries, a few lots of Specimen CAMELLIAS, choice named CARNATIONS, PICOTEES, PINKS, &c.; also a consignment of first-class Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, IRIS, ANEMONES, RANUNCULI, and other BULBS from Holland.

On view morning of Sale, and Catalogues had.

Imported and Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY NEXT, October 31, at half-past 12 o'Clock precisely, by order of Messrs. Shuttleworth, Carder & Co., IMPORTED and ESTABLISHED ORCHIDS, comprising as follows:—Odontoglossum crispum (Alexandræ), O. grande, O. vexillarium, O. Phalænopsis, O. Pescatorei, Masdevallia Harryana, M. Shuttleworthii, M. Trochilus, M. chimæra; ONCIDIUMS in variety, and EUCHARIS CANDIDA (true).

On view morning of Sale, and Catalogues had.

Cattleya amethystoglossa (?).

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, October 31, about fifty plants of the above.

On view morning of Sale, and Catalogues had.

Thursday, November 1.
NEW VANDA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 1, instead of date previously announced, at half-past 12 o'Clock precisely, by order of Mr. F. Sander, a grand importation of a most beautiful VANDA from the island of Bali, in the Javanese group. This splendid Vanda produces, as will be seen, as many as twenty-four flowers on the spike, and is extraordinarily free-flowering. In habit it resembles cœrulea, but the flowers are near insigne; the colouring is chaste and striking, sepals and petals being carmine, spotted and striped on white ground, and the lip violet. See Drawing. ONCIDIUM ARMILLARE, a lovely new introduction; flowers yellow, with brown stripes. Also other valuable importations. The Vandas are in specially fine order; all have sound roots, and among them will be found specimens of rare excellence and size.

On view morning of Sale, and Catalogues had.

Friday Next.
DUTCH BULBS, &c.—EXTRA SALE.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY NEXT, November 2, at half-past 12 o'Clock precisely, about 800 lots of first-class Double and Single HYACINTHS, of all colours; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, ANEMONES, RANUNCULI, and other BULBS, from Holland. Also 5000 Roman HYACINTHS, Paper-white NARCISSUS, and LILIUM CANDIDUM, from France; and a consignment of LILIUM TENUIFOLIUM from America.

On view morning of Sale, and Catalogues had.

Important Sale of Established Orchids.

MR. J. C. STEVENS has received instructions from H. Harkewitz, Esq., of Middlesborough, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 7, at half-past 12 o'Clock precisely, his extensive COLLECTION of ESTABLISHED ORCHIDS, comprising about 600 plants, all in fine condition, and including some good specimens of the following varieties:—Aërides, Angræcums, Anguloas, Calanthes, Cattleyas, Cœlogynes, Cymbidiums, Cypripediums, Dendrobiums, Epidendrums, Lælias, Lycastes, Odontoglossums, Oncidiums, Phaius, Saccolabiums, Stanhopeas, Vandas, Zygopetalums, Phalænopsis, &c.; also a few STOVE PLANTS and PALMS.

On view morning of Sale, and Catalogues had.

Large Consignment of Lilium auratum from Japan.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., early in November, 100 cases of LILIUM AURATUM, now on the way from Japan, including some gigantic BULBS.

On view morning of Sale, and Catalogues had.

Wonersh Nurseries, Guildford, Surrey.
THREE DAYS' NURSERY SALE.

MR. H. W. COPUS is instructed by Mr. W. Virgo to SELL by AUCTION, on WEDNESDAY, THURSDAY, and FRIDAY, October 31, and November 1 and 2, a very fine assortment of NURSERY STOCK, comprising Dwarf Standard and Climbing Roses, Portugal and common Laurel, Cupressus Lawsoniana, Retinospora, Thuias, Abies Douglasii, Euonymus, Deutzia gracilis, Cotoneaster Simmonsi, Pinus austriaca, green and variegated Hollies, Manetti Stocks, Privet, Sweet Briers, English Yews, Gueldres Roses, bedded Quicks, Virginian Creepers, 100,000 transplanted Forest Trees, Mountain and Weeping Ash, Birch, Purple and common Beech, Horse Chestnut, English Elm, Limes, Balm of Gilead Fir, Laburnum, Norway Maple, Sumach, Sycamore, Walnut, Poplar, Black Italian and Abele; Scarlet Oak, Alder, Hazel, Larch, English Oak, Spruce and Scotch Fir, Withy; extra strong Black Currants, Red Currants, and Gooseberries, Standard and Pyramid Apples, Plums, Medlars, Quince, and others.

Catalogues to due course, of the Auctioneer, 16, Friary Street, Guildford, Surrey.

On Wednesday, October 31.

Southbourne, Augustus Road, Edgbaston, Birmingham.

UNRESERVED SALE of the whole of the VALUABLE STOVE and GREENHOUSE PLANTS, including many grand exhibited specimens, by direction of Walter Showell, Esq., who is changing his residence.

MESSRS. LUDLOW, ROBERTS and WELLER will SELL by AUCTION, at the Residence as above, on WEDNESDAY, October 31, at 11 o'Clock, the whole of the RARE and VALUABLE PLANTS, including exceedingly fine Crotons, Allamandas, Clerodendrons, Bougainvilleas, Stephanotis, very fine grown Palms, including Chamærops elegans, 6 feet; Areca Baueri, 9 feet; Areca lutescens, 9 feet; Latania borbonica, 10 feet (grand specimen); Cycas revoluta, 8 feet (an unusually fine specimen), &c.; grand large specimen Anthuriums, choice Ferns, including Adiantum cuneatum, 4 feet through; Adiantum gracillimum, fine grown Gymnogrammas, &c.; specimen Azaleas, best named sorts, from 6 feet to 2 feet 6 inches; Epacris, Caladiums, Dracænas, a few choice Orchids, &c.

Further particulars in Catalogues, to be obtained of the Auctioneers.

NOTE.—*The Auctioneers particularly request the attention of Exhibitors and Collectors to this Sale, as many of the plants have taken valuable prizes at the various local shows, all are in splendid health, and every lot must be sold without the least reserve.*

Farncombe Nursery, near Godalming.

London and South-Western Railway, close to Broadwater Cricket Ground, about eight minutes from Old Station.

MR. H. W. COPUS is instructed by Mr. Kaile to SELL by AUCTION, at the above Nursery, on MONDAY, November 5, at 12 o'Clock precisely, an assortment of fine grown NURSERY STOCK, comprising thousands of very fine bushy Spruce Fir, Cedrus Deodara (2 to 6 feet), Cupressus Lawsoniana (2 to 6 feet), ditto erecta viridis, Irish Yews (1 to 3 feet); bushy Common, Caucasian, and Portugal Laurels (1 to 3 feet); Ligustrum ovalifolium (2 to 3 feet), Green and Variegated Euonymus, Irish and other Ivies, Deutzia gracilis for potting, Thuia aurea, Abies Douglasii, Picea Nordmanniana, Pinus austriaca, Rhododendron ponticum, Variegated and Green Hollies, Box, amongst which will be found fine specimen Border Plants; Currants, Gooseberries, Rhubarb Plants, 8000 Asparagus (2-yr.), Seakale, Limes (4 feet), Norway Maple (8 to 10 feet), Laburnum, Italian Poplar, and clean-grown Standard and Pyramid Fruit Trees.

A Conveyance will meet the up train arriving at 11.25, and the down train arriving at 10.30 at New Godalming Station. The Nursery is within a few minutes' walk of the old Station.

Catalogues may be had (post-free) of the Auctioneer, 16, Friary Street, Guildford.

London, East.

Only 5 miles from the Bank of England.

TO BE SOLD, for the low sum of £750 (part of which could remain), to effect a speedy sale, or would be LET ON LEASE at £70, a well established NURSERY in a densely populated district—an Acre of Land, Cottage, and six Greenhouses.

Full particulars of Messrs. PROTHEROE AND MORRIS, 8, New Broad Street, E.C.

LEASE of SMALL NURSERY for SALE. Twelve Greenhouses, all Heated with Hot Water. Sixteen years to run. Good air. Close to rail. Seven miles from London. For particulars

J. NAYLOR, High Street, Harrow.

TO BE LET, or SOLD, one of the finest GLASS RANGES in Lancashire, near Liverpool, DWELLING-HOUSE, ORCHARD, and MARKET GARDEN. Stock cheap. Apply,

39, Osborne Road, The Brook, Liverpool.

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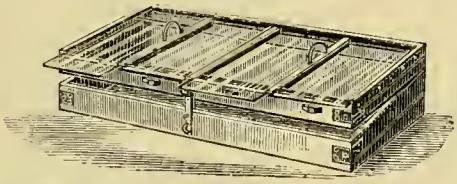

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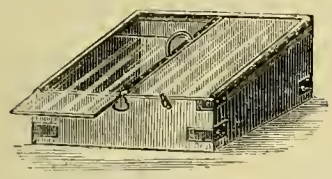

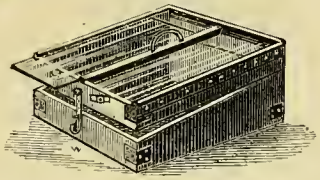

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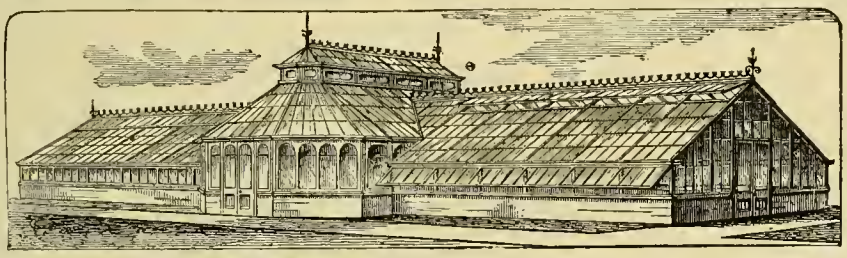

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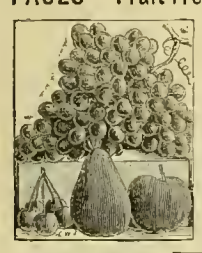

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SATURDAY, OCTOBER 27, 1883.

AN ALPHABET OF APPLEDOM.

WHAT is an Apple in the idealistic philology? It is Abala in the abstract, a little ball, and therefrom, in the practical, an Apple is a round fruit. In Anglo-Saxon, Frisian, and Dutch it is *Appel*, in German it is *Apfel*, and may apply to a fruit or to the eye-ball, which is the "apple of the eye." The Teutonic *ap* or *ab* for fruit becomes *av* in Celtic. Skeat mentions a connection between Apples and floods, the explanation of which may be found in the fact that Apples are more often found in watered valleys than on starving mountains. Let it suffice that an Apple is a round fruit, and from *ab* to *av*, and thence to *mala*, the transitions are such as philologists look for because accustomed to them, as in this light the Latin is a modern language. The appearance of the Apple in the story of the Fall is a poetic license; it does not appear in the Mosaic record, but as Milton had to sing of

> "The fruit
> Of that forbidden tree whose mortal taste
> Brought death into the world, and all our woe,"

he must needs pass from the subjective of Genesis iii., 6, and in the way of a dramatist present a visible Apple. It is in book ix., 575, that it appears as such, in the address of the serpent to the "Empress of the World, resplendent Eve"—

> "On a day, roving the field, I climbed
> A goodly tree far distant to behold,
> Loaden with fruit of fairest colours mixed,
> Ruddy and gold. I nearer drew to gaze,
> When from the boughs a savoury odour blown,
> Grateful to appetite, more pleased my sense
> Than smell of sweetest fennel, or the teats
> Of ewe or goat dropping with milk at even,
> Unsucked of lamb or kid, that tend their play.
> To satisfy the sharp desire I had
> Of tasting those fair Apples, I resolved
> Not to defer; hunger and thirst at once—
> Powerful persuaders—quickened at the scent
> Of that alluring fruit, urged me so keen."

What is a Beefing? Whether we adopt the English or the French spelling (*bœuf*) the meaning is the same. The Apple should resemble beef in some way or other. The Norfolk Beefing is well named, for when in high colour it resembles lean beef that has been cut a few hours, and in which the original vivid red has acquired a purplish hue. Mère de Ménage might be called a Beefing with propriety, but as the name stands alone without generic significance it would be a folly to alter it. The dried Apples called "Biffins" are proper Beefings, but Biffin may remain as the name of a dried Apple, and will pay its way by its usefulness. The change from Biffin to Pippin is of a kind common enough, and has a touch of unintended humour in it. Languages are made by the vagaries of the human tongue much more than by the laws of reason or the demands of sheer necessity.

What is a Calville? It is a golden Apple or Guldeling. A Calville should have prominent ribs running up to the crown, and there forming

knobs, and when cut transversely the cavity at the core should be distinctly five-angled (see Lindley's *Guide to the Orchard*, p. 9). A conical form is proper to a Calville, but the ribs and the knobs are the leading features, to which may be added large size and high quality. In Leroy's *Dictionnaire de Pomologie*, iii., 175, the history of Calville Blanc is given at length. It is described as an ancient fruit, formerly known as the Taponnelle, but taking its modern name from the commune of Calville, in the Department de l'Eure.

What is a Codlin? In Anglo-Saxon a *Cod æppel* is a Quince. Probably a Codlin or Codling is the diminutive of cod, meaning, perhaps, a ball in a bag, or something enclosed, as Peas are enclosed in a Peas-cod, and an Apple is clothed with its skin. All this is indeterminate, and again the question is asked, What is a Codlin? Hearken to Malvolio in *Twelfth Night*, i., 5, 164:—"*Mal.* Not yet old enough for a man, nor young enough for a boy: as a Squash is before 'tis a Peascod, or a Codling when 'tis almost an Apple; 'tis with him," &c. Now hearken to Lord Bacon: "Of gardens," first section, the fruits of July, "earley Peares, and Plummes, Ginnitings, Quadlins." In September he speaks of Apples, Peaches, &c. In Ford's *Sun's Darling*, iii. 3, occurs this passage:—"If I be not deceived I ha' seen summer go up and down with hot Codlings." It is clear from these allusions that Codlings were unripe Apples that needed coddling or cooking to render them eatable. A Codlin, therefore, must be an Apple suitable for use while yet unripe; it must be a culinary fruit, and it should be somewhat of the make and quality of English Codlin and Carlisle Codlin, more or less conical, angular, ribbed, and useful to the cook, while yet of the smallest size.

What is a Costard? It is an old fruit, by name at least, for Evelyn in the Kalendarium Hortense, in the second edition of *Sylva*, 1670, names it in a list of Apples in use in October, thus: "Belle-et-Bonne, William, Costard, Lording, Parsley-Apple, Pearmain, Pear Apple, Honey-meal, Apis, &c." A Costard must be an Apple, but a "coster" is possibly not necessarily a dealer in Apples. However Skeat, in a capital gloss, says definitely that a Costard-monger or costermonger is an itinerant dealer in Apples. In Drant's *Horace*, B. 2, sub. 3:—

"The prodigall, by Whitteworde, hath ten talents: in his heate,
He biddes the costerd-mongers and th' appothycaries neate."

But this does not settle the question, What is a Costard? It is certainly inferior to a Pippin, which may account for its being a sort of monopoly for the wandering merchant, who, in old times possibly did not dare, or was not allowed, to speculate in first-class goods. See Ford, *The Sun's Darling*, iv., 1: "Upon my life he means to turn costermonger, and is projecting how to forestall the market. I shall cry Pippins rarely." A Costard may be, or perhaps must be, in some way or other like a head, for a Costard was a head or an anthropomorphic nut to crack. "His knaves costard," in *Merry Wives*, iii., 11, is the head of his serving man. In *Richard III.*, i., 4, the First Murderer gives an effective gloss, for he says, proposing the mode of procedure with poor Clarence, "Take him over the *costard* with the hilt of thy sword, and then we will chop him in the Malmsey butt in the next room." The Catshead, therefore, is not a ridiculous synonym for a Costard, and any inferior long-bodied Apple wanting in good looks as well as inward quality may be called a Costard, but the term is wide and vague, and there is no good reason why it should ever be employed to represent a section or class of Apple.

What is a Crab? It is a crabbed, ill-natured, sour fruit. It is Pyrus acerba properly, but it may be Pyrus prunifolia, a qualified Crab, as we say "American," or P. baccata, the "Siberian," &c. All proper cider Apples are varieties of Pyrus acerba, the sour Apple or Crab; and the sweet Apple of gardens is Pyrus malus, a fruit indigenous to Europe, and one that we know best in the many forms that have resulted from cross-breeding. A true Crab is characterised by smooth ovate leaves, flowers in corymbs, the calyx tube smooth; the fruit mostly smallish, roundish, high-coloured, and sour enough to make one wince as though nipped by the claws of a crab. Cider, or Sieder, was made from Aeppels by the Tentons long before the Roman period; it is probably a more ancient drink than beer, which also is in an especial manner a Germanic drink.

What is a Nonpareil? Custom should settle this point above all book authority, because the term needs no explanation, and our business is so to restrict its meaning that it may be of real use as a technicality. The old Nonpareil has been in the country some 300 years, and tradition says it came from France. Every Nonpareil should agree with it, generally, in being of a medium or smallish size, smooth, round or roundish, flattish, with conspicuous eye, brownish or russety, of high quality for the table. A conical fruit, a large culinary fruit, a ribbed fruit, a high-coloured fruit, cannot be a Nonpareil, and if so named the name should not be accepted.

What is a Nonesuch? It is the parallel of Nonpareil, and its use must be regulated by reason. A Nonesuch, or Noonsuch, should be round and flat like a Cheshire cheese, and if ever a conical Apple appears with a claim to be classed as a Nonesuch, the claim must be disallowed, and it must be shunted over to the Codlins, Calvilles, or Quoinings, as circumstances may determine.

What is a Pearmain? It is the *Poire-pomme*, the Pear Apple, the Pear-shaped Apple, and is of French origin. It is the *poire-magne*, the great Pear, as the main sea is the great sea, main force great force, the main-land the great or continental land as distinct from an island, &c. When the term was first adopted in this country it might be difficult to determine. Parkinson figures an Apple under the name at p. 585 of the *Paradisus*. It is a small conical fruit. At p. 587 he mentions two sorts of Pearmain, but says nothing of their form or colour. Gerard, at p. 1275 of the *Herbal*, 1597, figures two, of which one is a round fruit, the other somewhat Pear-shaped. Drayton, in *Polyolbion*, 18, says:—

"The Pearmain, which to France long ere to us was known;
Which careful fruiterers now have denizen'd their own."

Mortimer, in *Dictionary of Commerce*, 1809, says "Pearmain is an excellent and well-known fruit." It is known to the modern pomologist by its shape and quality. It must be conical, pyramidal, or oblong, and perhaps the so-called Golden Winter Pearmain, which is henceforth to be known as King of the Pippins, is a fair example of the proper Pearmain shape, as it is also of Pearmain quality. Adams', Loan's, Mannington's and the Claygate Pearmains are of proper Pearmain form and quality; but Hormead, Enfield, and Baxter's Pearmains may be cited as examples of deviation from the proper form, and therefore having no proper claim to be called Pearmains.

What is a Pippin? Fuller says Pippins were brought from France in the sixteenth year of Henry VIII. The name is accounted for by the fact that the trees were raised from pips without grafting, that is to say, all seedling Apples allowed to fruit on their own roots were in old times called Pippins. From the speech of Justice Shallow (2 *Henry IV.*, v., 3) we learn a distinct lesson. He says: "You shall see my orchard, where, in an arbour, we will eat a last year's Pippin of my own grafting, with a dish of Carraways, and so forth." We are to understand that the Apple was a seedling that had been grafted because of its good quality, and that it was a good keeper. Now let us turn again to Fuller, and in the Lincolnshire section of the "Worthies" we find the following:—

"Pippins.—With these we will close the stomach of the reader, being concluded most cordial by physicians. Some conceive them to be not above a hundred years seniority in England. However, they thrive best and prove biggest (not Kentish excepted) in this county, particularly in Holland [Kirton and Skirbeck way, in the south-eastern parts of Lincolnshire], and about Kirton therein, whence they have acquired addition of Kirton Pippins, a wholesome and delicious Apple; and I am informed that Pippins grafted on a Pippin stock are called Renates, bettered in their generous nature by such double extraction."

The Crab having been referred to as the fountain of cider it should now be added that a Pippin may also contribute to the "rolling cider sea," for it is not unusual to make cider from a mixture of Apples, and sweet as well as sour Apples are used at discretion. This brings us, therefore, to the mention of Pippins by Phillips in his poem of "Cider," where, in book 2, you will find the following:—

"Ciders in metal frail improve: the moyle
And tasteful Pippin, in a moon's short year,
Acquire complete perfection; now they smoke
Transparent, sparkling in each drop."

What does he mean by the "moyle and tasteful Pippin?" According to Nathan Bailey we should understand by the passage a grafted tree such as Justice Shallow was so proud of. Ash says a moyle may be a mule, a graft, or a scion. But in another passage it is made evident that the moyle was the name of an Apple—

"The Pippin, burnish'd o'er with gold, the moyle
Of sweetest honied taste; the fair Pearmain,
Temper'd, like comeliest nymph, with white and red."

Once more, then, what is a Pippin? You will have observed that Fuller connects Pippins with "renates" and our old English Golden Pippin. The "renat" of Drayton was called *Reinette d'Angleterre*, and is now (as aforetime) known to the Dutch as *Engelshe goud Pepping*, the English Gold Pippin. It appears that Pippins anciently were Apples raised from seeds and fruited on their own roots, and afterwards grafted when they proved so good as to deseve perpetuation. The Ribston Pippin is a familiar example, and its history is known. It gives the key to the characteristics of proper Pippins for the purposes of modern classification. A Pippin should be roundish and regular, representing nearly the form of Pyrus malus; it may be a table or a culinary fruit, or both; it should be a keeper; or, at all events, the name cannot be properly given to a summer Apple. As Pippins have always been well spoken of they should be of good quality, and the quality obvious, as it is in the Ribston, the Blenheim, the Cambusnethan, the Bringewood, the Breedon, the Golden, the Downton, the Lemon, and the Newtown or Newton. All these declare themselves good by their looks or at the first bold bite, not needing to be cooked to prove that they are good Apples. There are many so-called Pippins of a conical form and of the merest culinary quality that should be moved away to the Codlins or to some other section apart from the Pippins.

Pommes and *Russets* appear to be scarcely definable. A Pomme should not be a Pippin, or a Calville, or a Nonpareil, or a Pearmain. It may combine in a modified degree the characters of many classes, and, at the end of the story, should be an average Apple of moderate size and good quality, such as Pomme Royale, which might well serve as a type. A Russet should be decidedly russety; a mere patch of russet should not suffice, as we have that in so many sorts that properly belong to other classes.

What is a Quoining? It is of or belonging to a quoin, or coin, the pronunciation being *koyn*. A coin may be money, but it need not be round. It may be square or wedge-shaped. The word coin is derived from the Latin *cuneus*, a wedge, the earliest forms being wedges, or ingots. A printer's quoin is employed to jam or wedge up; in architecture the meaning is nearly the same, or if it applies not to a wedge it does to a corner or an angle. In Mortimer we have "brick houses with strong and firm quoins or columns at each end." An Apple bearing the name Quoining should be conical or wedge-shaped, or in some way decidedly angular. We have a proper example in Crimson Quoining, which is of the same shape nearly as the Cornish Gilliflower. Then, what is a Queening? This I take to be a Quoining put out of shape by the blundering common in the use of names. If this conjecture is worth anything, a Queening and a Quoining are commutable terms, and the last is the correct form that should alone be recognised. The Queening is by no means a new term, and the argument of its derivation from Quoining is in some degree weakened by the fact that an Apple was so named in the time of Queen Elizabeth, and in honour of the Virgin Queen.

What is a Reinette? Well, to begin with, it is a Rennet, for to spell it any other way is to make ducks and drakes of our glorious English language. The "renate" of the old authors is blundering Latin for born again, as though the Apple of the Fall had been pardoned for the mischief it made, and had promise given it of sharing in the felicity of man's redemption. What is a Rennet in the realms of Appledom? Some

Fig. 86.—DAMMARA AUSTRALIS, THE KAURI PINE.

of our great lexicographers (Scheler and Littré for example, but Skeat does not commit himself) derive *Renat* from *Rana* a frog, because the skin of a Rennet is, or should be, speckled. A Rennet should be of high quality, far away from a Codlin or a Crab. What does Drayton say (*Poly.*, 18) :—

> "The Renat which, though first it from the Pippin came,
> Grown through his pureness nice, assumes that curious name."

Skeat says a Rennet should be sweet. Bailey says it should be a Pippin. Ash says it should be an Apple. Richardson will give you work enough if you care for literary agonies ; he says, " Some derive from *reine*, the queen of Apples ; others from *rana*, because it is spotted like a frog." Skinner suggests the city *Rennes*. You have seen above that Fuller declares a Pippin grafted on a Pippin stock to be a Renate, and Drayton, in the passage above cited, makes it but a better sort of Pippin. It is pretty clear, therefore, that sweet and welcome-eating Pippins that are strikingly coloured, and more especially if spotted or much streaked and mottled, may be called Rennets, but they must be of first quality and suited to fastidious appetites, as fruit to be eaten without the aid of the cook. *Shirley Hibberd.*

DAMMARA AUSTRALIS.

One of the noblest evergreen trees in that noblest of collections of such plants contained in the temperate-house at Kew, is the subject of the present note. Some months since cones were observed to be forming on this tree, and a representation of which we are now enabled, through the courtesy of Mrs. Dyer,

to lay before our readers (fig. 86). We are not aware whether the tree has previously produced cones at Kew, though we have the impression that such is the case; at any rate it has done so elsewhere, as recorded in the *Flore des Serres*, 1856, p. 75, but fertile seed was not yielded owing to the absence of pollen.

In this country the tree is only valuable for its massive aspect and richly coloured thick evergreen leaves, borne on successive tiers of branches, which render it specially suitable for the decoration of winter gardens, corridors, and such-like situations, where no great amount of heat is required. In the northern island of New Zealand, however, it is quite another matter, for there, where it is known as the Kauri Pine, it furnishes the most valuable of timbers, as may be judged from the fact that the trunk of the tree attains a height of from 50 to 100 feet clear of the branches; moreover it yields a gum resin like copal, which exudes from the trunk, and which is sometimes found below-ground in the vicinity of the trees, thus giving the clue to the real nature of amber and other similar substances.

The timber is of slow growth, especially valuable for the construction of masts of ships, its durability, strength, and elasticity rendering it particularly suitable for this purpose, and Laslett speaks of it as one of the best woods for working that the carpenter can take in hand, and recommends its use for the decks of yachts, for cabin panels, for joiner's work generally, or for ornamental purposes. Owing to the difficulty and expense of working the forests, and the great distance, comparatively little of it comes to this country.

New Garden Plants.

CATTLEYA TRIOPHTHALMA, *nov. hyb. Hort.*

A very fine Cattleya of Sedenian origin has just flowered after a life of eight years in the Royal Exotic Nursery of Messrs. James Veitch and Sons. It is stated by Mr. Harry Veitch to be a hybrid between Lælia exoniensis (pollen parent) and superba. "The strongest bulb is 6 inches long and the leaf 12 inches, partaking thus much more of the character of exoniensis as to length and breadth. The bulb is not so much sheathed as in Cattleya superba, but more so than in L. exoniensis. The last new growth is making two leaves, the preceding three growths have one leaf each, but the one before those again have two leaves. I expect, when strong, it will be two-leaved." These details were kindly given by Mr. Harry Veitch. The inflorescence at hand is three-flowered, and has a fine sheath. The flowers are equal to those of a fine Cattleya superba, of which they nearly have the texture. Sepals ligulate acute. Petals cuneate, oblong acute, wavy, all fine purple-rose. The side laciniæ of the wrapping round the column blunt angled, whitish-yellow, finest purple on the end, with purple stripes on the disc. Central lacinia transverse semi-oblong blunt with few strong undulations, fine purple, with deeper and warmer venation. The greatest charm is the beauty of the expanded lip. Over the blade of the anterior lacinia there runs a fine transverse deep yellow area, radiating over the base of that organ, the angles of the side laciniæ being of the finest purple. They surround the upper margin of that area, and ascend in the centre to the lip's base as a purple line, that has each side a large yellowish-white area with light indigitations of purple on nerves. The two light lateral areas, and the transverse mid area, suggested the name. The white column has a dark purple anther. *H. G. Rchb. f.*

ODONTOGLOSSUM LEPIDUM, *nov. hyb. nat.* (?).

This has round bulbs, rather flat, and short branching many-flowered inflorescences, one plant having produced thirty-three flowers. The flowers are nearly equal to those of Odontoglossum cirrosum, Lindl. Sepals and petals lanceolate acute. Lip cuneate hastate at the base, with a long central unguis and a reniform apiculate anterior blade. There is a long thick callus running from base to base of the narrow mid-part, where it projects in two recurved plates of nearly triangular shape. One tooth stands on each side. The column is much in the way of that of Odontoglossum Lindleyanum: it is long, slender, with narrow wings on the sides of the foveas, acute at the top, and has a depression under the fovea. The flowers open with a yellow ground colour, but they retain that colour only for nine or ten days, and afterwards change to a white ground colour, with yellow edging, looking quite different. The sepals bear a few (2—3) cinnamon blotches; the petals but one blotch. A similar spot stands before the keels, and the base at the side of the brown spotted callosities shows some brown marbling. It was imported from New Grenada by Messrs. Shuttleworth & Carder, Park Road, Clapham. It is very neat. *H. G. Rchb. f.*

ADIANTUM CUNEATUM STRICTUM, *n. var.*

Fronds dwarf, erect, quadripinnate, with ascending somewhat spirally arranged pinnæ; sori roundish reniform, inserted as in the type. This is a very distinct variety of the wedge-shaped Maidenhair, one of several which have appeared within the past year or two. It is of dwarf and slender habit, the fronds being only from 6 to 8 inches high, and growing quite erect instead of drooping as in the type; the pinnæ are also directed upwards, and springing, as they do, alternately from the rachis, they present the appearance of an ascending spiral series of short erect branchlets. Though the pinnæ are short, they become tripinnate at the base, the larger ones being about a quarter of an inch across, cuneate, the terminal ones somewhat trapeziform, the upper margin shallowly lobed in all. The plants are freely fertile; the sori being obversely roundish-reniform, inserted singly at the base of a sinus in the centre of one of the marginal lobes.

We met with this neat little plant a few days ago in the nursery of Mr. B. S. Williams, at Upper Holloway, where there was a good stock of it quite uniform in character. As a dwarf tufted evergreen Fern, with small subdivisions, it will come in very useful for minor decorations, though wanting the graceful bearing of its parent species. *T. Moore.*

LÆLIA ELEGANS HOUTTEANA, *Rchb. f.*

After a very long time this fine variety has reappeared with some slight modifications. The lip has nearly rectangular blunt side laciniæ, and the median lacinia has at the top a much dilated nearly reniform toothletted blade of richest purple, while the ends of side laciniæ have a little touch of mauve on their purple. Mid-line of disc quite purple in this, with three lines of purple in the original. I had this in the finest state possible from Mr. Lee, Downside, Leatherhead, Surrey. *H. G. Rchb. f.*

CATTLEYA ELDORADO ORNATA, *n. var.*

A great beauty. Take the finest coloured purple Eldorado and add a large dark purple covering the end of each petal. Such is the plant just in flower with Mr. W. Lee, Downside, Leatherhead. *H. G. Rchb. f.*

APPLE SHOW REFLECTIONS.

It seemed unreasonable on the part of some visitors to the recent Apple Show to express disappointment, not so much with the extent of the exhibits, which was large enough to satisfy the most exacting, but rather with the comparative lack of high average quality, such as is seen at any ordinary fruit exhibition where prizes are offered. Perhaps these critics had come to the show under the impression that it was but a big competitive display, and nothing more, whereas it was in no sense competitive, but was almost everything else that was useful and instructive. Had one half the dishes shown been withheld, and the other half been disposed in classes according to section, no doubt the estimate of the show generally would have been that it was a grand one for Apples only, and the average quality remarkably high. Fortunately no such result happened, for had such been the case the Apple growing public would not have had the splendid opportunity, so largely availed of, to revise their Apple nomenclature, and—not least—to discern from many average samples what kinds to grow and what to avoid. Show fruits, like show Potatos, are not always the most serviceable; but, on the other hand, as with the latter so with Apples, the more we select handsome or striking kinds the more danger is there that many most meritorious sorts may be left out in the cold.

Naturally, too, we find the Apples of the present autumn season to be richer in colour, and much more attractive than are those kinds that will stand us in good stead from January next and onwards; indeed, we might well ask, having regard to our Apple needs in the late winter and coming spring, how many of those fine and beautiful kinds which have extorted admiration from thousands of spectators during the past few weeks will be sound and serviceable a few months hence? Let us do exhibitors full justice in saying that they have shown greater anxiety to set up wide representative collections of kinds than restricted selections of show sorts, and in so doing have as well regarded the keeping, though perhaps non-showy kinds, as they have the beautiful non-keepers of a fast passing day. If it were possible—and it is so—to have a show, even for a short time, of keeping Apples in March next, we should see certainly a very different display then to the one just closed at Chiswick, but it would be one hardly less interesting. We shall want Apples just as much next spring as we want them now, and would be delighted to find them as accessible to all as they are now, but of course it is not possible, having regard to the cost of keeping the fruits for so long a time, the inevitable deterioration of sample, and the naturally very largely reduced bulk of the fruit that is remaining. None the less Apples should be, to those who will grow keepers and carefully store them, a very profitable marketable commodity in the spring, and for that reason late keeping Apples merit every encouragement. But, though a second show of Apples such as the one just held could hardly be looked for in March next, at least something might be done by offering a few good prizes for collections of say six, twelve, and eighteen kinds, to bring together capital representatives of our keeping varieties, and thus furnish an amount of information as to the relative keeping values of sorts, and as to the best methods of storing, that would prove most useful. If there remains in the hands of the promoters of the recent Apple Congress, or of the Council of the Royal Horticultural Society, a goodly surplus, after all expenses are paid and needful demands satisfied, then that surplus, or at least a portion of it, could hardly be devoted to a better use than in furnishing such prizes as may bring about the show of keeping Apples suggested.

Having regard to our comparative dependence in sparse seasons on imported Apples, it would be but reasonable that foreign grown keepers should be encouraged also, that we might see what kinds are in other countries the most enduring.

It is doubtless true of late kinds of Apples that they neither crop so freely, nor so often, nor produce such fine samples, as do the early ones. For these reasons our market growers plant very few late sorts, and prefer the early ones. One other good reason which influences the metropolitan growers, and perchance many other Southern ones, is that good samples of early kinds are eagerly bought up for the Northern markets, and thus a ready and profitable sale is ensured. Apple trees unhappily, be they ever so precocious in production, will give but one crop in the year, and if growers can take off a good crop of fine "Suffields," "Derbys," "Manxs," or "Juliens" early in September, and thus ensure a quick return on the one hand, and an early relief to their trees on the other, it is certain they will grow early sorts in preference to late ones that can hardly be fit for sale till the end of October, or later, and which are during the much longer period of hanging subject to depreciation through maggot, high winds, and other incidental evils. The general tendency, now even more than in the past, on the part of market growers, is to plant only a few reliable early productive kinds. They have to live, and to do that must grow what sorts will give the best results. They, with us, may deplore the comparative lack of good Apples in the spring months, but no amount of sentiment will put cash into their pockets. We have to show, if possible, that there is a good market for good keepers in March, and that to store keepers in bulk it is a safe and profitable speculation; and when that is done there seems no reason why growing late Apples in abundance should not follow. When we note the comparative ease with which our colonial exporters can send so far superb fruits all through the winter by such simple methods of packing, it becomes obvious that distance from good markets, such as London or the great Northern towns, need not affect profitable culture of late Apples. It is more to the point that sites should be selected where good keeping sorts will thrive and are fairly well protected from those evil influences that so often disastrously affect the Apple bloom.

Tens of thousands of acres of woodland now engaged to little better purpose than preserving game might be made especially useful for late Apple cul-

ture were the margins of the woods left to act as shelter whilst the inner areas were grubbed and replanted with Apple trees. The chief thing for landowners or others willing to invest in any such undertaking is to learn just what kinds are likely to prove the most reliable croppers and the most profitable, and that information might be greatly helped by the holding of a show of keeping Apples in March next, as suggested. We do not want more early sorts planted; in fact, these have been such a glut this year that only those living within easy reach of a good market have found them profitable. We advocate the planting of keeping kinds because we want late ones, and specially because to get them now we have so very largely to be dependent upon foreigners. Not that we have any stupid antipathy to the foreigner, whether colonist or otherwise; we must buy in the cheapest market, and, indeed, in some cases the only one; but what we want to see is our own countrymen — at a time, too, when the demand for greater outlets for human labour and enterprise is so great—striving to compete in this matter of Apple culture with the foreigner on their own soil, and under conditions that ought to ensure success. *£ s. d.*

THE GREAT CHRISTMAS ROSE,

Helleborus niger (β) altifolius.

The *Gardeners' Chronicle* of December 25, 1875, contained an article by the late Miss F. J. Hope, of Wardie Lodge, on the "Large-flowered Christmas Rose, Helleborus niger maximus, major and grandiflorus." She stated that these names she always considered as provisional, but at that time it had no others. Her first acquaintance with this plant dated back to November, 1863, the North of Scotland being its home.

In her second article (*Gardeners' Chronicle*, January 22, 1876) she says: — "H. maximus may be but a variety of the common Christmas Rose, but wiser heads than mine believe it to be a species. Neither in England nor in the South of Scotland have I ever seen this plant equal either in colour, or leaf, or growth, to what I have seen it in Aberdeenshire."

In the same article Miss Hope also first introduces H. angustifolius, to which variety I propose to refer in a future communication, but it is altogether a different plant from that now under consideration.

These two papers of Miss Hope's attracted much notice at the time, but the question she raised as to the origin of this grand Hellebore is still unsettled.

The *Garden* for April 24, 1878, contained a coloured plate, from a drawing by Mrs. Duffield, of the same Hellebore as "The Giaot Christmas Rose." An article accompanied it, under the initial "G.," giving a general synopsis of the Hellebores, and it is therein called the Giant Hellebore, H. altifolius. Here it is stated:—"I can find no reliable information as to its original source, but it has been known a long time under the names of H. niger var. major, maximus, giganteus and grandiflorus."

In seeking for information as to the origin of H. angustifolius I think I have found the native habitat of this also. In Reichenbach's *Icones Floræ Germanicæ et Helveticæ*, published in 1840, we find in plate cxii. a beautiful coloured representation of this plant under the name Helleborus niger (β) altifolius, Hayne. It is exactly Miss Hope's variety, and in the letterpress it states that "it is distinguished according to its finder in Carniola alike by its habitat and spotted petiole and stalk." Its origin is thus Southern Austria—Carniola. In the illustration the stalks are throughout mottled with purple, and the stigmas on the apex of the nectary are a lively pink, forming a very distinctive characteristic peculiarity, which obtains in this variety of H. niger only, so far as I know. The previous plate, cxi., gives an illustration of H. niger. Linn., in which the petiole is green, the flower-stalk slightly pink-tinted near its base, and the flower itself pink-tinted round the margin of the sepals. The stigmas are coloured green in this variety, exactly agreeing with our H. niger. There is an excellent picture of H. niger in vol. i., plate 8, of the *Botanical Magazine*, published 1790, which shows a good deal of difference in type from the Austrian variety above noted, having a dwarfer habit, broader leafage, and pink mottling in both flower and petiole stalks; but here again the stigma is not coloured pink, although the general appearance of the plant in other respects is suggestive of H. altifolius, and very like the ordinary form of H. niger now in commerce. This variety is stated to be from the Apennine and other mountains, and that "the plant derives its first name from the black colour of its roots (H. niger), and its second from its early flowering and the colour of its petals, which have frequently a tint of red in them." (Christmas Rose).

Mrs. Duffield's picture (*Garden*, April 24, 1878) has small botanical value. It is an artist's picture only, very great license having been taken both with the colour and form of the plant. One of the flowers is tinted throughout a deep pink; the leaf also is not at all like the sturdy leaf of altifolius. I have a goodly number of plants of H. altifolius, obtained from five or six sources, and they are all alike. Miss Hope gave the blooming dates of hers October 3 to January 3. Our first flower was in full bloom this year on October 15, and the flowers are now plentiful, one of them being 5 inches in diameter. The name altifolius describes the plant admirably. Some of ours have leaves standing stoutly erect 15 inches high and 16 inches across, covering over the young flowers like a parasol. The buds are beautifully suffused with lovely pink, which fades away as the flower expands, so that the sepals become nearly white, though many are pink tinged at the back and margin of the sepals. The coronet of pink formed by the stigmas is also a pretty and distinctive feature. Altogether this Hellebore is a most lovely flower, and coming as it does in the waning of the year, when hardy flowers are scarce, it is doubly valuable.

This plant still attains its greatest perfection, as well as size, in Aberdeenshire. The climate there will probably agree most nearly with that of its native habitat in Carniola in the autumn. In the same way Aquilegia glandulosa blooms at Forres in a manner we fail to approach in England, probably from the like influences. Hellebores also grow finer in Ireland than they do in England, not even excepting Devonshire, the moist equable climate suiting their special requirements. It would be interesting to learn if any North Country florist of forty years ago imported Hellebores from Austria, as in all probability the origin of the Aberdeenshire stock of H. altifolius would thus be traced back to the native habitat of the plant in Carniola, the adjacent province to Carinthia, where, at Villach, Herr Gusmus carries on a very large export business in alpine plants, and in whose *Alpenflora Katalog* the plant is still offered for sale. *Wm. Brockbank, Brockhurst, Didsbury, Oct. 20.*

COLONIAL NOTES.

Timehri.—This Journal, of which we have previously spoken, enters now upon its second volume. The articles are very interesting and very varied, the agriculture and commerce of British Guiana being conveniently made to include geography, history, philology, folk-lore, and, indeed, almost everything likely to be of interest to the intelligent reader. Speaking of the conditions under which the caoutchouc-furnishing Hevea Spruceana occurs naturally Mr. Jenman says that it grows in extremely wet soil, and that its cultivation might profitably be undertaken in the colony. This may well be the case when it is stated that Para rubber has a market value of 4*s.* 6*d.* per pound, and that the exports from Para for the last half year reached the value of 12,350,000 dols. (about £2,572,916 13*s.* 4*d.*). The quantity of milk produced by each tree is small. Another rubber-producing tree is introduced to notice for the first time by Mr. Jenman, and which yields elastic balls used by the natives in their games. The Indians make gashes in the bark, the milk oozes from the cuts, and gradually coagulates in the form of long strings, which are wound up like twine into balls. The tree is supposed to be a species of Ficus. A paper of Dr. Nichols on the Lime (Citrus limetta) industry of Dominica recalls the fact that, like its allies, the Orange and the Citron, the Lime was originally a native of North-Eastern India (Nepaul, &c.), whence they have been introduced into other countries. The Lime was introduced into England in 1648, and at a still earlier date into the West Indies, where it is now naturalised. The late Dr. Imray developed the culture of the Lime in Dominica for the purpose of manufacturing citric acid, the juice of the fruit being exported to England and America in large quantities. Dr. Nichols gives details as to the mode of cultivation, which at present is very profitable, and "has done much to bring back prosperity to an island which, when dependent on its sugar cultivation, was fast decaying in wealth and importance." In view, however, of a possible fall in prices, the Dominican planters are very wisely planting Cacao, Liberian Coffee, Ceara rubber, and other varieties of tropical produce.

GATHERING, RIPENING, AND KEEPING FRUIT.

The extensive Apple show lately held in the Chiswick Gardens naturally directs the attention of the public to the growth of this important fruit. The following remarks, abstracted from a paper by Mr. J. W. Clarke, of Wisconsin, America, may therefore be considered seasonable, and of service to fruit growers:—

The Shrinkage of Fruit is considered first, because it is a subject which has received but little attention, and because it is important to modify the damaging and unsightly effects of shrinkage in our dinner-table fruit, if it be practicable. Some of the causes, such as early frosts, will most probably never be within our control. Too much shade may of itself lead to some degree of shrinkage, but this must be slight, except when the heads of the trees are so thick with branches and leaves as to hinder a free and full circulation of air. Such shade prevents the circulation of juices in the growing fruit, which has much influence on its future perfection. Heavy fruit trees should be trained in forms sufficiently open to admit constantly a free circulation of fresh air, especially when growth is most rapid, as during close, still, sultry conditions of the atmosphere. Early autumn frosts are more severe in their effects, by arresting the growth so as to leave the fruit undersized. A slight freezing, destroying merely the edges of the leaves, may pass without doing apparent mischief at the time, but it will be found that shrinkage is an inevitable consequence of the arrest of growth. The destruction of the leaves by any cause is particularly felt by Apples. A thin or poor soil supplying nutrition in too limited a quantity may cause a stunted growth; a fertile soil, therefore, becomes necessary to supply all the ingredients for a full crop of fair-sized fruit. As the farmer comprehends the futility of trying to get large crops by too thick seeding, so the gardener should be studiously careful to give his fruit trees ample space. This principle is as applicable to the fruit itself as to the trees upon which it is grown. Professional fruit growers well understand the necessity and advantage of thinning their fruits when they set too thickly on the tree. It is only in this way that the finest growth and highest value are attained. The shallower the soil the smaller the quantity of fruit must be left to mature. Shrinkage appears to be the result of insufficient nutrition, which prematurely checks or arrests the growth of fruit; that which is excluded from the light or direct rays of the sun by the thick foliage of the trees will generally be found to skrink the most.

Influences of Soil on the Keeping Qualities of Fruit.—The great object being to keep fruit as long as possible, and at the least cost, it is worth while to inquire, not only how keeping qualities may be retained and increased after the fruit is grown, but into the known and probable conditions in which these qualities originate, and how they are imparted to the fruit during its growth. According to the experience of producer and consumer, a clay loam or strong soil, with a dry or porous subsoil, is the most favourable to good quality in both the Pear and the Apple. Fruit grown on stiff soils generally keeps better than that produced on light sandy soils, and the trees on these latter class of soils, though they may bear well, cannot as a rule mature a full crop of fruit, being poorly supplied with roots, or, if they possess plenty of roots, there is but little substance or solidity in the soil able to furnish a durable supply of nutriment, or from which the tree can derive that support and firm conection characteristic of those growing in the more stronger soils.

Growth as Distinguished from Ripening.—Growth consists of increase of substance, either in regard to size, or density, or both. The state of maturity has been sometimes confounded with ripeness, which latter is not a growing but a declining stage in the existence of the fruit. The conditions of growing and ripening conjoin to form an apex, or summit, as it were, to which growth ascends, and where the descending plane of ripening begins. The term ripe is employed to indicate, not complete growth, or any

condition of it, but an advanced and mellow state—an eatable condition.

Effects of Ripening Fruit on the Tree.—No colouring or other organic matters enter the fruit after it is full grown. The only advantage possible to be attained by leaving fruit on the tree after it ceases to grow, is the mellowing operation, so that it may be more palatable. But fruit becomes mellow more rapidly when put in boxes or drawers in the house than when left on the tree. This fact furnishes an illustration of the truth, that after fruit is ripe disorganisation is accelerated by a very slight increase of heat. This result is at once explained by the fact that the temperature about the fruit in the drawer is higher than that surrounding it on the tree, and thus quickens its ripening. If the fruit were placed in a lower temperature the ripening would be retarded. Experiments made on this point show that heat is the chief cause of ripening fruit. Heat breaks up the starch granules of fruit left to ripen on the tree, and this process mellows it both by evaporating portions of its water and by weakening the adhesion of the grains of the fruit.

The Nature of Mellowing and Ripening.—Decay commences in the same condition in which growth ceases, but so slowly at first as to be almost imperceptible. There is no state of absolute rest in growth or decay, or between them. From the time fruit attains its full size it is subject to incipient decay, and this influence is identical with the causes leading to a mellow or ripe condition; it is indeed the earlier part of the ripening process. The effect of baking fruits, as illustrative of the influence of heat, consists in their changing colour, and loosened condition of texture; their appearance in general being similar to that of rotten fruit before it is broken. But for the fact of certain desirable flavouring, and other elements being retained in the baked fruit—probably because its albumen has not had time to escape [?]—the process of baking might be designated as quick rotting, from the disorganising force of a sudden increase of temperature. Apples, Pears, and some varieties of small fruit may be kept fresh by the cooling influence of ice in ice-houses. Experience has proved that equable and dry conditions of the atmosphere are the best for keeping fruit, and particularly staple fruit like Apples and Pears. If cellars, fruit-rooms, and other places used for keeping fruit could have the air in them maintained in a dry and cool state, either by natural or artificial agencies, the probabilities of success would be greatly increased.

Fruit Ripened on the Tree does not Keep Well.—The practice of ripening fruit on the tree may be correct as to fruit required for early marketing or for current use in the early part of the season, but does not appear to be satisfactory for keeping it in the finest condition for the longest period. A more even temperature than that about the tree, or at least one that is certainly no warmer, is necessary for this purpose.

Sweating Impairs the Quality of Fruit.—It is observed that sweating affects Apples more than other fruits, probably because they are oftener kept in bulk, and under more varying conditions. When Apples are placed in thick layers of over 6 or 8 inches depth a free circulation of air is much impeded, especially with fruit on the ground or on solid floors where air has access only to the upper side of the heap. The air becomes saturated with the escaping moisture of the fruit, and, there being but little circulation through the centre and lower part of the heap, the moisture increases, and the accumulation of heat is sometimes so great as to lead to fermentation. In a little while the combined result of evaporation and fermentation is the rotting of the fruit. Nor is this the only injurious consequence of sweating in the heap, for there are most likely to be two processes of fermentation proceeding at the same time. Aside from that caused by the excess of humidity, which makes it sometimes greasy to the touch, there is the deteriorating action of the same influences breaking up the structure of the fruit itself.

The Colouring of Fruit.—In Apples, especially the familiar red varieties, we find that some are but little coloured; these are always such as are the most shaded while growing. In a number of varieties one side is larger than the other; the larger side is that exposed to the sun, from more sap flowing to that side. This difference is more apparent in some sorts than in others. The same irregularity is observed in Pears. The fullest or largest side of the fruit is almost invariably that which is most warmed and influenced by solar heat. Through the whole range of orchard and garden fruits, the place to find the largest, ripest, and sweetest specimens is where the sun's heat has most influence. Colour, it is well known, exerts an influence on the absorbing powers of any substance as regards heat. Several dark colours increase this power, and greater radiation follows as a consequence. Fruit loses its colouring matter when ripened on the tree, and when the rate of evaporation is increased at the time the fruit is changing from growing to ripening, or directly after the growth is complete. Gathering early results in the retention of nearly all the colouring matters, and the fruit afterwards becomes much brighter and more highly coloured.

Early Gathering Prolongs Keeping.—If early gathering were more generally practised, many of the conditions damaging to fruit would be prevented. When the rate of growth is very slow, it is safer to gather fruit a little before it has done growing, for the reason that it is more difficult to check or arrest the incipient decay characteristic of the first stages of ripening or mellowing, than to retard or prevent its commencement. Early gathering insures the best results in keeping. Fitness for gathering is not always clearly indicated by outward appearance; but fruit for keeping should never be allowed to hang on the tree as long as it will. A test recommended by experienced Pear growers, is when the stem parts easily from the fruit spur. If this is true in regard to the Pear, it ought to be of the Apple also. But there

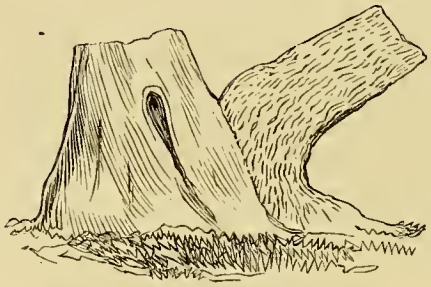


Fig. 87.—Natural Grafting: Oak and Beech.

are many varieties which it would not be safe to trust to such a trial, for some kinds will hang on long after they are fit to gather. During the process of growth the seed cavity serves as a reservoir for holding a supply of juices, but when growth has nearly ceased, the moisture disappears from this cavity, and it becomes empty and comparatively dry. This condition affords two modes of judging of the degree of maturity to which the fruit has attained. One is the slight rustling sound the seed makes when shaken, and the other is to open some of the fruit as soon as this hollow state of the seed-cavity can be detected; and if the seed has changed to a pale brown colour, it may be assumed that the fruit is fit to gather. It is not safe to wait till the seeds are a dark brown. The general condition of the leaves as to colour, and the degree in which they adhere to the branches, also afford means of estimating the state of maturity of the fruit. Early gathered fruit can be so managed as to have it much more fully coloured than if gathered late, and the keeping properties, which are even more important are increased by the same management. The nutritive qualities must always be of higher value than mere appearance, though the latter greatly affect prices in the market. Early gathering insures both results in the greatest perfection.

The Arboretum.

Double Flowered Myrobalan Plum.—Messrs. Baltet, of Troyes, offer a double-flowered variety of this hardy shrub, and describe the flowers as numerous, broad, sweet-scented, and of a pink colour, like the flowers of a Hortensia. It flowers earlier than Prunus triloba.

The Lime Tree of Prilly.—The village of Prilly is but a short distance from Lausanne. It is reached by a road, the use of which is shared by the steam horse, the maned creature of the same name, and the pedestrian biped. It might perhaps be inferred that shying horses and infirm human beings were elbowed out of existence by this arrangement, and that only horses without nerves and adult human beings with all their faculties unimpaired are capable of surviving on this road. How far this inference is correct I have no means of ascertaining. Suffice it that I survived the journey, and arrived safely at Prilly. The village itself is dull and in no wise remarkable even for dulness. But a few yards off the high road, in the centre of a village green, stands a magnificent Lime tree, magnificent in size and symmetry, with bole still sound—externally, at least, and with its umbrageous oblong head as symmetrical and perfect in outline as if storms or other accidents never occurred. The leaves are large for a European Lime, and densely pubescent on the under surface, the shoots coral-red. The bole is short, that is, it breaks up into branches just above the head of the spectator standing close by. In default of a measuring tape I had recourse to a cambric handerchief wherewith to measure it, and sticking in a pin at breast height from the ground, where the bole was tolerably uniform in outline, I ascertained that 11½ lengths of pocket-handkerchief were required to girdle the tree from the starting point—the pin—back to it again. Subsequent measurements gave almost exactly 22 feet as the girth of the tree at this point. As to the height no pocket-handkerchief measure would suffice. I cannot even guess it, and I could find no one to tell me. It far exceeded some respectable Elms not far off. Perhaps some Swiss correspondent could kindly furnish exact details concerning what is certainly a most remarkable tree. *Rambler.*

The Big Poplar at Dijon.—In the Botanic Garden of this cheerful and most interesting city stands a gigantic Poplar—Populus nigra. It is evidently of great age, and there is, it is said, documentary evidence in ancient records showing that it is not less than 500 years old. It has a height of 40 metres, = 131 feet. At 2 metres above the soil the trunk girths 8 metres, = 26 feet 3 inches, and at the base, close to the ground, 12 metres, = 39 feet 3 inches. It is a grand tree, and now that it is properly cared for and tended by M. Weber, its chances of living a few more centuries are by no means bad.

Natural Grafting.—Close by the side of the Brighton Road, on the near side going from London, and a mile or two from Crawley, is a very remarkable instance of this. A seedling Oak and a seedling Beech as it would seem, must have grown up side by side, and become fast adherent one to the other; at any rate, at present, the two trees are in inseparable juxtaposition at the base for a height of perhaps 4 feet, so that the general outline is like Y, the stem of the letter formed by the two trunks in juxtaposition (see fig. 87), and measuring, at a rough approximation, 10 yards in girth at the base, the one branch of the fork consisting of the trunk of the Beech, the other of that of the Oak. The Oak and the Beech are so closely related that this union of the two is in itself not remarkable.

MIRAMAR.

Only rarely does Mother Nature present us with so much that is charming and at the same time interesting as is to be found in the magnificent park and castle of Miramar. The beautiful castle was built by command of his Highness the Archduke Ferdinand Max, in the year 1856, from plans furnished by the architect Junker. It is in the Norman style, of limestone, and stands on a jutting promontory overlooking the sea, producing quite a powerful effect on the spectator.

In the west the neighbouring town of Trieste is seen in all its magnificence, with its busy harbour; to the south the bright blue Adriatic Sea, dotted over with numerous ships, and whose waves roll in to the very foot of the castle walls; in the east is seen the old castle of Duino, and on the distant horizon the snow-capped peaks of the Julic Alps, dimly disclosed through the mist that envelopes them; in the north and north-east the Karst Mountains, whose desolate districts descend from Nabresina towards the south very rapidly; the fresh green of the hills and vineyards, at the foot of which is the beautiful park, laid out by the former garden director, Jelineck, and which

forms, as it were, the frame to the picture, of which the castle is the central figure.

The road from the entrance lodge leads direct to the castle, bordered on either hand with specimens of Quercus Ilex, Viburnum Tinus, and Phillyrea media; and it will be readily understood that those portions of the magnificent building in which are collected the art treasures brought together by the Archduke Ferdinand Max, and, later, by the unfortunate Emperor of Mexico, Maximilian, excel all the other portions in beauty.

A broad expanse of gravel stretches in front of the castle, and an enormous circular grass plot. To the right, through an arcade covered with Hedera capitata, Glycine sinensis, and Tea Rose Safrano, which affords a most agreeable shade, we arrive at a most charming view-point over the sea. From this spot the walk leads into a flower garden composed of three terraces, in which the greatest harmony and great taste in the arrangements are displayed. Here are copies of the celebrated statues, the De Medici Venus, the Venus of Milo, and the "Youth Saluting," besides many marble vases. Like mighty columns Cupressus pyramidalis raise their heads to a height of 30 to 36 feet, vigorous specimens of Chamærops excelsa and C. palmetto are planted about, together with Aralia Sieboldi and Yucca filamentosa planted on the turf. Pelargonium beds and Ivy-bordered parterres lend an almost tropical character to the picture. The side groups are composed chiefly of Olea europæa, Punica granatum, Pittosporum Tobira, Viburnum Tinus, and Sweet Bay, behind which are some of the more elegant Coniferous plants, among which may be mentioned Cryptomeria elegans, Sequoia sempervirens, Tsuga canadensis, Araucaria imbricata is met with occasionally, growing most luxuriantly.

By a staircase of forty steps, covered with such creepers as Bignonia radicans, Incarvillea grandiflora, and Clematis, a plateau is reached, somewhat apart from the rest of the grounds, in which are the houses containing the tropical plants, which are under the care of the Court gardener, Němeček, who has brought them to a wonderful state of health and luxuriance. Space forbids our giving the names of the plants grown in these houses. In consequence of the extreme warmth of the climate here, and the want of sufficient water on the steep slope where the Roses are planted, the results are unsatisfactory, and for similar reasons the gardens are much planted with trees for shade, the clumps and masses of which are planted at moderate distances from the walks. The various grottos to be found in the park, although exceedingly varied in construction, are too artificial to be agreeable to the eye.

In crossing the park, some surprising effects are to be found. Here is a statue of the Emperor Leopold vaulted over with Laurel; there is a terrace overgrown with Ficus stipulata, whose large foliage make the observer doubt the correctness of the name; here, in an artificial lake, swim artificial ducks, over which hangs a precipice ornamentally planted with Agave americana. The trees with which the park is planted consist chiefly of Pinus halepensis, Cupressus pyramidalis, Laurus nobilis, Olea europæa. During a longer visit, and by more diligent observation in all parts of it, we were enabled to note Acacia Julibrissin, forming elegant trees, Arbutus Unedo, Aucuba japonica, Berberis Darwinii, Ceanothus azureus, C. intermedia, and Celastrus scandens, growing on trees, Colletia bictonensis, Cotoneasters of sorts, Erica arborea, 9 feet high, forming quite large bushes, and in places where but little else will grow, Ficus carica succeeding admirably. Ilex balearica, I. maderensis, I. latifolia, I. opaca, Lagerströmia indica, with its ornamental carnation-red flowers, Ligustrum japonicum, L. ovalifolium, Viburnum Tinus, Mahonia præcox, M. Bealii, M. Aquifolia, Melia excelsa, Mespilus japonica, Myrsine africana, Myrtus communis, Nerium Oleander, in variety of kinds, Osmanthus ilicifolius, Paulownia imperialis, Phillyrea angustifolia, P. media, Pistacia vera with fruits, Pittosporum Tobira, Poinciana Gillesii, Prunus in sorts, Punica granatum, Quercus Ilex, Rhamnus alaternus, Sterculia platanoides, Ulex europæa, and Viburnum odoratissimum. On the margins, and as a carpet in many places, Ruscus Hypoglossum, R. aculeatus, Rosmarinus officinalis and Farfugium grande may be mentioned. Of Yuccas growing here are Y. gloriosa, Y. aloifolia, Y. flaccida, Y. filamentosa, and Y. recurva.

Coniferous trees are represented by the common Spruce, which, probably on account of the heat, does not grow so well as in more northerly regions; Abies cephalonica, A. Nordmanniana, Cedrus Deodara, C. Libani, C. atlantica, Cephalotaxus Fortunei, Cupressus Lawsoniana, C. Nootkaensis, Cryptomeria japonica, C. elegans, C. Goveniana, C. Lambertiana. The American Red Cedar, Juniperus virginiana, grows, but is less beautiful than in the North. With Pinus excelsa, insignis, and Halepensis, we conclude the list of those mostly grown here. Of other Pines less frequently met with may be mentioned P. oocarpa, orientalis, Pinea, Pinaster, Pinsapo, Sabiniana, Strobus, as are also the Japanese Retinosporas, Salisburia adiantifolia, Sequoia sempervirens. The species of Taxus,

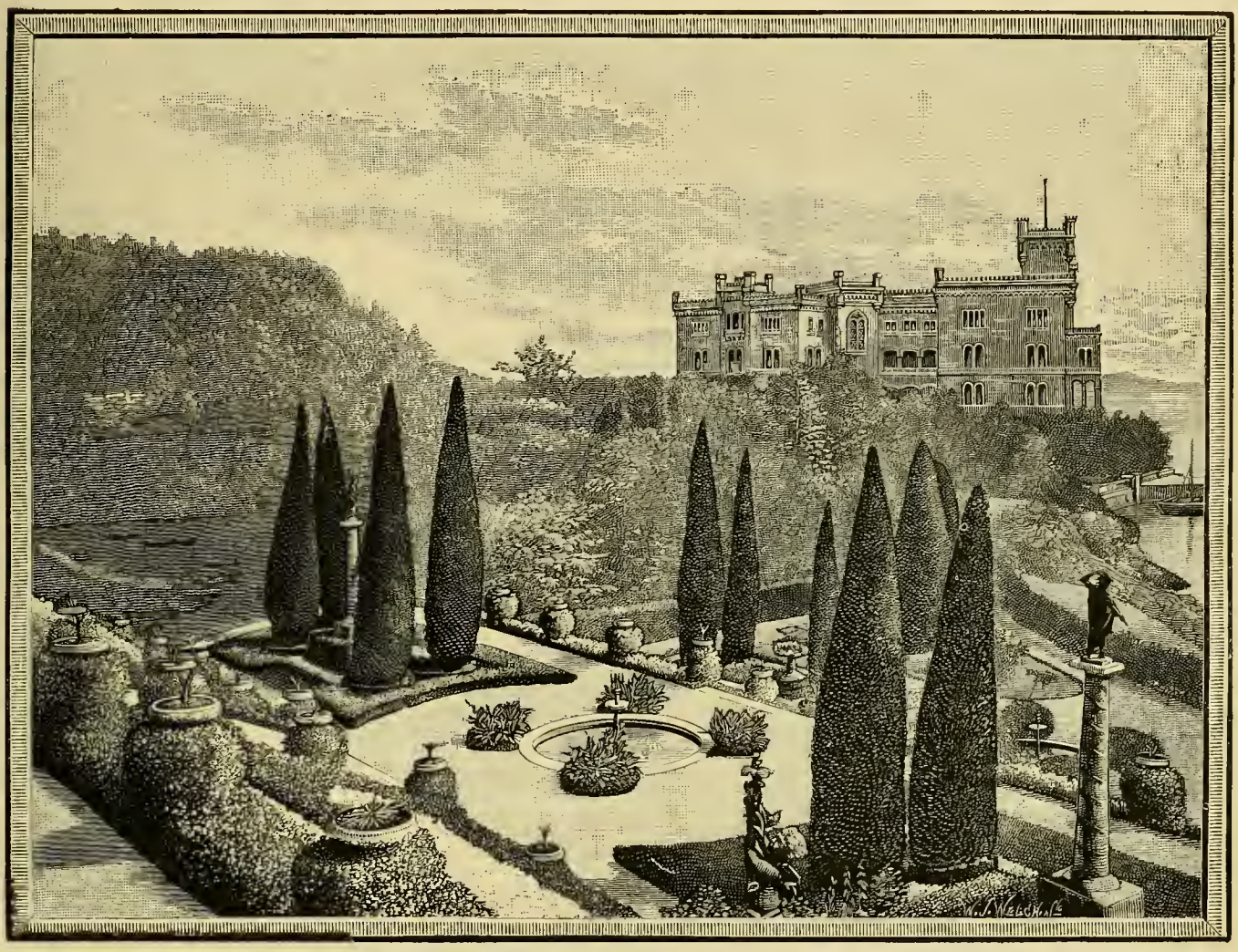


Fig. 88.—The Castle of Miramar, near Trieste.

Thuiopsis dolabrata, Thuia filiformis, and Sequoia gigantea, grow to great beauty.

When it is considered that the plants of northern climes, like Pinus Laricio, Prunus Mahaleb, the Camellia, Pontic and Indian Azaleas, Rhododendron arboreum, Chamærops humilis, with its colleague from China, C. chinensis, and C. palmetto from North America, grow in proximity with Quercus pedunculata, we see a picture the rich variety of which can scarcely be excelled, and can therefore believe the motto at the entrance to be quite correct, that no more beautiful place exists than Miramar. *J. Jedlicka. Vienna.*

Notices of Books.

Paxton's Flower Garden. (Cassell & Co.)

We have now to announce the completion of the second volume of this publication, as revised by Mr. Baines. It forms a handsome volume full of valuable information, but we regret to find that little or nothing has been done to obviate the objections we raised when the first volume was published. There is nothing but internal evidence, which is not always forthcoming, to indicate the interpolations, and hence Lindley and Paxton are made to say things upon which it is hardly possible they could have had any opinion. First-class Certificates "at South Kensington" and "Horticultural Companies," to take only a single illustration, were not in existence when the first edition was published. The numbering of the plates is most confusing to those who have to refer to Pritzel or other list of botanical plates, for the numbers in the new edition by no means correspond to those of the old. This might have been obviated by attaching a double series of numbers where necessary, as is done in Boswell's edition of *English Botany*, where each plate bears a double number, viz., that of the original edition and that of the re-issue. Under the heading of Eucalyptus coccifera we find it stated that this tree "may be expected to prove one of the hardiest of the Van Diemen's Island trees;" this was written in 1851, since which time Van Diemen's name has been replaced by that of Tasman and Eucalyptus coccifera has at least at one place in this country formed a lofty tree. Philadelphus Satsumi of Siebold is said to belong to the "order of Syringas." We have not the original edition at hand to refer to, but we do not believe that Paxton wrote or Lindley sanctioned such a blunder, at any rate it is one that should not be perpetuated. We allude to these matters to illustrate the difficulty the Editor has had to adapt an old book to modern requirements. Wherever the Editor has had free play and has not been in any way trammelled by his predecessor's work the new edition compares favourably with the old, while the general "get up" leaves nothing to be desired.

Mushrooms for the Million. (171, Fleet Street.)

An admirable treatise on the cultivation of the Mushroom out-of-doors, by Mr. J. Wright, of the *Journal of Horticulture*. The author is evidently well acquainted with the subject on which he writes, both in its cultural and its commercial aspects. The *rationale* of the methods advocated is lucidly stated, and exhaustive instructions are given to intending growers of this useful fungus. Above all, it is a work which should be in the hands of every gardener, whether he have a Mushroom-house or not. In regard to the manure for making the beds, the author observes that "This must consist mainly, and it may consist entirely, of the manure from horse-stables. Other matter can be added without injury to the beds, and occasionally an admixture of Oak and Beech leaves, a slight sprinkling of tan, and even of salt and guano, have been found advantageous by some cultivators, but the three last ingredients must be used in a very homœopathic manner. Such tree leaves as those mentioned may, if needed, be used for one-third of the bulk when manure is scarce; indeed, excellent Mushrooms have been grown in beds half composed of Oak leaves, which, with manure, produce a steady and lasting heat, as the fibre they contain causes them to decay slowly." In the important matter of preparing the manure for the beds, the author departs in various particulars from the system adopted by general practitioners. He says:—"Bearing in mind that the manure must be procured from those stables where the horses are fed chiefly or entirely with hard food, let it be prepared as follows, the object being the formation of beds either in the open air or in houses:—Let the manure be gathered precisely as the grooms remove it from the stalls. By far the greater bulk of it will be straw, more or less stained; still, exclude none of this straw, for any portion of it that may not be wanted for fermentation will serve a very important purpose. On the arrival of the stable refuse at the preparing ground let it be forked over, casting aside the long and comparatively clean straw only, such as in itself will generate but little heat if placed in a moderate-sized heap. The remainder, which may consist of one half straw and one half droppings to two-thirds of the former and one-third of the latter, to be mixed and formed into a heap, as if building a hot-bed for a frame." Again, "For the best conditions, from four to six turnings on alternate days are necessary. By this practice the mass is sweetened and the straw broken and partially decayed with the least possible loss of ammonia."

The author gives directions as to site for the beds, their size, formation, and full particulars as to the condition of materials and spawning. With this we take leave of a very useful manual.

CATTLEYAS AND LÆLIAS.

A glance at the illustration (fig. 89, p. 533) will serve to demonstrate the chief botanical difference ascribed to Cattleyas and Lælias, the four (two pairs of) developed pollen masses over the figure of Cattleya Mossiæ, and the eight over that of Lælia purpurata holding good in most cases, no matter what the habit or appearance of the plants may be. Close inspection, however, proves that the distinction is not so well defined as it might be, as the Cattleya, which present only four pollen masses to the view of the casual observer, has also the four lower ones in a rudimentary state. Nevertheless the test is a simple one, and one which I suppose will always hold good. That the species are near enough for cross-fertilisation, however, is settled by the production of several varieties between them in gardens in this country. Importations also bring us now and then odd forms, strongly suggestive of both species combined; and the extraordinary number of forms grown under the name of Lælia elegans can only, I should say, be the result of such mixed parentage.

When with Mr. Warner in 1861 my attention was first called to this subject by the flowering of probably the first good batch of varieties of L. elegans ever seen. I was struck by the great dissimilarity in the appearance of the flowers of the different specimens, some of them having comparatively small waxy-petaled flowers, and others having broad thin petals (the variety we named gigantea seeming to be close on L. purpurata), some of them having white or blush petals, and others being of a brownish-rosy hue, similar to that seen in some of the forms of the variety called Turneri. Knowing the plants which grew mixed together in the native home of L. elegans, I had no difficulty in tracing the parentage of the beautiful but diverse collection before me to the natural intercrossing of Lælia purpurata and Cattleya intermedia, and of L. purpurata and C. guttata—to my own satisfaction at least. I next sought the test of the pollen masses, and I found that in most cases they had but the four developed as in Cattleya, and while in many of them I found varying stages of development in the four lower pollen masses, in no instance did I find the eight perfect as in L. purpurata. Since that time I have rarely lost a chance of examining the pollen masses of L. elegans, and my first impressions have always been verified.

Whenever I find an Orchid of a very variable character, I like to work out the cause of it, for a cause must certainly exist; I think, therefore, my explanation of the L. elegans matter may be the correct one, and it would be interesting to hear if others agree with me or not. The plants, as well as the flowers of L. elegans exhibit the traces of mixed parentage, the small-flowered varieties of Schilleriana having just the appearance of strong C. intermedia; the lovely L. gigantea, and equally beautiful L. Wolstenholmiæ, present all the features of L. purpurata, while L. elegans Turneri not only has distinct traces of C. guttata in its pseudobulbs, but it also has the peculiarly formed corrugate lip of that Cattleya, modified it is true. Still nearer connecting these plants with Cattleya is the true old Cattleya amabilis, which I have little doubt came with the L. elegans. But all that can be said about the changeability of L. elegans, and its position botanically as a species, does not urge anything against it to the Orchid grower, but, on the contrary, offers him a ready excuse for purchasing a score or two of those before unheard of masses, which seem now to be forthcoming, seeing that he can hardly get two alike in every respect, and that while some of the varieties are gorgeous, the poorest of them, from their free flowering habit, are well worth retaining. If the liberality of purchasers sharpens the wit of importers, the enterprise of the collectors seems to give success to the cultivators, for until the last few years, when fine importations of good masses of these plants were got over, making it worth while to devote whole houses to them, the Cattleyas and Lælias were at their lowest ebb. Every year now they seem to be better understood, and those who before found them difficult to grow, now find them very easy to manage, free ventilation ensuring pure air in the house, a clear light secured with the intervention of a very thin shading, or none at all in summer, a strictly temperate atmosphere in which the smell of the hot-water pipes is never perceptible, and the use of rain-water for watering, being the main conditions to be observed to ensure success. The using of rain-water only is an important matter in the culture of all Orchids; it is best in all parts of the country, but in some districts a grower who used it would gain incalculably over one who used water from any other source.

Cattleyas and Lælias grow well together in the same house, but from their wide geographical distribution in their native habitats, and from the fact that some are small and some large growing, they require care in their management, so that each should get the situation it requires. The large growing kinds do well on the stages, but the smaller ones are better suspended, and the dwarfer they are the nearer the glass should they be brought, as such small growers as Lælia pumila and its varieties soon perish if kept far from the glass in any but a perfect house, while they will thrive in almost any house if suspended near the glass. *James O'Brien.*

Orchid Notes and Gleanings.

Phalænopsis cornu-cervi.—The flowers of this fine Orchid are by means no comparable with those of such grand sorts as P. Schilleriana and P. amabilis either for size or effect, nor would it gain by contrast, but blooming as it does throughout the late summer and autumn months its presence in the Orchid-house is welcome and enjoyable when the others are either resting or making their young growth. The flowers are something in the way of those of P. Luddemanniana, but smaller, and beautifully marbled with a mixture of purple, brown, and yellow, with the lip of a creamy-white, slightly tinged with purple. As they differ somewhat in construction, they are relegated by some authors to another genus, called Polychilus cornu-cervi. The specific name calls attention to the curious manner in which the peduncle is flattened and dilated where the flowers are given off, so as to bear some resemblance to the antlered head of a stag. It has been flowering for some months back in the warm division of the Orchid-house at Kew.

Vanda Sanderiana.—Admirers of Vanda Sanderiana may be glad to learn that, in addition to its great beauty, it possesses the inestimable property of bearing its splendid flowers in full strength and stability for several weeks, the rich colour increasing in depth and brilliancy with its advancing age. *W. L.*

Phalænopsis violacea. — An example of this beautiful species is now in bloom in the East India house at Gunnersbury Park. The flowers are singularly handsome, having a rich violet lip and sides, and they last a long time in bloom. If this species put forth a long branching flower-stem like P. Schilleriana, what an object of great beauty it would be! but only three or four flowers, at most, appear to be produced at one time.

Dendrobium cariniferum var. Wattii (*Bot. Mag.*, t. 6715).—Flowers 2 inches across, sepals and petals white, ovate, or ovate-lanceolate, acute; lip convolute at the base, anteriorly three-lobed, central lobe longest, with a yellow band in the middle.—Burma. Dr. Watt. Kew.

Vanda Lowi.—A most wonderful specimen of this fine Vanda is now to be seen in the collection of Baron Hruby at Peckau, in Austria. This plant is unique in its size and splendour. A young plant of the species was given to the Baron's father by the late Mr. Kramer, of Hamburg, some twenty years ago, and about five years since Mr. Kramer received in return a plant from Baron Hruby taken from the plant now at Peckau. The stately and magnificent specimen in the Baron's collection is in robust health, a large quantity of thick roots spring in all directions from the plant and fall around it, reminding one of the thin branches of the drooping Ash in winter. The centre stem is furnished with eight branches, two of these again have a side shoot, and from the base of the

plant grow eleven young ones, hence this marvellous specimen consists of twenty-one plants and breaks, all coming, of course, from the one specimen. There are twenty-two flower-spikes at the present moment on the plant, and the variety being one of the finest bright marked ones, and the blotches dark and shiny, the sight produced is really extraordinary, and so much is it appreciated that horticultural societies from far and near in Austria made arrangements to view it. The collection at Peckau is under the able management of Mr. Skopec, and is a very extensive one. In culture the plants stand second to none on the Continent; for years past the finest species and varieties have been collected. The present Baron follows in the footsteps of his father, who was an ardent admirer and grower of Orchids, and his efforts to bring their culture to perfection have been crowned with great success. *F. Sander.*

The Kitchen Garden.

At last the Peas are over, therefore let the haulm be cleared off the ground, and in localities where sticks are dear they may be bundled-up and stacked away in some sheltered corner, or, better still, under cover; they will last for another year. Any one wishing to try the experiment of wintering Scarlet Runner roots may take them up and store them in dry earth or sand away from frost, these planted next April will yield a crop sooner than plants raised from seed. The Globe Artichokes are now done, cut away the stems, and place a coating of long littery dung around the plants so as to be prepared against frost. The stems of Asparagus have now become yellow, and must be cut off close to the ground, saving any which have heavy crops of berries for seed; then give the beds and alleys a coating of 3 inches of rotten manure, but otherwise leave the beds undisturbed. Plant Potato Onions, Garlic, and Shalots in light soil or on a south border, taking care not to bury the bulbs—simply give them hold of the soil. The Autumn Giant Cauliflower ought now to be in full use, so daily go over the plantation and break a few of the leaves over to protect the flower; and should severe weather set in a handful of hay or Fern will be more effectual and the forwardest may be taken up carefully and laid in quite thick in some cosy corner for better protection. Celery must now have the final earthing-up, taking care that the soil is not allowed to get into the hearts in the operation; make a note of the kinds which are most free from maggot, which is sadly prevalent this year. Continue to tie up Endive, and should severe weather be anticipated, a good quantity should be taken carefully up with a ball, and be planted thickly in a frame or pit; and keep up an abundant supply of Mustard and Cress, sowing at least weekly. In dry weather pass the hoe through the early Cabbages, and on some mild morning give the main plantations a good dressing with lime; this, if done just after daylight, will kill thousands of slugs. If the Spinach beds become weedy they had better be picked over with the hand, as hoeing breaks the leaves, and smears them with wet soil. In localities where the soil is light, the spring work will be forwarded by planting the early Potatos on south borders now. Give a dressing of rotten manure, and in digging the ground over, plant the Potatos 18 inches apart between the rows, and 6 inches deep, planting as the digging progresses, thus avoiding treading on the ground, but it is most important to success to see that the sets are whole, sound, and medium-sized. If the locality is wet, or the soil stiff, on no account attempt planting till the spring. Leave the autumn-sown Onions in the seed bed, they will stand the winter and transplant more successfully next March. When the ground is wet avoid getting on to it, but turn over manure heaps to get it ready, collect tree leaves for hot beds, and dig gravel for the walks; collect ashes, sand, leaf-mould, and road scrapings, or anything which will tend to lighten stiff soil, and the reverse if it is light land. See that the seed Potatos are well cared for, the early kinds we lay out singly on a broad shelf in the root-room, but of these we shall speak more fully in our next. *J. Rust, Eridge Castle, Sussex.*

Cucumbers.

As a result of the favourable weather which has prevailed since the seedlings were planted in the third week in August last, they will have during the interval made a short-jointed and firm growth, which, as such growth is sure to do, will show a free disposition to fruit, but only sufficient fruit in various stages of development should be left on the plants as will supply the demand for them. A growing temperature of from 70° to 75° by day with fire, running up 5° or 10° with sun, 65° to 70° at night, and a bottom-heat of from 75° to 80°, will now be necessary. Air from this time must be admitted cautiously, not to lower, but to prevent the temperature of the house from getting too high. Liberal applications of weak liquid-manure, of the same temperature as the soil in which they are growing, should be given to the roots when they require it, bearing in mind that a superabundance at one time cannot compensate for a deficiency at another. Let the application of atmospheric moisture be in accordance with the temperature and state of the house generally, avoiding in any case either an arid or an over-humid atmosphere, otherwise red-spider or mildew will attack the plants, hence the desirability of adopting the happy medium. Avoid overcrowding the shoots by timely thinning and stopping the latter. The appearance of mildew and canker on plants growing in dung frames may be looked upon as the natural consequence of the conditions and circumstances under which they are grown; therefore the presence of these diseases should not only be looked for, but their spreading be checked by the timely use of preventives. An occasional dusting of the leaves with the flowers of sulphur will check the attacks of mildew, whilst a dusting of quicklime and new dry soot around the collars of the plants will save them from canker; and, in case of its having previously attacked them, arrest its further progress. *H. W. Ward, Longford Castle Gardens, Oct. 22.*

Peaches and Nectarines.

The early house, usually started about the middle or end of November, will soon require the annual cleansing and dressing, &c., generally given previous to starting; and if the sashes have been removed for the good of the trees, and for painting and cleaning, they may now be put on again at any time, for, with the recent heavy rains we have had, the borders have been thoroughly soaked—or they may be left off a little longer to give the trees the benefit of a sharp frost or two, by syringing them well all over on a frosty night, so as to get them coated with ice. This will assist in loosening and removing any brown scale they may be infested with. Any trees that are so infested must be thoroughly cleaned and well washed with a solution of Gishurst Compound, 8 to 10 oz. to a gallon of soft water. If the trees are free from scale it may be used a little weaker—about 6 oz. to the gallon. Have the walls thoroughly well white-washed with lime-wash, and the trellis cleaned and painted if required. Trees in succession-houses are now pretty well ripened, but in late houses the leaves are quite green, and a little fire-heat may still be used to assist in ripening the wood. *J. Wallis, Keele Gardens.*

Plants and their Culture.

Bouvardias Planted-out in Pits for Cut Bloom.—We have practised this method of culture with the Bouvardias for three seasons past, and have every reason to be well satisfied with the results each year. The pit in which we grow them is heated by a flow and return 2-inch pipe, supplemented by dung linings if necessary in cold weather. We devote three lights to their culture, and it is surprising what a large quantity of bloom we cut from the plants thus treated. They are with us far more floriferous also than when grown in pots, each lateral growth pushes forth quickly corymbs of bloom, giving a good succession from the end of September onwards through the dull months of winter. We like to get them planted-out in the pit as early in September as possible, using some nice mellow loam and manure from a spent Mushroom bed. If the loam should be at all heavy or retentive, some peat ought to be added, or leaf-soil of good quality in lieu thereof; a great depth of soil is not essential, but rather to be avoided. The bottom of our pit is covered with flagstones, space being allowed between each stone for drainage; a few inches of soil under the ball of each plant are quite sufficient, with about an inch in depth over the same when planted. We plant them about as thickly as ordinary bedding plants are put out, giving a good watering afterwards to settle the soil around the roots, syringing them overhead and shutting up the pit early for a few days till fresh root-action commences; afterwards, they are gradually hardened off a bit, by leaving the lights off in the day-time, till we require to press them on for blooming. We always like to ventilate freely except in very cold weather, keeping the temperature ranging from about 55° as the minimum to 65° and 70° as the maximum. Up to the present time, though now in full flower, they are slightly damped overhead on bright days, and a chink of air left on all night or taken off the last thing according to the weather. We rely on this pit to supply us till about the New Year or a little later, then it is wanted for forcing purposes, followed by a crop or two of Melons, and then is in readiness for the Bouvardias again. When they are past their best we lift them and pot all the healthiest plants, spurring them back, as with Fuchsias. When potted they are placed in a somewhat warmer temperature to cause them to break into growth for the requisite supply of cuttings to keep up the stock; after this the old plants are gradually hardened off till it is safe to place them out-of-doors, the young ones being kept growing on a bit briskly. Early in June they may all be turned out in a sheltered position in the open air, and either kept for the next three months in pots or planted in the open border. We have tried both ways, and found them succeed well; but we are rather inclined to lean towards pot culture till planting time in the pit comes round again, unless a favourable situation for planting out can be accorded them. The varieties we grow are B. Hogarth and B. Dazzler, both good scarlets, B. Vreelandi and B. Alfred Neuner are the best whites, the latter kind is coming in good now. B. Humboldti corymbiflora is also grown, but not in quantity; the perfume is not appreciated if much used. B. umbellata carnea is also a useful free-blooming kind, closely resembling B. jasminoides except in colour.

Chrysanthemums.—We have just finished grouping our collection in the conservatory; the weather having been so favourable for them we have not this autumn brought them under cover so soon as usual, but fearing injury from frost, the earliest blooms being fast expanding, we did not think it prudent to risk them outside any later. Liquid manure will now be discontinued, but a few doses of an artificial stimulant will be used instead, to aid the later kinds. Abundant ventilation should be given on all favourable occasions, and close attention paid to keeping all indications of damp in abeyance. Excessive crowding ought to be avoided, in order to retain the foliage in as healthy a condition as possible, and should any signs of mildew be apparent, a very slight sprinkling with sulphur should be resorted to. We find standards, each lightly tied to one stake, to be the least trouble. Formal training, unless for exhibition purposes, is quite superfluous, in our opinion. Where the plants are arranged somewhat thickly together, we would advise cuttings to be taken as soon as possible, before the growths become tender by the want of light and air.

Camellias.—Our stock of these in pots is still in the open, but must be got under cover in a few days. None of these have been potted this autumn, we do not therefore fear any injury to them, and being forward in bud they will come into bloom soon after the Chrysanthemums are over. The first opportunity should be taken to sponge the entire collection if the foliage is at all dirty, as it will greatly improve their appearance when in bloom. Give close attention to the watering, and on no account allow them to suffer at the root for the want of a sufficient quantity. If the plants are tightly pot-bound slight stimulants might be given. A weak solution of soot-water is a safe manure for the Camellia. When the plants are placed in a dry house after having been in the open they should be sprinkled overhead on all fine days, a dry atmosphere having a tendency to cause the buds to drop largely if there is the slightest disposition that way.

The Roman Hyacinths and early Narcissus that were potted up in good time, as previously advised, will now be growing apace, and may be had in bloom shortly if desired. We do not hasten ours, for having sufficient of other things in flower and advancing, we let them come on gently in a cold frame for the present. Pelargoniums of the zonal section that have been treated for flowering from this time onwards through the winter should have a dry, airy house or pit, where they will have the benefit of fire-heat to aid them in developing their flower trusses. The house that would do for these would also be suitable for the winter-blooming Tree Carnations. The hardiest even of greenhouse plants should now be under cover, and as considerable demand is mostly put upon the available space at command, it is necessary to scheme somewhat to suit the requirements of the various plants. We find hanging shelves in our houses to be most useful for small plants that are liable to become drawn if kept too far from the glass; these are made so as to be removable at pleasure from one house to another. *James Hudson, Gunnersbury House Gardens, Acton, W.*

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Oct. 29	Sales of Dutch Bulbs, at Stevens', and Protheroe & Morris' Rooms.
Tuesday,	Oct. 30	Sale of Imported and Established Orchids, at Stevens' Rooms. Sale of Flowering Orchids, at Protheroe & Morris' Rooms. Sale of Nursery Stock, at the Jeffrey's Wood Nursery, Coventry, by Protheroe & Morris.
Wednesday,	Oct. 31	Sales of Plants and Bulbs, at Stevens', and Protheroe & Morris' Rooms. Sale of Nursery Stock, at Eve's Nursery, Gravesend (two days).
Thursday,	Nov. 1	Linnean Society meets at 8 P.M. Sale of Imported Orchids, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms. Sale of Nursery Stock, at Peed's Nursery, Streatham, by Protheroe & Morris (two days).
Friday,	Nov. 2	Great Apple Show opens, in Town Hall, Manchester (seven days). Sale of Dutch Bulbs, at Stevens' Rooms. Sale of Imported Orchids, at Protheroe & Morris' Rooms.
Saturday,	Nov. 3	Sale of Hardy Plants and Bulbs, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms Sale of Plants, &c., at Billing's Nursery, Forest Gate, by Protheroe & Morris.

We are frequently asked by intending planters on a soil or subsoil of a chalky character as to the kinds of trees and shrubs which are most likely to succeed in such situations. The inferences to be drawn from the native locality of particular trees are at least but of an uncertain character, for it is perfectly well known that in Nature trees grow where they can rather than where they would, and many circumstances come into play to produce a particular effect which do not apply to plants grown under artificial conditions. The only safe guide, then, is that furnished by practical experience, and we cannot be too thankful to such men as Mr. Parker Hamond and others, who are making such experiments on an extensive scale, or to Mr. Salter, whose valuable papers on this subject in our columns, 1875, vol. iv., have served as a basis for reference on numerous occasions. With a view of eliciting further information on this subject we proceed now to give a few notes of observation on the Planting carried out in the district of the Chiltern Hills, with special reference to the Conifers which are found to succeed in those "Hundreds," of which more is said than known.

The undulating plateau on the top of this range of hills is covered with a heavy loam approaching usually to the nature of clay, largely interspersed with flints of a large size. The hillsides, where the ends of the chalk strata are exposed, are also of loam, but largely admixed with chalk *débris* and flints. On uncultivated parts the Beech tree prevails, associated with the common Juniperus, which here grows to 7 or 8 feet in height. Thorns and Holly are also indigenous; but where Conifers have been planted even those reputed to be somewhat tender grow into handsome specimens. Larch grows quickly, and makes very fine timber when timely thinned. On the upland loams of 2 to 4 feet in depth the Abies of the Picea section grow well, such as Pinsapo, cephalonica, grandis, nobilis, lasiocarpa, Nordmanniana, the latter making a handsome tree. Picea cephalonica, so difficult to grow satisfactorily in warm localities in consequence of its making its growth so early as to be cut off by late frosts, forms on these cold hills much later growth, and so escapes the usual disfigurement of losing its young shoots. In the valleys in this district it is preferable to plant P. Pinsapo instead for the purpose of securing the almost identical effect in the landscape that the former gives.

Of Pinuses the best is certainly P. austriaca, for it will grow and form a stout close growth with but the thinnest crust of soil, and will root freely into the chalk itself; it is, therefore, admirably adapted for the more chalky slopes. P. sylvestris does equally well in its way, but is less effective as a tree in the landscape, either massed or otherwise. Other Pines grow well, such as Sabiniana, Pinaster, Montezumæ, Jeffreyi—the last two better in the warmer bottom lands, but still they do not dislike the chalk. But the Pine which forms the handsomest specimens, and which is evidently quite at home on this formation, is P. Cembra—and one which may safely be recommended for planting for effect in this or similar districts. Picea excelsa will also make a handsome tree, and grows quickly in the loam, but less so in that that is much incorporated with the chalk.

The Thuias, such as gigantea; Cupressus Lawsoniana, macrocarpa, funebris; Thuiopsis dolabrata, and its varieties, all make beautiful growth—sturdy, compact, and of a good colour. Thuia borealis is one of the best and hardiest of the genus, making handsome and picturesque plants, and succeeding in the bleakest spots, if planted sufficiently close together at first. These Thuias seem to require but a very moderate depth of earth, into which they can send their roots, and when the limit of this is reached the roots of these, as well as those of all other varieties, and of Taxus, descend into the fissures of the chalk in search of moisture. Sequoia gigantea will do pretty well if some previous preparation is made in the way of deepening the site on which each tree is to stand by raising it in the form of a large hillock, as will also Cedrus Deodara, Libani, and atlantica. These almost indispensable trees require for their continued well-being similarly prepared and sheltered sites, as they are the least satisfactory of the Coniferæ, when planted in the ordinary soil of the hills. With these trees on mounds surface feeding should be adopted as the trees become old, or it will be found impossible to keep them in a healthy state. The Cryptomerias are also not reliable trees to plant, more especially C. elegans.

One of the finest growing subjects in this region, albeit but a common one, is Thuia occidentalis, making upright evergreen symmetrical columns of from 20 to 40 feet, which, in either garden scenery or in the wider landscapes, are effective and telling objects. The introductions of later years from Japan are still in their probationary period on this soil, and as they are growing generally on prepared sites it would be scarcely fair to make any deductions from them at the present. Plants of these coming from distant nurseries, and a totally different soil, are long in recovering their health on the heavy loams, and still longer on the more chalky soils. The best plantations of Coniferæ were planted with very young plants, and put in thickly, followed by early thinning, and in all cases were well sheltered.

—— Mr. J. G. Baker, of the Kew Herbarium, the President of the Yorkshire Naturalists' Union, who has already written *Floras* of North Yorkshire and of Northumberland and Durham, is intending to print this winter a *Flora* of the English lake district, on which he has been long engaged, and will be glad of any contributions towards it.

—— Alpine Plants.—Lovers of this class of plants, and they are becoming more and more numerous, are requested to—

"Read Please.

Of the most seldom and important plants that
Can be found in Zermatt and its surrounding
Mountains, as also some minerals and living plants
To transplant, can be had here in this shop
Of M. J. Biner-Sigrist Botanist,"

We transcribe the inscription in full, as written on a shop front in Zermatt, not only for its quaintness, but for the sake of bringing to the notice of those concerned a very trustworthy guide and collector.

—— The Chou de Burghley or Cabbage Broccoli.—Mr. Gilbert, the raiser of this excellent new vegetable, writing on the 15th inst., says:—"Two years ago a great cook told me there was only one fault with Chou de Burghley—it was rather large—and if I could get them a little larger than Brussels Sprouts, and still of the same mild flavour, they would be better. On the first opportunity I crossed the Chou de Burghley with the Brussels Sprout, and I now send you some of the produce of the seeds so obtained." What to call the produce of this cross we do not know (shall we say Chou de Gilbert?), but it seems to us something remarkable that Mr. Gilbert should have so soon obtained the thing he wanted, the Sprouts (?) received being perfect little Cabbages 3—4 inches long, 2—2½ inches in diameter, and when cooked of the same mild, delicate flavour as Chou de Burghley. Brussels Sprouts, large or small, have always a strong flavour, and a sample of hard, medium-sized Sprouts sent at the same time proved no exception to the rule, though for table use infinitely nicer than the oversized ones now too often aimed at. Of the habit of growth of the Chou de Gilbert we know nothing, but should be glad of particulars, and before saying more would like to see the plants growing. The Chou de Burghley is being largely grown this season, and is giving general satisfaction, but complaints have reached us that the plants do not all come of any fixed type.

—— Mr. Stephen Ross, who has lately retired from the management of Lord Carnarvon's gardens at Highclere Castle, was presented the other day by his friends and neighbours with a gold watch and chain, as a token of their sincere regard and good wishes. Mr. Ross became gardener at Highclere in 1859, previous to which he was foreman in the gardens at Savernake Forest, near Marlborough. While at Highclere Mr. Ross carried out many alterations suggested from time to time by the noble owner. The Castle grounds have been considerably extended and improved, and the lovely flowering Rhododendrons, Azaleas, and other shrubs greatly increased. The appreciation in which Mr. Ross is regarded is shown by the fact that Lord Carnarvon has kindly granted him a handsome pension for life, and the option of taking another situation where the duties will be less onerous.

—— Tuberous Begonias.—What will finally be determined to be the length of the season of usefulness of these showy plants as yet remains an uncertainty. When they were few in numbers they made a brave display in the greenhouse during the late spring and summer months, and they were welcomed as novelties of a high order of merit. Then they were tried and found adaptable for summer and autumn bedding, and latterly for late autumn flowering especially, the plants continuing in bloom, unaffected by either wind and rain until long after the last Rose of summer has disappeared. Now, if we may judge from a glorious box of flowers before us, sent by Messrs. Laing & Co., it would appear that in the late autumn, too, they can be had in abundance under glass, and of the finest quality; and we suppose shortly we shall hear that they are competing with Chrysanthemums for the honour of rendering our houses gay during the dull early winter months.

—— Gardeners' Royal Benevolent Institution.—Mr. Cutler writes:—"May I be allowed to remind your readers that the simultaneous collection in aid of the Pension Augmentation Fund for this year will finally close on November 30? You may perhaps be pleased to learn that the amount collected to this day is £434 16*s.* 10*d.* as against £331 5*s.* 7*d.* received by the corresponding day last year." *Oct.* 23.

—— The "Herefordshire Pomona."—The publication of the sixth part of this beautiful serial comes opportunely. For those who do not know the work we may add that it consists of a series of coloured illustrations of many of the most esteemed Apples and Pears. The selection is not confined to Herefordshire, for as the work progressed public interest was excited, and the choice of varieties for illustration and description proportionately widened. The part before us is equal in execution to those that have preceded, and that is saying a great deal. The text contains detailed descriptions and pleasantly written notes as to the history of the several varieties. We would fain hope that one result of this publication, as well of the recent exhibition of Chiswick, will be the elimination of a vast number of inferior or indifferent kinds. Of the thousand and odd varieties, or reputed varieties, at Chiswick, only a small percentage are really worth retaining, and it is rare indeed for any new variety to surpass in excellence those we already have. Let us hope also that the *Herefordshire Pomona* and the "Congress" will be able to effect a great deal towards the suppression of useless synonyms, and to the elucidation of the names. With reference to this latter

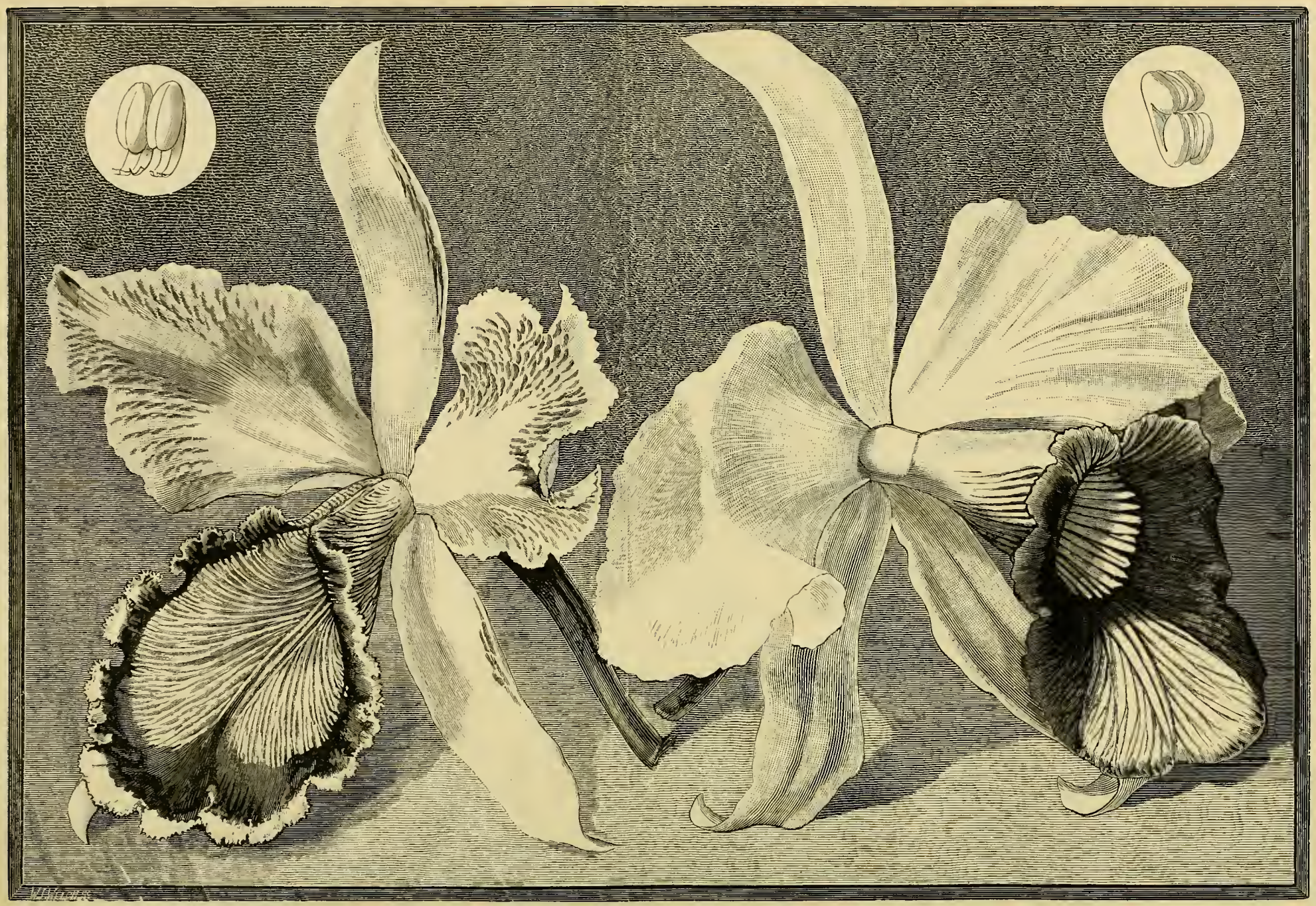


FIG. 89.—CATTLEYA MOSSIÆ.

FIG. 90.—LÆLIA PURPURATA. (SEE P. 530.)

point we may mention that an Apple appeared in many collections at Chiswick under the name "The Proff.," the meaning of which was not apparent till in some other collection the same Apple was found labelled the Professor, and thus furnished the clue to the mysterious epithet. In such cases the adage, *Brevis esse laboro obscurus fio*, may well be remembered and acted on.

—— Linnean Society.—At the meeting to be held on Thursday, November 1, at 8 p.m., the following papers will be read:—1. "Changes in the Fauna and Flora of New Zealand;" Dr. S. M. Curl. 2. "On a Fossil Fruit from the London Clay;" J. Starkie Gardner. 3. "Origin of the Placentas in Alsineæ;" G. Lister.

—— Marigold Meteor.—It would be interesting to know when the English form of this Marigold originated. It can be traced as having been grown in Hothfield Gardens, near Ashford, some four or five years ago at least, certainly before it was sent out from Germany as a new variety. The Kentish form of it is, in our opinion, finer than the German one, for it is marked with the deepest orange and buff, and at this period of the year it is extremely fine. A few days since we saw glorious blooms in an old farmhouse garden in Kent, into which it found its way from Hothfield some three or four years ago. The flowers were superbly coloured, and perhaps the damp dull autumn weather tended to heighten the colours.

—— Lilium auratum. — Messrs. Collins Brothers & Gabriel, of the Waterloo Road, S.E., have submitted for our inspection some of the finest examples of home-grown Lilium auratum bulbs that have come under our notice. The bulbs ranged from 16 to 24 oz. in weight, the latter measuring 16 inches in circumference.

—— Cratægus pyracantha.—This fine hardy evergreen winter plant is glorious in many places this autumn with its rich load of orange-red berries. Many a porch, wall, and fence glistens with its ripe red fruit. It is generally recommended as a trailing or climbing plant against a wall, and hence it is that its decorative uses are a little restricted. A few days since we saw it in all its autumn glory, with its marvellous wealth of berries cast over a portion of the exterior of a dense clump of shrubs, covering a small island in the centre of a piece of ornamental water. The berries glistened in the sunlight, and it was as if gleams of coral flame lit up the sombre surroundings of leaf and branch. There is a wonderful warmth of rich colouring about this plant in autumn and winter, and, though so hardy, it is worthy the best position that can be assigned to it.

—— A New French Potato.—This bears the name of "Joseph Rigault," and is said to have been produced from the Early Bedford Kidney and Marjolin Tetard, and combines the best qualities of the above varieties. "As early as the Royal Ashleaf Kidney, it gives a crop five times more considerable," and is said to "possess the power of resisting disease." When an English raiser contemplates the price asked of the trade, and compares it with the poor prices realised for high-class home-raised Potatos in this country, he may be forgiven a little envy of his French fellow labourer in this department.

—— The Mango Season in India.—In a letter dated September 5, Mr. C. B. Clarke writes:—"Mangoes lasted this year from May 1 to September 1—the finest Mango season in the memory of man. Mangoes on the railway 40 miles down would not pay carriage to Calcutta." So the good Mango season coincides on this occasion with our good Apple season.

—— Veronica rupestris.—Under this name Mr. Barron has growing on the rockwork at Chiswick a charming prostrate Veronica that is blooming very prettily in the form of small spikes of deep blue flowers. It may possibly be a type of V. prostrata, and it deserves to be noted as an excellent plant for covering rockwork. Near it is Plumbago Larpentæ in fine healthy tufts flowering freely, its deep blue flowers changing to violet, but most acceptable in the shortening autumn days. These two plants supply hues of blue that are very cheerful amid the decay that goes on at this season of the year. Here and there a tuft of autumn Crocuses has reared its delicate blossoms, and the pretty Cyclamen hederæfolium is already in bloom. Some of the dwarf Saxifrages are so bright in foliage as almost to supply the place of flowers. They alternate between deep red to bright yellowish-green, and they are as effective in autumn as at any season of the year. A well-planned and furnished rock garden is never without something of interest all through the changing year.

—— The Late Dr. Denny.—A memorial stone in polished granite has been erected in the Ipswich Cemetery by a few friends of the late Dr. Denny. The inscription runs thus:—

In memory of John Denny,
M.D., F.R.H.S.
Born at Ipswich.
Died at Stoke Newington,
London, 18 November, 1881.
Aged 62 years.
This monument was erected by his friends in token of their esteem.
His life was spent in relieving the suffering poor. His leisure was devoted to the promotion of scientific Horticulture.

—— Kentish Apples.—Mr. Lewis Appleton, writing to the *Daily News*, says:—"In connection with the National Apple Congress, it has been justly stated that the county of Kent is the largest English contributor. This is an immemorial historic fact. Reaching back as far as the eleventh century, Kent has been famous for its Apple gardens and orchards. In 1066, the year that William of Normandy invaded, conquered, and was crowned King of England, several of his royal followers settled in Kent, amongst whom was a lady of his Court named Mahilia. This lady fixed her residence in the vicinity of a forest of Apple orchards, and in consequence she received the surname of Mahilia d'Appletone, or Mahilia of the Apple Orchards. From this Norman lady sprang the family of the Appletons, who for eight centuries have maintained their ground as an ancient family in Kent and the adjacent counties. In 1641 a member of this family, John Appleton, was one of the 'Puritan Fathers' who sailed in the *Mayflower* for the American continent, and from him sprang the family of Appletons in the United States. Charles Sumner and the poet Longfellow intermarried into that family. The crest of the family became, at a very early date, a bough with leaves and Apples, and it still remains the crest of the family, of which I subscribe myself a humble descendant."

—— Grape and Melon Growing at Mr. Ladds'.—The Vines in the big vinery at Bexley Heath are again this year carrying a beautiful crop, alike remarkable for weight and quality. Originally nearly one-half of the house was planted with Lady Downe's, and the remainder with Black Alicante, but the last-named fine winter kind has been grafted on most of the Lady Downe's, and has got into bearing. In the course of another year the house will be all Alicante, which is preferred by Mr. Ladds, as with all the care and attention possible in keeping on plenty of heat all through the time when scalding takes place so as to admit of air being on night and day at both side ventilators and the ridge, still some of the berries are affected, not to an extent to disfigure the bunches, as most growers would consider the Lady Downe's a faultless crop, although, as may be supposed, not equal in weight to the Alicante. Looking down the long vista of this immense house, the sight is such as an acquaintance with ordinary-sized vineries conveys no idea of. The house has now been in bearing five years, and there appears to be no falling off in the unusual crop carried. In another house some 108 feet long, and of similar width to the big vinery (24 feet), and like it, planted on both sides, the Vines, all Alicante, are carrying their second crop. Those who have had anything to do with Grape growing need not be told that this variety, when the Vines are strong and well managed, will finish up to the mark a greater weight of fruit than any other sort. Yet, taking weight and finish into account, it is a question if the extraordinary crop now in this house has been equalled; the bunches run from twenty to twenty-five to a Vine, a large part of which will be from 3 to 4 lb. each, the berries full-sized, even, and heavily bloomed, and as black as Grapes can be. The Vines here, as in the other houses, have mostly two rods each. A similar sized house to the last, all Muscat of Alexandria, also the second year in bearing, is little, if any behind the last; here, again, the evenness of the berries and bunches, with their beautiful colour, are unusual. Five hundred pounds had been cut out of this house before the middle of October, and where they were cut from is scarcely noticeable without close inspection. Two of the big houses are filled with Gros Colmar, grand young Vines, immensely strong, with the wood brown and hard, and the foliage yet as fresh and full of life as usually seen many weeks earlier. This last is a condition which alike applies to the fruiting Vines, the leaves of which, from end to end of the house, are as green and free from red-spider as if this little pest was non-existent. Quantities of Melons have been grown at Bexley Heath this season, six of the long houses, each 200 feet by 12 filled with Bouvardias last winter, then occupied by two successional lots of Fuchsias, were late in the summer planted with Melons, which have done well. During the latter part of September and beginning of October from 100 to 150 a day have been cut, and there are quantities yet hanging. Mr. Ladds has started another place at Swanley, where 6 acres of land are to be covered with glass for fruit growing. Five vineries, each 200 feet long by 16 feet wide, are already up, and ten more will be built during the winter. Several thousand Gros Colmar and Black Hamburgh Vines are being got ready for planting this huge fruit manufactory.

—— The Glasgow and West of Scotland Horticultural Society has issued its prize schedule for a grand Hyacinth and spring flower show, to be held in the City Hall, Glasgow, on Wednesday, March 26, 1844.

—— Stephanotis and Chrysanthemums at Bexley Heath.—One of the wide houses, 300 feet long, filled with Stephanotis planted on each side, covering three-fourths of the roof, and a second house only a little smaller similarly occupied, from which during the height of the blooming season the flowers are cut at the rate of a wheelbarrowful at a time, give some idea of the demand existing for this sweet-scented favourite. Chrysanthemums occupying an acre of ground have just been taken up and planted as close as they can stand on the floors of some houses filled with young Vines, look as if they might furnish flowers enough for all London.

—— Mr. Bull's Nursery.—In this establishment may be seen just now the useful autumn-flowering Odontoglossum rubellum, mauve, with white and gold in the centre. O. madrense majus is just coming into bloom. This collection, which is one of the most extensive in its representation of Odontoglossum vexillarium, shows signs of wonderful health and vigour, and there is abundant promise of future blossom. The pretty Lælia atrorubens, its reddish-purple blooms fully expanded, is quite a gem at this dull season, as also are L. Perrini and its varieties. The choice Oncidium Edwardii will soon open its beautiful inflorescence. Amongst Cypripediums in bloom we noticed a nice piece of C. Warneri, with four or five open flowers, and also C. Dayanum and C. concolor. The Cymbidiums never looked better, their foliage being as healthy as any grower could wish. The large houseful of Orchids, which was to be seen here during the summer months, is now filled with a collection of mixed hothouse plants; and not to the advantage of the latter. A fine new house is partially filled temporarily with the beginning of an extensive collection of Sikkim Himalayan and hybrid tender Rhododendrons—plants likely to be much cultivated, even in the open air, under such conditions as were described in our number for June 16. The Lavatera arborea variegata is grown here in numbers. It is a subject very suitable for groups in the sub-tropical garden, the bold, handsome head of foliage strongly reminding the observer of Aralia Sieboldi. Unfortunately it is not quite hardy.

—— The Phylloxera Laws.—We find that an impression has arisen from our recent remarks that individual nurserymen and others desirous to secure the introduction of living plants into Vine-growing countries could do so by formally assenting to the Convention of Berne. Of course, no such individual action is of the least use, and hitherto our Government has shown no disposition to give its assent as a State to the Convention, probably because in its estimation the amount of horticultural trade done with the contracting countries is not sufficient to justify such a proceeding, and that less general inconvenience arises from abstention than from con

formity. It remains for those concerned to determine whether or no this is a correct view, and whether they will take further action in the matter. At the Ghent meeting in April last it was recognised that the Berne Convention by no means met the requirements of the horticultural trade, or of others desirous of transmitting living plants to Vine-growing countries, but at the same time as there was no chance at present of securing the abrogation of the Treaty, loyal compliance with the enactments of the Treaty was recommended as the only practical remedy, and the desire was expressed that all countries concerned should join the Convention, so as to secure a regular and uniform practice, and thus facilitate international commerce. In the opinion of the Ghent meeting, when once the Convention is universally accepted, the vexatious hindrances now put in the way of international traffic will be reduced to certain simple administrative forms. It is pointed out that it would be very desirable to have for all countries a uniform form of certificate. The Belgian Syndical Chamber of Horticulturists have taken the matter up with spirit on the lines just mentioned. It remains for those concerned in this country either to bear the inconvenience as best they may, or to bring further influence on our Government in such way as, after due consultation, may seem most desirable.

—— Pyrus Maulei.—Those who like Apple pies generally like a Quince mixed therewith, and no doubt especially late in the season the Quince is the best part of the pie so far as flavour is concerned. But let those who want a real treat in this way procure, if they are lucky enough to be able to do so, the fruits of Pyrus Maulei. Half a one is sufficient for a pie of moderate dimensions. *Experto crede.* We are not sure whether we ought not to patent the discovery, but we prefer, in all good fellowship, to publish it abroad. Mr. Maule will pardon us for stating that we prefer it so used to its confection into marmalade.

—— Messrs. Veitch's Nursery. — Amongst the few Orchids in bloom at this, for them, rather flowerless time of the year, are some pretty examples of Vanda cœrulea, also of Cattleya Manglesi, one of Dominy's first children, pretty in its way, and most useful as an autumn bloomer. In the Phalænopsis-house are many examples of P. amabilis, opening their handsome blossoms of pure white and crimson, and the promise of great quantities of bloom later on. The rare P. Krameri is very conspicuous, with its beautiful orange petals, delicately bordered with a rich brown and prettily filled. The Cypripediums are also beginning here and there to show signs of flowering. C. calurum, with somewhat the general appearance of C. Sedeni, only much larger in flower and leaf, and with colours far brighter, has thrown up several flower-spikes—they cannot be called sprays, not having the branching habit of some of the newer Cypripediums. C. Spicerianum and C. Dayanum are also showing bloom, as is also a quantity of C. Stonei. The few Oncidiums in flower include the handsome O. Forbesi, O. ornithorhynchum, with its tiny rosy flower spray deliciously smelling of vanilla; and O. varicosum. Of Pleiones coming into bloom are P. humilis and P. Reichenbachiana. The Nepenthes-house is quite crowded with plants of all kinds in pitcher. This is really the best period of the whole year to see these curious pitchers. First amongst the graceful Ferns suitable for suspending in a basket or for a ledge in a rockery is Davallia Veitchiana. Well-grown plants furnish long slender fronds useful for cutting. Polypodium verucosum is a good distinct-looking stove variety, the dotted pinnæ being something very noticeable. Globba atrosanguinea is a useful Gingerwort for autumn flowering, its yellow blooms and scarlet calyces being very showy.

—— Prize Schedules. — Each succeeding year the exhibition season brings with it the usual budget of complaints as to judges at horticultural shows not making their awards in conformity with the rules laid down in the prize schedule issued for the joint guidance of exhibitors and judges. These complaints spring from different, and often from opposite, causes. Sometimes it is alleged that those who adjudicate are too lax in making awards to exhibitors who do not comply with the rules embodied in the schedule; in others it is urged that the error lies in the opposite direction, by the judges going beyond that which the rules permit in disqualifying exhibitors who have complied with the letter of the law as laid down in the schedule. Before going further, it is well to observe that the schedule in all cases is the code of laws alike binding on both exhibitors and judges; and this, be it understood, totally apart from its merits in being well or badly arranged. If, for instance, the regulations are more than reasonably stringent and exacting, nevertheless exhibitors, if they compete, have no recourse but to comply with them, and judges have equally no course but to make their awards in conformity with the stipulations. If, on the other hand, a schedule is carelessly drawn up, allowing more latitude to exhibitors than usual, in that case the exhibitors are perfectly entitled to take advantage of whatever omissions there exist. In brief, all that the schedule requires must be forthcoming, and all that it does not forbid is admissible. It may be said that this is following the letter of the law, not the spirit; yet it is the only reasonable course, for the moment either exhibitors or judges diverge from the letter of the law—*i.e.*, the wording of the schedule—they have no ground to stand on. This applies alike to exhibiting plants, fruit, flowers, or vegetables; and where a schedule does not put any restriction on the number of varieties of any particular kind of plant, fruit, flower, or vegetable to be shown in a collection, whatever the number the collection is to consist of collectively, each exhibitor has a perfect right to show as many varieties as he chooses without being disqualified for so doing. In such cases as here stated the judges have no more right to disqualify on the ground that the usual practice is to only show such or such a number of varieties because the schedules of most societies only admit so many, than the exhibitors would have to contend that any society in deviating in their rules from that which is usual had no right to force those who compete to comply with the said rules. This is so obviously the only reasonable course to follow that the generality of both exhibitors and judges acknowledge and act upon it; yet it is evident that all do not, hence the complaints that occasionally are heard of, but which there is little doubt are oftener borne with than made public. When such mistakes occur, exhibitors are dissatisfied, but the grumbling usually goes no further than the day of the show, the disappointed taking a philosophical view of the matter in supposing that a repetition of the infliction will not occur. Most old exhibitors have seen, and had to put up with, not a few vagaries at the hands of individuals appointed as judges. There is another mistake that judges sometimes make—that is, in awarding a second or a third prize to an exhibit that in some way or other is not shown in accordance with the requirements of the schedule, justly giving first to another exhibitor's production that, though inferior, is shown in compliance with the regulations. This, again, is wrong; any production not shown in accordance with the schedule has no right to a prize in the class it is entered for; and where judges give a second, third, or any other prize in the class to such an exhibit, they stultify their own act in withholding the first from it. But in all cases when such an exhibit possesses merit, and the non-compliance with the rules is obviously an oversight, and not done with fraudulent intent, it would be a wise and fair course to give an extra prize proportionate to the merits of the production. Any one acting as judge at exhibitions of this kind, and who has been an exhibitor, can enter into the spirit of those who show fairly. There is nothing more disagreeable than having to disqualify productions that through a mistake of the exhibitor are not entitled to a prize, but are otherwise deserving; yet common fairness demands the disqualification, without which the exhibitors who comply with the rules would not get their due. It sometimes happens that those who draw up a schedule are not careful enough to make their meaning clearly understood to either exhibitors or judges. Cases of this kind are not uncommon, where the wording is so obscure that some of the exhibitors evidently put a different interpretation on the regulations to that which others do; the usual result of which, as might be expected, is dissatisfaction at the awards. Rules relating to such competitions should always be sufficiently clear that they cannot be misunderstood by any one concerned, as, beyond the contentions that arise from indefinite regulations, such always have the effect of injuring the competition.

—— Fungus Foray at Coed Coch and the Neighbourhood.—With the view of sending a few named fungi to Northampton for the *soirée* on the 11th, a *petit* fugus foray was undertaken (Oct. 9) by Mr. A. Walker, of Colwyn, Mrs. Lloyd Wynn, and a few more mycological enthusiasts, when they found the fungi abundant, and were rewarded with the interesting A. marginellus, a close ally of A. Iris, which, on a small scale, is perhaps the most beautiful of fungi; they found also Cortinarius germanus, C. dilutus, and others, and above all a specimen of Agaricus Ruthæ, of far larger size than the original specimen figured by Dr. Cooke. After the fungi had been sent off to Northampton other excursions were formed, and fungi were found in extraordinary abundance. A group of A. melleus on an old Willow stump was a sight to enchant an artist, and a ring of A. flaccidus (Sowerby), at least 10 feet in diameter, the individuals of which it consisted being unusually large and brilliant in colour. After a few minutes we were so fortunate as to find a second specimen of Helvella Klotzschiana, besides many other novelties. At Bodrydar the rare Thelephora phylactua was in great beauty; indeed, our report of the year as productive in fungi is rather different from that of the Hereford foray. With a knowledge of Coed Coch for nearly thirty years, we can say positively that there has never been a year more productive in species and interesting forms. Figures have been secured of some of the more important acquisitions for Dr. Cooke's *Illustrations*, which has our most sincere and conscientious wishes for its completion. *M. J. B.*

—— Publications Received.—*British Fresh-water Algæ.* Part 6. By Dr. M. C. Cooke. Containing descriptions and coloured figures of Ulotrichaceæ and Chætophoraceæ.—*Familiar Wild Flowers.* —*Familiar Garden Flowers.* — *Illustrationes Floræ Hispanicæ.* By Maurice Willkomm. Part 7. Containing faithful portraits of Spanish plants, with text in Latin, French, and Spanish. The plates include Nos. 57 to 65 inclusive.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Oct. 22, issued by the Meteorological Office, London:—The weather, though finer in the eastern and central parts of Great Britain than elsewhere, has been generally cloudy or dull, with frequent, and in some places heavy, falls of rain. In many localities thunderstorms have been experienced. Temperature has been below the mean in all districts, the deficit ranging from 1° to 3°. The maxima, which were registered during the earlier days of the period, varied from 54° to 55° in Scotland to 62° in "England, E." The minima were generally recorded either on the 21st or 22d, and were low in all districts, ranging from 26° in "Scotland, W.," and 27° in "England, N.W.," to 34° in the south and east of England, and the south of Ireland. Rainfall has been about equal to the mean in "England, S.," but more in all other districts, the excess in "England, N.W.," and "Ireland, N.," being considerable. Bright sunshine shows an increase in duration in all places, the percentages ranging from 31 in "Ireland, W.," to 50 in "England, E.," and 52 in the "Midland Counties." Depressions observed:—During the whole of this period the barometer has been highest and comparatively steady over France, while depressions have travelled generally in an easterly direction over our northern coasts and Scandinavia, and some subsidary disturbances over our southern districts. The wind, after blowing a gale from between south-west and south, on nearly all our coasts during the 16th, veered to the westward, and moderated somewhat in force, though for a time it still blew a strong breeze to a moderate gale. By the 21st moderate westerly or north-westerly winds were general, but on the following day strong south-westerly winds had again set in in the west and north.

Gardening Appointments. — Mr. John Proctor, lately Gardener at the Priory, St. Andrews, as Gardener to General Sir John Douglas, of Glenfinnart, Ardentiony.—Mr. James Jack, from the Princes Street Gardens, Edinburgh, as Gardener to Miss Russell, Ashiestiel, Galashiels.—Mr. John MacKinlay, at present Foreman at Penicuik House, Penicuik, as Gardener to David Wilson, Esq., Carbeth, Killearn. — Mr. Denning, lately of the Royal Botanic Gardens, Regent's Park, as Gardener to the Earl of Chesterfield, Holme Lacy, Hereford.

ORCHIDS AT DOWNSIDE.

The grand structure specially designed by Mr. Lee for Cattleyas and Lælias (p. 308, vol. xix.) has proved a great success, the plants steadily improving from the time they were first installed in their princely quarters, well developing their flowers, and bearing them profusely without punishing the specimens. Many who saw the magnificent display of some hundreds of blooms of the varieties of Cattleya Mossiæ in this house last year (numbers of the small specimens being almost hidden under their flowers) were inclined to believe that the heavy drain on the plants necessary to maintain such a display for so long a time would certainly reduce them considerably and take off much of the freshness and vigour of their appearance. Such has not been the case, however, on the contrary, they did not receive the slightest check. That such is the case is of course attributable to the excellent arrangement of every detail in the house in which the plants have been kept, the genial moisture from the numerous water-tanks, the bed of leaves under the open woodwork middle stage and the permanent ventilation secured by the open glazing of the first pane of glass all round the house contributing greatly to the general success.

Keeping good the display which never fails in this Orchid growers' elysium, and making the place very attractive until the great feast of Cattleya Trianæ arrives, are some of the finest specimen of some of the best varieties of Lælia elegans in the country—plants with over one hundred bulbs each, and beautifully diverse flowers of many shades of colour and different habits of growth from the dwarf L. Leeana to the stately looking L. Turneri and L. elegans alba. Rare varieties of Cattleya Eldorado are also represented, so highly coloured and so quaintly marked as to almost lose their identity, one very dark crimson or maroon-lipped form having the petals heavily marked with dark carmine, as in C. Trianæ Backhousiana; another having a similarly marked dark labellum, but with pure white petals; various forms of the pure white, orange-throated C. Wallisi; and still yet another grand plant of the last-named variety, but with bright rose petals instead of white. These and other like novelties represent the picked plants of all the recent heavy importations, wherever procurable, and are, many of them, the only plants of the kind which have yet flowered in this country. The varieties of C. Eldorado are specially valuable for the assistance they give with their showy blooms in filling up the blank which takes place without them before the Trianæs come in, and for their delightful odour.

The middle portion of the centre stage is occupied by an unrivalled collection of Vandas, which are ornamental when not in bloom, but simply enchanting when in flower. Contributing also their share to the display in this house are finely bloomed plants of C. Dowiana aurea, C. Dormaniana, a fine form of C. Fausta, with its rosy flowers and crimson veined lip; a fine specimen of the autumn-flowering C. labiata, with four huge flowers on a spike, and various other Cattleyas and Lælias, together with well-bloomed Epidendrum Wallisi, E. prismatocarpum superbum, and the quaint-looking E. sceptrum, with its tall spikes of numerous orange-chocolate blotched flowers, each curiously presenting its labellum upwards. The forms of Lælia Perrini are also very showy.

The end lobby of this house is devoted to the varieties of C. gigas, C. Dowiana, and others which demand special treatment, and the entrance lobby at the other end to the warm-house Cypripediums, Odontoglossum Roezlii, Nepenthes, &c., in bloom being C. calurum, C. Ashburtoniæ, C. Chantini, C. punctatum violaceum, C. marmorophyllum (C. Hookerii x C. barbatum), C. Dominianum, C. conchiferum, C. Spicerianum, C. vexillarium, C. Harrisianum, many fine forms of O. Roezlii, and the rare Zygopetalum rostratum. In a close, moist corner of this house, and in near proximity to a damp wall, Mr. Lee is also succeeding admirably with that miffy plant, Phalus tuberculosus, with which so many have failed and asked advice respecting lately. Here it is grown in a pot, but its running habit is accommodated by having a thin block of wood potted with it, up which it is growing in a vigorous manner. It is always kept moist and shady, and if others try it in this way they will probably be successful with it.

While on the subject of Lælias, it may be as well to say that the varieties of L. pumila (Dayana, præstans, marginata, &c.), which are now producing such fine blooms, are well done at Downside, although many fail with them through giving them too much heat. Mr. Lee found that the Cattleya-house was too warm for them, and he soon moved them to a cool house, where the Odontoglossum vexillarium is grown, and here they succeed admirably on blocks, or in shallow pans or baskets, suspended in full light near to the glass of the roof. House after house is filled with Odontoglossums and Masdevallias, their never-failing blooms and their healthy appearance when grown cold and moist rendering it very difficult to restrict the space allotted to them; their culture seems so simple and pleasant at Downside as to cause wonder that any should mismanage them. Here it is a thing unknown for one of these plants to die once being established, and there seems no limit to their longevity so long as they are properly managed, some of the first introduced pedigree Odontoglossums being still at Downside in increasing vigour. Well do they repay the care of years by producing such huge garlands as some of the O. Alexandræ are now bearing—one grand fellow having a spike over 3 feet in length, and bearing sixteen large pure white blooms, and another having equally large heavily blotched flowers, and yet all these would probably have been counted but good ordinary varieties until culture had perfected them. This should be a great comfort to purchasers of small plants and importations—if but the right strain be obtained, possessing flowers of good form and substance, culture will do the rest, but it will never change the starry, poor variety into a good one.

In the cool-house noteworthy in bloom are Odontoglossum Chestertoni (true), O. crispum guttatum, O. c. giganteum, O. c. Trianæ, many fine O. Pescatorei, the rare true O. Wallisi, many Mesospinidum vulcanicum, Sophronitis, Pleiones, charming panfuls; many fine Lælia autumnalis atrorubens, Barkeria Skinneri—fifteen spikes on one plant; Masdevallia Davisi major, M. Veitchii gigantea, M. maculata, true old form, with flowers half the size of those of M. macrura; and in one of the long houses plants of M. tovarensis in bloom are arranged all over it, the snow-white flowers on their hundreds of spikes looking very lovely, and heightening the effect of the other plants in bloom. Miltonias, which usually look so sickly in collections, are so well cultivated at Downside that their light green pseudobulbs do not present the objectionable yellow tint, and their flowers are freely produced by even the smallest of them. At one time they were not so happy here, and they were shifted about until the right place was found. They have since grown well without any trouble in a quiet, rather shady corner of an intermediate-house of small dimensions. Among those in bloom are two the like of which are not in Europe, viz., M. Blunti, a very pretty Hawthorn-scented variety with creamy petals, heavily blotched with rosy-claret, and having a pink and crimson lip; and M. Clowesii gigantea, a massive-flowered thing, which may be the true M. Clowesii major, a variety we very often hear about but never see, unless this be it. M. bicolor and different forms of M. spectabile radicans are also very good.

Among the Oncids are the last novelty, O. incurvum album, a pure white form of the elegant and free flowering species; the still very rare O. ornithorhynchum album, looking healthy and flowering well; many elegantly flowered plants of the rose O. ornithorhynchum; the pigmy O. Limminghii, clinging like Ivy to its block, and sending out its O. Papilio-like flowers; bewildering thickets of O. varicosum, O. tigrinum, O. aurosum grandiflorum, and O. macranthum.

Lycastes are well done at Downside, and as the main secret is to keep them cool, airy, and moist, it may be well to sound a warning note for the benefit of those who are prone to roast the vitality out of these plants in winter. At Downside the show of Lycaste blooms last year was of the finest quality, and they bid fair to be better this year, and here the plants are grown in much the same manner as the Odontoglossums, but with about 5° more heat in autumn, winter, and spring, they being shaded carefully and kept cold as possible in summer. Among a host of other well bloomed plants are quantities of the pretty snow-white Odontoglossum Œrstedii, Arundina bambusæfolia, which is nearly always in bloom here; Zygopetalums, Cymbidium giganteum, C. affine, Lycaste Cobbiana, many fine Pilumna nobilis, the new Trichocentrum orthoplectron, Epidendrum Cooperianum, Phalænopsis, and the much-talked-of and wonderfully beautiful Vanda Sanderiana, which seems as durable in flower as it is beautiful.

In addition to the new and rare things previously enumerated, and in themselves worthy of a visit, are Cattleya Mastersoniæ, a rare Veitchian hybrid between autumn labiata and Loddigesii—a splendid thing, with very much of the pure white of C. Loddigesii in the tube, and all the rich colouring of the other parent; C. Eldorado virginalis, a very robust pure white variety with orange throat, bearing three flowers on a spike, and seemingly distinct from either Eldorado or Wallisii in the strength of the spike and the arrangement and substance of its large bold flowers; Cypripedium Spicerianum magnificum, Sander; and the rare C. Arthurianum are also well represented.

When every department of such a vast Orchid establishment as that at Downside displays marked improvement each succeeding year it is certainly reassuring to growers on a smaller scale and to cultivators of special classes of Orchids, as it points to the fact that success with any or all of them is certain if they be carefully studied and tended as a labour of love.

PENTSTEMON LABROSUS.

The botanical status of this plant is, we believe, a matter still *sub judice*, and this being the case we shall do no more than mention that while some are of opinion that it is only a variety of P. barbatus, others consider it deserving of specific honours. We await an authoritative expression of opinion, which we learn is likely to be given in a forthcoming number of the *Botanical Magazine*. Gardeners in search of beautiful hardy plants, however, will be more concerned with its suitability for their purposes than with its exact rank in the botanical hierarchy—a point upon which, moreover, there is always likely to be a difference of opinion, according to the bias of the individual botanist or his means of coming to a conclusion. Mr. Thompson, of Ipswich, to whom we are indebted for the specimen from which our illustration was taken, speaks of it as "quite an acquisition (fig. 91), its colour being brighter than that of P. barbatus." He tells us also that it proved hardy with him, and that it varies in stature from 5 feet downwards. The flowers are invariably destitute of the fringe of hairs that gives its name to the better known plant—a circumstance which at least points to a different life-history.

FRUIT NOTES.

Packing Imported Apples.—We omitted last week, in mentioning the collection of Apples received at Chiswick from Nova Scotia, to refer to the simple and admirable system of packing adopted by the importers, and which constitutes one of the secrets of the great success which attends foreign Apple importation. Many thousands of barrels come over from Nova Scotia yearly, thus making an important article of commerce, and when we note the singularly bright and unbruised condition of the samples put up at Chiswick and assume that these are but samples further of the ordinary condition in which imported Apples come to the market it is not possible to wonder why these foreign fruits meet with such a ready sale. Apart from their fine size, and in many cases rich colouring, there is the fact that even in the result of handling and packing alone they seem to excel our market samples, although the former have come thousands of miles. Why is it so? The obvious reason is that more care is shown in picking and packing, and, not least, in sizing, so that the sample throughout is an even and a sound one. The lot at Chiswick (as do all other imported kinds from our North American colony) came packed in a neat barrel resembling an ordinary flour barrel. This was lined with soft paper, and into it were placed the fruits as evenly as possible, having regard to the fact that in this case, the fruits being of many sorts, were of various sizes. A piece of thin paper divided each kind, and when the barrel was filled a little packing before the head was put in served to keep all tight. When quantities of fruits of one kind are sent the samples in the tubs are even throughout, and hence the very best packing material proves to be the Apples themselves. Perhaps the Nova Scotia fruit may be of firmer flesh than ours, but it is obvious that the rough-and-tumble treatment our market Apples get is not bestowed upon these beautiful imported fruits.

Keeping Apples.—There is much truth in what Mr. Temple says about the storing of Apples, which

Fig. 91.—PENTSTEMON LABROSUS: FLOWERS SCARLET-CRIMSON. (see p. 536.)

often keep better in cellars and such-like places than they do in fruit-rooms, where the air is more dry and the temperature variable, a striking instance of which I saw at a gentleman's house at Stanstead, where quantities of Apples are stored in vaults under ground, where they are in perfect darkness, and keep and look as plump and fresh as when picked from the tree. What affects Apples more than anything are the changes in the atmosphere, as when damp they may, unless in very good houses or rooms, be seen reeking with moisture, which causes fungus-mould, and decay follows quickly after. When above-ground a thatched roof is best for a fruit-room, as it is more absorbent and non-conducting, and therefore maintains the air and temperature in a more equable condition as regards heat and moisture. In barrels and air-tight cases Apples and Pears may be kept long beyond their usual season for turning in, and to have them late it is the practice with some to roll choice specimens in soft paper and pack them away in a cool dry place till wanted for use. In this way I have known Marie Louise Pears preserved till Christmas, and Apples till others came again in the summer. The best sorts of ours we pack in drawers that are close fitting, and in these I find they keep much better and sounder than they do on the shelves. Where there are not proper conveniences for storing, I would advise Apples being laid on clean, dry, sweet Wheat-straw on the floors of lofts or sheds, and to give them a thin covering of the same, which will absorb any excess of moisture and help to stop any rot. *J. S.*

Pear Muirfowl's Egg. — Under the name of Galston's Moorfowl's Egg this Pear was to be seen in a collection of Apples and Pears exhibited at the Appledore Fruit and Flower Show by Messrs. Thomas Bunyard & Sons, nurserymen, Ashford. It is an old Scotch dessert Pear, of excellent quality, and was highly spoken of by Mr. Thomas Bunyard. It was represented by a medium-sized, roundish, greenish-yellow fruit, slightly russety, and spotted with red next the sun. It is said to be both hardy and vigorous, and makes a fine standard. By some authorities the Galston form of this Pear is held to be distinct from the Scotch Moorfowl's Egg. It is further reported to be a good bearer.

Apple Winter Hawthornden. — Some truly beautiful specimens were shown of this Apple at the exhibition of the Appledore Root, Flower, and Fruit Show, on the 18th inst. Prizes were offered for culinary and dessert Apples, and among the former the Winter Hawthornden stood out conspicuous for its fine development. One dish of fruit, taken from a small bush tree, looked as if they had been modelled in wax. The skin was pure cream, and on the side next the sun the colour was lively red. All the samples of this Apple had much more colour than is generally seen in the fruit, but these were conspicuously attractive. There was a very good display of Kentish Apples, mostly of local growth, but unfortunately scarcely one of them was named. Not a few were finely coloured, but it was noticeable that here, as at the Apple Congress, the examples of Blenheim Orange, which is claimed as peculiarly a Kentish Apple, were generally of inferior quality. There are many old orchards in the neighbourhood of the Romney Marshes that contain trees of good age, and it would be very interesting could a collection of the Apples grown on these be sent to London next season for exhibition at one of the meetings of the Royal Horticultural Society.

Fruit Spurs. — The anatomical conformation shows that these short, contracted branches resemble in their structure the root-stocks of herbaceous plants, in so far that the cellular or spongy tissue predominates over the fibrous or stringy. In the cells a quantity of nutritive matter is stored up, which is available for the ripening fruit. Herr Laborie has lately published a paper in German on this subject, which is one of no little importance to cultivators.

Winter Peach Apple, *Florist*, t. 596.—A mid-sized Apple of roundish or somewhat flattened form, slightly hollowed at either end, with a closed eye and a short stalk. Skin yellow, spotted red on the sunny side. Flesh tender, juicy, of excellent quality. Season, April.

Pear Olivier de Serres, *Bulletin d'Arboriculture*, August.—Fruit large, globular, umbilicate at the base and apex; eye closed; stalk stout, short; skin greenish-yellow, thickly overlaid with russetty-brown.

Home Correspondence.

Birds and Pears.—I used to be troubled very much by tomtits, but I discovered a remedy by accident, and have since been free from annoyance by them. I have for the last four years grown a quantity of Sunflowers, the seeds of which the tomtit is very fond; and I would advise those who are troubled with this little fellow to adopt the same plan. If planted in April the seeds come in just in time to take the bird's attention off the Pears, and while the stock of seeds last I will vouch for it that the Pears will be safe. My method of planting the seed is to take a dibble, some seeds, and a bundle of sticks, and make a circuit of the squares and quarters, dropping a seed here and there, and placing a stick in each place as a guide to any one using the hoe. After the first lot have come up make another round in a similar manner. *R.C. E. H.*

Castilleja indivisa.—I send a few specimens of Castilleja indivisa, that you may see how effectively it preserves its colour to the last. The plants have been in flower four months or more. In any light soil the plant is one of the easiest cultivation. The only secret connected with its management is to sow early, so that the plants may be of fair strength by May, to ensure which the seed needs to be sown in January. Of course that implies the aid of a warm greenhouse; beyond that there is no difficulty. *Wm. Thompson.* [We are greatly obliged to our correspondent for these interesting specimens. The scarlet or red bracts are very showy, and the plant of such beauty and interest that we can recommend it to *connoisseurs* with the greatest confidence, especially as it is of such easy culture. We had imagined it would be one of those partially parasitic plants which are found so difficult to cultivate. Ed.]

Notes on Lapagerias.—I send you three clusters of flowers of Lapageria alba, one of which, marked No. 1, is from a strong shoot sent up from the base of the plant last spring, and the point of which accidentally got pinched off by the door of the greenhouse close to which it is growing. This, and also another one, has formed a cluster of nine flowers, each a joint or two below where it was pinched. This suggests to me that where a number of young strong shoots are sent up on a healthy plant, after growing 3 to 4 feet, they may, by stopping, be induced to flower the same year; while, if allowed to continue their growth, they would only, as in the case of other strong shoots on our plants, continue their growth from 12 to 18 feet, without producing any flowers. I may add, that three weeks ago this plant, from which I send you flowers, bore from 900 to 1000 fully expanded blooms, and on the other side of the house (a span-roofed one) we have Lapageria rosea superba, on which there were 1100 expanded flowers in the first week of September. I also send a spray of this plant to show its freedom of flowering. Truly these, the most free and beautiful of all greenhouse climbers, are worthy of every cultural attention, *B. Cromwell, The Woodlands, Aigburth.*

Bees and Blue Flowers.—In Mr. Grant Allen's recent book, *The Colour of Flowers*, he asserts—what indeed has been asserted before, but perhaps less positively—that the blue colour in flowers is owing to the preference of bees for this colour, and that blue flowers are especially adapted for fertilisation by bees. His words are:—"The fact is, blue flowers are, as a rule, specialised for fertilisation by bees, and bees therefore prefer this colour; while, conversely, the flowers have at the same time become blue, because that was the colour which the bees prefer." I will only say, in the first place, that the saving clause "as a rule," opens the door for wide exceptions; and in the second, that Mr. Grant Allen leaves it more than doubtful whether the bees like blue flowers for the sake of their colour or for the sake of their special adaptation of form. In the first part of the sentence he asserts the latter, and in the second part the former view. Nor does his next sentence help us—"As in most other cases the adaptation must have gone on *pari passu* on both sides." Now what is the evidence that bees prefer blue flowers, or that flowers have become blue or altered their shape in order to accommodate bees? Now first, as to the supposed preference for blue flowers. We are all familiar with Sir John Lubbock's experiment, and the preference shown by certain bees for honey placed on blue glass over that placed on glass of other colours. But even in this experiment there was nothing conclusive, and later experiments seemed to leave the matter much where it was. On the other hand, Mr. Alfred Bennett, in the *Journal of the Linnean Society*, has asserted that during his observations the hymenoptera paid 203 visits to red or pink flowers, 126 to blue, eleven to yellow, and seventeen to white. Other observers have fancied that they have seen a preference for white or greenish flowers—Spiræa, Mignonette, and others; while a bed of Thyme, a bank of Heather, or a grove of Lime trees would probably attract any bee in preference to any blue flower in the world. But there are all sorts of disturbing elements in these calculations. All bees are not alike, and the humble bee and the hive bee may have different tastes. All flowers do not secrete honey in the same degree, and bees know pretty well (or instinct helps them to) what they want. All gardens are not the same, and in one the proportion of blue flowers may be greater, or the number of honey-bearing flowers more. Then, again, bees are greatly attracted by the scent of flowers. In short there is much yet to learn, and by a more thorough and exhaustive method than has as yet been pursued; and, meanwhile, we really cannot allow Mr. Grant Allen to strengthen his position by pressing into his service, when he chooses, not only purple but even pink flowers. The question is as to the bees' preference for blue flowers, and these only. And (though the first point remains unproved) now comes the second question, as to the alteration in the form and colour of flowers, dependent on the visits of bees. Mr. Grant Allen says that "The more specialised and modified flowers which gradually fitted their forms and the position of their honey-gland to the forms of the bees and butterflies, showed a natural tendency to pass from yellow, through pink and red, to purple or blue." He adds, "It would finally result that the ordinary unspecialised flowers, which depended upon small insect riff-raff, would be mostly left yellow or white; those which appealed to rather higher insects would become pink or red; and those which laid themselves out for bees and butterflies, the aristocrats of the arthropodous world, would grow for the most part to be purple or blue." Now here again comes in the sort of hesitation which Mr. Grant Allen evidently feels on finding that his theory is too large for the ascertained fact—"would grow for the most part to be purple or blue." If there is a law in these matters, surely the change in form and colour would be invariable. On what principle would one flower adapt itself to the fancies of bees, and another remain as it was? However this may be, a more eminent botanist than Mr. Grant Allen, Dr. Asa Gray, of Boston (U.S.), says:—"Thus far it does not appear how the visits of bees to a blossom can make one hair white or black." In Müller's great book on *The Fertilisation of Flowers* I do not see that he speaks of blue as a colour especially affected by bees; on the contrary, he said, "Flowers adapted for bees probably surpass all others together in variety of colour;" and again, "the most closely allied species growing in the same locality, where adapted for bees, are usually of different colours, and can thereby be recognised at a glance." I wish now to confine myself mainly to the question of the preference of bees for blue flowers, and do not dwell upon the question of the alteration of form, in which M. Müller no doubt believes; but such alteration in form is, as it seems to me, quite independent of questions of colour. Is the form of the blue Salvia, for instance, more adapted for bees than that of the red Salvia? Why of all flowers have not the Antirrhinums become blue? Why have we no blue Foxgloves? Why are Sweet Peas, which fertilise themselves, so often blue? M. Müller states that in many cases violet and blue "seem to have been preceded by red—an assumption which is strengthened by the fact that many blue and violet species (Myosotis, Anchusa, Symphytum) give us white and rose-red varieties, apparently by reversion to more primitive characters." The modest wording of this paragraph, which admits that the theory is still an "assumption," contrasts strongly with the more positive tone I have found elsewhere; but is it not a little arbitrary to speak of a change in colour from red to blue as an "evolution," and a change from blue to red as a "reversion?" Meanwhile I shall be glad of further evidence which may show, 1st, that bees strongly prefer blue flowers; 2d, that, so preferring them, they more willingly fertilise any flower which has a tendency to blue; 3d, that these flowers, by their selection, get gradually more and more blue; 4th, that they gradually alter their form to adapt themselves to the visits of bees. *H.* [As a contribution towards the information required, we may mention that we have had under observation, the whole summer, a flower-bed consisting of Pelargoniums of mixed colours, white to scarlet, edged with blue Lobelia, and that we found by daily observation, sometimes many times daily, that the hive-bees almost invariably went to the Lobelias, and not once in a hundred times, or in anything like that proportion, did they visit the Pelargoniums. So exclusive was their preference for the blue flower that we fancied the Pelargoniums must be destitute of honey, but on examination we found an abundance. Ed.].

Shade.—I am very much obliged to Mr. Webster for his information respecting Hydrangeas. I know these flowers are very lovely in the grounds at Penryhn, and I had fancied that the soil under the blue was a made compost compounded to effect a change of hue. Mr. Webster's remarks seem very conclusive, and yet I know from experience that the plants which bore blue flowers in one portion of the grounds at home, on being removed to other parts of the garden always bore pink blossoms the following season. It took a longer time to change a pink Hydrangea into a blue one than it did to turn blue pink. Will not shade blanch flowers as it does stalks and leaves? Plants kept in the dark were white. *Helen E. Watney, Lyss.* P.S. The gardens and grounds at Penrhyn are well worth a journey from Euston to Bangor to view.

A Pretty Weed (Linaria thymifolia).—Those who admire Linaria alpina (and who does not?) can scarcely fail to appreciate this new Toad-flax. Like its alpine congener it is dwarf (3 to 4 inches high), has glaucous leaves, though quite different in form, being obovate or broadly oblong, and in whorls of two or three, and has compact heads of bright yellow flowers, with lips more or less orange. The flowers are firm in texture and not slender, as in L. spartea, &c. L. thymifolia grows in deep sandy soil, in which it appears to be perennial, as I frequently found the base of the shoots 4 inches or more below the surface in places where the seed could not, I feel sure, have been annually covered to any such depth. It sows itself freely in sandy soil, and grows well even in pure sand. *J. Backhouse, York Nurseries.*

Water Supply for Gardens.—Mr. Coomber is to be envied in the splendid supply of water he appears to have, which is one of the very desirable things most gardeners fall short of, and have to spend much time and labour in lifting and conveying about. If employers could only be brought to understand how much cheaper and better it would be to have it laid on, few of us would be put to the straits we are now during the summer, when every Vine, tree, and plant we grow is athirst, and never gets enough to satisfy the demand the leaves and fruit or flowers are constantly making on the roots, which have to search hither and thither in the struggle to live. The expense of laying on water may be great at first; but it is a good investment where there is a garden, and fruit and vegetables are required in quantity and quality; for with water it does not matter so much about poorness of soil, which may be constantly fed by top-dressings of manure washed down by the wet. The cheapest way of applying water is to have a good large tank at a high level, so as to obtain sufficient pressure to force it where wanted, where, with a hose, it may be turned on, and left playing on a border for hours without any attention. I have seen trees with aphis, or red-spider, that were looking crippled and wretched, made clean and fresh in a night by undergoing a sousing, and a shower-bath like that never fails to wash parasites off. The water itself is the cheapest and best power for obtaining a supply, as where there is a running stream, or pond with a spring, a wheel or ram may be placed to pump up what is required for use, and beyond the first outlay there is little or no other expense required for years, as a ram will work night and day, and keep in order for a great length of time. *J. Sheppard.*

Novelty in Dahlias.—Wearied of the absolute perfection of form found in the big double Dahlias, and now already almost satiated with the constantly recurring monotony of single forms, one turns with a feeling of profoundest satisfaction to any genuine novelty in Dahlias, and such a one might have been seen in the long Dahlia border at Chiswick during the past autumn had those who admire flowers eyes for any other kinds but those single stars which alone seem just now to be acceptable ornaments in our terrestrial firmament. Under the unmistakably Teutonic appellation of Deutscher Reichsgoldstern—a name that is sufficient to frighten any ordinary Briton from further association with it—there was grown amidst the other Dahlias, taking a somewhat back place, a fairly dwarf double kind, the petals thickly set, and each one trebly pointed, so as to give the flowers almost a spiny appearance. The colour of the blooms was red, and each of these spiny points being tipped with pale yellow gave to the blooms a singular and striking appearance. Amidst a very beautiful lot of Continental pompon sorts, some of exceeding merit in form, colour, and floriferousness, this curious kind stood out as a distinct novelty, and it is to be hoped that more will be seen of it next year. To some of our Dahlia raisers such a kind might offer material for the production of an entirely new decorative race, that would be not the less acceptable because whilst the solidity of good double flowers was present, the painfully even outline or surface of the flowers was broken up and rendered both more pleasing and attractive. *A. D.*

The Chiswick Apple Show.—The presentation made the other day to Mr. Barron by some of the promoters of the successful Apple Congress, is one which all who have paid Chiswick a visit will rejoice to learn of, and regard as a pleasing recognition of work splendidly done. As you mentioned last week, however, in spite of the three weeks' exist-

ence of the show, and the large numbers of people that have attended it, there was the interesting fact that not a fruit out of tens of thousands was missing, whilst all who have had business at the show will freely admit that the greatest possible kindness and assistance has been manifested on the part of Mr. Barron's staff of men, and that in having a large amount of very responsible work thus unexpectedly thrust upon them at a time when, the most busy part of the year being past, they had a right to look for a little relaxed toil, they had done their duty faithfully and well. May I therefore plead as one who has visited the show often, and experienced, as others have, that kind consideration of which I write, that in counting up the large profits, which must result from an effort towards which the Council of the Society did nothing more than assent to, that body will not only remember its superintendent, who, by his splendid Apple show has done more to popularise the Society than the Council has done by its own action for years, but also the numerous *employés*, not one of whom should at the close of the show be left without some tangible memento of its exceeding usefulness and remarkable success. I write this much disinterestedly, and without suggestion from any one. *D. B.* [We hope the suggestion will be acted on. Ed.]

Chou de Burghley.—This very useful vegetable was once known as the "Cabbage Broccoli," and some of the wits expended part of their witticisms in showing that if cut as a Cabbage it would never become a Broccoli, which is as true as the saying that no one can eat their cake and have it too, and it must have been an unreasonable person who could expect that, after devouring the Cabbage, a Broccoli would issue forth in its place. I find the Cabbage so good as a Cabbage that I can wish for nothing better, and it is a great chance if any of our plants are allowed to stand for the transformation which would come later on, as they have now splendid hearts, which when cooked are exceedingly tender and mild and delicious in flavour. When more known I am convinced that this Chou de Burghley will be very largely grown for autumn and winter use, and in a great measure supersede and take the place of strong, rank Savoys, which few care to eat. Mr. Gilbert is to be congratulated on raising and distributing such a valuable thing. Those we have in use now were sown in March, but if wanted to stand till spring the seed should be put in as late as the middle of May. *J. Sheppard.*

—— It would be interesting to know how this new vegetable has turned out this season. With me it has been rather disappointing. I have a good bed of it, and the plants look like large white Cabbages. I sent the first lot to the kitchen a few days since, and it was pronounced worthless. Is it too soon to cut it? I should like to have the opinion of others who have grown it. *O. Orpet.*

The Grass Seed Harvest.—We notice a statement at p. 468 concerning Trefoil, which, in our opinion, is not borne out by fact. We estimate the Trefoil crop at considerably above the average, and, as a fact, at the present time fine samples of new seeds can be bought at £10 per ton less than last year's closing prices for similar qualities. *James Carter & Co.*

Systematic Botany.—I read with very great pleasure your leading article on this subject last week. Not only to the progress of horticulture and agriculture, but also to that of forestry, is the study of systematic botany in the highest degree relevant. Your observations with reference to the grass genus, Penicillaria are particularly fortunate, for there is no family of plants which has suffered more than the grasses from a lack of knowledge on the part of its cultivators of the systematic position and the genetic relationship of the members of the order. It is a startling fact that, of all the grasses cultivated in this country only one, and that a doubtful one, is not native—I refer to Lolium italicum. Within the last year or two a determined attempt, which will probably prove successful, has been made to drive common Rye-grass, Lolium perenne, out of our pasture lands. Not more than some twenty species of grasses are cultivated in this country, and though exotic species have from time to time been tried here and found wanting, it seems to me that there is need of further attempts in this direction. Small as is the number of cultivated grasses here, it is even smaller in the United States—a fact which was brought under the notice of the American Association for the Advancement of Science at its recent meeting at Minneapolis by Professor W. J. Beal, Vice-President of the Biological Section. Though Dr. Schweinfurth is stated to have said that Penicillaria is not referred to in the most recent works I may mention that it is noticed both in Sir J. Hooker's English edition of Le Maout and Decaisne's *Botany*, and in Dr. Masters' edition of Henfrey's *Elementary Course of Botany*. Perhaps, however, the German botanist referred to works in his own language. The educational value of a botanic garden can hardly be over-estimated. I have been slowly forming one here during the last three or four years, and, thanks to kind assistance from Kew and Glasnevin, it already possesses considerable interest and value; but there are many native plants I would gladly accept specimens of, and undertake that they should be received into a kind home were opportunity to offer. I have made a speciality of grasses on account of their agricultural importance and of the many difficulties surrounding the study of this complicated family. Last summer I grew about 150 species, and I hope year by year to increase this number by the addition of any sufficiently hardy species I can obtain, either by purchase or favour. If you will permit me to differ from you, I am rather inclined to think that the study of systematic botany has somewhat declined in this country—I mean as a study by beginners, not by experts. For a time the apparently superior fascinations of vegetable histology and physiology have helped to lessen the number of would-be systematists, but this falling off is no doubt only temporary, and systematic botany will be the better for it eventually, inasmuch as future students will probably be in a position to approach the subject with much more correct notions of morphology and development, and of the essential bearing which such knowledge has on the laws of classification than was erstwhile the case. The splendid series of experiments on the mixed herbage of permanent meadow carried on for more than twenty years at Rothamsted have resulted in the accumulation of numerous valuable facts, which have recently been published; yet these results, which are of great value and significance, are simply unintelligible to the majority of the farmers of this country, because they are totally ignorant of systematic botany. To too many of them one grass is the same as another, and I fear that at least 80 per cent. of our farmers do not know as many as four or five grasses even by sight. Plenty of room for systematic botany! *W. Fream, College of Agriculture, Downton, Salisbury.*

The New Hybrid Hedychium.—That there can be no possibility of any mistake having occurred regarding the origin of the hybrid Hedychium noticed in your last number, p. 492, the following statement will show. At the time this cross was effected— viz., August, 1880—there was no other Hedychium in flower in the garden here but H. Gardnerianum. Flowers of Hedychium angustifolium were brought from Hartree by Professor Dickson, with which a spike of H. Gardnerianum was fertilised. The flowers to which the pollen was applied were all marked, and none but those so marked set and ripened seed. There can be no doubt, therefore, as to the origin of the plant in question. Hedychium Gardnerianum, as grown here—viz., in a cool house—never forms fruit, unless artificially fertilised. Other Hedychium seedlings we have coming on, some of which we expect will flower next season, and may also prove to be hybrids, are the results of crosses effected in 1881 and 1882 between H. angustifolium × H. Gardnerianum, H. coronarium × H. angustifolium, H. coronarium × H. Gardnerianum. *R. Lindsay, Curator, Royal Botanic Gardens, Edinburgh.*

Florists' Flowers.

Cyclamen Persicum.—So surely do we improve in our cultural processes that feats of culture thought to be almost impossible a few years since are common to intelligent growers. This was the impression which crossed our mind when looking through the really splendid collection of Cyclamen persicum in Messrs. Sutton & Sons' nursery at Reading a month ago. Not long since it was thought absolutely necessary, in order to have Cyclameos in flower fifteen months after the time of sowing, that the seed should be sown not later than August. But in the case of the collection at Reading the seed was not sown until November, 1882, and the result was seen in many hundreds of plants, filling two or three small span-roofed houses, all in 48-sized pots, grand in foliage, the plants averaging 9 to 15 inches in diameter, and of the most robust character. They commenced throwing up flowers in September, but all were carefully removed until fire-heat was applied a few days ago. It should be stated that these plants had been well cared for at all stages. At the best of times the seed of Cyclamen persicum germinates slowly, and it also grows irregularly, and, as in the case of seeds of the Auricula, &c., some will germinate much quicker than others. There is this advantage—that it enables the earliest plants to be taken from the seed-pans, and pushed on into growth with all dispatch. The practice at Reading is to put the young plants singly into thumb-pots, but keeping the small bulbs quite on the surface of the soil. The soil used at the earlier stages is a good yellow loam with plenty of leaf-mould and a liberal supply of silver-sand. As the plants gain size less sand is used, but leaf-mould is considered indispensable at all stages. The seed plants are grown on into size in a good warmth during spring, but they are not allowed to become drawn; they are placed as near the glass as possible, but shaded when the sun shines warmly; the greatest care is taken that they do not become infested with greenfly; indeed they are brought on rapidly, successfully, and in rude health. In May they are shifted into 60-sized pots, and in June into flowering pots. The growth during August and September is very free; and they are treated to occasional doses of weak liquid manure, and in this way are laid the foundations of the splendid plants alluded to above. "The whole secret of successful Cyclamen culture may be summed up in a few words; constant and unvarying heat, a moist atmosphere, and abundant supplies of water without stagnation; free circulation of air, avoiding cold draughts; light in winter shade in summer, with freedom from insect pests. These conditions will keep the plants in vigorous growth from first to last, and will produce specimens of which the grower may be proud. The result will be so bountiful a bloom as to prove the soundness of the rapid system of cultivation. This routine may be varied by the experienced cultivator, but the principles will remain the same in all cases, because the natural constitution of the plant gives the key to the management required." *R. D.*

The Carnation and Picotee: New Varieties.—The growers of these charming sweet-scented flowers are now very busy putting their plants in order for the winter. The layers are mostly all rooted by this time, and they must be carefully separated from the parent plants and treated as advised at p. 429. Those who have had some experience with the growth of the Carnation and Picotee know well the difficulty there is in getting the "grass" of some varieties to form roots at all. You have two varieties growing side by side that have been layered at the same time, say the first week in August; in two months they both show by their growth that they are rooted, but on taking off the layers one sort will be perfectly rooted and the other scarcely at all. At potting time a very mild hotbed should be prepared, and all those stubborn varieties that do not root well must be potted in the same way as the others, but plunged in a gentle bottom-heat. Now is the time to make any additions to the collection that may be required; the growers pack them very carefully as they are removed from the plants, with some moss round the roots and wrapped up in paper; a very large number of layers can be packed in small boxes and be sent by parcels post. If the plants are not ordered until the spring they must then be sent in pots, and the expense of carriage is much more; besides, the trade growers cannot be expected to be quite so careful, with their thousands of layers to attend to, as an amateur with only a frameful. Notwithstanding the very large number of first-class varieties already in cultivation, there are some sterling novelties now being sent out. In the scarlet bizarre class there are no novelties to be sent out this year, but as so many fine varieties have been introduced during the last three years by Mr. Dodwell, we can afford to wait. The best of numerous family are Alfred Hudson, Arthur Medahurst, Fred, George, Harry Turner, James McIntosh, and Robert Lord. In crimson bizarres Samuel Barlow (Dodwell) is the best; it will be an excellent variety for the back row of an exhibition stand; it is of full size, very distinctly marked with purple and crimson on a good white ground. Mephistopheles (Dodwell) I think very highly of; it is the richest colour of all this section, but there is not sufficient white in it to please the fancy. Thomas Moore, Jun., is a better variety for show purposes; it resembles its parent, Thomas Moore, very much, but is sufficiently distinct. In pink and purple bizarres, Mr Turner is sending out a grand acquisition in William Skirving (Gorton); as this flowered with me last year, I thought it the best Carnation I had ever seen. The form of the flower is first-rate, the colours bright, regular, and well-defined. No collection should be without this variety. Mrs. Anstiss (Dodwell), in this class, is a flower that is sure to please. As exhibited at Slough, it was not of the largest size, but is of good quality and very richly coloured. These two quite

make a revolution in this class, and contrast well with the pale beauties, Sarah Payne and Falconbridge. Purple-flakes have not had any real good additions since Mr. Simonite introduced James Douglas. This year we have Squire Whitbourn (Dodwell), a flower of excellent properties; it may not be of the largest size, but in colour and form it is first-rate. Scarlet-flakes receive three very important additions. Henry Cannell I have grown, and consider it one of Mr. Dodwell's best productions. It is of fine form, the scarlet clean and the ground colour very fine. Figaro and Matador, raised by Dr. Abercrombie, and both now being sent out by Mr. Turner, are also good additions to this class. They have taken the greatest honours and highest prizes given by the National Society; the flowers are very large and full, and the scarlet-flakes are very bright. In rose-flakes Tim Bobbin (Gorton) is one of the most beautiful flowers in its class. The petals are large, regularly disposed, and well marked. Rob Roy, by the same raiser, has even more distinctive properties; it is of a deep cherry-rose colour, form and quality first-rate. These two are also being sent out by Mr. Turner.

In Picotees the heavy red edges receive a good addition from the seed-bed of that veteran raiser the Rev. Charles Fellowes. Monarch is a good large flower, with a pure white ground colour. The rose and scarlet edges are greatly improved by the new additions. Esther Minnie (Dodwell) is first-rate in every respect, the flowers of large size, quite pure, without spot and bar. Mrs. Webb is quite distinct in its way from any other; it is one of the Rev. C. Fellowes' seedlings, is of the largest size, with a salmon coloured edge. This gained the first seedling prize in its class, and First-class Certificate, at Slough. I omitted to mention, in the review of the rose-flakes, a very distinct and particularly pleasing flower named Dorothy. The colour is too pale to suit the taste of the Northern growers, but it is of great value as a variety even in a class containing Tim Bobbin and Rob Roy. It reminds one of Mrs. F. Burnaby, sent out by Mr. Turner. Dorothy is one of Mr. Dodwell's productions. *J. Douglas.*

FORESTRY.

Irish Forests.—That valued contributor to the pages of the *Gardeners' Chronicle*, Mr. Murphy, whilst acknowledging the value of the hints given in that paper a fortnight previously, finds some few faults with the methods of planting therein advocated. In the first place he states it to be his opinion, that cultivated land would never be utilised for the growth of timber. But is it not a fact, that much of cold uplying land, especially on the northern slopes of the hills, and undrained but not undrainable land in Ireland could be made to grow timber trees and valuable underwood?

The produce of much of such land now under some sort of cultivation by cotter or proprietor, must be so small and insignificant—the result of continued cropping, with consequent exhaustion from the non-application of manures or from the insufficiency of the dressings combined in some instances with adverse climatic influences—that it would be better to put it under a timber crop at once. Such land would grow suitable kinds of trees, when it could no longer grow remunerative crops of Potatos or Oats. On such land, if suitable, Oak could be dibbled in, as the soil is probably bare of herbage, and could therefore easily be kept clean for two or three seasons, till the trees topped the dwarfer weeds, the tall ones being cut down twice annually. As regards the difference of time between sowing and planting that would just amount to nothing to the future proprietor, eighty or one hundred years hence, when the trees will have reached or be approaching maturity, and he commences to fell, the most promising trees then being selected. As a matter of fact a tree at fifteen years old from seed will be ahead of the planted ones that were three or four years old at the time of planting, supposing planting and sowing were done at the same time. It is usually maintained that seedlings, which have not had their tap-roots severed, as nursery stuff often is, are firmer in the ground than those, and better able to withstand the winds, which is another reason for this method. There would not be more losses on seed-sown land than on planted, and if there were, they would not involve so much loss of money, and they could be cheaply resown. Mr. Murphy's complaint that nurseries are full of trees is really of but little moment, for were afforestation carried on there with spirit and enterprise the present stocks of suitable trees and underwood in the hands of the trade would not supply a tithe of the quantity that would be required; so that, in the case of Oak, Chestnut, Horse Chestnut, Walnut of sorts, seed must be utilised. To prevent ravages from vermin, these seeds would have to be coated with some poisonous or nauseous compound. These few short replies to the objections put forward will, I hope, be of service in removing any doubts as to the efficacy of some of the practical methods advocated in the paper on Irish Forests. *M.*

Indian Forests.—The total area of the Government forests of India with which the Forest Department is concerned extends over 71,972 square miles. The most valuable forests are the Teak forests of Burma, which are now under the control of the Government, without prejudice to the rights of the natives. The forest products (other than timber) exported from India in 1881—1882 were:—Of caoutchouc, 534 tons; shellac, 4324 tons; lac-dye 251 tons; cutch and Gambier, 9944; Myrabolans, 19,578 tons; and of Teak, 56,377 tons of 50 cubic feet each. These figures are taken from Dr. Schlich's *Review of the Forest Administration of India for the Year* 1881-82. The review in question commences with a well merited eulogy on the services of Dr. Brandis, who has lately retired from the duties of Inspector-General of Forests, as already noted by us; then follow numerous statistical abstracts of the highest utility to those interested in the progress of Indian forestry, the development of the resources of the country, and the welfare of the inhabitants. The appendix contains the regulations in force regarding the appointment and promotion of forest officers. The total receipts of the Forest Department for the year in all the provinces of India are given as 6,315,434 rupees, the expenditure as 3,926,654 rupees, leaving a surplus of 2,388,780 rupees.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, October 24, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall
Oct.	In.	In.	°	°	°	°	°	°	°		In.
18	29.88	+0.18	56.5	41.2	15.3	48.5	− 1.2	38.9	69	WNW	0.00
19	29.59	−0.11	55.0	45.0	10.0	49.3	− 0.2	47.0	87	S.W.	0.12
20	29.55	−0.16	51.0	39.5	11.5	44.8	− 4.5	37.6	76	S.W.	0.00
21	29.70	−0.01	54.2	39.0	15.2	46.5	− 2.5	38.4	74	W.	0.03
22	29.85	+0.14	49.0	39.0	10.0	43.6	− 5.1	38.3	82	N.W.; WNW	0.00
23	29.56	−0.18	56.0	37.0	19.0	48.0	− 0.3	44.2	87	WSW	0.03
24	29.62	−0.09	58.0	42.5	15.5	50.8	+ 2.9	46.8	77	SW.; S.S.W.	0.02
Mean	29.68	−0.03	54.3	40.5	13.8	47.4	− 1.6	41.6	79	W.	0.20

Oct. 18.—Fine day, very rough wind, moon shining occasionally at night.
— 19.—Very dull day, slight rain falling from 8.45 A.M. till 6 P.M. Fine night.
— 20.—Fine day, dull. Fine, clear, cold night.
— 21.—Fine day; cloudy at 4 P.M., with rain. Rain again at 6 P.M. Fine afterwards.
— 22.—Fine day, but dull and cold. Fine, cold, dark night.
— 23.—Dull morning, rain till 9.30 A.M., then fine; few gleams of sunshine at times. Dark sky. Fine night.
— 24.—Fine bright morning, dull afternoon. Raining slightly in the evening.

London: *Atmospheric Pressure.*—During the week ending October 20 the reading of the barometer at the level of the sea decreased from 30.06 inches at the beginning of the week to 29.71 inches by midnight on the 14th, increased to 29.79 inches by 9 A.M. on the 15th, decreased to 29.42 inches by 9 A.M. on the 16th, increased to 29.51 inches by midnight on the same day, decreased to 29.46 inches by 9 A.M. on the 17th, increased to 30.16 inches by midnight on the 18th, decreased to 29.59 inches by 3 P.M. on the 19th, increased to 29.77 inches by midnight on the same day, and was 29.74 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.73 inches, being 0.46 inch lower than last week, and 0.15 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 64°.8, on the 14th; the highest reached on the 20th was 51°. The mean of the seven high day temperatures was 57°.8.

The lowest temperature was 39°.5, on the 20th; on the 16th the lowest temperature was 50°. The mean of the seven low night temperatures was 45°.1.

The greatest range of temperature in one day was 17°.8, on the 14th; and the smallest was 9°.2, on the 16th. The mean of the seven daily ranges was 12°.7.

The mean temperatures were—on October 14, 55°.7; on the 15th, 52°.6; on the 16th, 54°.5; on the 17th, 52°.1; on the 18th, 48°.5; on the 19th, 49°.3; and on the 20th, 44°.8; of these the first four were above their averages by 5°.3, 2°.4, 4°.5, and 2°.3 respectively, and the last three were below by 1°.2, 0°.2, and 4°.5 respectively.

The mean temperature was 51°.1, being 0°.7 lower than last week, and 1°.2 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 111°.5, on the 14th. The mean of the seven readings was 95°.5.

The lowest reading of a minimum thermometer with its bulb on short grass was 33°, on the 20th. The mean of the seven readings was 37°.8.

Rain.—Rain fell on five days, to the amount of 1 inch.

England: *Temperature.*—During the week ending October 20 the highest temperatures were 64°.8 at Blackheath, 64°.2 at Cambridge, and 63°.3 at Nottingham; the highest at Bolton was 56°.1, at Preston 58°, and at Wolverhampton 58°.5. The general mean was 60°.6.

The lowest temperatures were 34°.1 at Wolverhampton, 37°.2 at Nottingham, and 38° at Hull; the lowest at Plymouth was 45°.3, at Truro 45°, and at Bristol 43°. The general mean was 40°.4.

The greatest ranges of temperature in the week were 26°.1 at Nottingham, 25°.3 at Blackheath, and 24°.4 at Wolverhampton; the smallest ranges were 15° at Truro, 15°.7 at Plymouth, and 16°.3 at Liverpool. The general mean was 20°.2.

The mean of the seven high day temperatures were 58°.7 at Plymouth, 58°.5 at Cambridge, and 57°.8 at Truro and Blackheath; and were lowest at Bolton, 51°.6, at Liverpool 53°.3, and at Bradford 53°.7. The general mean was 55°.6.

The means of the seven low night temperatures were highest at Truro, 48°.7, at Plymouth 48°.1, and at Brighton 46°.9; and were lowest at Wolverhampton, 40°.4, at Sunderland 42°.6, and at Nottingham 42°.7. The general mean was 44°.9.

The mean daily range of temperature was greatest at Wolverhampton, 14°, at Nottingham 13°.8, and at Blackheath 12°.7; and were least at Bolton, 7°.8, at Liverpool 8°, and at Preston 8°.8. The general mean was 10°.7.

The mean temperature was highest at Truro and Plymouth, 52°.3, at Cambridge 51°.6; and was lowest at Wolverhampton, 46°.4, at Bolton 46°.7, and at Sunderland 47°.5. The general mean was 49°.3.

Rain.—The largest falls were—3.42 inches at Bolton, 2.61 inches at Preston, and 2.45 inches at Liverpool; the smallest falls were 0.60 inch at Sunderland, 0.79 inch at Cambridge, and 1 inch at Wolverhampton. The general mean fall was 1.79 inch.

Scotland: *Temperature.*—During the week ending October 20 the highest temperature was 59°.5, at Glasgow; at Aberdeen the highest in the week was 55°.1. The general mean was 57°.8.

The lowest temperature in the week was 35°, at Perth; at Glasgow and Paisley the lowest temperature was 39°.5. The general mean was 37°.7.

The mean temperature was highest at Edinburgh, 47°.5; and lowest at Glasgow, 46°.6. The general mean was 47°.1.

Rain.—The largest fall was 3.47 inches, at Greenock; and the smallest was 0.95 inch at Dundee. The general mean fall was 1.88 inch.

JAMES GLAISHER, F.R.S.

"The Tropical Agriculturist."—This is a monthly record of information for planters of Coffee, Tea, Cocoa, Cinchona, sugar, india-rubber, Palms, and other products suited for cultivation in the tropics, and published at Ceylon (Colombo), by Messrs. A. M. & J. Ferguson. Apart from matters of local interest, it contains numerous extracts from American and English journals, appropriately selected and honestly acknowledged. A full index to each volume renders it easy to find information on any particular subject.

Variorum.

The Effect of Lightning on Trees. — Our Geneva correspondent writes :—"The frequency of thunderstorms in Switzerland this summer (we have, on an average, two a week) has afforded Professor Colladon, of Geneva—a great authority on electricity and meteorology—ample opportunity of continuing his observations on the effect of lightning on trees and vegetation generally. He has ascertained that when lightning strikes a tree it leaves very few marks of its passage on the upper part and middle of the trunk, a peculiarity which he ascribes to the fact of those parts being more impregnated with sugar—a good conductor—than the lower part. As the electric fluid descends to the neighbourhood of the heavier branches, where there is less saccharine matter, it tears open the bark, and in many instances shivers the tree. It is no uncommon thing to find the lower part of a tree literally cut by the lightning, while the upper portion and the higher branches seem to have suffered hardly at all. Oaks, however, would appear to present an exception to this rule, for they are often found with tops quite blasted, and the passage of the lightning lower down marked by a gouge-like furrow. These furrows sometimes go completely round the tree like a screw, the reason of which, says Professor Colladon, is that the lightning follows the cells of which the bark is composed lengthwise, and in certain sorts of wood these cells are disposed spirally. A curious effect of lightning on Vines is that it invariably strikes a great many Vine-stocks at the same time over a space, for the most part circular, from 8 mètres to 25 mètres in diameter, and containing, therefore, several hundred Vines. The plants most affected are those in the centre of the circle, and the number of burnt and yellowed leaves diminish in proportion to their distance from that point. In July two vineyards in this canton were struck by lightning, and the first idea of their proprietors, on seeing their shrivelled Vines, was that a still more dreaded foe, Phylloxera, had been at work; but when the Professor was called in he speedily enlightened them as to the true cause of the mischief, and, in proof of his diagnosis, pointed out that the ground in the centre of the circle was strewn with torn leaves and freshly-broken twigs." *Times.*

Quinces in Sugar.—Peel the fruits, cutting out the core and the hard part; boil them till tender, but avoid cooking till they break; to every ten fruits boil half-a-pound of sugar in a copper pan in half-a-pint of water till it will drop from a spoon in heavy drops; strain the water from the Quinces, and lay them in the sugar, and let them simmer for a quarter of an hour; take them out, and place in dishes or forms; boil the sugar a little longer, and pour it then over the fruit; if it should be insufficient in quantity, add a little more sugar and water, and boil it again for a short time. Tie down when cold.

Stewed Quinces.—Peel the fruit, and cut the cores and the whole of the hard portion clean away; boil them slowly in water till they are soft, then take a copper pan, some loaf-sugar in enough water to cover them, add a little cinnamon and the rind of a Lemon: let this cook for half an hour, and when the Quinces are soft lay them in it, and let the whole simmer for a quarter of an hour, and serve up.

The Botanic Stand. — Under this heading Mr. Twining publishes an account of a stage which he has constructed with a view to cultivate in pots representatives of the various natural orders of plants. A "botanic garden" may thus be formed and tended by ladies and others to whom stooping and other discomforts attendant upon gardening are serious objections. The stage is set up in some convenient spot in the garden, supported on an iron fence or otherwise. Most of the plants are grown in 32-pots, and provided with labels. On a stand 90 feet long Mr. Twining manages to cultivate about 120—130 representatives of some eighty natural orders of British plants. An amateur with a turn for botany might clearly secure to himself much pleasurable occupation by this method, and even be enabled to throw light upon the constancy or otherwise of certain "critical" forms. A list of the British plants cultivated for the purposes above mentioned is added to the pamphlet, which may be had of David Bogue, 3, St. Martin's Place, Trafalgar Square. In the Florence Botanic Garden a similar plan was adopted on a large scale on the terraces of the garden.

Enquiries.

He that questioneth much shall learn much.—Bacon.

Heating by Acetate of Soda. — Some time last winter I saw an account in your columns of a system of heating railway carriages adopted by the London and North-Western Railway by means of tin vessels filled with acetate of soda crystals. These crystals, when melted, retaining a great amount of latent heat, take therefore a longer time to cool than hot water, and thence the advantage for heating purposes. It was at the same time suggested that the system might be advantageously employed for heating small conservatories, and as the time is coming on for considering these matters, I should be much obliged if you could inform me where information as to the practical working of the system might be obtained. *Laicus.* [We know nothing of the cost of this method of heating, and do not consider it suitable for heating on anything but a small scale—say keeping the frost out of a small frame or window plant case. Ed.]

Answers to Correspondents.

Celery Leaf Maggot: *R. C. E. H.* All you can do is to watch the plants in the earlier stages of their growth, and kill the maggots by pressing them between the forefinger and thumb before they have had time to do much mischief.

Fungus: *T. S. P.* The name of the woody fungus from the foot of the Hawthorn hedge is Polypus annosus, Fr. It is by no means confined to the Larch. *W. G. S.*

Lily of the Valley: *Convallaria.* You seem to have a sufficiency of pipe for bottom-heat, as the Lilies produce stouter bloom-spikes when not forced in a higher bottom-heat than 90°. You can regulate that by the distance kept between pipes and root-boxes. We do not ascertain from your letter if the flues are going to be retained; if not, you will require some means of top-heating, either by making provision to let out some of the heat from the bed, or by using more pipes in place of the flues. If you add to the piping, your boiler ought to be larger. Your mulching the Lily is proper treatment, and the bottom-heat should be steady, not varying more than 2° either way. The other details of treatment are correct.

Magnolia Not Blooming: *H. S.* Neither budding nor grafting will help you. The plant must have made a vigorous growth at some time or other to have covered the side of the Hall in twenty years, and we suspect the roots have exhausted the soil. If you have not been in the habit of applying any stimulants we would advise you to remove from 9 to 12 inches of the soil above the roots, and apply a thorough good soaking of liquid manure, replacing the soil when done. You should do this every year at about this time. Old-established plants growing against walls require more of such treatment than gardeners generally give them.

Names of Fruits: *D. H. S., Mitcham.* 1, *Pear:* Vicar of Winkfield; 3, Bishop's Thumb; 11, French Crab; 12, Rymer; 16, Yorkshire Greening. Others not known: mere scrubs.—*Thos. Newton.* 2, Orange Goff; 3, Pitmaston Golden Pippin; 4, Nelson Codlin; 6, Alfriston. — *C. M.* Cockle Pippin. — *George Duffield.* 1, Round Winter Nonsuch; 2, not recognised.—*Broomford.* 1, Golden Noble; 2, Blenheim Orange; 3, Reinette de Canada; 5, King of the Pippins; 7, Rosemary Russet; 8, Brabant Bellefleur. *Pear:* Uvedale's St. Germain.—*W. L.* 1, Nonsuch; 2, not recognised; 3, King of the Pippins; 4, Alfriston; 5, Fearn's Pippin; 6, Winter Peach.—*A. T. S.* 10, Hanwell Souring; 11, Hollandbury; 13, Beauty of Kent; 14, Braddick's Nonpareil; 15, Warner's King; 16, Scarlet Nonpareil; 17, Sturmer Pippin; 19, Sam Young; 20, Fearn's Pippin. Others not recognised: all handsome. — *Thomas Woodford. Pear:* Chaumontelle; 3, Scarlet Russet; 4, Dutch Mignonne; 5, Hollandbury. Others not recognised: No. 1 is sweet and distinct.—*E. Allen.* 3, Minchall Crab; 4, Margil. Others not recognised.—*R. S. G.* 1, Queen Caroline; 2, Mère de Ménage; 3, Rymer; 4, Court of Wick; 5, Cox's Orange Pippin; 6, Besspool; 7, Sturmer Pippin. — *S. H. M. H.* 1, American Mother; 3, Dr. Harvey; 5, Blenheim Orange; 6, Scarlet Nonpareil.—*George Wood. Apple:* Gloria Mundi.—*Alfred N. Jones. Pears:* 1, Doyenné Boussoch; 3, Fondante d'Automne; 4, Flemish Beauty. Others not recognised.

Names of Plants: *J. Davidson.* The true Virginian Creeper (Ampelopsis virginiana). — *E. M., Newport.* The white variety of Escallonia rubra.—*J. E. Gribble.* Hibiscus Trionum.—*A. Nesbitt.* Probably Cistus creticus. — *Lindsay.* Pleroma macranthum. — *R. E.* 3, Avena elatior, sometimes called Arrhenatherum; 4, Daucus Carota. The others next week.—*B. S.* 1 and 2, next week; 3, Dabeocia polifolia; 4, the white variety of 3; 5, Escallonia macrantha. — *J. W. C.* The Bladder Cherry (Physalis Alkekengi).—*C. D.* Avena pratensis.—*C. H. D.* A Kniphofia, which we cannot name unless you send a better specimen with leaf and information as to habit, &c.—*E. B. Lees.* A viviparous state of some grass, possibly Dactylis glomerata.—*N. Evershed.* Rudbeckia pinnata.—*Gilbert Sleep.* Gaura Lindheimeri and Nephrodium dilatatum.—*Alex. Reed.* Pedicularis palustris or P. sylvatica, we cannot say which without flowers.—*H. Rogers.* Hymenocallis patens?

Plant Label: *W. M. G.* A very good label, which we will illustrate in a week or two.

Primulas: *T. R.* A strain of Chiswick Red, and by no means the best we have seen.

Single Dahlia: *C. P.* The blue shaded variety we should hardly consider worth a name, though bold and effective in colour. We will inquire about the other things.

Tecoma jasminoides: *Mrs. H. J. C.* The "disease" seems to us to be only the decay of Nature, some of the leaves being about to drop off. You should treat the plant as a climber, and if you can plant it out in a border, in moderately good soil, you need have little anxiety as to its not growing freely.

*** All communications intended for publication should be addressed to the "*Editor,*" and not to the Publisher or to any member of the staff personally. The Editor would also be obliged by such communications being *written on one side only of the paper* and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Intelligent Readers, please note: — *Letters relating to* Advertisements, *or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editor.*

CATALOGUES RECEIVED.

Dickson & Robinson, 12, Old Millgate, Manchester—Roses.
James Cocker & Sons, Sunnypark, Aberdeen—Roses.
P. J. Perry, Banbury—General Outdoor Nursery Stock.
H. Strauss, Ehrenfeld, near Cologne—Palm Seeds, &c.
M. Bruant, Poitiers, France — Fruit Trees, Forest Trees, &c.
F. W. & H. Stansfield, Sale, near Manchester—Alpine Plants, British, Hardy Exotic, and Greenhouse Ferns.
Isaac Matthews & Son, Stoke-upon-Trent, Stafford—Trees, Shrubs, &c.
W. Smith and Son, Kintore, N.B.—Select Lists of Roses and General Nursery Stock.
J. Cheal and Sons, Lowfield Nurseries, Crawley—Fruit Trees, Ornamental Trees, and Shrubs, &c.

Communications Received.—J. V. & Sons.—G. B. L.—T. S. P.—Pope & Sons.—J. F., York.—S. C. & Co.—C. S. Fuidge.—S. B. O.—R. B.—H. E.—I. O. W.—J. H.—W. R. — J. J. W.—P. Marchand.—J. D.—E. B.—Dr. Wallace. — A. R. — M. J. T. — R. E.—B. S.—C. P.—H. Correvon.—T. L.—G. H.—R. Pfau.—E. P.—A. Van Geert.—T. M.—G. P.—K. B.—J. B. & Son.—C. W. D.

Markets.

COVENT GARDEN, October 25.

[The subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. Ed.]

The supply of hothouse fruit continues equal to the demand, and prices remain about the same. The best quality Apples realise last week's quotations, but poor qualities meet with a slow sale.

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 0– 3 0	Lemons, per case..	2 0– 30 0
Cobs, per 100 lb...	100 0–116 0	Melons, each ..	1 0– 3 0
Figs, per dozen ..	1 0– ..	Peaches, per doz. ..	2 0–12 0
Grapes, per lb. ..	1 0– 3 0	Pine-apples, Eng., lb.	2 0– 5 0

Vegetables—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 5 0	Horse Radish, bund.	3 0– 4 0
Beans, French, lb...	0 6– ..	Lettuces, Cabbage, per dozen	1 0– ..
— Scarlet, per lb...	0 3– ..	— Cos, per dozen..	1 6– ..
Beet, per doz. ..	1 0– ..	Mint, green, bunch..	0 6– ..
Cabbages, per doz...	1 0– 2 0	Mushrooms, p. baskt.	1 0– 2 0
Carrots, per bun. ..	0 4– 0 6	Onions, per bunch ..	0 6– ..
Cauliflowers, English, dozen ..	2 0– 3 0	— Spring, per bun.	0 6– ..
Celery, per bundle ..	1 6– 2 6	Parsley, per bunch..	0 4– ..
Cucumbers, each ..	0 4– 0 8	Radishes, per doz. ..	1 6– ..
Endive, English, per dozen	1 0– ..	Small salading, pun.	0 4– ..
Garlic, per lb. ..	1 0– ..	Spinach, per bushel	3 6– ..
Herbs, per bunch ..	0 2– 0 4	Tomatos, per lb. ..	0 6– 0 9
		Turnips, new, bun.	0 4– ..
		Vegt. Marrows, each	0 2– 0 4

Potatos.—Kent Kidneys, £4 to £4 10s. per ton; do., Regents, £3 10s. to £4 10s.; Champions, £3 10s. to £3 15s. per ton.

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, doz.	12 0–24 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 0
Asters, per doz. ..	4 0– 9 0	Fuchsias, per dozen	4 0– 9 0
Begonias, per doz. ..	6 0–12 0	Liliums, various, per dozen	12 0–30 0
Bouvardia, doz. ..	12 0–18 0	Marguerite Daisy, per dozen	8 0–12 0
Caladiums, per doz.	6 0–24 0	Mignonnette, doz. ..	4 0– 6 0
Chrysanth., per doz.	6 0–18 0	Myrtles, per doz. ..	6 0–12 0
Coleus, doz.	2 0– 6 0	Palms in variety, each	2 6–21 0
Dracæna term. doz.	30 0–60 0	Pelargoniums, scarlet, per dozen ..	2 0– 6 0
—viridis, per doz...	12 0–24 0	Solanums, per dozen	8 0–15 0
Erica, various, doz.	9 0–18 0		
Euonymus, various, per dozen	9 0–18 0		
Evergreens, in var., per dozen	6 0–24 0		

Cut Flowers.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Liliums, 12 blooms..	0 6– 1 6
Arum Lilies, 12 blms.	4 0– 6 0	Marguerites, 12 bun.	6 0– 9 0
Asters, 12 bunches..	4 0–12 0	Mignonette, 12 bun.	2 0– 6 0
— French, per bun.	3 0– 4 0	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 6
Azalea, white, 12 spr.	1 0– 2 0	Pansies, 12 bunches	0 9– 1 0
Bouvardias, per bun.	1 0– 1 6	Pelargoniums, 12 spr.	1 0– 1 0
Camellias, per doz...	3 0– 6 0	— zonal, 12 sprays	0 3– 0 6
Carnations, 12 blms.	1 0– 3 0	Primula, double, bun.	1 0– 1 0
— 12 bunches ..	3 0– 6 0	Roses (indoor), doz.	2 0– 6 0
Chrysanth, 12 blms.	2 0– 6 0	— (outdoor), 12 bun.	3 0– 6 3
— 12 bunches ..	4 0– 9 0	— coloured, doz. ..	3 0– 8 6
Cornflower, 12 bun..	1 6– 4 0	Stephanotis, 12 spr.	4 0– 6 0
Cyclamen, 12 blooms	0 3– 0 6	Sweet Peas, 12 bun.	2 0– 4 0
Dahlias, 12 bun. ..	3 0– 6 0	Tropæolum, 12 bun.	1 0– 2 0
Eucharis, per doz. ..	4 0– 6 0	Tuberoses, per doz..	1 0– 2 0
Gardenias, 12 blms..	4 0– 6 0	Violets, 12 bunches..	1 0– 1 6
Gladioli, 12 spikes..	1 0– 3 0	— French, per bun.	1 0– 1 6
Heliotropes, 12 sp. ..	0 6– 1 0	— Parme, per bun.	4 0– 5 0
Lapageria, white, 12 blooms	3 0– 6 0	Wallflower, 12 bun..	3 0– 4 0
— red, 12 blooms..	1 0– 3 0	White Jasmine, bun.	0 6– 1 0
Lilac, white Fr., bun.	8 0–10 0		

SEEDS.

London: *Oct.* 24.—The seed market to-day presented no feature either of novelty or interest. Red Clover seed keeps firm, but the transactions therein are few. The crop in Canada is said to promise badly. In white Clover seed the tendency is upwards, but Trefoils are neglected. Winter Tares meet a retail demand at late rates. Choice blue Peas do not offer freely—stocks are getting into narrow compass. Feeding Linseed is rather easier. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday business in Wheat was confined to forced sales at very uneven prices, all more or less under the rates currently required. Flour was also adversely affected by excess of supply, and prices were weak. Fine malting Barley was firm, whilst grinding descriptions were 6*d.* cheaper on the week, with a dull sale. Beans were rather easier. New Peas were quoted 33*s.* to 39*s.* Maize was 3*d.* lower on the week for flat corn. In Oats common Russian declined 3*d.* on the week.—On Wednesday trade in Wheat was restricted, with prices too irregular to quote with certainty. Flour was dull and drooping. The trade in Barley was slack; but fine malting descriptions were firm. Round Maize was rather firmer; flat corn unchanged. The Oat trade was slow, without material change in prices.—Average prices of corn for the week ending Oct. 20:—Wheat, 40*s.* 5*d.*; Barley, 34*s.* 6*d.*; Oats, 19*s.* 11*d.* For the corresponding period last year:—Wheat, 39*s.* 7*d.*; Barley, 34*s.* 5*d.*; Oats, 19*s.* 9*d.*

CATTLE.

At Copenhagen Fields on Monday there was very little change in the beast market as regards choice qualities, but middling and plain cattle were an extremely difficult sale. Sheep were in scanty supply, and in some cases rather better prices were obtained, but the improvement was not general. Canadians sold at 5*s.* 8*d.* to 6*s.* But few calves were on offer, and quotations in a great measure nominal. Pigs were quoted rather lower. Quotations:—Beasts, 4*s.* to 5*s.* 4*d.*, and 5*s.* 8*d.* to 6*s.*; calves, 5*s.* to 6*s.* 8*d.*; sheep, 5*s.* 6*d.* to 6*s.*, and 6*s.* 10*d.* to 7*s.* 4*d.*; pigs, 4*s.* to 4*s.* 8*d.*—Thursday's trade was very quiet. Both beasts and sheep met a dragging sale, and prices remained much about the same as on Monday, but with a weak tendency. Calves were in demand at full prices, but pigs were dull.

HAY.

Tuesday's Whitechapel Market report states that the supplies were large, with a dull trade, especially for Clover. Quotations:—Prime old Clover, 100*s.* to 115*s.*; inferior, 60*s.* to 75*s.*; prime second cut, 90*s.* to 108*s.*; best meadow hay, 80*s.* to 90*s.*; inferior, 40*s.* to 65*s.*; and straw, 30*s.* to 40*s.* per load.—On Thursday there was a good supply, and trade was very dull at late rates.—Cumberland Market quotations:—Superior meadow hay, 78*s.* to 90*s.*; inferior, 60*s.* to 70*s.*; superior Clover, 105*s.* to 112*s.*; inferior, 70*s.* to 88*s.*; and straw, 36*s.* to 40*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that fair supplies were on offer, and met a moderate demand. Quotations:—Magnum Bonums, 80*s.* to 100*s.*; Regents, 80*s.* to 100*s.*; Champions, 60*s.* to 80*s.*; Roses, 60*s.* to 70*s.* per ton.—The imports into London last week consisted of 12 bags from Rotterdam, 400 Antwerp, 142 Amsterdam, 34 Ostend, 42 Boulogne, 4576 bags 18 casks Hamburgh, 340 tons Roscoff, and 80 tons from St. Michaels.

COALS.

The following are the prices current at market during the week:—Bebside West Hartley, 15*s.* 9*d.*; East Wylam, 17*s.*; Walls End—Hetton, 19*s.* and 18*s.*; Hetton Lyons, 17*s.* and 16*s.*; Lambton, 18*s.* 6*d.* and 17*s.* 6*d.*; Wear, 17*s.* and 16*s.*; Caradoc, 18*s.*; Tees, 18*s.*

Government Stock.—Consols closed on Monday at 101⅜ to 101½ for both delivery and the account. The figures of Tuesday and Wednesday were 101¼ to 101⅜ for delivery, and 101⅜ to 101½ for the account: there was no alteration to record at the close on Thursday.

SPECIAL OFFER OF CARNATIONS and PICOTEES.

SHOW VARIETIES, all the best sorts.
BORDER VARIETIES, to name, a selection of fine free-flowering and distinct coloured varieties.
BORDER VARIETIES, unnamed, all good double varieties.
TREE VARIETIES, the leading sorts.
NEW WHITE CLOVE, Gloire de Nancy.
Special prices (for immediate delivery) on application, to
THOS. S. WARE, Hale Farm Nurseries, Tottenham London.

NEW LILIUM HARRISII (True).

We were the introducers of this distinct and floriferous variety of L. eximium last year.

Extract from *Gardeners' Chronicle*:—"Lilium Harrisii.—We have received a two-flowered stem of this Lily from Messrs. Watkins & Simpson, who introduced it into the London market, and which is the second flower-stem produced this season in the manner described by Mr. Clausen, at p. 53, by a second-sized bulb in the possession of Mr. Walker, of Whitton, near Hounslow. The flowers are very fine, and evidence seems to be accumulating that it is distinct from L. longiflorum, or at least a well-marked variety of that species. It does not appear to do well out-of-doors, preferring the shelter of a cool greenhouse; and it stands forcing well.

"*We understand that one of the most extensive growers of plants for market has given a large order for bulbs for forcing next spring.*"

Price of Bulbs of the above and many other Lilies on application to
WATKINS & SIMPSON,
Seed & Bulb Merchants, Exeter Street, Strand, W.C.

ANTHONY WATERER

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

HOLLIES, Common Green, 3, 4, 5, 6, 7, 8 to 10 feet high.
,, laurifolia, ditto.
,, Hodgins', 3, 4, 5 to 8 feet.
,, myrtifolia, ditto.
,, Saw-leaved, ditto.
,, Scottica, 3 to 8 feet.
,, Yellow-berried, altaclarense and others.
} many thousands.
,, Variegated, of sorts, 3, 4, 5, 6, 8 to 10 ft.
,, Waterer's, splendid plants, 3, 4, 5 and 6 feet, 8 to 15 feet in circumference.
,, Golden Queen, 3, 4, 5, 6, 7, 8 to 10 feet, hundreds of beautiful specimens.
,, Perry's Weeping Holly, on straight stems, with beautiful heads, ten to fifteen year's growth, hundreds.
,, New Golden Weeping, a large number of very beautiful plants.
BOX, Green and Variegated, 3, 4, 5, 6, to 7 feet, many thousands.
YEWS, Common, 3, 4, 5, 6, to 10 feet, thousands.
,, Golden, of all sizes up to 10 feet. We have many thousands as Pyramids, Globes, Standards. In point of variety and size unequalled.
CUPRESSUS ERECTA VIRIDIS, 3, 4, 5, 6, to 8 feet, thousands.
,, Lawsoniana lutea, 3, 4, and 5 feet, hundreds of beautiful specimens.
THUIOPSIS DOLABRATA, 3, 4, and 5 feet, hundreds.
RHODODENDRONS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet. The plants are covered with buds.
AZALEAS, Hardy, the finest varieties known, 2, 3, 4, and 5 feet high, thousands.
JUNIPERS, Chinese, 7, 8, and 10 feet high.
PICEA PINSAPO, 6 to 8 feet.
,, NORDMANNIANA, 6, 7, and 8 feet.
Knap Hill Nursery, Woking Station, Surrey.

NEW STRAWBERRY,
ABERDEEN FAVOURITE.
Certificate of Merit Royal Horticultural Society, Aberdeen, September 14, 1883.
First-class Certificate North of Scotland Horticultural Association, September 21, 1883.
This variety is a very free and continuous bearer, commencing to fruit early in July, and producing a succession of large, handsome, well coloured fruit until the middle of September. Baskets of this variety were pulled as late as September 21. It has taken the first place in the market here for flavour, productiveness, size, and shape. 5*s.* 6*d.* per 100, post-free. Early enquiry necessary to ensure a supply.
CONNON & REID,
SEEDSMEN AND FLORISTS, ABERDEEN.
We can also offer the other leading varieties.

ENGLISH and CHICHESTER ELMS,
FOR IMMEDIATE EFFECT.
JNO. JEFFERIES AND SONS offer a few extra large ENGLISH and CHICHESTER ELMS 16 to 18 feet, fine straight stems, at 42*s.* per dozen.
JNO. JEFFERIES AND SONS, Royal Nurseries, Cirencester.

NEW EARLY RHUBARB,
Charles Kershaw's "Paragon."
This is unquestionably the finest variety of Rhubarb ever offered; in mild seasons it is ready to pull in February. The crowns and stalks are produced in such profusion that more than twice the weight can be pulled from this than from any other sort. The colour is a splendid red, flavour excellent, and it has this qualification over all others, IT NEVER SEEDS.
PRICE—per Plant, 1s. 6d.; per Dozen, 15s.
Price to the Trade on application.
For Testimonials and all other information, see back page of *Gardeners' Chronicle* for October 13. May be had of all the principal Nurserymen and Seed Merchants, or direct from
CHARLES KERSHAW,
THE SLEAD SYKE NURSERIES, BRIGHOUSE.

GOLDEN EUONYMUS, 10,000, good bushy stuff for pots, 12 to 15 inches, 25*s.* per 100; 15 to 21 inches, 35*s.* per 100.
THUIA AUREA, do., 15 to 18 inches, 50*s.* per 100.
PASSIFLORA CŒRULEA, single pots, 6 to 12 inches, 12*s.* per 100. Terms cash. Address
PHILLIPS AND CO., The Torbury Nurseries, Torquay.

Rhododendrons and Azaleas.
ISAAC DAVIES AND SON have 100,000 RHODODENDRONS to offer this season, including first-class Hybrids, from 1 to 4 feet high, and the choicest named kinds, mostly well-budded, as well as Sweet-scented, and other Novelties of their own raising. 50,000 AZALEA MOLLIS and other choice Azaleas, and a fine general NURSERY STOCK, all extra transplanted and in fine condition for removal.
Descriptive CATALOGUE with prices on application.
Brook Lane Nursery, Ormskirk, Lancashire.

GARDEN REQUISITES.
COCOA-NUT FIBRE REFUSE.
4*d.* per bushel; 100 for 25*s.*; truck (loose, about 2 tons), 40*s*; 4-bushel bags, 4*d.* each.
LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack 5 sacks, 25*s.*; sacks, 4*d.* each.
BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks 22*s.*; sacks, 4*d.* each.
COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* per half ton, 26*s.* per ton; in 2 bushel bags, 4*d.* each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1*s.* per bushel.
SPHAGNUM MOSS, 8*s.* 6*d.* per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Free Price LIST.—H. G. SMYTH, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

12-oz. Sample Packets, free by post, 12 stamps.
FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6*s.* per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15*s.* per ton per Truck. Sample Bag, 5*s*; 5 Bags, 21*s.* 6*d.*; 10 Bags, 45*s.* Bags included. Fresh SPHAGNUM, 10*s.* 6*d.* per Bag. SILVER SAND, Coarse or Fine, 52*s.* per Truck of 4 tons. Red Sandstone ROCKWORK, £5 per Truck of 4 tons. GRAVEL, good colour, 25*s.* per Truck of 6 tons.
WALKER AND CO., Farnborough Station, Hants.

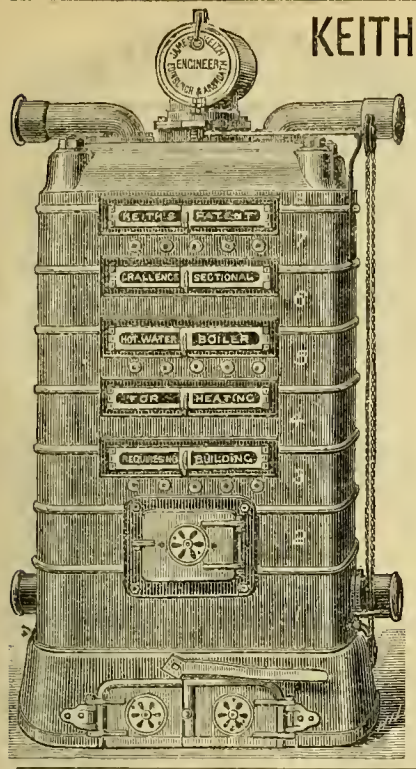
PEAT, for Rhododendrons, &c., of excellent quality, also the finest Yellow Fibrous LOAM, Light or Close, from rich forest pasture land, in trucks of 4 tons, 48*s.* each. Selected PEAT, 3*s.* per sack. SILVER SAND and LEAF MOULD, 8*d.* per bushel. Sacks, 6*d.* each. Remittance with order. B. LAMBERT, Ringwood.

GARDEN REQUISITES.
PEAT, LOAM, SILVER SAND,
COCOA-NUT FIBRE REFUSE, TOBACCO CLOTH, PAPER and ROPE, &c.
Superior quality, at exceptionally low prices.
PEAT, best Black Fibrous, from 4*s.* 6*d.* per sack.
PEAT, best Brown Fibrous, from 5*s.* per sack.
PEAT, specially selected for Orchids, from 6*s.* per sack.
LOAM, Yellow Fibrous, 1*s.* per bushel.
LEAF MOULD, best, 1*s.* per bushel.
PEAT MOULD, 1*s.* per bushel.
SILVER SAND, Coarse, 1*s.* 6*d.* per bushel.
RAFFIA FIBRE, best, 9*d.* per pound.
TOBACCO PAPER, CLOTH, and ROPE, from 6*d.* per pound.
COCOA-NUT FIBRE REFUSE, 1*s.* 6*d.* per bag; per truck-load of about 2 tons, 35*s.*
SPHAGNUM MOSS, 4*s.* 6*d.* per bag.
VIRGIN CORK, 18*s.* per cwt.
The Trade supplied on Wholesale terms.
W. WEBBER, 34, Glengarry Road, East Dulwich, S.E.

SILVER MEDAL-1881. BRONZE MEDAL-1881.
To Her Most Gracious Majesty Queen Victoria.

To His Royal Highness the Prince of Wales.
For Beautiful Flowers and Fruits
USE CHUBB, ROUND AND CO.'S PATENT
COCOA-NUT FIBRE REFUSE
By CHUBB'S PATENT PROCESS,
As supplied to all the Royal Gardens and Principal Nurseries of Europe.
GUARANTEED ABSOLUTELY PURE. FREE FROM ANY FOREIGN INTERMIXTURE. Manufactured on the premises from the famous "Laguna" Cocoa-Nut Husks, and can only be obtained from us direct. This article is not to be confused with so-called Cocoa-Nut Fibre Refuse, sold by dealers and others at ridiculously low prices, and dear in the end. Amongst numerous Testimonials and extracts from scientific writers, to be seen at our works, we hold the following:—From Mr. CHARLES PENNY, Head Gardener to H.R.H. the Prince of Wales: "The Gardens, Sandringham, February 28, 1883.—I must say your Cocoa-Nut Fibre Refuse is far superior to any I have ever tried; in fact, it is simply perfection; and the use of your Fibre for so many purposes in Horticulture is a thorough boon. Make what use you like of this letter." Useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bulbs, Mushrooms, Bedding-out Plants, &c.
DESTROYS ALL SLUGS AND INSECTS.
An elegant Bordering to Flower Beds. Combines warmth and cleanliness with valuable antiseptic and deodorising properties.
MOISTENS IN HEAT. HOLDS HEAT IN COLD WEATHER.
Terms, strictly cash with order. Prices as follows:—Sacks, 1*s.* 6*d.* each; 10 sacks, 13*s.*; 15 sacks, 18*s.*; 20 sacks, 23*s.*; 30 sacks, 30*s.* (all sacks included). Truck-load, free on rail, £2. Limited quantities of SPECIAL QUALITY, Granulated, in sacks only, 2*s.* 6*d.* each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from the Manufacturers, CHUBB, ROUND & CO.,
Fibre Works, West Ferry Road, Millwall, London, E.

KEITH'S PATENT HOT-WATER BOILERS.



Can be heightened or lowered, or made to suit any requirements. They stand complete in themselves, and require no building work, being wholly water-jacketed and thus entirely free from risk by fire. They can be had all sizes, to heat from, say, a few feet up to **8000** feet of 4-inch pipe each; are now in all parts of the world, and are unrivalled as being the best, most powerful, and most economical Hot-water Boilers in use.

Specimen Extracts from Testimonials:—

From W. Morgan Robbins, Esq., *Architect, Ilfracombe, September* 9, 1880.

"I am delighted with your Boiler; it answers admirably, and the directors are satisfied that it is one of the best £25 worth ever put in the hotel."

From Q. C. Chalmers, *Gardens of* James Mudie, Esq., *Broughty Ferry, September* 15, 1880.

"Your Boiler beats all my expectations; at present one fire serves for twelve hours, and keeps up a good, steady heat."

From Isaac Holden, Esq., *Oakworth House, Keighley, Yorkshire, June* 19, 1881.

"Your Boilers are the best we have tried." (Note: One of these Boilers heats nearly 8000 feet of 4-inch pipe.)

From Wm. Fraser, *Kippen Gardens, Dunning, Perthshire, December* 6, 1881.

"I consider your Boiler most efficient; as for economy, it is the acme of perfection."

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'Your Boiler has exceeded all my expectations; it will pay for itself as a fuel saver in a short time. It heats 2000 feet of 4-inch pipe."

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PATENT MINERAL OIL GAS WORKS, are unrivalled for use in the Country or in the Colonies.
PATENT SECTIONAL HOT-WATER COIL TABLES, have three times the Radiating Surface of any other form of Pipe Coil.
PATENT OPEN FIRE, Ornamental HOT-WATER APPARATUS, combining Warmth, Cheerfulness, Ventilation and Perfect Safety

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For Cleansing Plants from Aphides, and all Parasites. To prevent American Blight, all kinds of Scale, &c., and for Washing all Hard-wooded Plants, always use

HUDSON'S EXTRACT OF SOAP.

A ¼ lb. Packet to 3 Gallons of Water.
A strong solution thickened with clay makes an effective Winter Dressing.

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"Coton Hall Nursery, Shrewsbury, July 28, 1880.
"We find Hudson's Soap a very useful Winter Dressing for all kinds of Fruit Trees: both as a preventive and cure against American Blight and all kinds of Scales. We also use it for Camellias, Azaleas, Rhododendrons, and all kinds of Hard-wooded Plants. We have much pleasure in presenting you with this testimonial, and remain, yours truly,
(Signed) "JOHN JONES AND CO."

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"DEAR SIR,—I have lately tried Hudson's Extract of Soap for the mildew on my Rose trees in the greenhouse, and I find that with one syringing it completely cures it instantly. I should say I tried it some time ago with the same result. Yours truly,
(Signed) "W. JAMES."

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REMARKABLE DISAPPEARANCE!
of all DIRT from EVERYTHING
BY USING
HUDSON'S EXTRACT OF SOAP.

SOLUBLE **FIR TREE OIL** INSECTICIDE.
For destroying ALL INSECTS and PARASITES that infest Trees and Plants, whether at the Roots or on the Foliage. Kills all Vegetable Grubs, Turnip Fly, &c. Cures Mildew and Blight. Cleans Grapes from Mealy Bug, &c., and makes a good Winter Dressing. Of all Seedsmen and Chemists, 1s. 6d., 2s. 6d., 4s. 6d. a bottle. Per gallon 12s. 6d., or less in larger quantities. Maker, E. GRIFFITHS HUGHES, Manchester. Wholesale from HOOPER & Co., CORRY, SOPER, FOWLER & Co., C. E. OSMAN & Co., and from all the London Seed Merchants and Wholesale Patent Medicine Houses. New York: RÖLKER & SONS.

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CORRY, SOPER, FOWLER & CO.

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Horticultural Sundries Merchants,
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INSECTICIDES and MANURES, GRASS and DRIED FLOWER BOUQUETS, WREATHS and CROSSES,
in every Material and Pattern.
IMPORTERS OF
DRIED FLOWERS and GRASSES, VIRGIN CORK, RAFFIA MATS, &c.
Every Horticultural Requisite required for a shop kept in stock. Show Rooms now complete with every novelty for autumn use, and special attention given to any visiting customers.
CATALOGUES Free to the Trade on application.
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Thomson's Vine and Plant Manure.

Manufactured by the
LIVERPOOL HORTICULTURAL COMPANY
(JOHN COWAN), LIMITED,
The Vineyard and Nurseries, Garston, near Liverpool,
and Sold by them and all Nurserymen and Seedsmen.

This is the Manure used to produce the splendid Grapes grown by Messrs. WM. THOMSON & SON, Clovenfords.
For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

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PEAT, LOAM, SILVER SAND, PREPARED COMPOST, RAFFIA FIBRE, TOBACCO CLOTH, &c.
Quality **equal to any** in the Market.
(All Sacks included.)

PEAT, best brown fibrous ..	4s. 6d. per sack; 5 sacks for 20s.
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PREPARED COMPOST, best ..	
LEAF MOULD	
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SILVER SAND (coarse) . ..	1s. 3d. per bushel.
RAFFIA FIBRE, best only	10d. per lb.
TOBACCO CLOTH, finest imported ..	8d. per lb., 28 lb. 18s.
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Terms, strictly Cash with order.

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From Damp, Frost, and Cold Winds.
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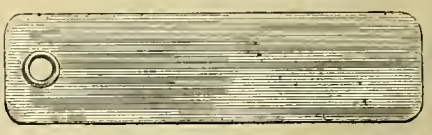

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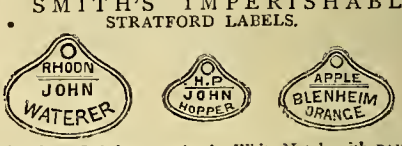

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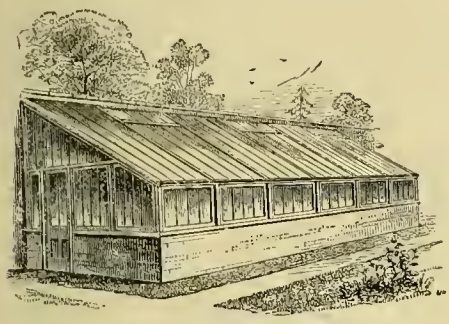

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Best Materials and Workmanship. Moderate Prices.

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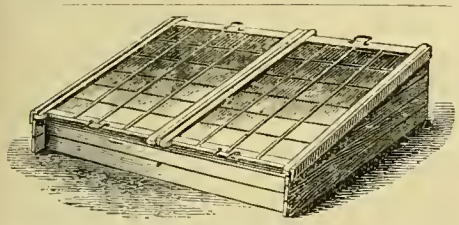

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Prices, delivered to any station in England:—		£	s.	d.
2-light frame, 8 feet by 6 feet	Packing Cases free	3	10	0
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The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.

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Builders of Conservatories and all descriptions of Hothouses and Roofs, in Iron and Wood, or a combination of both, on their Patent System, without Putty, or, with Putty, in the ordinary way, if preferred.

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Plans and Estimates submitted free of cost.
HEATING by HOT WATER, on the best Principles.

GLASSHOUSES & HEATING.
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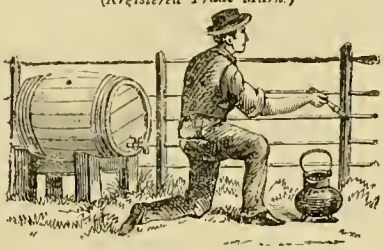
PRICES FREE
HIGHGATE ROAD, LONDON, N.W.

Oil Paint No Longer Necessary.

HILL AND SMITH'S BLACK VARNISH,
for Preserving Ironwork, Wood, or Stone.
(*Registered Trade Mark.*)



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Sold in Casks of about 30 gallons each, at 1*s.* 6*d.* per gallon at the Manufactory, or 1*s.* 8*d.* per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"*Piercefield Park, June* 21, 1876.—Sirs,—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, WM. COX."

CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

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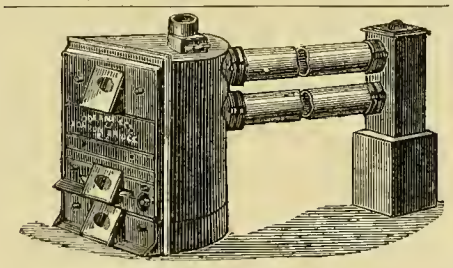

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Price, as engraving, with boiler, open feed syphon, 12 feet of 4-inch hot-water pipe, and patent joints complete, £4 4*s.* Delivered free to any station. Discount for cash.

Cost of apparatus for houses of any size on application.

This is the simplest, cheapest, and most powerful apparatus made. It requires no brick setting, no stokehole, and no hot-water fitter for fixing. The boiler stands in the greenhouse, the front only being outside and flush with the outer wall, so that the whole of the heat from the boiler itself is utilised. It burns over twelve hours without attention, at a nominal cost.

Illustrated LIST with full particulars post-free.

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STOVES.
Terra-Cotta! Portable! For Coal!
ROBERTS'S PATENT.

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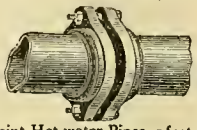

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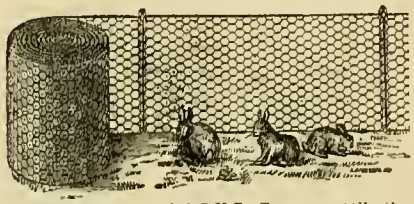

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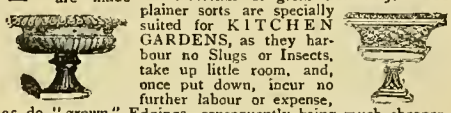

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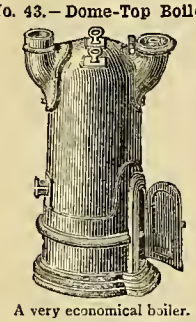

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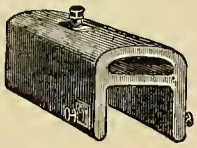

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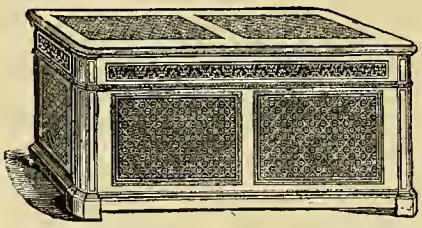

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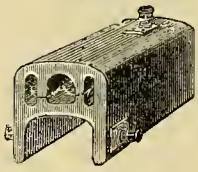

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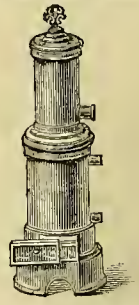

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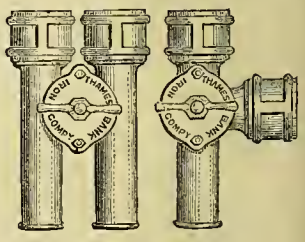

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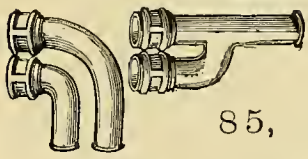

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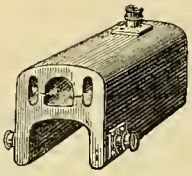

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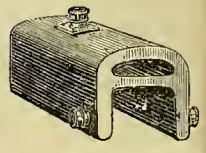

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THE

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To Market Gardeners and Others.
FOR SALE, a large quantity of CABBAGE PLANTS, true strains. For price apply to
J. SMITH AND SON, Sepson, near Slough, Middlesex.

CARNATION, "MARY MORRIS." Plants now ready for delivery.
First-class Certificate was awarded at Kensington, Aug. 22, 1882. A beautiful Rose-coloured Self, very highly scented, of great size, very full, and of perfect shape; does not burst the calyx, a very free bloomer and vigorous grower, and perfectly hardy. See *Gardeners' Chronicle*, August 4, 1883, page 146. Price and all particulars on application to
H. G. SMYTH, 21, Goldsmith Street, Drury Lane, W.C.

KELWAY AND SON'S CATALOGUE of GLADIOLI, describing all the varieties worth growing, and at prices as low as those of any other house, will be forwarded on application.
Langport, Somerset.

Until the Stock is Exhausted.
CHARLES NOBLE will supply the finest forcing clumps of crowns ever offered of:—
SPIRÆA PALMATA, at 15s., 20s., and 25s. per 100. [each.
LILIUM GIGANTEUM, nice bulbs, 3s. 6d., 2s. 6d., and 1s. 6d.
Orders with cash or reference should be sent at once.—Bagshot.

GOLDEN YEWS for Ornamental Hedges, the Elvaston and other varieties, 2 to 3 feet, 18s. per doz., £7 per 100.
W. MAULE AND SONS, The Nurseries, Bristol.

HEMLOCK SEED (Australian).—Plants grow to be 10 feet high, very handsome among shrubs. Package of Seed, 6d. each.
Mrs. K. HOMAN, Dunkerrin Post-office, Roscrea, Ireland.

CRANSTON'S Descriptive CATALOGUES of Fruit and FOREST TREES, SHRUBS, &c., are now ready, and may be had free on application.
CRANSTON'S NURSERY AND SEED COMPANY (Limited), King's Acre, Hereford.

SALES BY AUCTION.

Dutch Flower Roots, every Monday, Wednesday and SATURDAY.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely, a large consignment of first-class DOUBLE and SINGLE HYACINTHS, in all colours; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, Early ROMAN HYACINTHS, and other BULBS, just received from well known farms in Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale, and Catalogues had.

Tuesday Next.—(Sale No. 6509.)
PERIODICAL SALE of POULTRY and PIGEONS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY NEXT, November 6, at half-past 12 o'Clock precisely, 400 Pens of First-class POULTRY and PIGEONS, from the Yards and Lofts of well-known Breeders and Exhibitors.

On view morning of Sale, and Catalogues had.

Important Sale of Established Orchids.

MR. J. C. STEVENS has received instructions from H. Harkewitz, Esq., of Middlesborough, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 7, at half-past 12 o'Clock precisely, his extensive COLLECTION of ESTABLISHED ORCHIDS, comprising about 600 plants, all in fine condition, and including some good specimens of the following varieties:—Aërides, Angræcums, Anguloas, Calanthes, Cattleyas, Cœlogynes, Cymbidiums, Cypripediums, Dendrobiums, Epidendrums, Lælias, Lycastes, Odontoglossums, Oncidiums, Phains, Saccolabiums, Stanhopeas, Vandas, Zygopetalums, Phalænopsis, &c.; also a few STOVE PLANTS and PALMS.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6510.)
PLANTS and BULBS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, November 7, at half-past 12 o'Clock precisely, first-class Standard, Half-standard, and Dwarf ROSES, in all the leading varieties, from well known English Nurseries; Hardy Ornamental CONIFERS, Variegated HOLLIES, RHODODENDRONS of sorts; Standard FLOWERING TREES and SHRUBS, &c., from Holland; also a consignment of choice named Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, and other DUTCH BULBS.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6512.)
VANDA SANDERIANA.
PHALÆNOPSIS SANDERIANA in FLOWER.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 8, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., strong healthy plants of VANDA SANDERIANA, rooting freely, amongst them a very fine established specimen with two growths and 24 fine healthy leaves; ODONTOGLOSSUM PESCATOREI from a new locality, probably the finest specimens hitherto offered; O. TRIUMPHANS, O. HASTILABIUM, CATTLEYA MENDELII, ONCIDIUM CUCULLATUM. At the same time will be offered established plants of CATTLEYA TRIANÆ, with flower-sheaths; a strong plant in flower of a most lovely and distinct variety of CATTLEYA ELDORADO, which may fairly be described as the Wallisi form, with the addition of a rich plum-coloured mark on the lip; also a strong established specimen of PHALÆNOPSIS SANDERIANA, grand variety, with ten buds and flowers on one spike.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6512.)
ESTABLISHED ORCHIDS, &c.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, November 8, ESTABLISHED ORCHIDS, from the collection of D. B. Crawshay, Esq., comprising rare and valuable sorts; also a small collection of Established Orchids, the property of a gentleman; Hardy Orchids in variety, from Messrs. F. Horsman & Co.; a consignment of 1000 Bulbs of IMANTOPHYLLUM MINIATUM SPLENDENS, from South Africa; GLORIOSA SUPERBA, ORCHID BASKETS, &c.

On view morning of Sale, and Catalogues had.

Dutch Bulbs.—Great Unreserved Sales.
Every MONDAY, THURSDAY, and SATURDAY.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every MONDAY, THURSDAY, and SATURDAY, at half-past 12 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other ROOTS from Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Important Sale of First-class Dutch Bulbs;
500 Standard, Dwarf, and other ROSES, of the best varieties; Hardy CONIFERÆ, SHRUBS, AMERICAN PLANTS, selected FRUIT TREES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, November 6, at 12 o'Clock precisely.

May be viewed the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 8, New Broad Street, E.C.

Lee, S.E.
SALE of beautifully-grown NURSERY STOCK, nearly the whole of which has been transplanted within the last two years.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Manor Lane Nursery, Lee, S.E., on TUESDAY, November 6, at 12 o'Clock precisely, by order of Messrs. W. North & Son, a large quantity of well-grown NURSERY STOCK, including about 3000 fine specimen Evergreens, from 3 to 7 feet high; 1000 Thuia Lobbii, 4 to 8 feet; 2000 bushy Common Laurels, 3 to 4 feet; 1000 Standard and Dwarf Roses, 5000 small Evergreens for pots, 2500 Gooseberries and Currants; also 500 Ampelopsis Veitchii, 500 Erica hyemalis, large Camellias, a few Orchids, and other Greenhouse Plants.

May be viewed. Catalogues may be had on the Premises; and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Milford Nurseries, near Godalming, Surrey,
Within a mile of Milford or new Godalming Stations.
Highly important Four Days' Sale of FIRST-CLASS NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Maurice Young to SELL by AUCTION, on the Premises, as above, on TUESDAY, November 6, and three following days, at 12 o'Clock precisely each day, several acres of beautifully grown NURSERY STOCK, in fine condition for removal, and lotted to suit the Trade and Private Buyers, comprising 4000 Specimen Evergreens, 1500 fine Variegated Hollies, 2 to 4 feet; 500 Green Hollies, 2 to 8 feet; 5000 Dwarf Roses, of the best sorts; 10,000 Green Hollies, 1 to 1½ foot, for hedges; 3000 Green and Variegated Aucubas, 1 to 2 feet; 3000 fine named and other varieties of Rhododendrons, 9000 Evergreen Privet, for hedges or cover planting; 9000 Laurels, of sorts; 3000 fine Ornamental Park Trees, 6 to 15 feet; 1500 Limes, 7 to 10 feet; 8000 Flowering Shrubs, 7000 Red and Black Currants, for Market Gardeners; Fruit Trees, Climbers, Clematis, and other stock too numerous to mention.

May now be viewed. Catalogues may be had on the Premises, or of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B. The Auctioneers beg to call the special attention of intending planters to this important Sale. The stock is in fine condition and worthy of an inspection.

Wednesday Next.
CAMELLIAS, AZALEAS, FICUS, and other plants from Ghent; STOVE and GREENHOUSE PLANTS in variety; fine TEA ROSES and FERNS in pots; a choice assortment of Standard and Dwarf ROSES, HYACINTHS, TULIPS, CROCUS, and other Dutch BULBS.

MESSRS. PROTHEROE AND MORRIS will SELL the above at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, at half-past 12 o'Clock precisely.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Eaton Nurseries, near Norwich.
GREAT CLEARANCE SALE.
THIRD PORTION of the BEAUTIFULLY GROWN NURSERY STOCK, by order of Messrs. Ewing & Co., who are giving up their Business.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, the old-established Nurseries at Eaton, near Norwich, on WEDNESDAY and THURSDAY, November 7 and 8, at 12 o'Clock precisely each day, the Third Portion of the Valuable NURSERY STOCK, comprising about 10,000 choice Conifers and Evergreens, in immense variety; a fine collection of Ivies and other Hardy Climbers; many thousands of Fruit Trees, beautifully grown and trained for Pyramids, Bushes, Walls, open Standards, &c., and consisting of the finest sorts of
APPLES, PEARS, PLUMS, CHERRIES,
Peaches, Nectarines and Apricots, Filberts and Nuts, Walnuts, &c; 10,000 Red and White Currant Bushes; 10,000 Roses of the best sorts of Hybrid Perpetuals, Teas, Noisettes, Mosses, Climbing Roses, &c.

Many thousands of Ornamental Trees, of large and small sizes, deciduous flowering Shrubs, Forest Trees, including a fine lot of young Spruce Fir, Chestnuts, Hazel, &c. The lots will be so arranged as to suit both Wholesale and Retail Buyers.

May be viewed any working-day prior to the Sale. Catalogues on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Feltham, Middlesex.
Within 10 minutes' walk of the railway station.
WITHOUT THE SLIGHTEST RESERVE.
GREAT UNRESERVED SALE, under the Will of the late Mr. Charles Lee.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, Lee's Nursery, Feltham, and Hounslow Heath, Middlesex, on TUESDAY, November 13, at 12 o'Clock punctually, a portion of the beautifully grown NURSERY STOCK, which has been carefully prepared for transplanting. It includes a great variety of handsome Specimen Coniferæ, from 2 to 7 feet; 2000 Golden Yews, 1 to 4 feet; 700 Cedrus Deodara, 3 to 7 feet; 100 Wellingtonia gigantea, 2 to 4 feet; 300 Abies Englemanni; 2000 Ponticum, Rhododendrons, 1½ to 2½ feet, many well budded; several hundreds of Common Hollies, 7 to 8 feet, recently transplanted; 3000 Dwarf Roses, and other Stock.

May be viewed. Catalogues may be had on the Premises; of Messrs. LEE AND SON, Royal Vineyard Nursery, Hammersmith, W.; and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B. The Auctioneers beg to call special attention to this important Sale. It is seldom that such a good stock comes into the market.

Petersfield, Hants.
Well-grown NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. C. Bailey to SELL by AUCTION, on the Premises, the Petersfield Nurseries, Petersfield, Hants, on WEDNESDAY, November 14, at 12 o'Clock precisely, a large quantity of valuable NURSERY STOCK, in fine condition for transplanting, comprising an immense quantity of Evergreens and Conifers in the borders, amongst which will be found a large number of handsome specimens, Golden Variegated Hollies, and other stock described in Catalogue.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Farncombe Nursery, near Godalming.
London and South-Western Railway, close to Broadwater Cricket Ground, about eight minutes from old Station.

MR. H. W. COPUS is instructed by Mr. Kaile to SELL by AUCTION, at the above Nursery, on MONDAY, November 5, at 12 o'Clock precisely, an assortment of fine grown NURSERY STOCK, comprising thousands of very fine bushy Spruce Fir, Cedrus Deodara (2 to 6 feet), Cupressus Lawsoniana (2 to 6 feet), ditto erecta viridis, Irish Yews (1 to 3 feet); bushy Common, Caucasian, and Portugal Laurels (1 to 3 feet); Ligustrum ovalifolium (2 to 3 feet), Green and Variegated Euonymus, Irish and other Ivies, Deutzia gracilis for potting, Thuia aurea, Abies Douglasii, Picea Nordmanniana, Pinus austriaca, Rhododendron ponticum, Variegated and Green Hollies, Box, amongst which will be found fine specimen Border Plants; Currants, Gooseberries, Rhubarb Plants, 8000 Asparagus (2-yr.), Seakale, Limes (4 feet), Norway Maple (8 to 10 feet), Laburnum, Italian Poplar, and clean-grown Standard and Pyramid Fruit Trees.

A Conveyance will meet the up train arriving at 11.25, and the down train arriving at 10.30 at New Godalming Station. The Nursery is within a few minutes' walk of the old Station.

Catalogues may be had (post-free) of the Auctioneer, 16, Friary Street, Guildford.

Hundleby, near Spilsby, Lincolnshire.

MR. H. SIMPSON will SELL by AUCTION, at the Holly Nursery, Hundleby, on TUESDAY, November 6, at 11 o'Clock precisely, 1,000,000 ASH, LARCH, OAK, PRIVET, QUICK, SPRUCE, &c.; 10,000 Park and Hedge-row Trees, viz., ELMS, LIMES, SYCAMORES, BIRCH, &c., 8 to 12 feet; 5000 Border Shrubs, viz., YEWS, HOLLIES, BOX, LAURELS, &c.

Particulars on Cards.

MR. JNO. COWAN will SELL by AUCTION, as the City Hall, Eberle Street, Liverpool, on TUESDAY NEXT, November 6, at 12 o'Clock precisely, a splendid consignment of ORCHIDS, also CROTONS, DRACÆNAS, PALMS, &c., ex *Maskelyne*, from Rio de Janeiro; also a splendid collection of ESTABLISHED ORCHIDS—many in flower.

Catalogues on application to THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN) LIMITED, The Vineyard, Garston.

Plants on view morning of Sale.

West Hill, Wandsworth.
SHRUBS, PLANTS, FRUIT TREES, &c.

MR. W. H. COLLIER is instructed by the British Land Company (Limited) to SELL by AUCTION, on the Premises, Putney Lodge, West Hill, Wandsworth (late the residence of Sigismund Rucker, Esq.), on THURSDAY NEXT, November 8, at 11 for 12 o'Clock, about 270 Lots of SHRUBS, PLANTS, FRUIT TREES, &c., consisting of fine specimen Standard Azaleas, Rhododendrons; golden, variegated, and other Hollies; Pampas Grass, &c., all well grown, and fit for moving; also a quantity of Aucuba, Yucca, Cupressus, Thuia, &c.; about 150 Pyramid Fruit Trees, Dwarf, Standard, and Climbing Roses, the Garden Produce, Box Edging, &c.; several Chestnut and Plane Trees, and the Ornamental SUMMER-HOUSE.

May be viewed any time previous to the Sale; and Catalogues obtained on the Premises, and of the Auctioneer, 25, Moorgate Street, London, E.C.

London, East.
Only 5 miles from the Bank of England.

TO BE SOLD, for the low sum of £750 (part of which could remain), to effect a speedy sale, or would be LET ON LEASE at £70, a well established NURSERY in a densely populated district—an Acre of Land, Cottage, and six Greenhouses.

Full particulars of Messrs. PROTHEROE AND MORRIS, 8, New Broad Street, E.C.

TO BE LET OR SOLD, near the Great Northern Railway, Grantham, Lincolnshire, a SMALL NURSERY, containing about One Acre of valuable Land, with a good Dwelling-house, a Vinery, and Cold Pits. The ground is well stocked with a fine collection of Fruit Trees, Strawberries, Roses, and Herbaceous Plants. Given up in consequence of ill-health, with immediate possession. For full particulars apply to Mr. WADE, 85, Westgate, Grantham.

MESSRS. PEED & GREAVES,
AUCTIONEERS AND ESTATE AGENTS,
1, HOLLAND ROAD, BRIXTON, LONDON, S.W.

THE above Firm will be happy to Furnish Estimates or Terms for the SALE by PUBLIC AUCTION of all Classes of NURSERY and FLORIST STOCK, either at the Nurseries of Clients, or to be removed to the Sale Rooms, as above. Mr. W. G. PEED (son of Mr. John Peed, the well-known Exhibitor, Nurseryman, and Florist), by his practical knowledge of the Trade, the nomenclature of all classes of Plants and Trees, as also his intimate knowledge of the value of every variety of Nursery Stock, can guarantee a like competency and thoroughness of Sale only possessed by one well-known firm in the Trade, and Messrs. P. & G. will undertake any such Sales at lowest possible terms.

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

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 8, New Broad Street, E.C.

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

STRAWBERRY RUNNERS.
All the leading kinds, 2s. per 100.
JOHN SCOTT AND CO., Royal Nurseries, Merriott, Somerset.

FOR SALE, Large Fruiting PEACH and NECTARINE TREES, 15 to 18 feet across. Moved last year. Sorts and price on application.
W. AND J. BROWN, Stamford.

BERMUDA EASTER LILY (Lilium Harrisii).—A large stock of excellent bulbs, 2s. 6d. each, 24s. per dozen.
LENT LILY—bulbs 3s. 6d. per 100, 30s. per 1000.
Priced CATALOGUES of our immense and very varied stock of Bulbous Flower Roots, &c., post-free on application to JAMES DICKSON AND SONS, Newton Nurseries, Chester.

HOLLY for HEDGES.—12 to 15 inches, 25s.; 15 to 18 inches, 35s.; 18 to 24 inches, 50s. per 100. Forest LIST, containing heights and prices of well-grown transplanted Quick, Ash, Larch, Spruce, Pines, Oaks, Cover Plants, &c., free.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

TWO HUNDRED THOUSAND VIOLAS, BEDDING PANSIES, HARDY PERENNIALS, ALPINES, &c.—One uniform price, 1s. per dozen, transplanted. Land sold for Railway Extension. Guinea Garden Collection increased to thirty dozen, worth £6; half, 12s.
CATALOGUE gratis.
JOHN PIRIE AND CO., Stechford Birmingham.

BERMUDA EASTER LILY (Lilium longiflorum Harisii).—Having ordered direct a large quantity of the best procurable bulbs from America, we are enabled to offer the true variety at the low price of 2s. 6d. each. More than forty beautiful pure white trumpet-shaped flowers have been produced from a single bulb. For further description of this valuable acquisition, see Bulb LIST, free on application.
RICHARD SMITH AND CO., Seed Merchants and Nurserymen, Worcester.

To the Trade.
HOME GROWN VEGETABLE and FIELD SEEDS.
H. AND F. SHARPE are prepared to make special offers of all the varieties of VEGETABLE and AGRICULTUAL SEEDS they have grown this season from choice selected stocks. The quality of the seeds is excellent, and the prices are very low.
Seed Growing Establishment, Wisbech.

DUTCH BULBS.
All first size and quality. Cash prices.
HYACINTHS, finest named, 4s., 5s., and 6s. per dozen; ditto, finest for beds, 2s. 6d. per dozen.
TULIPS, finest named, 5s. to 8s. per 100; ditto, finest mixed, double or single, 4s. per 100.
CROCUSES, first size, all kinds to name, 1s. 6d. per 100.
The CITY SEED AND BULB DEPOT, 162, Fenchurch Street, and 80, St. Paul's Churchyard, E.C.

FRUIT TREES (74 acres).—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, &c., as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety. VINES, excellent canes, 3s. 6d. to 10s. 6d. ORCHARD HOUSE TREES in pots, from 5s. FIGS, from 3s. 6d. Descriptive LIST, containing a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also information as to Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., free by post.
RICHARD SMITH AND CO., Worcester.

Kent, The Garden of England.
300,000 FRUIT TREES in 600 varieties.
GEORGE BUNYARD AND CO. beg to intimate that their stock was never finer, and intending purchasers are invited to come, and see for themselves. The New Illustrated Descriptive CATALOGUE of Fruits for 3 stamps. Reference LIST free.
The Kent Roses do Live.
Extra well-rooted stuff, very good, very cheap.
Descriptive Rose CATALOGUE Free.
The Old Nurseries, Maidstone.—Established 1796.

CATALOGUE of FERNS, illustrated and descriptive, with Cultural Notes. Three stamps.
CATALOGUE of ALPINE PLANTS, illustrated and descriptive. Free on application.
LIST of HARDY ORCHIDS, with full cultural instructions. Free on application.
The following expression of opinion is from one of the highest authorities in the land on the subject of Ferns:—"* * * I have gone very carefully through your list, and, without complimenting you, it is by far the best nurseryman's list of British Ferns out."
F. W. AND H. STANSFIELD, Nurserymen, Sale, near Manchester.

Growth 1883.
SEAKALE SEED, plain CRESS, Green Curled ENDIVE, Variegated KALE, selected Curled PARSLEY, BROCCOLI.
C. FREEMAN, Seed Grower, Norwich.

To the Trade.
FOREST TREE SEEDLINGS.—Three Millions, chiefly Home-grown 1-yr. LARCH, &c., will be sold on the most reasonable terms. Samples and prices on application to
PETER BLAKE, Nurseryman, Summer Hill, Co. Meath, Ireland.

Sharpe's Seeds.
CHARLES SHARPE AND CO., SEED GROWERS AND SEED MERCHANTS, Sleaford, will be glad to forward, Post-free on application, Special Wholesale quotations of their own selected stocks of Garden and Agricultural Seeds. Sleaford.—October, 1883.

Tea Roses—Tea Roses.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this year a splendid stock of Tea and other Roses in pots. Prices and full particulars on application to
The MANAGER, The Vineyard, Garston, Liverpool.

Special Culture of
FRUIT TREES and ROSES.—A large and select stock is now offered for sale. The Illustrated and Descriptive CATALOGUE of Fruits, post-free for threepence. The Descriptive CATALOGUE of Roses post-free.
THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

HARDY ORCHIDS.—Twelve choice kinds, including six exotic, with full cultural instructions, 5s.
STANSFIELDS, Sale.

Fruit Trees to Offer.
STANDARD APPLES and PEARS, also PURPLE and WEEPING BEECH. Price per 100 on application to
WILLIAM FLETCHER, Ottershaw Nursery, Chertsey, Surrey.

Mitchell's Gooseberry.
WM. MITCHELL now offers to the Trade Cuttings of this extraordinary variety of Gooseberry, which is the largest and greatest cropper known. To all Growers, Salesmen, and Buyers attending Covent Garden Market this fine variety is too well known to need description.
Cuttings, £5 per 1000.
WM. BROADLANDS, Enfield Highway, N.

JAMES SMITH AND SONS, Darley Dale Nurseries, near Matlock, begs to offer the following in nice plants:—
AZALEA PONTICA, 1 to 1½ foot, 20s. per 100, or 190s. per 1000; 1½ to 2 feet, 30s. per 100, or 280s. per 1000.
BERBERIS DARWINII, 1 to 1½ foot, 18s. per 100, or 160s. per 1000; 1½ to 2 feet, 25s. per 100, or 220s. per 1000.

SEEDS of CLIVIA MINIATA, fertilised by C. Lindeni × C. robusta.
12 SEEDS, guaranteed .. 5 francs.
100 " " .. 40 francs.
1000 " " .. 350 francs.
Free by Post.
ED. PYNAERT, Ghent, Belgium.

To the Trade.
HUGH LOW AND CO. offer:— [per 100.
ACACIA ARMATA, well budded, extra fine, 75s. and 100s.
ADIANTUM CUNEATUM, 75s., 100s. and 150s. per 100.
CAMELLIAS, well budded, 175s. and 200s. per 100.
ERICA CAFFRA, in flower, 60s. per 100.
ERICA GRACILIS, in flower, 60s. per 100.
ERICA HYEMALIS, showing colour, 75s. per 100. [100.
GARDENIA INTERMEDIA, extra fine, 150s. and 200s. per
GENISTAS, 66s. 8d. and 100s. per 100.
LATANIA BORBONICA, well shaped sturdy plants, 150s.
SOLANUMS, berried, 50s. and 75s. per 100. [per 100
Clapton Nursery, London, E.

THE "GREENHOUSE AND BORDER"
GUINEA COLLECTION OF BULBS.
Consisting of Bulbs selected for both Indoors and Outside, in great variety; including the beautiful New Blue Wood Anemone (Robinsonii), Chionodoxa Luciliæ, Galanthus Elwesii, and Dondia epipactis. *Carriage and Package Free.*

6 Chionodoxa Luciliæ.	200 Crocus, assorted.
12 Hyacinths, choice for borders.	50 Snowdrops.
6 " choice for pots.	25 Anemones.
12 Narcissus, for pots.	6 Muscari.
12 " for borders.	4 Lilies
12 Jonquils.	4 Tritonias.
6 Alliums.	6 Scillas.
12 Oxalis.	6 Triteleia odorata.
3 Snowdrop Elwesii.	25 Winter Aconites.
50 Tulips, assorted.	6 Brodiæa.
12 Ranunculus.	12 Dog's-tooth Violets.
2 Dondia.	12 Saxifrage.

Double the above Quantities for £2. Half the above Quantities for 12s., Carriage Paid.
Our CATALOGUE of BULBS and PLANTS, including Specialities, free on application.
JNO. JEFFERIES & SONS, CIRENCESTER.

Old Established.

Fruit + Trees
50 ACRES, SPLENDID QUALITY.
Pronounced "Unequalled" by competent judges.
Prices strictly Moderate.
— *WRITE FOR* —
CATALOGUES.
NURSERIES 200 ACRES IN EXTENT.
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100,000 PEARS, PEACHES, PLUMS, APRICOTS, APPLES, and CHERRIES, fine 1-yr. budded.
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POTENTILLAS, PYRETHRUMS, DELPHINIUMS, lovely hardy flowers for Cutting or Garden Bloom. Named, 5s. per dozen.
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DWARF MAIDENS, 1s. 6d. each.
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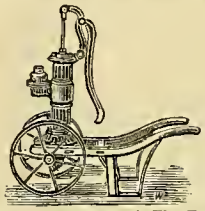

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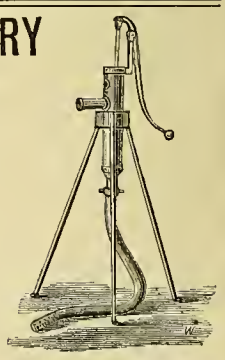

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This is the Manure used to produce the splendid Grapes grown by Messrs. WM. THOMSON & SON, Clovenfords.

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This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the Advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in Casks of about 30 gallons each, at 1s. 6d. per gallon at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

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"*Piercefield Park, June* 21, 1876.—Sirs.—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, WM. COX."

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Large illustrated CATALOGUE of Fencing Hurdles, Field and Entrance Gates, &c., sent free on application to HILL AND SMITH, Brierley Hill Ironworks, Staffordshire; 118, Queen Victoria Street, London, E.C.; and 196, St. Vincent Street, Glasgow.

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Sizes—6 ft. 6 in. × 3 ft. 9 in., 2s.; 6 ft. 6 in. × 4 ft. 6 in., 2s. 2d.; 6 ft. 6 in. × 7 ft., 3s. 2d. Apply to
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Russia Mat Merchants.

MARENDAZ AND FISHER, 9, James Street, Covent Garden, W.C., can offer a very fine parcel of new ARCHANGEL MATS at a very low price. Immense stock of PETERSBURG MATS and RAFFIA FIBRE.

PROTECT YOUR PLANTS
"FRIGI DOMO"
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From Damp, Frost, and Cold Winds.
A perfect Non-conductor of Heat, keeping Wherever it is applied an even Temperature.

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ARCHANGEL, TAGANROG, and PETERSBURG MATS, as per CATALOGUE just issued.

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INDIAN MUSLIN, for Garden Shading.—100 yards for 10s., delivered at Burnley Station; or 85 yards for 10s., delivered free per Parcels Post. Very useful pure Cotton for Curtains, Blinds, Draperies, &c.; cream colour. Postal Order to be sent with each Order. Send stamped envelope for Pattern.
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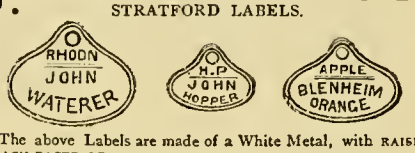

The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

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Discount for Cash.

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Inventors and Sole Proprietors of the "ORIGINAL"

STOCK-BREEDERS' MEDICINE CHESTS,

For all Disorders in Horses, Cattle, Calves, Sheep and Lambs,

And Inventors of the First Animal Medicines ever known as "Day's."

Price of Chest complete, including "Key to Farriery," £2 16s. 6d., sent carriage paid throughout Great Britain.

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FOR SALE, 7000 Standard and 2000 Bush ROSES.
Apply MANAGER, The Hall Gardens, Bushey, near Watford.

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CRANSTON'S NURSERY & SEED COMPANY (LIMITED)

have much pleasure in now offering, for the first time, good healthy young trees of this valuable, late-keeping Apple, which for beauty and general good qualities they have every confidence in stating is unsurpassed. The tree is upright in habit, very vigorous and healthy in growth, never failing to produce, even in the most unfavourable seasons, abundant crops of large and very handsome fruit. Colour deep red all over; flesh white, very firm, crisp and juicy. It will keep in good condition till June, and is excellent for either dessert or culinary purposes.

This excellent Apple was much admired by all who saw it at the Great Apple Congress recently held at Chiswick.

Strong Maiden Trees.. 3s. 6d. each.
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Fruit Tree Catalogue free on application.

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The most complete and the best-kept Collection ever existed.

ALL that want to be quite certain of success next year and the varieties true to name, should order at once, as we have many thousands of plants in 4-inch pots, full of flower-buds, in 550 varieties, occupying nearly half an acre of ground, of all the best old kinds, 6*d.* each, 5*s.* per dozen, 30*s.* per 100. These will not only flower, but may be propagated from at once, a secret of success. Strong country-grown Cuttings from under glass, 1*s.* 6*d.* per dozen, 10*s.* per 100. All orders executed by return of post.

For full and invaluable particulars see our explanatory ILLUSTRATED CATALOGUE, describing minutely all the best in cultivation, our house, 250 feet long, containing above 2000 specially grown specimens in large pots, forming continuous banks 800 feet long.

All are cordially invited to see. Every variety will be pointed out, with its peculiarities, by competent men acquainted with nearly every variety, and we hope every lover of these flowers will allow themselves ample time, so as to closely examine the entire collection, from the species to the newest varieties just imported. We will name any good specimen sent to us at 2*d.* per bloom.

The *Journal of Horticulture* says:—"In the almost innumerable ranges of pits fine collections of Chrysanthemums, about 600 varieties, are grown; and an admirable system is adopted of placing each variety in groups by themselves for keeping them true to name. Altogether, the wonderful collection of plants to be found in these Nurseries are both a surprise and delight to the visitor, and testify more eloquently than words can do to Messrs. Cannell & Sons' energy."

N.B.—The sight of our Nine Houses of PELARGONIUMS, PRIMULAS, CYCLAMEN, SALVIAS, and BEGONIAS, will alone repay the journey.

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PHALÆNOPSIS SANDERIANA—IN FLOWER.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, November 8, at half-past 12 o'Clock precisely, by order of Messrs. HUGH LOW & CO., strong healthy plants of VANDA SANDERIANA, rooting freely, amongst them a very fine Established Specimen with two growths and twenty-four fine healthy leaves; ODONTOGLOSSUM PESCATOREI, from a new locality, probably the finest specimens hitherto offered; O. TRIUMPHANS, O. HASTILABIUM, CATTLEYA MENDELII, ONCIDIUM CUCULLATUM.

At the same time will be offered Established Plants of CATTLEYA TRIANÆ, with flower-sheaths; a strong plant, in flower, of a most lovely and distinct variety of CATTLEYA ELDORADO, which may fairly be described as the WALLISI form, with the addition of a rich plum-coloured mark on the lip; also a strong established specimen of PHALÆNOPSIS SANDERIANA—grand variety, with ten buds and flowers on one spike.

On view morning of Sale, and Catalogues had.

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HORTICULTURAL BUILDERS AND HEATING ENGINEERS.

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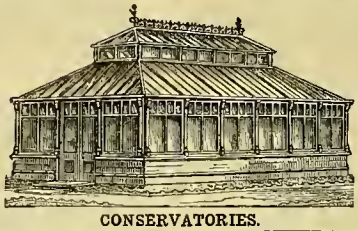
Erected in correct style by competent men.



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GREENHOUSES
For all parts of the World of first-class materials.

GARDEN FRAMES OF EVERY VARIETY in Stock or Made to Order.

No. 74. Three-quarter Span-roof Garden Frame.
CASH PRICES, CARRIAGE PAID.

No. 2 ..	8 feet long ..	6 feet wide ..	£4 15 0
No. 3 ..	12 feet long ..	6 feet wide ..	6 10 0
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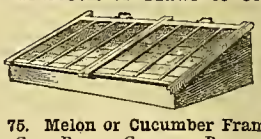
These Frames are 11 inches deep in front, 22 inches deep at back, and 32 inches in the centre. Front or back lights turn over. Set-opes are provided for ventilating. All painted four coats of best oil colour, the lights glazed with best 21-oz. English glass.



No. 75. Melon or Cucumber Frames.
CASH PRICES, CARRIAGE PAID.

No. 2 ..	8 feet long ..	6 feet wide ..	£3 7 6
No. 3 ..	12 feet long ..	6 feet wide ..	4 17 6
No. 4 ..	16 feet long ..	6 feet wide ..	6 7 6

These Frames are 13 inches deep in front, and 24 inches deep at the back; the lights are 2 inches thick, with an iron bar and one handle to each light. All painted four coats of best oil colour, the lights glazed with 21-oz. English glass.

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Orders for shipment carefully fitted and packed, and delivered f.o.b. Glasgow. Illustrated Circulars post-free. Complete Catalogue, 3*s.*

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Rhododendrons and Azaleas.

ISAAC DAVIES AND SON have 100,000 RHODODENDRONS to offer this season, including first-class Hybrids, from 1 to 4 feet high, and the choicest named kinds, mostly well-budded, as well as Sweet-scented, and other Novelties of their own raising. 50,000 AZALEA MOLLIS and other choice Azaleas, and a fine general NURSERY STOCK, all extra transplanted and in fine condition for removal.
Descriptive CATALOGUE with prices on application.
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LILIUM HARRISII
(the Bermuda Easter Lily),
one of the most valuable introductions of late years, a long trumpet-flowered white Lily, beautifully reflexed, bearing frequently from 6 to 10, and has been photographed with over 30 flowers on one spike. Forces in pots with great facility, and is so full of vitality that several and continued growths frequently spring from one bulb. It is quite distinct from L. longiflorum.
Bulbs, 2s. each, 18s. per dozen, 120s. per 100.
Delivered free. Special terms to Trade growers in quantity.
HOOPER & CO, COVENT GARDEN, LONDON, W.C.

NEW EARLY RHUBARB,
Charles Kershaw's "Paragon."
This is unquestionably the finest variety of Rhubarb ever offered; in mild seasons it is ready to pull in February. The crowns and stalks are produced in such profusion that more than twice the weight can be pulled from this than from any other sort. The colour is a splendid red, flavour excellent, and it has this qualification over all others, IT NEVER SEEDS.
PRICE—per Plant, 1s. 6d.; per Dozen, 15s.
Price to the Trade on application.
For Testimonials and all other information, see back page of *Gardeners' Chronicle* for October 13. May be had of all the principal Nurserymen and Seed Merchants, or direct from
CHARLES KERSHAW,
THE SLEAD SYKE NURSERIES, BRIGHOUSE.

AMERICAN SEEDS.
$2\frac{1}{2}d.$ Postage on a Letter of Inquiry will secure you by return Mail our PRICES—Wholesale or Retail.
SEEDS of MAIZE for Field or Garden, PEAS, BEANS, CUCUMBERS, PUMPKINS, SQUASH, CANTALOUPES, WATER MELONS, TOMATOS, OKRA or GUMBO, COTTON SEED, TOBACCO, OSAGE ORANGE or MACLURA, TREE SEEDS, AMERICAN GARDEN TOOLS, BOOKS, &c.
All offered by the *oldest and ever the most extensive* Seed Farmers in America.
Founded in 1784.
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ENGLISH and CHICHESTER ELMS,
FOR IMMEDIATE EFFECT.
JNO. JEFFERIES AND SONS offer a few extra large ENGLISH and CHICHESTER ELMS 16 to 18 feet, fine straight stems, at 42s. per dozen.
JNO. JEFFERIES AND SONS, Royal Nurseries, Cirencester.

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Invites attention to the following LIST of well-grown and properly rooted NURSERY STOCK:—
HOLLIES, Common Green, 3, 4, 5, 6, 7, 8 to 10 feet high.
,, laurifolia, ditto.
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,, myrtifolia, ditto.
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,, Scottica, 3 to 8 feet.
,, Yellow-berried, altaclarense and others.
} many thousands.
,, Variegated, of sorts, 3, 4, 5, 6, 8 to 10 ft.
,, Waterer's, splendid plants, 3, 4, 5 and 6 feet, 8 to 15 feet in circumference.
,, Golden Queen, 3, 4, 5, 6, 7, 8 to 10 feet, hundreds of beautiful specimens.
,, Perry's Weeping Holly, on straight stems, with beautiful heads, ten to fifteen years' growth, hundreds.
,, new Golden Weeping, a large number of very beautiful plants.
BOX, Green and Variegated, 3, 4, 5, 6, to 7 eet, many thousands.
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,, Golden, of all sizes up to 10 feet. We have many thousands as Pyramids, Globes, Standards, in point of variety and size unequalled.
CUPRESSUS ERECTA VIRIDIS, 3, 4, 5, 6, to 8 feet, thousands.
,, Lawsoniana lutea, 3, 4, and 5 feet, hundreds of beautiful specimens.
THUIOPSIS DOLABRATA, 3, 4, and 5 feet, hundreds.
RHODODENDRONS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet. The plants are covered with buds.
AZALEAS, Hardy, the finest varieties known, 2, 3, 4, and 5 feet high, thousands.
JUNIPERS, Chinese, 7, 8, and 10 feet high.
PICEA PINSAPO, 6 to 8 feet.
,, NORDMANNIANA, 6, 7, and 8 feet.
Knap Hill Nursery, Woking Station, Surrey.

For Forcing.
ASPARAGUS—ASPARAGUS.—In consequence of ground being sold for building, and must be cleared, we have to offer several acres of very fine beds, strong plants, 5s. per 100, or 40s. per 1000. Reference required from unknown correspondents.

RHUBARB—RHUBARB.—Strong roots of Victoria Rhubarb for forcing, 12s. per doz., or 80s. per 100. Planting roots, 50s. p. 100. Special quotations for large quantities.
A. HART AND SONS, 152, High Street, Guildford.

Vines.—Vines.—Vines.
W. AND E. CRUMP have a splendid stock of VINES, short-jointed and well ripened canes, suitable for fruiting in pots, also for planting vineries. Also a grand stock of MAIDENHAIR FERNS, in 54's, fit for immediate use. Price on application to
Ranelagh Gardens, Leamington.

NEW RASPBERRY,
"BAUMFORTH'S SEEDLING."
Testimonial from Mr. THOMAS LAXTON, *Bedford:*—"'Baumforth's Seedling' Raspberry has again proved the best of all Red Raspberries tried at Girtford (14 varieties)."
Prices—Planting Canes, 25s. per 100, 4s. per dozen; Fruiting Canes, 35s. per 100, 6s. per dozen.
Early orders respectfully solicited.
EDMUND PHILIP DIXON, The Yorkshire Seed Establishment, Hull.

PICOTEES, CARNATIONS, CLOVES, &c.—My Annual Autumn CATALOGUE is now ready, and contains all the best of the above families, and in addition Collections of ROSES, TREE CARNATIONS, CLIMBING PLANTS, PÆONIES, SHRUBS, PINKS, &c.
THOS. S. WARE, Hale Farm Nurseries, Tottenham, London.

Orchids, Bulbs, Lilies.
THE NEW PLANT AND BULB COMPANY, Lion Walk, Colchester, have just published their AUTUMN LIST, No. 64, containing more novelties and rarities than ever.

CREEPERS for WALLS, TRELLISES, &c., in great variety. See Descriptive LIST. Most of these plants, being in pots, may be moved now.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

ALEXIS DALLIERE, NURSERYMAN, Ghent, Belgium, has just published his NEW CATALOGUE of Azaleas, Camellias, Rhododendrons, Ferns, Aroids, Bromeliads, Cycads, Pandanus, Palms, Orchids, Ornamental Plants for Exhibition, New and Rare Stove and Greenhouse Plants, &c.
The Catalogue will be sent post-free on application to M. DALLIERE, as above.
N.B.—Prices very moderate.

IMANTOPHYLLUMS.
Fresh Seeds, hybridised from the sorts with large flowers, per dozen, 5s.; per 100, 30s.; per 1000, £10.
Forwarded free by post to all parts of the world for cash.
ED. PYNAERT, Ghent, Belgium.

THE OLD FIRM, "VEUVE DUCHER."
Special Establishment for Rose Culture.
J. PERNET FILS—DUCHER,
23, Chemin des Quatres Maisons Guillotière,
Lyons, France.
NEW ROSES, obtained from seed in this establishment, are now ready to be distributed.
EDOUARD GAUTIER, Tea, of vigorous habit, like Jean Pernet—flowers large and globular, full, of excellent shape, outer petals white shaded light rose on the under surface, inner petals chamois-yellow, shaded clear rose. A superior variety, raised from Devoniensis, Tea. 25 francs each.
TREE PÆONIES, obtained from seed in this establishment, and now offered for sale:—
SOUVENIR DE DUCHER—vigorous habit and fine foliage; flowers large, full, globular, of a beautiful intense violet colour shaded with magenta. Its early-flowering and robust habit render it a variety of superior excellence. Price, strong plants, 20 francs each.
ROSES by thousands. Dwarfs and Standards of the best varieties, old and new.
The CATALOGUE will be sent free by post.

1883—A B C BULB GUIDE—1883.
THIS very complete CATALOGUE, which has been prepared with my customary care, is now ready, and includes, in addition to a most EXTENSIVE Selection of General MISCELLANEOUS BULBS, very extensive and complete collections of NARCISSUS, LILIUMS (perhaps the finest collection of these ever offered), GLADIOLUS, IRIS, HELLEBORUS, TRILLIUMS, PÆONIES, the leading and most distinct varieties of HYACINTHS, TULIPS, CROCUS, &c., and a List of CHOICE HARDY PERENNIALS adapted for Autumn Planting.
Copies had gratis and post-free upon application to
THOMAS S. WARE,
HALE FARM NURSERIES,
TOTTENHAM, LONDON.

ROSES IN POTS,
All the best New and Old English and Foreign sorts, from 18s. to 36s. per dozen.
These World-famed ROSES cannot fail to give the greatest satisfaction.
DESCRIPTIVE LISTS on application.
RICHARD SMITH & CO.,
WORCESTER.

THE
Gardeners' Chronicle.
SATURDAY, NOVEMBER 3, 1883.

CHRYSANTHEMUM PROSPECTS.

WE are now upon the immediate threshold of the Chrysanthemum exhibition season, and growers are anxiously watching the expanding of their flowers, and counting their chances in the numerous contests which offer to them, not at this winter season in the "tented field," but rather on the commonplace show tables, where the competition, if neither fierce nor deadly, is at least somewhat crucial and severe. Both the exhibitors and the public who admire our floral autumn queen, if they cannot grow her, have much interest in learning what are the probabilities of the season, and the prospects of the shows, and the answer seems, as far as our widely collected information goes, to be eminently a satisfactory one. 'Tis true that at this time of the year the weather becomes a very important factor in the calculations, and a few days of continuous rain or of fog, or even of an ordinary damp-charged atmosphere, may upset much of the exhibitor's anticipation, and hopelessly destroy his best blooms. That is one of the possible ill fortunes of preliminary warfare. On the other hand, however, we may have some fairly dry, open, cool weather, and the blooms may be thus retained for a lengthened period in all their freshness and beauty; and if those weather conditions prevail for the next few days, there is reason to believe that a really grand display of Chrysanthemum blooms will mark the present season.

It is curious to find, however, that opinions seem to differ materially as to whether blooms are expanding earlier than usual or otherwise, but some experience seems to point to earliness rather than the reverse. That such should be the case may well be anticipated, having regard to the singularly mild nature of the autumn, when even the nights, as a rule, have been mild, and the conditions have been so very favourable to floral development. But whilst we find some kinds holding their blooms considerably beyond Christmas, so also are there some so precocious that they must needs expand their flowers in October; and if both these early and late kinds prove treacherous aids to the exhibitor, at least they render good service in extending the blooming life of the Chrysanthemum over a long period of the winter season. Growers of show flowers, however, whilst always caring a little for both early and late kinds, as it is never possible to foretell just how the season may affect flowers, are careful to have the bulk of their kinds of those mid-season bloomers that may be relied upon to be at their best about the middle of November, and, if the weather be kindly, to be good all through the month. These kinds are so abundant that there is little cause for alarm lest any season should prove early or late; and therefore we may take it for granted that diversities of opinion as to whether the flowers are early or otherwise have little force generally, and only affect individuals.

Mild as has been the weather the opinion

prevails that it is less forcing for the blooms than is a damp time, which renders considerable firing needful. In the former case plenty of air may have been given night and day, and the atmosphere of the houses kept fairly cool, dry, and active. When there is much moisture the houses are kept close shut to exclude it, and fires are needful to keep it down within; and to do this a temperature is created that really means forcing heat both day and night, and blooms are not only thus pushed on unduly, but they lack that solidity and freshness that characterises naturally developed flowers. All the surroundings, therefore, point to a very fine Chrysanthemum season, and we anticipate that the show tables will shortly be laden with flowers as fine and as beautiful as have in any previous year graced the exhibitions.

Owing largely to the difficulty which exists in the raising of new kinds from seeds, we find novelties, and especially meritoriously distinct ones, to be somewhat rare visitants. Sports yield almost as many novelties as seeds do, with this advantage, that when a good kind does sport it always produces a good form diversely coloured. Still, the fact that such novelties come sparsely adds greater interest to their appearance, and if the year gives but one really meritorious new kind, it has not been useless. Perhaps, too, the exceedingly fine form, large size, and varied colouring of the existing varieties, renders the production of good novelties one of exceeding difficulty. In any case it needs first-class blooms to run successfully the gauntlet of public opinion, as represented by the censorship of myriads of growers, who may be trusted to understand all those points which make up a good flower with absolute implicitness.

Few flowers perhaps have a larger constituency than has the Chrysanthemum, for of all those that beautify our country gardens none are so amenable to town culture or more readily serve to gladden the eyes of the pent-up citizen or of the free dwelling country residents at the same time. Its lovers and its growers are, indeed, countless; it is everybody's flower. It may be a queen, but it is everybody's queen; indeed, it is a flower for the people, and by the people it is grown and cherished. That its culture is widely spreading is evidenced by the rapid increase of shows, which, if they include many garden products, at least owe their existence to the Chrysanthemum more than to any other element. So quickly are autumn shows increasing, and so restricted is the period over which they can extend, that very large numbers have to be crowded into the fortnight which comprises the two middle weeks of November. Because of this there is danger that in some localities they may clash one with the other, and by reason of their dispersing the exhibits over so many areas materially detract from the average good quality of some of our best shows. To do that would be a misfortune, for though some localities must of necessity be content with mediocrity, yet some others have high-class reputations, and those it is desirable should be maintained. We cannot see all shows, but those which most deserve mention will, it is hoped, amid the surrounding competition of minor displays, still attract those finest and most beautiful exhibits, to see which is to see all that high culture and human art yet can accomplish in the production of perfect flowers.

To those, however, who would grow Chrysanthemums only as house decorative plants, and not for show purposes, we can hardly say that exhibitions offer the best places at which to look for those peculiar qualities in varieties that they most desire. Even the plants so largely grown for competition seldom show natural habit or floriferousness, and in the groups arranged for effect the grouping generally is too crowded to enable the true characteristics of any plants to be fully shown. Perhaps those who may be looking for selections of good decorative kinds can hardly do better than visit our trade growers' establishments, where it it is now the rule to grow large collections naturally and well, and to arrange each plant so that whilst adding its quota to the general effect yet its individual beauties are never obliterated in the mass. Such collections, almost always extensive, are always beautiful. Our public parks and gardens, too, are not without very attractive displays, and though seeing a score of these collections will reveal considerable sameness, yet perchance in each one will be found some kind, not found in the others, that is either exceptionally beautiful, novel, or attractive. Specially may such rarities be found in the nurserymen's collections, because it is the business of those who grow for sale to seek for and present them. We have, indeed, great reason to bless those who placed the Chrysanthemum in our paths; its existence adds many charms and beauties to our lives; and if that existence be now but youthful, who shall venture to anticipate the glories of its maturer years?

New Garden Plants.

A NEW INDIAN CYCAD.

IN an article on the distribution of the Coniferæ (*Gard. Chron.*, n. s., xvi., Aug. 13, p. 209) we reproduced some remarks from Col. Beddome's *Forester's Manual of Botany for Southern India* on the Gymnosperms of the Indian peninsula, which has been the means of a fine new Cycad being made known to botanists and horticulturists, for it caused Mr. Thiselton Dyer to make inquiries which resulted in his obtaining specimens. Colonel Beddome poesessed only a single leaf, but Mr. H. H. Yarde, Deputy Conservator of Forests, Cuddapah division, supplied Mr. Dyer with living plants and male and female inflorescences, from which he has been able to figure and describe this new Cycad in the *Transactions of the Linnean Society*, where it appears as Cycas Beddomei. Mr. Thiselton Dyer says:—"The species is so distinct in habit that it is difficult to indicate its relationship, but on the whole it appears to me that it might be regarded as a very reduced form of C. circinalis, its Malabar congener, though differing from it in many striking particulars. The only stems I have seen are small, not more than a few inches high, and clothed with the glabrescent closely imbricated leaf bases. Leaves about 3 feet long, 9 inches broad; rachis subquadrangular; petiole about 6 inches long, strongly 4-angled, the upper third furnished with a few minute teeth, the base clothed with a tufted tomentum; leaf-segments strongly revolute when dry, about ⅜ inch wide. Male cone about 13 inches long, 3 inches in diameter, slightly stipitate; scales tapering acuminate from an oblong deltoid base, erect at the base of the cone, strongly deflexed in the upper half or two-thirds."

The most striking feature in this new Cycad is offered by the scales of the male cone, which taper into long points, erect in the lower part of the cone, and bent downwards in the upper half or two-thirds.

VANDA HASTIFERA, *Rchb. f.*, *Linnæa*, 1876, p. 30.

It was in 1872 that I saw a single plant of this—a remarkably tall specimen—at Director Linden's. It had a lax raceme of flowers, which surpassed those of Vanda Boxalli, though they are not equal to those of V. tricolor. The spatulate undulate sepals and petals were light yellow, with fine red blotches inside. The curious lip was white, with brown and some mauve. Column white, with some brown spots. The lip has features of its own. The compressed conical spur, and the semi-oblong triangular side laciniæ are not extraordinary. The anterior part of the blade, however, is hastate, and covered with hairs at its base. The anterior part is dilatate, very thick, tumid, blunt, and shining like the finest dandy boots!

I never again saw a vestige of the plant till quite lately, when, after an interval of more than a decennium, Mr. F. Sander sent me well dried flowers and a good sketch in colours, all prepared in the Sondaic Archipelago by his zealous and intelligent traveller, Mr. Foerstermann. I learn that a small set of living plants is likely to come under the hammer, and we may hope to become better acquainted with this plant, the "Banganayer" (water twig) of the Malays, as I was told by the excellent collector. *H. G. Rchb. f.*

ONCIDIUM TRIFURCATUM, *Lindl.*, *in Taylor's Ann. Nat. Hist.*, xv., 384.

Once more a fine old Orchid of Lindleyan nobility appears on the scene. It was gathered, indeed, a second time after the original discovery made by my late countryman, Hartweg, by my late compatriot Dr. Krause, whose No. 34 it was amidst the plants sent to Messrs. Backhouse & Son. I do not believe the plants came alive, at least I never had information of their flowering. Messrs. Backhouse favoured me with the use of a sketch and a dried flower for the herbarium. Now I have at hand a fine specimen, dried by the Roezlian nephew, Mr. Edouard Klaboch, and kindly forwarded by Mr. Sander.

Dr. Lindley very well compared the plant with Oncidium serratum. The flowers come near those of that species in general appearance. The petals, however, are not combined into a ring, but stand totally free and spreading. The fine borders of the reniform blade of upper sepal and petals are distinct in colour. Dr. Lindley asked whether that colour was yellow. To this an affirmative answer may now be given. Dr. Krause represents it fine sulphur. The lip is crimson-lake. Calli fine light yellow. There are not such developed fringes on the borders of the wavy petals and odd sepal as in Oncidium serratum, but they come near them. The very long side laciniæ of the lip are bent down, and very unusual. Under the stigmatic hollow stand two sword-like blades, which were well observed by excellent Dr. Lindley. It is still undecided whether those organs are simply steps or footstools for the use of the insect visitors, or whether they should be regarded as apparatuses for cleaning and rubbing of wings, antennæ, and legs and tarsi.

In many points the plants stand near one of the rarest and finest species, Oncidium lamelligerum, but which has indeed no such sword-like processes under the stigmatic hollow. I only have one wild grown flower, a magnificent thing, a present from Don Benito, gathered by same Mr. Edouard Klaboch. It may be of Klaboch—Sander—Stevensian origin in England. I have received it (chronologically!) from Messrs. Veitch, Vanner, Hardy, Winn, and Hinckly. *H. G. Rchb. f.*

STELIS ZONATA, *n. sp.**

This is near Stelis muscifera of Dr. Lindley, but smaller in all parts, and interesting by its coloured zone. Its stem is short. The very thick leaf is cuneate, oblong, blunt. Peduncle with numerous sheaths and a one-sided raceme. Sepals light ochre, with a rich cinnamon base. Petals with an abrupt ochre margin and ochre base, a fine mauve mid-zone. Lip ochre, with granular cells on the abrupt anterior border. Column mauve, with an ochre zone over its dorsal mid-line. It was imported from Demerara by Messrs. J. Veitch & Sons. *H. G. Rchb. f.*

NUPHAR ADVENA.

THOUGH this plant is stated to have been introduced from the United States so long ago as 1772 it is still but little known to cultivators of hardy aquatics, on which account we are glad of this opportunity of figuring a specimen which bloomed this summer in the Royal Gardens at Kew. As will be seen (fig. 92) it resembles the common European Nuphar lutea, but has larger leaves, the lobes of which are more spreading at the base, and larger somewhat paler flowers, with six (not five) sepals, shorter, less conspicuous petals. When grown in masses the leaves become so dense that they are squeezed out of their horizontal position, and become nearly erect. Why called advena is a question for some of our American friends to answer.

* *Stelis zonata*, n. sp.—Affinis S. musciferæ, Lindl.; caule folium cuneatum oblongum rotundatum non æquante; pedunculo folium bene superante, infra dense vaginato; racemo densifloro secundo; bracteis arctis acutis; sepalis basi connatis oblongis obtusiusculis; 5-nerviis; tepalis transversis apice abruptis; labelli lamina triangula utrinque angulata; zona antica abrupte incrassata retusa granulata; columna antice tricorni. Ex Demarara imp. cl. Messrs. Veitch. *H. G. Rchb. f.*

NOWTON COURT.

This, the seat of H. J. Oakes, Esq., lies about 1½ mile to the south-east of Bury St. Edmunds, and is approached by a good road, which intersects the park, and along each side plantations have been formed, the ornamental trees in which, when they get up, will afford pleasant shade and add additional charms to the route. The house is an elegant modern mansion, in the Tudor style of architecture, but till recently it was much shut in, and the views obstructed by stables and other buildings, which have been pulled down and removed, and the country opened out in such a way that now miles of delightful scenery break in upon the view, as Ickworth and Hardwick Hall estates are within reach of the eye from the carriage front, where the clearance was made. There were some cottages, however, left standing, and these it was thought desirable to hide, which has been most effectually done by planting same large trees, several of which were upwards of 40 feet high at the time of lifting, and they show how carefully Mr. Carmichael had the work performed in the rapid growth most of them are now making, and the healthy state they are in. The transplanting was done with one of Barron's machines, and the sorts of trees moved were Picea Morinda, Pinus austriaca, Abies Douglasii, scarlet Chestnuts, evergreen Oaks, Yews, Thuia gigantea, and Libocedrus decurrens, with some of which from 6 to 7 tons of soil were carried in the huge balls they had.

Fig. 92.—Nuphar advena: petals and stamens shown separately. (see p. 556.)

Not only are the extensive pleasure grounds immediately around the mansion dotted thickly with Conifers, but they have been planted freely all over the park, and there are few places where they will be found to be doing better, for although the annual growth is not, perhaps, so great as may be seen elsewhere, it is firm and solid, and the bark of all has that smooth, polished look that trees only have where the soil suits them. At Nowton it is a heavy holding loam, of great depth, and contains a good deal of chalk, which permeates it in fine particles, and helps much to give all the timber standing about the fine domain the solid look that it has.

Among the most striking of the trees the Cedrus Libani stand out conspicuously, as they have age and size, but for real beauty and richness of colour none surpass Cedrus atlantica, which is not only very graceful in its drooping habit but has a peculiar bluish glaucous hue that few, if any, others possess. Wellingtonias and Taxodium sempervirens have been planted in great quantities, and they and Thuia gigantea, of which there are many, thrive like weeds. Mr. Carmichael propagates the whole of the last-named freely from cuttings, as well as most of the other Thuias and Retinosporas, and is of opinion that the Taxodium sempervirens is worth planting extensively for timber, but its durability, so far as I know, has yet to be tested. The several plants of Thuiopsis borealis, with their drooping Fern-like branches, were remarkably handsome, and showed up well against the stately grandeur of Libocedrus decurrens, two or three of which were towering like huge green pillars upwards of 40 feet high. Cryptomeria japonica, which assumes an unhealthy look and has a shabby appearance in most places, is fresh in every leaf at Nowton, and when seen in that desirable state is very distinct and ornamental, but the one that attracts most notice is the Cryptomeria elegans, which turns to a warm brown colour during the winter, and shows up in pleasing contrast with the variegated Retinosporas and Thuias.

Besides the numerous Conifers and other ornamental plants dotted about freely all over the lawn, many clumps have been formed, in which they and evergreen shrubs have been largely used, and so great is the wealth of all these that they will require much thinning and regulating to give each other room—a work which, so far, has had timely attention, and will if continued make Nowton one of the most famous places for trees in the whole kingdom. Most people who grow or have to do with Conifers are very averse to pruning, and till I saw those referred to I was against the practice, but the splendid stems of those at Nowton quite won me over, as they are all so straight and clear, with wounds mostly healed over, that I could not help admiring them for their beauty, for look which way one might, the clean polished boles stood out conspicuously, and commanded admiration by the peculiarity or colour of the bark, which varied with almost every specimen, the greatest contrast being afforded by the silvery white of the Birch, and the warm brown of the many Taxodiums, the curious, soft, spongy covering of the trunks of which can only be seen to advantage when they are bare of shoots near the ground. It must not be inferred from these remarks that all the trees at Nowton are subjected to the trimming process, as it is carried out chiefly with th se in the park; and although there are numbers in the pleasure gardens denuded below in like manner, still there are plenty left to feather down, and show the natural character of the different kinds.

The time chosen for the pruning or removing of the branches is the end of September, at which season it is found that the trees do not lose sap or discharge resinous matter, but quickly cover and hide all scars, which was abundantly proved by the smooth state of the stems. The great thing appears to be to do the work while the plants are young, and to do it piecemeal by taking off a tier of branches biennially till the required height is reached, and then leave them to develope their tips. The common Yew, Taxus baccata, seems to bear any amount of pruning, as trees of it had been cut hard on, and were breaking freely in all directions around the short stumps. The Irish varieties had wisely been left to grow in their own native fashion, and striking was their appearance with their several leads, running up, spire-like, and sombre through the great depth of their green, the effect of which was heightened by the plants standing near some old ruins of a church, the arches and other portions of which are still remaining, near the lake in the grounds, by crossing the bridge of which the wild or woodland walks are reached. The lakes have

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been well formed — the banks being broken and irregular—very different to those of Capability Brown, whose ponds were made after the manner of pie dishes, without bend or turn in their sides. What is wanted at Nowton is more water, as the supply is only from the surface, and is therefore insufficient to keep the whole fresh and clear.

The kitchen garden is a large, newly walled-in enclosure, the walls of which are being rapidly covered with a great many sorts of Pears and other fruit trees, as Mr. Carmichael does not head back, as is the practice with so many gardeners, but leads on and encourages every well-placed shoot till the space allotted is filled. By doing this trees are established and in full bearing in less than half the time it took under the old system of undoing, in the autumn or winter, by pruning, all the work a tree got through in the summer, as the following year the same ground had to be gone over again, besides which, trees so treated must suffer a shock. To bring about fertility, Mr. Carmichael root-prunes or transplants, and believes that much is yet to be done towards that end by using proper stocks, and some of his Pears, the Jargonelle, double grafted, on the Beurré d'Amanlis and Quince, showed clear proof of this, as the little bushes were crowded with buds. Among the many kinds of Pears under trial at Nowton, Mr. Carmichael thinks very highly of Mariette de Millepieds, which bears handsome looking fruit, above medium size, and first-rate in quality, of which the wasps seemed fully aware, for though the Pears do not ripen fit for table till March they were eating into them now, thus showing, as usual, what excellent judges they are. Doyenné Robin is also a favourite sort, and as Mr. Carmichael is one of the best pomologists of the day, his opinion is worth having in all matters relating to fruit, and may be relied on. Apples are planted in a belt of land fenced off from the park, which runs round two sides of the kitchen garden, where they are in three rows, and looking the picture of health. Where the Asparagus is, in regular plantations, the rows are 3 feet apart, but a good deal of it is grown at double that distance, and single rows of Broccoli or Brussels Sprouts are planted between. The Asparagus showed unmistakeable evidence of how much it appreciated the breathing room and free root-run, in the big tall stems the plants had, which were towering up as high as one's head.

Strawberries receive the same liberal treatment, as they too are cultivated in wide rows, which afford the fruit full light and exposure to sun and air, under the influence of which it must finish up well and be of fine quality. Owing to changes being made in the establishment Mr. Carmichael is giving up his charge at Nowton Court, but with such antecedents as Dunmore and Sandringham, and the lengthened experience and high attainments he is known to possess, he is sure not to remain long unemployed. *J. S.*

THE POTATO CROP.

Potatos have been selling so cheaply in the London market, owing to the singularly bountiful and clean crop with which England has been favoured this year—perhaps the best crop known within the memory of man—that growers have found no considerable profit arising, for, if the produce has been heavy, the expenses incidental to culture, lifting and marketing have been great in proportion. Southern growers, therefore, may be interested to learn, on good authority, that the Regent crop in Scotland, always a considerable one, is largely diseased; and whilst they are interested they will, perhaps, having regard to the remarkable immunity which late kinds in the North have enjoyed from the disease, be not a little surprised. As one result, however, it may be expected, if supplies do not come from abroad, that a rise in price will presently follow, and few who know anything about the expenses incidental to the raising of a Potato crop, and, not least, the exceeding insecurity which attaches to it, can regret that growers who have not hurried all their produce into market may have a little chance to get back somewhat improved returns. When prices vary from 70*s.* to 90*s.* per ton it is evident that there is no great return obtained for the grower, whilst the public is, or should be, materially benefited through his labours. One of the not least interesting products of the big Potato crop will be found in watching the results upon the next year's planting. A heavy crop and low prices usually act as deterrents to large plantings in the coming spring, growers preferring to try some other crop because the Potatos have not proved profitable. It is to be deplored that in this country, with the best market in the world, our own growers, let the crop be a heavy one, seem always unable to secure that financial benefit which the big produce should bring them. As a rule, the dealers get more out of it than do either the growers or the consumers.

MR. JOHN WALKER'S NURSERIES AT THAME.

The development in late years of Mr. John Walker's business at Thame has necessitated the acquisition of new nursery grounds, and now he has four distinct establishments. The home nursery, best known as Lashlade Gardens, contains the main portion of the glass structures, and near to this is another part of Lashlade Gardens—what was formerly a large garden attached to a mansion, both very near to the centre of the town. Then there is the Field Nursery near the railway station, a piece of ground of considerable extent, with a rich loamy soil, well adapted for the culture of fruit trees, Roses, shrubs, &c.; and what is known as the Chilton Nurseries, a small estate rented by Mr. Walker for the growth of Grapes and other fruits, bedding plants, &c.

In the Field Nursery, which is a well ordered establishment, may be seen large breadths of admirable dwarf-trained Apples, pyramid Pears, standard Horse Chestnuts, standard Walnuts, standard Sycamores, very fine indeed; Spruce Fir, a very fine lot; Birch, Larch, &c., and many ornamental shrubs. Both on bush and dwarf-trained trees, Golden Spire Apple was everywhere very fine, a distinct variety of an elongated Codlin shape, and the skin of a rich gold. Mr. Walker states that this is an excellent variety, because such a sure and free cropper. There were fine examples of many leading kinds of Apples, Pears also numbering excellent fruit. Many fine specimens of coniferous plants can be seen here; Golden Hollies take on a rare colouring, and the brilliancy of the Golden Elder could be seen for a long distance.

Roses are a leading feature of the stock-in-trade; there are large breadths of standard Roses, and dwarf Roses on the Manetti stock. The plants grow generously, and in this soil there is a desirable growth of fibry roots, consequently the plants move well.

In the Lashlade Gardens is found a general collection of stove, greenhouse and bedding plants, all in good condition. There is also a good collection of hardy Ferns, comprising some rare species and varieties. Dahlias are well and extensively grown, and both Roses and the former are largely exhibited by Mr. Walker during the summer, for he has all the enthusiasm of the true florist, and supports many movements for the encouragement of florists' flowers. The quilled and flat-petalled Asters have long been greatly cared for by Mr. Walker. At the time of our visit a plantation of the finest strain of Truffaut's Pæony-flowered Perfection Aster we have ever seen was in wonderful bloom; Mr. Walker being an exhibitor at neighbouring shows. His strain of quilled Asters cannot be excelled, and as seed of them is much in demand, large beds of the different varieties are grown to furnish an adequate supply. Mr. Walker has selected and named several varieties, the leading ones being—Daphne, rose, very pretty; Model, deep pink; Modesty, pink and white mottled; Mr. Walker, delicate blush; Purple Prince, purple, very fine; Sailor, mauve, very fine; Snowflake, white; Princess of Wales, deep pink, with white centre; Rifleman, cerise, very fine; and Delicata, delicate blush. These are all very fine indeed, and we can scarcely conceive anything better to grow for cutting from by gardeners than these charming Asters.

A good collection of Carnations and Picotees is also grown, and the collection of plants obtained from layers made in July was especially fine. There is also a good collection of show Pelargoniums of the various classes; a number of small bush plants of the common Laurustinus are grown in pots for cutting from during the winter, the flowers being in great demand. Mr. Walker has long been famous for the splendid blooms of Maréchal Niel he produces in early spring, flowers of large size and richly coloured. They are grown in a lean-to house of considerable dimensions, looking south, the plants on the Brier stocks; and in addition there are such fine Tea Roses as Devoniensis, Niphetos, Lamarque, Gloire de Dijon, &c. Mr. Walker is just now widening this house by another 6 feet, and the result will no doubt be to give him a little later batch of flowers on the north aspect. Some plants of Funkia japonica in this house, growing in pots, were furnishing quantities of large white flowers, that when wired are very useful for bouquets.

This necessarily brief sketch by no means exhausts the leading features of the Thame Nurseries. A visitor can always find something of interest in them, and at any season of the year. Walker's Perpetual Bearer Pea, and Walker's Exhibition Onion—the latter a very fine selection from the White Spanish—were both in excellent condition at the time of our visit.

THE CLIMATE OF CENTRAL AMERICA.

The Rational Culture of Orchids.

Considering that Central America is but a narrow strip of land between two enormous oceans, it would be but natural to believe its climate to be very damp and rainy. This is but partially true, for Central America presents this peculiarity, that it is divided into two regions of totally different climates by the high chain of the Cordilleras which runs through it like a backbone. On the slopes facing the Atlantic ocean it rains all the year round—a rainless day is a rare exception; but on the slopes facing the Pacific Ocean it is quite otherwise. There the year is divided into two distinct seasons—the rainy and the dry. The rainy season begins in May, and ends in November; the dry season, which is absolutely rainless, corresponds with the winter season in Europe. The division between these climatic zones is very sharp, and follows, more or less, the crest of the first high chain of mountains towards the Atlantic Ocean. When during the dry season the traveller crosses the isthmus from the Pacific to the Atlantic Ocean he is surprised with the suddenness of the change. The first time I was exploring this region with my men—it was in February—we had been ascending all day a steep mountain, tramping up over a deep bed of dry and slippery leaves in the primæval forest deprived by the scorching sun of most of its foliage, water being absolutely wanting, as every brook was dried up, when in less than fifteen minutes we passed from this Sahara dryness to a swamp of such gloom that it surpassed in its reality the imaginings of Dante. As we went on the gloom augmented, the whole land was a large marsh; we were wading in the mud up to our knees; the very trees seemed to distil water, dripping ceaselessly from their branches, thickly covered with moss and heavy garlands of lichen and Tillandsia usneoides. We bivouacked in the middle of it, several days' journey from any human habitation. We were wet through; we could not make a fire, the wood being too damp; we were tired out, and our teeth were chattering with cold, for the temperature was but a few degrees above freezing-point. I cannot help shuddering when I think of the hardships we went through in this place, and believe myself vastly lucky to have lived through it. But nevertheless, such is the powerful attraction of a voyage of discovery that I have often revisited these rarely explored regions.

The explanation of this extraordinary phenomenon of a land of everlasting rain depends on the trade winds. We all know that on account of the rotation of the earth there are so-called trade winds blowing from east to west over the Atlantic more or less all the year round both in the northern and the southern hemispheres, the part immediately under the sun being meanwhile becalmed. The trade wind of the northern hemisphere starts from North Africa, blows over the Atlantic, and reaches Central America charged with vapour from the vast expanse of water it has been travelling over; there, at the high ridge of the Cordilleras, its vapour condenses by the cold of these altitudes in clouds and rain, and the wind, deprived of its moisture, descends, dry and cool, the slopes leading to the Pacific Ocean. Such is the climatic *régime* from November to May, while the sun is visiting the southern hemisphere. The direction of the trade wind is then N.E. on account of its original direction

being deflected by a northern current of air caused by the winter in the North. The natives call this trade wind *el viento del Norte*, or *brisa*.

When the sun apparently travels backwards towards the North, with its accompanying calms, the force of the trade wind diminishes, and though it still strikes the Atlantic shore it is not strong enough to pass over the Cordilleras. Then begins the rainy season on the shores of the Pacific Ocean. The cause of this is strictly local. The mornings are always bright, the perpendicular rays of the tropical sun warm the earth to a much higher degree than the surface of the seas; this causes in the afternoon a strong sea breeze, called *el Irazon*, charged with vapours which condense on the slopes of the Cordilleras, and come down usually between 2 and 4 o'clock in the form of torrential rain, accompanied by formidable electric discharges. Then, as the sun goes down, the damp earth begins to cool, and at about 5 o'clock P.M. there exists something like equilibrium between the temperature of the sea and that of the earth. During the night the inverse process takes place, the earth gets cooler than the sea, and a land breeze sets in most favourable to sailing ships during this season, and called *el Terranito*.

A page from my journal of August 29, 1882, will give an idea of one of those daily tropical storms of the rainy season :—

The preceding night was very clear, one of those admirable nights when the full moon sheds its fairy-like light over the beautiful tropical landscape; the temperature was balmy, 64° F., not a cloud was to be seen to obscure the vast extent of the skies studded with stars from the Great Bear to the Southern Cross, and yet all around the horizon there was a glow of continuous flashes of lightning. The villagers sung and danced till past midnight, the scene was so beautiful that I regretted to retire to bed. As is my custom in the tropics, I got up very early, for it is the only suitable time for work of any kind; one does more from 5 o'clock to 9 in the morning than in all the rest of the day. The morning was as clear and as glorious as the last night, the sun rapidly rising enlightened all the scene, the air so clear, or, to speak more correctly, so saturated with moisture, that the most distant objects—the high volcanos, the far-off sea—seemed close by. By about 9 o'clock in the morning the heat became intense, and at 11 o'clock the volcanos were capped with dark blue clouds, which grew very rapidly. The perfect calm of the morning gave way to a light breeze coming from the sea. On the mountain I began to hear the thunder, sometimes as a low rumbling noise, sometimes as the firing of heavy guns in the distance. At 2 o'clock in the afternoon the whole sky was covered with clouds, the rain clouds advanced like an immense grey wall with the noise of a huge waterfall. It was now on us, but it was not what we call rain, it was a torrent falling on our heads, furiously whipping up the earth all round, and changing in a few minutes its parched surface into a vast lake. We had hardly time to get accustomed to this fearful noise before the darkness which surrounded us was illuminated as by daylight by the lightning which fell close to us with a crash of thunder fearful to hear, and yet this was but a beginning, the signal for a real tumult of the elements. Not only immense sheet-lightning, but thunderbolts, succeeded one another from minute to minute; a succession of pitch darkness and flashing light with a continuous roar of thunder went on for more than an hour. At about 3 o'clock the force of the storm began to wane, and by 4 o'clock P.M. not only the rain had ceased, but in a quarter of an hour the very clouds had disappeared, leaving to the evening sun still time enough to reduce to dry dust what was an hour ago a vast lake. The following night found the villagers just as jovial and frolicsome as the preceding; the storm was not even talked about by the old gossips, so accustomed are they to its daily occurrence.

It is curious how man is affected by electricity; there, I always feel quite lightsome after a storm, and I strongly suspect that electricity, which is concentrated round the equator, has a very great influence on tropical vegetation, and probably especially on epiphytal plants, which feed on air. Would it be too much to believe that these terrible discharges of electricity cause the liberation of gases [from the atmosphere or] from the thick layers of vegetable matter, half-decomposed, which cover all the earth of the virgin forests, and thereby puts this manure within reach of the Orchids and Bromeliads which grow above it? If it be so, would it not be possible to imitate this process of Nature on a small scale in our hothouses by some galvanic apparatus which would act on guano, peat, or any other nutritious substance? We should thereby fill the conservatory with what might be that unnamed something of which the deceased Spyers spoke formerly in the *Gardeners' Chronicle*. *R. Pfau, Chiswick.*

(*To be continued*)

ASTER AMELLUS.

After all that has been said and written about Michaelmas Daisies there is none in cultivation that surpasses or equals the old-fashioned Aster Amellus. It has the additional merit of being a classical flower. Few flowers have been described by the ancient poets with sufficient accuracy to make their identification certain, but this Daisy is one of the few. Virgil had often gathered it, when a boy, in his walks near his native town, Mantua, in Lombardy, and he describes it so that we can hardly be mistaken in the flower intended. "It's local name, given by the country folk," he says, "is Amellus. It is conspicuous, easily found when you look for it, having a large spreading top in proportion to the base from which it grows. The flower has a golden disc, surrounded by very many rays of a dark violet-purple colour. Daisy chains are often made with these flowers to deck the altars in sacrifices. It has a rough bitter taste, when chewed. It is abundant in pasture-meadows near a stream in Lombardy called the Mellas," or more properly the Mela, from which Virgil seems to imply that it took its name, and a later writer, Servius, states positively that it did so. The occasion for mentioning the plant is curious. Virgil is writing about bees, and tells us that a decoction of the root of Amellus mixed with richly flavoured wine makes an excellent medicine for them, when unwell. As for the taste of the flower I find that it contains a bitter like that of Camomile, but less strong.

There perhaps never was a time, almost from Virgil's day, when this plant was not cultivated in English gardens. The authority of Virgil became, within a century of his death, so great, wherever the Latin language was spread, that if the Romans kept bees in England they would probably have introduced Amellus in order to carry out his instructions. It is not unlikely that it was formerly naturalised. As far as we can make out Gerard's representation and description of the plant, he speaks of it as the "Italian Starwort," having "yellow flowers, mixed with some purple, set about with chaffy scales, like Knapweed." This plant, he tells us, grew in his time "on Hampstead Heath, South-fleet Downs in Kent, and many other such downy places." It must, however, be admitted that the description in Gerard is meagre and vague, though it is hard to say to what native plant the figure could be referred, having any purple in the flower, for the habitat certainly could not belong to Aster tripolium. Parkinson is a little more precise. The "Amellus Virgilii," he tells us, "was usually called in his day "Aster Atticus Italorum flore purpureo.'" This rivals some of Mr. Peter Barr's Daffodil names, and all I can say is, that I pity the gardeners of the period, bad scholars as they were, if they had to write all this upon their labels. Parkinson, however, bad as his figure of this flower is, describes it as accurately as Virgil does, and adds that "the heads sustaining the flowers are composed of divers scaly green leaves;" these do not appear in the woodcut, which is far less accurate than Gerard's. So much for the history of this Aster, which was "plentiful in gardens" at the end of the sixteenth century, and does not seem to have been a recent introduction, though I find it stated in the *Cottage Gardeners' Dictionary* that it was introduced in 1596 —long after Gerard began to write his book.

Of its cultivation little need be said; it is not one of those Asters which spread their roots so as to make frequent division desirable. It is, on the contrary, rather a difficult plant to divide, the best way being to lift the entire plant and break off all the stalks carefully at the base, when more or less root will be found attached to each. Spring is the best time to do this. If a large increase of stock is wanted, the shoots which grow near the base of the stalks may be slipped off, and will be found to root easily under glass. Aster Amellus does not vary more than one would naturally expect an Aster to do, as they are a variable class.

If raised more frequently here from seed, perhaps we should have greater variations. At present there are about four varieties named in catalogues, though I admit it is difficult to fix the names. We are often told that the best variety is bessarabicus, though I am not sure whether a plant with a stiff regular flower and long pointed horizontal rays is intended, or a semi-double very robust flower with cupped broad rays and a large prominent disc. The former is the more elegant flower, but the latter Mr. Lynch sent me from Cambridge Gardens as what he thought the true bessarabicus. He had it from Hale Farm Nursery, from which also comes to me Aster Amellus roseus, a red-purple, differing only in colour from the type, and less pleasing as a garden plant. Another very distinct and good form I had from Messrs. Smith's nursery at Worcester, under the name of cassubicus—a name I can find nowhere else; but the flower has a very broad and bright golden disc, and the rays are large, regular, and deflexed. A fourth variety comes from the same nursery as amelloides; it is nearly 4 feet high, or nearly twice as high as the type, which I own I have some difficulty in fixing, and I suspect that all these forms might easily be raised from one another's seeds.

In conclusion, allow me to advocate the raising of Asters from seed, by which means I believe that many good improvements on typical forms may be obtained for our gardens. *C. Wolley Dod, Edge Hall, Malpas, Oct. 24.*

THE BEAUFORT NURSERIES, SWANSEA.

Good general nurseries are not plentiful in South Wales. There are many half market garden, half nursery places where a quantity of forest trees, shrubs, fruit bushes and Roses are mixed up with large patches of Cabbage, Leeks, and Savoys, but a nursery containing a number of good glasshouses and a general stock of open-air and indoor plants is quite the exception. The only one we know of this kind is that belonging to Mr. William Barron, and altogether this comprises the glasshouses in the Beaufort Nurseries, Swansea, and the extensive plant-growing grounds a little further on, near Sketty. Of these latter little need be said further than noting that the grounds are replete with well-grown collections of all the most useful trees and shrubs for forest making and decorative planting of parks or pleasure grounds. The Rhododendrons consist of all the best in cultivation, and they are not only great in point of variety, but extensive in numbers and first-rate in quality. Roses, too, and all kinds of hardy plants do uncommonly well here, as the situation is a most favourable one, and the soil is all that could be desired for the healthy rearing of all kinds of plants. It is, indeed, a real plant nursery, and from the peculiar favour of natural circumstances all plants reared here have the full benefit of a good beginning.

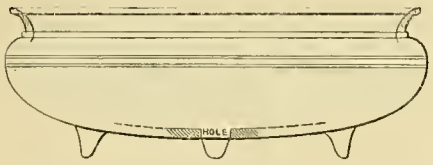
The Beaufort Nursery was acquired by Mr. Barron some time ago, and is almost all glass. Its situation is a delightful one, as the beautiful Swansea Bay is fully in sight, and so close to the sea that the tide rolls up almost to the boundary wall; on the other side it is hemmed in by the main road leading from Swansea to The Mumbles, which is a favourite seaside resort, and makes the position of the nursery an advantageous one. The houses are ten in number, and the largest measures 90 feet in length and 12 feet in width. The chief inmates of this are nice specimen Camellias, excellently grown plants, well covered with flower-buds, which will be most useful in supplying choice flowers throughout the winter months. There are many fine Azaleas in this house, and a number of well-developed greenhouse Rhododendrons, besides a variety of other plants, suitable for conservatory decoration; other smaller houses were stocked with smaller greenhouse plants, and the Maréchal Niel Rose clothed the roof of several of the glass structures. There is a large cut flower trade done here, and "the Maréchal" plays an important part in it at certain seasons. Others of the houses are kept as stoves for the culture of Crotons, Dracænas, Gardenias, Stephanotis, Palms in variety, many Ferns, and a general stock of everything that is choice and useful.

Every effort is made to keep up a seasonable supply of plants and flowers, and large quantities of Primulas, Cyclamen, Cinerarias, Chrysanthemums, and other soft-wooded subjects are grown for winter use. Here and there in the houses are batches of Orchids, and the whole place is well stocked with useful plants. *Scrutiniser.*

FLOWER VASES.

If there is anything ugly it is the common flower-pot; its utility, however, compensates for an immense amount of ugliness, and so it is tolerated; but it is a question, even from the point of view of mere utility, whether the time-honoured shape is really the best that could be adopted. Some of those one sees in Italy seem preferable, as they are certainly more elegant in form. But there are various methods by which the ugliness may be concealed—various substitutes for the common flower-pot which may be adopted when the object is merely of a temporary or decorative character.

For this purpose few things are more suitable than the elegant vases of all sizes, shapes, and patterns, and of all prices from pence to guineas, which Messrs. Doulton & Co., of Lambeth, are now producing. They are finding their way largely into markets and flower-shops, and in one of these the forms we now illustrate (figs. 93—100) attracted our attention, conjured the coin out of our pockets, and stimulated the efforts of artist and wood-cutter. Anxious to know more as to these little elegancies, we made our way to Messrs. Doulton's show-room on the Albert Embankment, and there, amid a bewildering wealth of elegancies of all kinds, betokening that the now familiar phrase, Doulton Ware, must be taken in a very comprehensive sense indeed, and must not be limited to one particular kind of pottery, we came upon a perfect depôt of the special articles we came to look at. We shall not attempt to describe them—scarcely two were alike—our illustrations must tell their own tale, they will serve as samples of the bulk. They are here from the simplest to the most elaborate, good artistic form in the one case being secured at a cost of a few pence, supplemented by detail, elaboration, and finish in the case of the more costly specimens.



The first thing that strikes one is the difference between mechanism and art. When once a mould of the desired form has been obtained the objects can be multiplied almost *ad infinitum*. But, as we have said, that is not Messrs. Doulton's plan. A few only of each kind are made, and then the mould is broken, and another one of a different pattern is made. Thus monotonous mechanical repetition is avoided, and constant variety assured. Each article, moreover, bears the impress, not of the mere manufacturer, but of the artist. Artists furnish the designs. Delicate fingers trace out the patterns on the yielding clay, and with their modelling tools and styles follow the lines of the designer as though they were etching tools. The incisions may be left as they are, or filled in with paste of different colours. In other cases the ornament is stuck on, each little piece separately. For this purpose the paste is pressed into a die or a mould to get the required shape, then removed and affixed bit by bit to the surface of the vase—fidgetty work, requiring nicety of manipulation. For the cheaper class of ware the pattern is merely indented on to the clay by suitable stamps, as a housewife leaves the impression of her implements on the yielding surface of her pastry.

In still another class of work Nature printing has quite recently been adopted, Fern fronds and leaves are made to leave their impress on the clay, and thus Messrs. Doulton produce at will fossils—impressions of fossils rather—exactly such as the lamented Swiss botanist, Heer, studied to such purpose, or such as our own Williamsons and Carruthers describe and classify. One does not usually associate the idea of a fossil with decorative art or æsthetic utility, but Messrs. Doulton's newest patterns serve to show that the two ideas are by no means irreconcilable.

Almost the whole of this art pottery, so far as designing, modelling, pattern-tracing, china-painting, and the like are concerned, is done by girls and young women. Ten years ago three such were employed—now 300 may be seen at work in light well ventilated apartments, each intent upon her work, and suggesting a contrast with listless Berlin-wool working, crochet knitting maidens, which we will not pursue further.

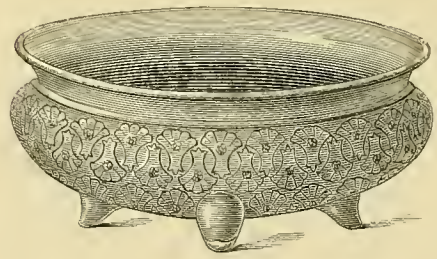
The stillness of the work-rooms is almost startling, but the earnest purpose pervading the whole acts as a valuable stimulus. How such discipline is maintained is a marvel: we did not inquire how it was done, as some things were obvious, as for instance the careful selection of the workers that is exercised and the care taken of their material interests. The girls are taken at a very early age and trained to their work, promotion and advance being contingent on good conduct and ability as manifested not only in the workshop, but in the South Kensington Art Schools. The younger girls receive the reward of their labour

not only in the form of so many coins per week, but in the even more potential form of assistance in their art studies.

It is hard indeed to know what will suit the British public, but we are glad to learn that Messrs. Doulton's efforts to create a demand for more artistic flower-holders have been attended with ever-increasing success, and this in spite of active competition at home and abroad, and of prohibitive tariffs on the part of our American cousins.

FUCHSIA EXONIENSIS.

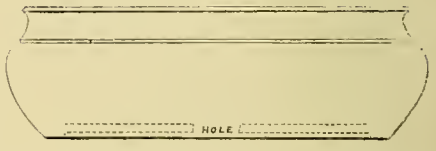
The robust, hardy Fuchsia, represented in the accompanying woodcut (fig. 101, p. 565), and identified by me with F. exoniensis of Paxton's *Magazine of Botany*, x., p. 151, is cultivated by Mr. Lynch in the Cambridge Botanic Garden. I am not able to assert positively that I am right in my identification, because I have seen no authenticated specimen of F. exoniensis; but this is the only one that I have ever seen which at all agrees with the coloured figure given by Paxton. Although our plant has the largest flowers of any hardy variety of Fuchsia that has come under my notice, they are not much more than half the size of those of Paxton's figure, and the corolla is red-purple rather than blue-purple. Of course it may be a variety of more recent



FIGS. 93 TO 96.—ORNAMENTAL FLOWER VASES.

origin, and the true F. exoniensis may be extinct; yet I hardly think this can be the case, for I have, within the last few years, seen living specimens of nearly every one of the classical hardy varieties—I mean those hardy varieties and species, as some of them were supposed to be, raised from forty to sixty years ago. Among them are F. gracilis, Lindley, *Botanical Register*, x., 1824, t. 847, figured the same year in the *Botanical Magazine*, t. 2507, under the name of F. decussata; F. conica, Lindley, *Botanical Register*, xiii., 1827, t. 1062, raised in the Chiswick Gardens from seed sent direct from Chili by Mr. Place; F. globosa, Lindley, *Bot. Reg.*, xviii, 1833, t. 1556, said to have been raised from seed of F. conica, by Mr. Bunney. Of the really hardy Fuchsias this is the only one that I have not been able to match nearly or quite among the wild specimens in herbaria. It is remarkable for the globose form of its flowers, both in bud and open, and also for the extreme shortness of the tubular portion of the flower. I have never seen any other variety of this group with so short a tube. Altogether it is one of the most distinct, and one of the prettiest, though its flowers are relatively small. Then there is the F. discolor, Lindley, *Bot. Reg.*, xxi., 1835, t. 1805, *Bot. Mag.*, t. 3498, raised from Patagonian seeds. It was introduced by Mr. Lowe, and bore the name of F. Lowei. Mr. Lynch sent me fresh specimens of this variety lately. By a singular slip, Lindley recorded it from "Port Famine, Falkland Islands." Port Famine is in the Straits of Magelhaen, and is in a somewhat higher latitude than the Falklands; yet no Fuchsia has been found in those islands, nor indeed in any of the islands between America and New Zealand, where the genus is represented by three or four species. Finally I must include in this selection of the older hardy varieties F. Riccartoni, raised between forty and fifty years ago by Mr. Young, gardener at Riccarton, near Edinburgh, from seed, it is stated, of F. globosa, fertilised by the pollen of some other variety.

F. exoniensis was supposed to be a hybrid between F. cordifolia and F. globosa; but, as I have stated before, I do not think that there is any mixture of the former very distinct Mexican species in any of the hardy Fuchsias, which are all forms of F. macrostemma, Ruiz and Pavon, syn. F. magellanica, Lamark, which species, Gay says, is common from Coquimbo, southward—that is, through nearly 25° of latitude. A plant having such a range might be expected to present considerable variation, and in fact, among wild specimens the leaves differ in size from less than half an inch, including the petiole, to 4 inches in length, and the flowers vary in size to as great an extent. It is noteworthy, too, that this difference in



size is not in relation to latitude, for the largest wild form that I have seen was from Port Famine.

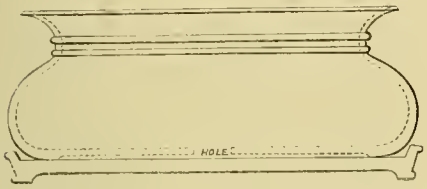
Whether I have correctly named the present variety or not, it is undoubtedly the most vigorous, and one of the showiest of the hardy Fuchsias. Mr. Lynch informs me that it is extensively grown in the West of England, where it attains extraordinary dimensions, particulars of which he kindly communicated, but I have unfortunately mislaid them. Perhaps Mr. Lynch will send them direct to the *Gardeners' Chronicle*. In conclusion I should like to enquire concerning the fate of the remarkable F. triphylla, syn., F. racemosa, of which I gave the history in the *Gardeners' Chronicle*, n. s., xviii., p. 263. *W. Botting Hemsley.*

The Rosery.

Autumn Work.—On all sides amongst the Rose loving fraternity there is bustle, and work has to be done as speedily as possible, so that all may be ready to do battle with the cold and wet weather that in one form or other we are sure to experience in our climate—a climate, let me say in passing, which, although very much abused, can hardly be excelled for the Rose grower. We hear glowing descriptions of how Roses grow in India, of Maréchal Niel and Cloth of Gold covering untold acres, and giving a gorgeous sheet of bloom; Britons, who are nothing if not grumblers, go to the South of Europe, and as they in mid-December or January see Roses in full bloom and clustering on verandahs and terraces at Nice or Mentone, go into ecstatic raptures, execute a wild war dance in which they trample under-foot our climate, Roses and all; but yet, with all that, I should like to ask for how long? Our prolonged season depending so much on that moist atmosphere which the foreigner so much hates gives us an advantage which even the

practised Rose growers of Lyons do not possess; with them the season is short, and as to the quality of the Roses there can be no second opinion—they may raise them, but they must leave it to us to grow and establish them. But I am digressing.

The present autumn has been on the whole a favourable one for ripening the wood of the Rose, on which so much of future success depends, and I therefore hope and believe, that the prospects before us are good. The first thought of a Rose grower (I am not speaking of the exhibition nursery), as he looks round upon his garden is, What do I require from the nurseryman? If he is wise he will not look on his Roses with too partial an eye, will not consider whether this weakly individual should be spared, or whether for other cause it should be condemned. Generally it is said, give the criminal the benefit of the doubt, but not so in this case: out with it ought to be the verdict, for by-and-bye you will regret that you have shown mercy. Roses are to be obtained now, especially dwarf, on such reasonable terms, that it is hardly worth while to hesitate about it. Let us suppose, then, that, having looked over your beds, you have determined that a certain number should be got in, and that they have arrived in good condition, what is to be done with them? This, I think, will depend very much on the time at which you receive them. If you get them in October, or very early in November, plant at once; but the demands on Rose nurserymen are now so vast, that, as in every well ordered establishment, the grower for sale will not trust to subordinates, but he will see to the lifting himself, that there be none of those mistakes in raising which are so worrying to all concerned, it must be a great chance whether they are received at the dates I mention, and if not, my own experience is entirely in favour of not planting them. I know



it is contrary to all that we are told—many scientific reasons are given against it, but with all that experience must be the test, "The proof of the pudding is the eating." I had last year three beds to plant, containing altogether about a hundred Roses; they were received, as I thought, very late, about the middle of November, and I could hardly imagine that any good could be done by planting them then, they could not, as I thought, properly get hold of the ground before frost set in, and hence I determined to lay them in instead of planting. I was warned, but was obstinate. I was told that when I went to lift them in the spring I should find them sending out rootlets, that they would be broken off, and the life of the plant injured. Well, the result was, that out of the 100 plants I lost five. A friend, who obtained 200 plants from the same source, and planted them in November, lost forty. I did find some of them emitting rootlets, whether these were broken off in planting I do not know; but I do know that it made no difference in the growth of the plants, and comparing them with those of other friends who had planted in November in better Rose soil than my own, I feel abundantly satisfied with the result, and it must be remembered that we had in March, just after they were planted, that terrible burst of cold weather which did so much damage, and raised in some quarters the cry that we should have no Roses.

Should planting be determined on, it must be done judiciously, and here the question comes in, Shall we manure our Roses? I would decidedly say, not at the time of planting. It is much better that the roots should be able to push themselves into good clean loam than into a mixture which must contain a quantity of fungoid growth, by which the tender rootlets may be attacked; and as so many are grown on the Brier in one form or other, it is more in accordance with its natural conditions to keep manure away from it, as it delights in the deep loam of our hedgerows, where the manure it receives is simply the decomposed vegetable mould, which washes down into the roots. It is advisable when they are planted to shorten any long shoots, and to tie the rest securely to a short stake, so as to prevent the wind from knocking them about, loosening their hold, and so allowing the water to get down to them, and especially the junction of stock and scion. There are differences of opinion, as there are on most subjects connected with the Rose, as to the propriety of mulching for the protection of dwarf Roses in winter. My late friend and thorough rosarian, Mr. Radcliffe, used to be laughed at for recommending that they should be earthed-up like Potatos, but I am not sure whether that plan is not better than mulching with manure. As the ridges

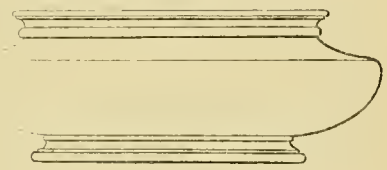
retain moisture as much as it does, and moisture is a great adjunct to frost, I have had my beds mulched all the summer. The manure is now tolerably dry, and I am thinking of drawing it round the plants and covering it over with earth, thus forming a little hillock round each. This I purpose taking away in the spring, and then giving the beds a thorough good mulching of fresh short manure, which will stimulate the plants when they are pruned and ready to start fresh growth. Connected with planting is the ordering of varieties which are not already possessed; let me advise all who wish for a pretty buttonhole Tea to order Ma Capucine and William Allen Richardson; while for pretty little garden Roses I would advise

Figs. 97 to 100.—Flower vases.

Paquerette and Mignonette; then, again, the little Rose de Meaux ought to find a place. Blanche Moreau is also a charming white Moss, but is not what it was said to be—perpetual. I say nothing of exhibition Roses, of these there are lists in abundance, while the catalogue of the National Rose Society affords an admirable guide for all those who wish to grow for exhibition.

As a good deal has been said upon the subject of growing Roses on their own roots, and as several of our amateur exhibitors have not only advocated it, but have shown some of their best flowers from these plants, it may be as well to say that there is no time when this is so safe a proceeding as now—the wood is thoroughly ripened, and there is but little chance of damping off. Nor is there any secret about it; they are as easily struck as Gooseberries and Currants; a few things, however, have to be observed. Avoid taking off all long and watery shoots, as these are quite unsuited for the purpose; there will always be found at this time a number of short and woody shoots, generally in the centre of the plant—these form the best cuttings. They should be taken off with a heel, and should be about 9 inches long; the lower eyes should be destroyed, and about three or four of the top ones left. These alone should be left above the ground, and the shoots should be dibbled in and pressed as hard as possible, so as not to allow any chance of water lodging about the base of the cutting. If there is any convenience for so doing, it may be as well to place an old light over them in very severe weather, but this is not absolutely necessary, but when a frame is not used, a top-dressing of cocoa-nut fibre will be useful.

In the remarks that I have made about planting, I have referred solely to Hybrid Perpetuals, Bourbons, &c., for with regard to Tea-scented Roses I have no doubt whatever that the best plan to adopt with them is to lay them in for the winter, doing so carefully, and having some loose litter to throw over them during very severe weather, but taking care not to leave it on when the weather is mild. In laying them in, let it be done in a place from whence water can run off, and, if possible, in light soil, for stagnation of water or watery soil round the roots is fatal to them. Where Tea Roses are grown against walls, as they frequently are now-a-days, it will be desirable to give them some protection, if the weather be severe; this situation, of course, encourages early growth, and where this is the case they are apt to get pinched by severe frost. I think the best thing to use is "scrim," or papering canvas; this does not coddle them, but sifts, so to speak, the frosty winds, and thus protects them. It is recommended, where Tea Roses are



grown in beds, to give them some sort of protection, either by Fern, or branches of Euonymus stuck in amongst them. In some localities this may be needed, but as I now always cut my Teas back hard, and am not so careful to preserve the growth as when I was in the habit of only shortening back the shoots, hence I do not so much mind it being cut off by frost. My observations are concerning Roses grown in the South of England; probably in the Midland Counties and in the North other measures may be requisite, but I think that the danger is far more from coddling than the reverse. We want to have good hard wood, and assuredly this fine autumn, which has been so good for ripening wood of all kinds, must confer its benefits on the Rose. *Wild Rose.*

COLONIAL NOTES.

Sydney, New South Wales.—It is now two years since a wild flower exhibition, or a collection of the native flowers growing in the vicinity of Sydney, was instituted by the energy and industry of a party of ladies, assisted by a few gentlemen who interested themselves in the undertaking. This, and the first show of native bush flowers in 1881, was held at the township of Manly, which is one of the suburbs of Sydney. It is delightfully situated in one of the numerous and picturesque nooks of the harbour of Port Jackson, and the communication is as easy as numerous—fine and commodious steamers are constantly plying between Sydney and Manly. In order to collect the large quantities of flowers required for their purpose the ladies braved the rain and wind, exploring the dense bush with ardent zeal in search of their spoil, traversing, in many instances, a distance of 7 or 8 miles to attain the objects of their search. Some even got lost, but fortunately were found again.

Excepting Cape Town, Cape of Good Hope, there

is no city that can compare with Sydney in the number of wild flowers to be found in the vicinity. It is a natural flower garden: flowers in profusion are seen during the spring season (September), at which time it is that Nature displays the rich and varied colours in her floral gems, whether on the plains, the hills, the dense bush, the steep mountains, or the deep valleys. The variety of the scenery excites the imagination, the charming flowers strewing the ground around seem to smile upon us, and impart, in varied tints, that animating pencil of Nature that no painter can equal. It was this beautiful carpeting of flowers when first seen by Banks that suggested the name of Botany Bay, and one could imagine the admiration and delight of such a lover of Nature when he beheld for the first time such a profusion of new forms of vegetation for the most part to be seen in no other part of the world—the singular Banksias (named after him), the Grass trees, Gum trees (Eucalypti), and scattered about in rich tints were the Stapelias, Eriostemons, Lambertia formosa, Blandfordia, Pultenæa, Hibbertia, Grevillea, Kennedya (blue and scarlet), Epacris, Sprengelia, &c., and the Boronias, which latter emit from their leaves when crushed a powerful odour, like all the Rues, to which family they belong. The Boronias, Sprengelia and Westringia were first described by J. E. Smith, in a separate volume (*Tracts Relating to Natural History*), in 1798, and others subsequently, by Robert Brown.

On September 13 the exhibition was opened. On entering the pavilion in Ivanhoe Park there was a great attraction in the vestibule, for there was erected a large circular stall, enveloped in green foliage, Palms, flowers, Pandanus fruits from Port Macquarie, Ferns, among which the Stag's-horn Ferns (Platycerium) were conspicous among many of great beauty —all elegantly arranged. Over the openings for the display and sale of the various beautiful bouquets, floral wreaths, &c., were floral emblems or devices, tastefully worked in native flowers. The interior of this pretty bower was presided over by numerous young ladies, dressed with taste, and vying in beauty with the flowers around them, which they were disposing of in the form of bouquets varying in price from 2*s.* to 5*s.*, according to the size and variety of the flowers composing them. On entering the hall the visitor was rather bewildered by the variety of beauty before him, and how to commence gratifying his sight. The stalls were arranged with great taste, vases of brilliant Waratahs [Telopea speciosissima], bouquets of every size, and beautifully arranged, from pure white to a delicate blending of flowers of various tints and others worked into various fanciful devices. Among the devices was a harp the strings of which were formed of golden flowers; another was a cross, beautifully executed; and another a Union Jack, all worked in the wild flowers. Many of the wedding bouquets were very elegant, the pure white flowers being contrasted by the delicate green of the Maidenhair Fern (Adiantum); many of the wedding wreaths were also very beautiful. The bouquets descended from the large bunch for a vase in various sizes, to the tiny but charmingly arranged clusters for the buttonhole. The floral wreaths, floral emblems, and other decorations, formed a galaxy of beauty and taste.

As a contrast in the hall to the bright colour of the stalls around were groups of Fern trees, Palms, &c., which formed a pleasing variety; near them were a few spikes of the gigantic Lily, Doryanthes excelsa, but the rich crimson flowers were not yet fully expanded. Although the native flowers are deficient in perfume, yet for delicacy of tints and variety and richness of colour they are not to be surpassed, and their natural rigidity enables them to retain their vitality for a great length of time. What attracted great attention at the head of the hall was an extensive bank of flowers of from thirty-five to forty species, arranged in fine order, embedded in wet sand, by Mrs. Morris and her sister, Miss Miller. Over this fine collection was a large device of the Prince of Wales' feather, formed of large spikes of the Dendrobium or Rock Lily, of a golden tint. On each side of this bank were eight panels, 3 or 4 feet square, composed of bright-coloured native flowers, such as Waratahs, Epacrises, &c. On the columns in the vicinity were some fine pink fruits of the "Killepilly."

In another stall was displayed an interesting model of a Japanese garden. It was formed around a lake made of looking-glass. The garden was composed of velvety moss, small Ferns, and native plants forming miniature clumps of trees; it was arranged with great taste by Mr. Smedley, who had visited Japan, and was in the stall among an abundant display of bouquets, devices, &c., presided over by the Misses Rowe and Warburton. They had also some Japanese Ferns adorned in the Japanese style with native flowers, having a charming effect. The public school children of Manly had a stall to themselves, and their display in bouquets, baskets of Ferns, and other exhibits, showed much taste in their arrangement, and was highly creditable to them. It was too early in the season for the elegant "Christmas bush" to display its red persistent calyces; but it was well represented on this occasion by a very excellent competitive drawing by Miss Miller, who obtained the 2d prize for it, having carried off the 1st for her beautiful life-size drawing of a noble spike of the Dendrobium, or Rock Lily. Every effort was made by the committee of this novel exhibition to ensure success, and from upwards of 2000 visitors on the first day, and a greater number on the second, there can be no doubt that it was a success. *George Bennett, M.D., F.L.S., Sept.* 20. [We are delighted to find our Colonial friends carrying on a plan often advocated in these columns. Why should they, with such grand material at their doors, care to make indifferent imitations of European shows? ED.]

Orchid Notes and Gleanings.

WORK IN THE HOUSES.—A steady decline in the temperatures of the warm houses will have taken place during the past month or so, and as the days are now rapidly shortening the lowest or what may be termed safe winter temperatures should at once be followed. The East Indian plants, including Phalænopsis and Angræcums, will pass safely through the winter in a night temperature of 63°, with a rise of 5° during the day. The Mexican plants should be kept at about 58° at night and 62° during the day. During cold frosty weather 3° lower night and day will not injure the plants in the Mexican house. Dendrobiums at rest should be kept in a dry airy temperature ranging from 50° to 58°, and any that have not yet completed their growths, such as D. moschatum and D. Dalhousieanum, must be encouraged in a light position in a stove temperature, keeping them damp at the root till their growths are made up, when a reduced temperature will be beneficial to them. The cool-house plants should be kept between 45° and 55°, and the mean of these two temperatures will maintain them in the best of health. Any Odontoglossums now showing or developing their flower-spikes should be assisted with a little extra warmth. The slow growth of the spikes in the cool-house during the winter months is tedious to witness, and a little extra warmth to plants in that stage will bring the spikes out finer, and the flowers larger and brighter in colour during the winter months. The month of November is the worst in the whole year for preserving the beauty of any Orchids that may be in flower, especially light-coloured ones, such as Odontoglossum Alexandræ and most of the Cattleyas. Where there is a superabundance of moisture they quickly become spotted, so that any now in flower must be placed in a dry, buoyant atmosphere to keep them fresh and good for any length of time. The earliest Pleiones will be passing out of flower, and as growth will be commenced, a little warmth and a light position must be accorded them. Any that may be overcrowded with bulbs should be separated and planted thinly over shallow pans. It will be better to allow them to stand undisturbed for a couple of weeks after flowering, when the repotting may be done with safety. A sandy compost suits them best, formed of two parts fibry peat to one of sphagnum moss and one part sandy fibrous loam. A thin layer of this compost placed over ample drainage will suit them. Lælia Perrinii and L. Dominiana will be passing out of flower, and must be kept quiet for some time. As these species flower as soon as their growths are completed, they should be kept from commencing growth again before the spring, when they will have the best season before them for making stout growths that will flower strongly in the following autumn. Many of the Cypripediums will be in full growth, and must be encouraged in the best temperatures for producing good growth at command. Any of the winter bloomers, such as C. insigne, that are now throwing up their flower-spikes will be benefited by an occasional dose of clear liquid manure, especially if the plants are pot-bound. *J. Roberts, Gunnersbury.*

LÆLIA PERRINII.—There seems to be great diversity of opinion amongst various authors as to the correct generic affinities of this plant, and it has at different times been described as a Cattleya, a Bletia, or a Lælia. In the construction of the floral organs the two latter bear a close resemblance, although in habit they are very different. The species of Bletia are in general readily recognised by their terrestrial habit and linear grass-like leaves, while Lælia is epipbytal with coriaceous leaves. At all events for horticultural purposes they are very different, and the species under notice constitutes no mean ornament for the Cattleya-house during the dull autumnal months. Several varieties, merely differing in the shade of colour, from lilac to nearly white, occupy the cool Orchid-house at Kew; and as a species presents a striking individuality from the curious manner in which the sepals and petals recede or fall back, as it were, from the labellum, which is very prominent, with a long tube and having a small but conspicuous rich purple limb. This highly modified structure is doubtless due to insect agency, and must facilitate or ensure cross fertilisation.

ORCHIDS AT BOCKING PLACE, BRAINTREE.—All Mr. Sydney Courtauld's Orchid-houses are new, one block being added during the present season, the additional space thus afforded working beneficial results, particularly on the Odontoglossums, Masdevallias, and other cool sections. Oncidium varicosum, in grand variety, is splendidly grown and flowered in the cool-house; the plants are mounted on neat little shallow cork vases, with tall Hazel-wood cross legs, similar to those we often see offered in town for the purpose of growing Ferns in. The plants are grown cool and moist, in much the same way as the Odontoglossums, except that but little stuff is placed about them, so that there is nothing to retain the water too long about them. O. varicosum likes frequent and copious waterings, but never thrives with anything to hold stagnant moisture about it. The new cold-house seems to suit the plants well; it is already filled with a fine and varied lot of Odontoglossum crispum, and many of the scarce hybrids and a good general collection of Masdevallias. In bloom are some gigantic bulbed O. Pescatorei, O. Alexandræ, O. madrense, O. grande, Masdevallia Veitchiana, some very fine forms of M. chimæra and the scarlet Sophronitis. Noticeable in the intermediate-house are a grand plant of Vanda Cathcarti, 3 feet in height, with foliage to the pot, and bearing two strong flower-spikes; Mormodes lentiginosa, a very singular Orchid; Comparettia macroplectron, a blush or pink little beauty of singular and attractive form; and the rare and showy Scuticaria Steelii, with its drooping Rush-like leaves and massive waxy flowers, with primrose ground colour, blotched and lined with reddish-brown and purple. Among the other well-flowered plants in other houses are Cypripedium Schlimii, some fine pans of Pleiones (one of P. lagenaria having thirty-three blooms open), Lælia autumnalis atro-rubens, with six to nine flowers on a spike; good Vanda cœrulea, Gongora maculata, Maxillaria grandiflora, Nanodes Medusæ, which is a weed in a cold-house; and the snow-white, maroon spotted Burlingtonia decora, a fine old Orchid, which has recently been reintroduced. The aspect of the Orchids in general at Bocking Place gives good promise for the future. The collection of Nepenthes also is good and interesting.

MESSRS. PROTHEROE & MORRIS' SALE OF ORCHIDS IN FLOWER, at their Central Rooms, 67 and 68, Cheapside, E.C., on Tuesday, October 30, proved one of the horticultural events of the season, and a great success, one of the finest and most diversified lots of Orchids in bloom ever brought together in a public sale room being passed under the hammer of Mr. Protheroe, in the presence of a numerous and influential gathering of Orchidists. Something like 400 lots, comprising well flowered specimens of Vanda cœrulea, Odontoglossum crispum, Pleiones, Sophronitis, Cypripediums, Cattleyas, and most other favourites, were disposed of at fair prices, alike satisfactory to buyer and seller. Among the rare things, William Lee, Esq., of Downside, secured a fine plant of a pure white form of Cattleya Eldorado, with dark carmine lip; Dendrobium Wardianum album, Odontoglossum Andersonianum lobatum and another fine snow-white Cattleya, with orange throat and light rose lower half of the labellum. It came from Messrs. F. Sander and Co., and was received by them from Mr. Lehmann, who collected it on the ground from whence his and the late Mr. Chesterton's plants came which were sold in January last. The flower on

this small piece is large, lovely, and of fine substance. It augurs well for the importation which Chesterton spoke so highly of.

Odontoglossum Pescatorei var. (of the Veitchii strain).—A lovely thing of perfect form, and with heavy crimson spotting, which flowered at the large Orchid establishment of Messrs. F. Sander & Co., at St. Albans, and which was offered by that firm at Messrs. Protheroe & Morris', on Friday, October 26, was secured by Messrs. Jas. Veitch & Son, of Chelsea, at 70 guineas. The plant may be honestly described as second to none but the original O. Pescatorei Veitchii.

The Flower Garden.

The removal of the summer plants and the work of refurnishing the beds with either shrubs, spring-flowering plants, or bulbs, should now be nearly completed, for although the weather has been unusually favourable this autumn, and many of the late flowering subjects are still very beautiful, and the temptation great to allow them to remain, still, if the spring garden is to be a success, the operation of planting should be finished as quickly as possible, so as to enable the plants to become well established in the beds before frost checks their growth. Early planting in cold districts is the chief step towards success in the spring garden, and should on no account be neglected. Another point which should receive attention is not to have the soil of the beds over-rich, but aim to secure hardy growth by the addition of sandy loam rather than stimulating manures, which produce succulent shoots more easily affected by frost, and not in the end so productive of flowers. The best time to give a stimulant is in the spring, when the danger of severe frost is past, by administering an occasional soaking of liquid-manure just at the time when the flower-buds are expanding. In the removal of late flowering plants, such as Dahlias, Salvias, and all similar subjects, care should be taken to see that they are free from excessive moisture by inverting the roots after the stems are cut down in a dry shed for a few days, and afterwards storing them in dry sand or soil in a cool moderately dry shed till spring, taking care to secure the names firmly to the top of the stem beforehand. Gladiolus are somewhat late in ripening their growths this year, and should still be allowed to remain in the ground; where, planted in groups, a space should be left round their stems unplanted, which can easily be filled after their removal; in the mean time, should severe frosts occur, a little dry sand or leaf soil should be placed at their base as a protection to the bulbs.

Herbaceous Borders.—As many of the herbaceous plants have now become somewhat shabby and unsightly in appearance, they may be cut down. Where the growth is sufficiently ripened, do not, however, in order to secure extreme neatness, carry this practice to excess, and so weaken the plants by untimely removal of their green stems and foliage. Before doing so make careful notes of the heights, colours, period of flowering, and other distinctive characteristics of any new species or varieties which may have been recently introduced, and with which you are not quite familiar. These notes will afterwards be found very valuable when the plants are cut down, especially if a re-arrangement of the borders is found necessary, or a new one required to be made. This is an excellent time of the year to undertake such work, as most of these lovely plants will now bear removal and division. For those kinds which are too tender or too small to endure the rigour of our winters until they are fairly well established, the protection of a cold frame will be found advantageous; and suitable and convenient spaces can be left for their reception in the borders, in the spring, when danger from frost is past. In forming a new border, or borders, I would strongly advocate the necessity and advantage, not only for convenience, but also as being so much more effective than mixed arrangements, of growing the different species separately, or at least in planting together only such kinds as are found to improve each other by juxtaposition. Although herbaceous plants in general do not require any special preparation of the soil, still there are some very choice kinds which are benefited by a little extra attention in this respect, and when grouped separately this can the more readily be done. For most species, however, a sandy loam, not too much enriched by manure, will be found very suitable, and there are few kinds worth growing which will not succeed in such a soil. In dividing and replanting it is not advisable, if immediate effect is required, to reduce the roots very small, and care should be taken to plant the taller and coarser-growing kinds in the larger beds, or most backward positions, and the smaller and more delicate growers in the smaller beds or front positions, taking especial care to plant a few good and effective kinds in sufficient masses to produce a decided effect, rather than intermix in an indiscriminate way, so as to produce an indefinite medley. When the planting is finished, water should be given to settle the soil amongst the roots, and a mulching of half-decayed leaves will form an excellent protection against frost.

Roses.—This is perhaps the most suitable time to plant all kinds of Roses, in doing which the soil should have been previously prepared by trenching to a depth of 2 feet, and if poor, by mixing in a portion of well-decayed manure; or, better still, a quantity of fresh turf or rich loam; if somewhat sandy, so much the better. After planting, a good mulching of half-decayed manure will prove beneficial. *T. S. C.*

The Hardy Fruit Garden.

Now that the fruit trees are losing their foliage, planting should be commenced in earnest. The fine dry weather has left the soil in capital condition, and where the preparations are completed, planting will be greatly facilitated. The roots of newly planted trees must be spread carefully and regularly all round, covering them with a few spadefuls of fine earth, but avoid deep planting, and keep the roots only a few inches beneath the surface, cutting off with a sharp knife any bruised or broken portions. Make the soil firm around each plant, and secure to stakes. Mulch the surface from 2 to 3 feet around each stem, to protect the roots from frost.

Trees intended to be lifted to induce fruitfulness, should be operated on immediately. The removal of any large trees it is intended to place in another position, and which should have been prepared by trenching round one year previously, should also be carried out. In these cases it will also be necessary to mulch and stake. In making the selection of sorts to plant of Apples and Pears, choose rather a few varieties known to be good and sure bearers, and adapted to the soil and climate of the district, and sorts that will succeed each other, and so extend the season. Several of each should be planted, in preference to selecting one of a kind of the most showy varieties, many of which are not great and constant bearers, though of first size and quality. This remark applies more to small establishments, but though larger ones must have a quantity of some reliable kinds, with plenty of space they can also go in for variety. An orchard should be connected with every establishment for supplementing the garden produce where the trees may be allowed to attain dimensions undesirable in the garden set apart for vegetables. All the gardening periodicals abound at this season of the year with selections and descriptions of the best varieties, and if writers would make it a point always when doing so of giving the soil, subsoil, aspect, and particulars of climate a boon would be conferred upon their readers. Where it is necessary to remove plantations or to fill up gaps in Gooseberry, Currant, or Raspberry quarters the old plants may be safely moved now, and new plantations be formed if the ground has been previously deeply trenched and manured. The rows of Gooseberries and Currants should be 6 feet apart, and the plants 5 feet 6 inches apart in the rows. Raspberries to be trained to wires running the length of the rows should be planted 18 inches apart in the rows, which should be from 8 to 10 feet apart, to prevent overcrowding, and insure a proper ripening of the canes, also to admit of rows of early Cauliflowers or Cabbages being grown between. Peaches and Apricots should have their leaves—which easily separate from the tree—removed by hand, so that the wood may have all the advantage of the sun and air to mature it. I prefer removing them with the hand to using a birch broom, as though it takes up more time there is no fear of injury to shoots or buds. As soon as the foliage has fallen from Pears, Plums, Cherries, and Currants, pruning may commence. In large establishments it is found necessary to begin thus early, as there is a great amount generally to be got through, and advantage must be taken of all fine weather; besides, now it is much more comfortable for the operator than further on, when the cold and wet weather prevails. Every tie or shred should be tested as to whether it is capable of standing another year; some at least should be renewed, to make sure that when another season's crop is on the shred or tie does not give way, to the possible loss of both crop and branch. The old nail-holes and crevices on walls should now be stopped, the workmen in the garden, who know the value of branches and buds, being the best to perform this work. *D. C. Powell.*

Grapes and Vineries.

Vines.—The earliest house must have the front and back ventilators left open night and day until the Vines start, and where Grapes are required as early as possible it may be closed and started gently now. Where fermenting material is used on the inside border no fire-heat will be required for the first few weeks. Before starting water the border thoroughly with clear tepid water at a temperature of 85°, and turn over the fermenting material every morning, and add a little fresh when the heat is declining to keep it steady; syringe the rods with tepid water when they are dry, but where fermenting material is used they will not require much syringing. Cover the outside border with fermenting material, so that it will be at about 80° to 85°, and examine it every few days to see that the heat keeps steady, and replace the shutters to throw off the wet. In succession-houses the decayed foliage must be gathered as it falls, and the Vines can be pruned whenever opportunity offers, and have all the air possible night and day. Late Hamburghs still hanging on the Vines will require great care to keep them well now. On dull, foggy days very little air must be given, and that on the top ventilators only, with sufficient fire-heat to dispel the damp; but when there is a bright day admit air freely in the early part, and reduce it before evening. Look over the Grapes every few days for decaying berries, or they will soon disfigure the bunches. Muscats can be kept at a night temperature of 50°, and have sufficient water at the roots on the inside border to keep the berries plump; but if the border is covered with fern or straw, to prevent evaporation, no more water will be required. Give air on the back ventilators on all favourable occasions, but not much front air will be required, for if a cold draught is felt the berries will turn brown and not keep so well. All late varieties of Grapes can be kept at a night temperature of 45° to 50°, according to the state of the weather outside; a temperature a few degrees lower is always better than too much fire-heat. Pot Vines for early work must be kept outside until they are started, when they must be kept at a night temperature of 50°, with a rise of 10° by day and a moist, growing atmosphere. *Joshua Atkins.*

THE PARCELS POST.

The Postmaster-General has given notice that from and after November 1 rural carriers, whether on foot or mounted, will be required to accept parcels from the public for dispatch wherever they now collect letters, and the collection of parcels is subject to the following regulations:—

"(*a.*) A rural carrier on foot must not accept, from any one person, a greater weight of parcels than 7 lb. in the aggregate, unless he shall have received notice, on the previous day, from such person of his intention to send a greater weight.

"(*b.*) A mounted rural carrier is not required to accept a greater weight in the aggregate than 21 lb. from any one person unless similar notice shall have been given to him.

"(*c.*) Such notice may also be given by the sender at any post office on the route of the rural carrier, and the postmaster of such office will inform the rural carrier.

"(*d.*) A parcel handed to a rural carrier must be within the prescribed limits of weight and size, and must bear stamps to the full amount required for postage, the sender being held responsible that these conditions are complied with.

"(*e.*) A rural carrier may, at the request of the sender, weigh or measure a parcel, or check the postage, when his doing so does not interfere with the proper performance of his duties, but the sender must understand that the rural carrier is not responsible for the correctness of the weight, size, or postage, as this responsibility rests with the office at which the rural carrier hands in the parcel. The rural carrier may, however, refuse to accept a parcel which, beyond all doubt, is above the limits of weight or size.

"(*f.*) A rural carrier unable to accept more parcels must explain the reason to the person who offers the parcel, and must report the circumstance at the next sub-office on his route, and also to the postmaster of the terminal office."

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 5	Continuation of Great Apple Show at Manchester (to 9th). Sales of Dutch Bulbs, at Stevens' and Protheroe & Morris' Rooms.
TUESDAY,	Nov. 6	Sale of Roses, Fruit Trees, Bulbs, &c., at the City Auction Rooms, by Protheroe & Morris. Sale of Nursery Stock, at the Milford Nurseries, Godalming (four days); and at the Manor Road Nursery, Lee, by Protheroe & Morris.
WEDNESDAY,	Nov. 7	Chrysanthemum Show at Eastbourne. Sale of Nursery Stock, at the Eaton Nurseries, Norwich (two days), by Protheroe & Morris. Sale of Hardy Plants and Bulbs, at Stevens' Rooms. Sale of Camellias, Azaleas, &c, at Protheroe & Morris' Rooms.
THURSDAY,	Nov. 8	Sale of Imported and Established Orchids, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
SATURDAY,	Nov. 10	Sales of Hardy Plants and Bulbs, at Stevens' Rooms; and of Dutch Bulbs, at Protheroe & Morris' Rooms.

IT is not much more than twelve months ago that we had the pleasure of announcing the opening of the MARIANNE NORTH GALLERY of "Paintings of Plants and their Homes" in Kew Gardens; and now already we have something to say respecting an important addition to that unique collection which, although situated in a somewhat remote part of the gardens, and not mentioned in the current edition of the *Guide*, has been visited by many thousands of persons. Indeed, go when we will, we always find that the picture-gallery has absorbed more than a fair share of the visitors to the gardens, and there is no doubt the attraction will be permanent, because truthful pictures convey to the mind a vast amount of instruction in so pleasant a manner. We can imagine no more valuable adjunct to the unrivalled collections of living and dried plants at Kew, for in these pictures we have a reproduction of the aspects of vegetable life in various parts of the world, and individual beauty in its fullest development.

The collection opened to the public twelve months ago last June illustrates, more or less fully, the flora of Teneriffe, Brazil, the West Indies, North America, both East and West India, including Ceylon, Borneo, Java, Japan, New Zealand, Tasmania, and Australia, besides many plants, met with in botanic gardens, native of other parts of the world. But in this collection of upwards of 600 paintings there were very few representing the vegetation of Africa. Miss NORTH felt that this was a great void, and she had hardly finished the toilsome task of hanging her pictures and painting fresh ones to cover odd spaces, than, as we chronicled at the time, she started for the Cape to fill it. Her return last spring, somewhat enfeebled in health from an attack of fever, was briefly announced. A few months' comparative repose restored her strength; and this courageous lady has again left this country on a long voyage to paint more pictures. Before going, however, she set the builders to work on a new wing to the gallery for the reception of the South African pictures, and such others as she may paint on her present travels. By this time she is probably in the Seychelles, whither she went to paint the Palm forms peculiar to those islands, and threatened with early extinction. It was also her intention to visit Mauritius and Madagascar, if practicable, and afterwards, possibly, Sumatra. Let us hope that she may have health and strength to carry her intentions into effect.

The South African pictures, which we hastily looked over a few days before Miss NORTH'S departure, give, perhaps, as good an idea of the characteristic features of the flora of that region as one may gain of Australian vegetation from the pictures in the collection already visible to the public.

There are admirable pieces of landscape, showing the physiognomy of the vegetation; and we are repeatedly reminded of the almost total absence of trees beyond those of quite small stature. The fact, too, that a genus specifically so numerously represented in the flora as the Heath (Erica), yet forms no such prominent feature in the vegetation as the few species we have of Erica, for example, do in this country, is apparent. These pictures teach much, and are by far the most valuable part of the collection. The groups of cut flowers in vases "done to wile away wet days," are many of them charming in their way, but they lack the novelty and interest of the plants in their homes.

The showy Proteaceous genera, Leucadendron and Protea, of which the present generation knows next to nothing in this country, are represented by many of the more striking species. It is noteworthy that, during the last sixty years or thereabouts, not a single species of either of these large genera has been figured in the *Botanical Magazine* or other serial publication. During the first quarter of the present century from twenty-five to thirty species of these two genera, but chiefly of Protea, were cultivated in this country, and figured in various serials. ANDREWS' *Botanists' Repository* is the principal source, containing altogether six plates of Protea, and thirty-three of Leucadendron; several of them, however, represent varieties rather than species. Of figures of these plants, previous to that date, we only remember those in WEINMANN'S *Phytanthozaiconographia* —rather a long word!—which date from 1737, and which are remarkably good for the period. Whether they were painted from plants cultivated in Europe, or from plants growing at the Cape, we have not ascertained.

We venture to hope that Miss NORTH'S paintings will induce some of our amateurs to take up the cultivation of these singular shrubs.

The species of Leucadendron are diœcious, and the two sexes are so different in habit and aspect that they are easily distinguished, as Miss NORTH'S paintings show. The female plants bear the seed-vessels of several successive seasons.

Another element, consisting of plants with fleshy, more or less Cactus-like stems, devoid of true leaves, is represented by paintings of various species of Euphorbia—columnar and spheroidal—Stapelia, &c. There is also a painting of a fine specimen of the arboreous Aloe dichotoma, an isolated tree, or group of two or three trees, we forget which, the remains of the indigenous vegetation in the midst of cultivation, and distant some miles, the artist informed us, from any other member of its species. A remarkably robust Kniphofia attracted our attention. It stands out by itself in a barren, bare looking place, in a rocky wild country, where its broad dark green foliage and massive spikes of scarlet and yellow flowers are exceedingly effective.

Lovers of Cape bulbs have a great treat in store; they will derive additional pleasure from seeing them as they grow at home. There is a great variety of them depicted, belonging to the genera Gladiolus, Babiana, Ixia, Sparaxis, Antholyza, Watsonia, &c.; specially noteworthy are the showy Crinum Moorei, the Poison Lily (Brunsvigia toxicaria), the graceful Dierama pendula (Sparaxis pendula), and a thicket of Watsonia Meriana. Disa grandiflora, the "glory of the Table Mountain," is there too; but the artist had to paint it from a cultivated plant, not being fortunate enough to be at its home during its flowering season. A more familiar plant, Richardia æthiopica, is very striking in full flower, growing socially in large masses; as is also another species of the same genus, having yellow spotted leaves. Various species of Erica, of Pelargonium, of Mesembryanthemum, of Helichrysum, and other showy members of the Compositæ, of singularly formed terrestrial Orchids, of brilliantly-coloured fleshy, leafless parasites belonging to the Scrophularineæ, are scattered up and down in the landscapes and associated with bolder subjects. There is also the unique Strelitzia form, the Melianthus, and a host of others less distinctly imprinted on our memory in the short half hour that we spent so pleasantly in looking over them.

—— HONOURS TO HORTICUTURISTS.—We learn from the Belgian *Moniteur*, that in virtue of a decree dated October 7, M. LAVALLÉE, President of the National and Central Horticultural Society of France, has been appointed Officer of the Order of Leopold, and that the following gentlemen have been named Chevaliers of the same Order:—M. WAGNER, of Riga; VAN GEERT, President of the Syndical Chamber of Belgian Nurserymen; DE GHELLINCK, Member of the Council of the Society of Agriculture and Botany of Ghent; D'HUYVETTER, Treasurer of the Society, and MM. VAN HOUTTE and LINDEN, nurserymen of Ghent.

—— SYNDICAL CHAMBER OF BELGIAN NURSERYMEN.—To commemorate the honours paid to those members of the Chamber recently appointed Chevaliers of the Order of Leopold a banquet is to be offered them by the members of the Chamber as a sympathetic and cordial recognition on the part of their fellows.

—— A FRUIT SHOW IN JERSEY.—We are indebted to the courtesy of the Editor of the new *Jersey Gardener* for an advance proof of his report of the recent fruit show in that island, from which we gather that there were over 800 entries, and considering that a destructive storm swept over the island in September, divesting many of the trees of their best fruits, the display was a very good one; but on examining closely and weighing the Chaumontels, Uvedale's St. Germain, and other large growing sorts, it was found that there was a falling off in size this year. Thus, Uvedale's St. Germain has been exhibited in Jersey up to 3½ lb. weight, but the largest this year only weighed 30 oz.; and the largest twenty-five fruits only weighed 32¼ lb.

—— THE FEDERATION OF BELGIAN HORTICULTURAL SOCIETIES.—The *Bulletin* for the year 1881, which is only now published contains in addition to the numerous reports of the affiliated societies and official documents, a notice of GASPARD DEMOULIN, a catalogue of the succulent plants presented to the Brussels Botanic Garden by Madame DEMOULIN, a translation of Mr. HIBBERD'S list of nineteenth century Roses, an article on the Vines of Hœilaart, and a translation of Mr. TAYLER'S "Vines at Longleat," dated April, 1883.

—— INTERNATIONAL FORESTRY EXHIBITION, EDINBURGH.—We understand that at a meeting of the Executive Committee, held on October 24—the Marquis of LOTHIAN presiding—letters were read from the Lords of the Committee of Council on Education (Science and Art Department), Kensington, expressing in the strongest terms their approval of the project, and stating that the object of the exhibition was one which deserved every encouragement, scientific forestry being much neglected in this country. Her Majesty's Secretaries of State for Foreign Affairs, the Colonies, and India have also warmly supported the undertaking and proffered their co-operation.

—— ORANGE TREES.—Mr. WILLIAM SAUNDERS, in an official report to the United States Department of Agriculture at Washington, mentions having seen a large tree in Florida, from which as many as 10,000 Oranges had been picked in one season; the crop for this year, which had recently been taken from it, amounted to 7800 oranges.

—— TRIPLET APPLES.—Mr. POWELL sends us a group of three Apples fused together into one mass at the base. We have frequently seen two thus united but do not remember to have seen three so united before.

—— THE "FOREST FLORA OF SOUTH AUSTRALIA."—We have received the second part of this publication, which consists of a series of coloured plates of Eucalypts, with descriptive text by Mr. J. E. BROWN, the Government Conservator of Forests. The species figured in the present part are E. leucoxylon, E. leucoxylon var. macrocarpa and var. pauperita, and E. cosmophylla. Some idea of the range of variation in these trees may be gleaned from these plates, while the mischievous confusion wrought by

FIG. 101.—FUCHSIA EXONIENSIS. (SEE P. 560.)

"popular names" of vague and varied application receives further confirmation. Eucalyptus leucoxylon, for instance, is known in various parts of South Australia as Blue Gum, White Gum, Pink Gum, and Bastard Red Gum; and the author himself adopts the name Blue Gum, which, in this country at least, is generally accepted as the vernacular for Eucalyptus globulus.

—— THE CHRYSANTHEMUM SHOWS.—The short but busy season during which the Chrysanthemum shows may be said to claim all our attention will commence on Wednesnay and Thursday next at Eastbourne, and there will be enough of them on hand in the following week to satisfy the greatest glutton. First, on the 12th and 13th, comes the Stoke Newington show; on the 12th, 13th, and 14th, the Lambeth Amateurs hold their annual display; on the 13th we may expect to see some new ones at South Kensington; and on the same day the Putney and Southampton growers will hold high court. On the 14th and 15th the Borough of Hackney Society will make the Westminster Aquarium a gay place in a floral sense; and on the same days the turn of the growers in the Croydon district will come. On the 15th and 16th the Kingston show will be held; after which a truce will be declared until the following Monday, the 19th, when on that and the following day a new society, formed at Winchester, will make its first claim for public support and recognition. On the 20th Mr. FINDLAY will follow up the Apple show with one of Chrysanthemums in the Town Hall, Manchester. On the 20th and 21st the annual show will be held at Chesterfield. On the 21st the Ealing show comes off; and on that and the next day Birmingham and Bristol will be *en fête;* with Shrewsbury on the 22d. Reading will hold out its Chrysanthemnm banner on the 22d; and Liverpool on the 27th and 28th; the season being closed at South Shields on December 5 and 6, the display here being the only one held north of York. Of non-competitive exhibitions several will be in fine condition for examination next week. Notably will this be the case with the collections grown so well by Mr. NEWTON and Mr. WRIGHT in the Inner and Middle Temple Gardens respectively. Mr. COCHRANE's display in Finsbury Park, and Mr. MCINTYRE's in Victoria Park, both extensive and well done, and both thoroughly appreciated by the residents in North and East London, will be well worth a visit. At Slough Mr. TURNER has a larger display than ever, and has filled the conservatory in which the Carnation show was held entirely with Japanese varieties, which should prove a remarkable exhibition in itself. The fine collection of specimens grown by T. H. BRYANT, Esq., at Glencairn, Surbiton Hill, will not this year be sent to Kingston, though finer than ever in quality, but will be opened to public inspection, at a charge of 1*s.* each, on November 15, 16, and 17, rhe money received to be devoted to the Surbiton Cottage Hospital.

—— PREMATURE FLOWERINC. — Messrs. W. PRITCHARD & SONS send us from Shrewsbury sprays of Laburnum in bloom on the same branch with the ripe pods of last season. The buds, which under ordinary circumstances remain dormant throughout the winter, have, stimulated by the mild autumn, prematurely started into growth. It is an instance of what the French call *fleuraison anticipée*, and which we may translate as premature flowering. The Laburnum usually flowers from short spurs like those of a Pear or Apple, and it has done so in this case; but it is not unusual to find at this season flowers on the ends of the long shoots of this year's growth. In this latter instance the case is not so much one of premature flowering as of the development of flowers where leaves should be. So that the unseasonable flowering of the Laburnum may be due to two different causes. The same thing happens in some Pears, the Napoleon being particularly liable to it. From Messrs. BEACH of Ealing, come young flowering shoots of Raspberries, produced from young canes of this season's growth, which died down about six weeks ago, and have started afresh. From Jersey we hear of the Lilac being in bloom, as well as fruit trees, and ripe Strawberries.

—— DISEASE IN AMARYLLIS AND EUCHARIS.—Specimens of a curious disease in the leaves of Amaryllis and the bulbs of Eucharis have been forwarded with a view to ascertain whether it is due or not to any fungus growth. In both alike it is remarkable for the broad orange coloured patches which completely penetrate the substance. Its effects on the Amaryllis are not mentioned, but the plants of Eucharis affected have not flowered this year. On examination a mass of branched procumbent threads, consisting of short articulations, and accompanied by multitudes of elliptic, or rather shortly fusiform spores, whose mode of attachment has not been clearly ascertained. As the matter is still somewhat obscure, we can only say that the parasite clearly belongs to SACCARDE's genus Cercosporium, so far as he includes in it species with procumbent threads. The spores, however, it should be observed, are far shorter than is usual in Cercosporium. *M. J. B.*

—— WEATHER ASPECTS.—The joys of an Indian summer have for once been fully realised in this country. The end of October has proved a veritable second summer, and some days were even warmer and more pleasant than were many found in the month of June. But no feature so strongly marks a decidedly peculiar year as does the entire absence of frost during the month just past. Few things are so rare as a frostless October, and that month in the year now fast drawing to its end will have to be long remembered as one singularly soft, pleasant, and delightful. There have been gentle hints of the presence of the crisp silvering of the grass in the valleys, or upon the higher altitudes, but of real, withering, blasting frost, we have had none, and even the tenderest of plants were found as fresh and vigorous when October expired as they were at its birth. The effect of the summer-like weather upon the foliage of trees has, too, been peculiarly marked, and, so far, has quite belied the anticipations of those who a few weeks back looked for an early defoliation of the trees. Those which are now leafless become always leafless early; but many that shed their leaves earlier under the influence of frosts and storms have ripened their foliage to rich golden and buff tints, showing decay and death, not from violence or disease, but from sheer natural exhaustion. The autumn has, therefore, been in a peculiar degree rich in foliage effects. No doubt gardeners who are tired of the constant and slow dropping of the leaves would now prefer a few white frosts to clear off all the laggard foliage, and enable a clean sweep to be made of it for the year, but Nature will take her own course, and so far she seems to be doing her work wisely and well.

—— PINEWOOD FUNGUS. — There is a curious fungus which occurs not very uncommonly on imported Pine-wood on railways, and which occasionally appears, to the great surprise of every one, in houses in London, of which specimens were exhibited some years ago by Mr. BATEMAN at the Royal Horticultural Society. It is recorded by FRIES as Lentinus lepidens—more correctly L. lepideus. A good specimen of this, with the veil, which is usually very fugitive, still attached, was found by Mr. PLOWRIGHT at King's Lynn in a hollow Elm tree—a very unlikely habitat for a species which has been supposed hitherto to be confined to coniferous wood. Its discovery is interesting as to the habitat, and its being a real native of this country. In other cases the mycelium has doubtless already existed in the wood. *M. J. B.*

—— PRESENTATION TO MR. G. COLE. — On October 26, Mr. GEORGE COLE, who is leaving the neighbourhood of Exeter, was presented with a handsome gold albert watch chain, with a shield appended, and a purse of money, by his friends. Mr. D. C. POWELL made the presentation on behalf of the subscribers, at a well attended meeting, and in the course of his remarks alluded to Mr. COLE's well known skill as a plantsman, and to the many lessons that the local gardeners had derived from his presence among them, a fact recorded by many who had sent letters accompanying their subscriptions. His courteous and unassuming manner had won him many friends, and they hoped and trusted that his health would keep improving, and that at no distant date they would hear that he had achieved still further honours for the firm he was about to enter. Mr. COLE suitably responded, and expressed himself as being endeared to Exeter by the kindness he had met with from every one, and still more so by the lasting remembrance then placed in his hands.

—— AUTUMN TINTS. — At the time we are writing, October 25, there is no more beautiful tree in Kew Gardens than a small Ash, in the Ash walk, which is in the pleasure grounds, and skirts the Botanic Garden from Syon Vista northwards, in the direction of Kew Palace. It is a grafted tree, and was received, Sir JOSEPH HOOKER believes, as Fraxinus floribunda, a native of North India and Afghanistan. We are unable to determine whether it is that species, or merely a variety of F. Ornus; the nearest forms of the two species are so much alike in foliage that it is difficult from leaves alone to say to which they belong. The tree in question is most likely true F. floribunda, as it has the larger leaves of that species, with distinctly stalked leaflets, though they do not taper into quite such long narrow tips as those of all the dried specimens we have seen. The autumn tint of these leaves is a bright transparent yellow, with here and there irregular patches of purple-red, like splashes of blood; and they are certainly among the more effective of the yellow-hued leaves this autumn. Altogether, we are enjoying a great treat just now, for the leaves are changing very gradually, and even the tenderer kinds still hold their foliage, so that there is great variety and beauty in woodland scenery. Let us enjoy it while we can, for any morning we may wake and find that the frost has destroyed these beautiful pictures—such pictures as no artist can paint.

—— WAITE'S NEW EARLY CABBAGE.—This is a new variety of the present season, said to be distinct also, and so early that it comes into use fully ten days before any other variety. The habit of the plant is dwarf and compact, the heart of medium size, very firm, and with few loose leaves; the colour a distinct pale green, and excellent in flavour when cooked. It is equally adapted for spring or autumn sowing, and is the *beau ideal* of a Cabbage for a gentleman's table. The pedigree of this new variety is not given, but it looks in character like a selection from the Improved Nonpareil.

—— PLANT DISEASES.—We are glad to see that the Institute of Agriculture has secured the services of Mr. W. G. SMITH, to address the members on certain diseases of plants as mentioned in the subjoined list. The lectures will be delivered in the new Natural History Museum, South Kensington, during the week November 12 to 17, and will be illustrated by large sized diagrams, showing the objects enlarged to 1000 and 5000 diameters. The tickets for the course to be obtained at the Institute of Agriculture, for 10*s.* 6*d.*:—

1. Clover Sickness, Clover Mildew, Peronospora trifoliorum, D.BY.
2. New Disease of Potatos, Peziza postuma, BERK. and WILS.; Fusisporium solani, MART.
3. New Disease of Onions, Puccinia mixta; Peronospora Schleideniana, UNG.; Mucor subtilissimus, BERK.
4. New Disease of Grass, Isaria fuciformis, BERK.: Grass Blight.
5. Diseases of Turnips, Oidium Balsamii, MONT.; Peronospora parasitica, PERS; Finger and Toe, Plasmodiophora brassicæ, WOR.
6. Ear-Cockle, Tylenchus tritici, BAST.; Dodder, Cuscuta trifolii, BAB.
7. Grass Blight or Mildew, Erysiphe graminis, DC.; Corn Mildew, Puccinia graminis, PERS., Æcidium berberides, PERS.
8. New Diseases of Wheat, Barley, and Rye-grass, Fusisporium, sp.

9 and 10. Potato Disease, Peronospora infestans, MONT.—its active state, and its passive state.

—— EXHIBITION PROSPECTS.—In his address at the closure of the Fisheries Exhibition H.R.H. the Prince of WALES made the following remarks, which may be taken to foreshadow coming events. Supposing the programme thus sketched forth to be carried out, there will be ample scope for horticulturists and agriculturists as food producers, for foresters as home-builders, hearth-warmers, and machinery drivers where coal does not exist, in 1884; for horticultural implement makers in 1885; while in 1886 there will be an opportunity for our fraternity to see what our colonies can do, and of showing what we can do in turn with the products they send us:—

"The evidence of the public interest in such exhibitions, afforded by the vast concourse of visitors from all parts of the realm to that which is now closed, has led me to hope that the buildings which have been erected at so much cost, and which have so admirably served their purpose, shall continne, for the next three years, to be employed for exhibitions of a similar comprehensive character. In considering what shall be the subject-matter of these exhibitions, three topics of paramount interest to our community have presented themselves to my mind. These are health, both bodily and mental;

industrial inventions; and the rapidly growing resources of our colonies, and of our Indian Empire. I have expressed a desire that the exhibition of 1884 shall embrace the conditions of health, in so far as, like food, clothes, and dwellings, they fall under the head of hygiene; or, like appliances for general and technical teaching, gymnasia, and schools, under that of education. The question of the Patent Laws has for many years engaged the attention of all those interested in the progress of invention and the just reward of the inventor. I am advised that the Patent Act of last Session will afford a satisfactory solution of the difficulties which beset this subject, and will be especially useful to the poor inventor by enabling him to obtain protection for his invention at a considerably reduced rate, and in a manner which will be more advantageous to him. Under these circumstances it has appeared to me that much good may result from an exhibition in the year 1885, showing the progress of invention, especially in labour-saving machinery, since 1862—that is to say, since the last great International Exhibition held in this country. At the close of the Paris Exhibition of 1878 I had the satisfaction of receiving from the Colonial Commissioners an address, in which great stress was laid on the desirability of establishing a permanent Colonial Museum in London, as a powerful means of diffusing throughout the Mother Country a better knowledge of the nature and importance of the several dependencies of the empire, of facilitating commercial relations, marking progress, and aiding the researches of men of science, and also of affording valuable information to intending emigrants."

—— Begonia picta.—A number of specimens of this pretty and neat-habited species dotted about in the stove at Kew are very effective and distinct in their way. It is a tuberous-rooted species, from Nepal, originally introduced many years ago, but the plants under notice were a batch raised from seeds sent from Calcutta (by some mischance possibly) under the name of Ophelia chirita. The bronzy markings on the foliage vary considerably, and in some instances the leaves are of a uniform pale green colour. The flowers are comparatively large, of a beautiful rosy-pink, and borne in branching cymes that stand well above the foliage. The stems do not exceed a height of 6 inches, and the whole plant is so manageable as to size and ease of cultivation that it might be used as a plant to hybridise with the large-growing tuberous-rooted sorts now so popular. The species is figured in the *Botanical Magazine*, t. 2962, and is also known as B. hirta, of Wallich.

—— New Onion.—Still another new Onion of the White Spanish type—named, The Warminster, and, as is usually the case, to be sent out in packets at a high price. When and where it originated is not stated; but "Originally selected from the White Spanish, it possesses, in a marked degree, all the merits of that well-known kind, in addition to which there have been developed, by continuous and judicious selection, increased size and weight, earliness, purity of colour, symmetry of form, mildness of flavour, and good keeping qualities." At last a perfect Onion! Nuneham Park, Banbury Improved, Walker's Exhibition, Rousham Park, and a few others all pressed into one. Cheap at any price!

—— Cochliostema Jacobianum.—Few plants of the order have a bolder or more massive appearance than this fine Spider-wort. Out of bloom it might easily be mistaken for a Bilbergia, or some other member of that family; for although closely allied to the Tradescantia (with many of which we are familiar) it bears no general resemblance to any, except, perhaps, to T. Warscewicziana in its cæspitose or tufted habit, but differing greatly in foliage, however. The panicled inflorescence is axillary, showing itself from amongst the lower leaves, and is of a delicate rosy colour while still in bud—the large bracts in themselves constituting the plant no mean ornament. When fully expanded the petals are blue and shaggy, with hairs of the same colour; and the flower is supplemented with curious yellow appendages in the centre, of unknown value or utility in the economy of the plant. Owing to its peculiar habit it is difficult of increase, but may be propagated by seeds, which it will ripen if the flowers are artificially fertilised. It flowers with great regularity at Kew, and is now in fine order in the Victoria-house. A large illustration of it will be found in our volume for 1868, p. 265.

—— Prize Parsnips.—Being at a country show some time ago, writes a correspondent, we were much struck wih the great length of some Parsnips—clean, symmetrical, and perfect in appearence. They measured nearly 4 feet in length, and they were as straight as a needle. Surely the ground must have been well trenched, and very light too, was the observation made. Doubtless it was, but we were informed, in the strictest confidence, that when the seeds were sown a crowbar was first of all thrust deeply into the soil, that this hole was filled up with a mixture of leaf-mould and sifted decomposed manure; that three seeds were sown over it, the two weakest pulled out and one allowed to remain, and that the sole remaining plant rooted down into this subterranean chamber. It is in this way long exhibition Parsnips are secured. We should not like our informant to think that his confidence was misplaced, and therefore we add that the practice described is not new by any means, but for all that is not known by everybody.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Oct. 29, issued by the Meteorological Office, London:—The weather has been generally dull or cloudy in all parts of the kingdom, though in most districts the amount of rainfall has been inconsiderable. During the last few days a good deal of fog or mist was experienced. The temperature has been above the mean in all districts, the excess varying from 1° in "Scotland, E.," to 4° in "England, S.," and to 5° over "E." and central England. The maxima, which were registered at the majority of our stations on the 27th, ranged from 59° over the northern parts of England and Ireland to 64° in "England, E.," and the "Midland Counties." The minima were generally recorded on the 23d, when the thermometer fell to 31° in "Scotland, E.," to 33° in "England, N.E.," and to between 35° and 37° elsewhere. The rainfall has been about equal to the mean in "Scotland, W.," and "Ireland, N.," but in all other districts a decided deficit is reported. Bright sunshine has been much less prevalent than during last week in nearly all places, the percentages of possible duration varying from 40 in "Scotland, E.," and 34 in "Scotland, W.," to 15, 16, and 17 over central, south, and south-western England. Depressions observed:—During the first part of this period the barometer was highest and comparatively uniform over France, while disturbances passed in an easterly direction over our islands and Scandinavia. Of these the deepest and most important was that which travelled very quickly to the neighbourhood of the Shetlands during the night of the 24th, causing the wind, which had previously been generally moderate or fresh from the westward, to blow strongly on all our coasts, and in the north of Scotland to increase to a violent gale from the north-westward. During the latter part of the week a large anticyclone was gradually formed over Denmark and the south of Scandinavia, and pressure in our islands became very uniform, with light winds, at first between south and west, but finally more variable.

—— Gardening Appointments. — Mr. R. Forster, of the Horticultural Department of the Zoological Society's Gardens, Regent's Park, as Gardener to Mrs. Hargreaves, Arbor-field Hall, Reading. — Mr. J. Slater, lately Foreman at Lord Foley's, Ruxley Lodge, Surrey, as Gardener to Mrs. Hulse, Ewell House, Surrey. — Mr. Geo. Yozell, lately Gardener to Mrs. Standring, Crystal Palace Park, S.E., as Gardener to J. Lainson Nash, Esq., Colley Lodge, Reigate. — Mr. David Kay, lately Gardener at Westwood, West Calder, as Gardener to John Bald, Esq., Monzie Castle, Crieff, Perthshire. — Mr. John Laidlaw, Gardener at Navelle, Liberton, as Gardener to R. P. Copeland, Esq., Kibblestone Hall, Stone, Staffordshire. — Mr. Andrew McLeod, lately Gardener at Coalstoun, Haddington, as Gardener to Col. Robertson, Callander Lodge, Callander. — Mr. J. Clare, lately Gardener at Brynkinalt, Chirk, as Gardener to J. F. Le Trove Bateman, Esq., Moor Park, Farnham, Surrey.—Mr Frederick Burgess, Foreman, Idsworth Gardens, Horndean, Hants, as Gardener to W. Pink, Esq., Shrover Hall, Horndean, Hants.—Mr. Charles W. Farquhar, from Mason's Nursery, Chelsea, as Gardener to T. Woodward, Esq., Feltham Lodge, Feltham.

FRUIT NOTES.

Humboldt and other Nectarines. — I can fully indorse all that is said in favour of the Humboldt Nectarine at p. 495, and would advise those who desire a late supply of first-class fruit to plant this variety, which is one of the very best either indoors or out, as it is not only very superior in flavour, but is also a hardy free bearing kind, and remarkably handsome and rich looking when ripe. We have just been lifting a young full-sized tree for the back wall of our Peach-house, where we have also Pine-apple and Pitmaston Orange, both excellent sorts, resembling the above named, as does likewise Rivers' Orange, which three seedlings no doubt originated from the old Pitmaston, so long a favourite with many. Darwin I have not yet tried, but hope to plant one this autumn, as all these yellow-fleshed sorts are valuable for coming in after the others are done. As an early kind Lord Napier is the best, and is one that forces well, for it sets freely under heat and confinement, and so do the others above-named; although it has been said that the large flowered varieties are shy croppers, but if they set fewer fruits than the small blossomed kinds it is because they have longer jointed stouter wood, with buds less crowded and bigger. This is very apparent in the Noblesse Peach, the buds of which are mostly single, whereas in the small flowered sorts like Royal George and the Elruge Nectarine, they are generally in twos or threes, and therefore it follows that these set a greater number of fruit. Now I am on the subject of Nectarines I should just like to say a word or two in favour of early planting, which, if possible, should be done in October, before the leaves fall, that is, provided the trees have not to be got from a distance, but only moved from walls into houses or to supply gaps, as by transplanting now they form fresh roots at once and continue plumping up their buds, which open just as strong in the spring, and set as freely, as if the trees had not been disturbed. If the weather and air are dry at the time, the tops of the trees should be syringed two or three times daily, so as to keep the bark plump and the foliage fresh till it will stand without flagging. *J. Sheppard.*

Pear Olivier de Serres, *Bulletin d'Arboriculture*, August.—A seedling from Bergamotte Fortunée. Fruit of moderate size, globular, shortly stalked; eye sunken, large; skin brown, rugose, tinted with yellow or reddish-brown on the sunny side. Flesh white, perfumed, juicy, of good flavour.

Pear, Muirfowl's Egg.—I have one tree of this variety growing on an east wall. It is of medium growth, hardy, and a constant bearer. It does not canker as many varieties do on our soil, but produces clean and good-sized fruits. We have had it in use for three weeks, and shall have some for another week to come. Its flavour is tolerably good, though not of the best; at any rate, I class it as a desirable Pear to grow in a collection, being a sure cropper. Our soil, I may add, is a light sandy loam on red sandstone rock. *D. C. Powell, Powderham Castle, Devon.*

Apples on the Paradise Stock.—These are invaluable for gardens and confined spaces, carrying as they do good crops of fruit when larger trees are without. Grown as dwarf pyramids and bushes they escape frosts and cutting winds in a most remarkable way. The general Apple crop here for three seasons was almost a total failure, but we had very fair crops of excellent fruit on trees on the Paradise stock, and this season the crop has been a wonderful one and the fruit very large and of grand quality. The collection of 100 varieties of Apples which we exhibited at the Apple Congress at Chiswick, just closed, were all gathered from pyramids or bushes on Paradise stock growing in our nurseries here, and a better proof of the value of this mode of culture could not be given. Such sorts as Lord Suffield, Lord Grosvenor, Wellington, Maltster, Blenheim Orange, Annie Elizabeth, Pott's Seedling, Winter Hawthornden, Kerry Pippin, Cox's Orange Pippin, Peasgood's Nonsuch, Loddington Seedling, &c., have been very fine. Indeed, most varieties seem to do well upon this stock, many bushes not more than 2 feet high having two to four dozen of very large fine fruit upon them. *F. & A. Dickson & Sons, The Upton Nurseries, Chester.*

THE IMPROVEMENT OF AGRICULTURE.

THE second annual report of the proceedings of the Sussex Association, and the seventh annual report of the proceedings of the Aberdeenshire Agricultural Association, prepared by Mr. Thomas Jamieson, F.I.C., chemist to these Associations, have been issued, from which we abstract the following information, which may interest our readers, the principles of plant-feeding being the same, whether practised by gardeners or by farmers :—

SUSSEX ASSOCIATION.—From these experiments we gather that it is possible, even on the poorest and foulest of fields, to obtain a profitable cultivation, and that if a reverse result is obtained it must be put down, not to the fault of the particular soil, but to the treatment it got.

The importance of nitrogen in some form to the successful cultivation of our crops has long been acknowledged by agricultural chemists, and Mr. Jamieson points out that in the case of Wheat, Barley, and Oats, the withholding of "nitrogen alone" was similar in effect to that produced when everything was withheld. Without nitrogen nothing could be done by the other manurial ingredients, and that the most economical form in which nitrogen can be supplied to crops is by nitrate of sodium.

The same feature, viz., the check to growth by withholding nitrogen, was also shown by the root experiments, but not nearly to so great extent, complete failure in the roots being shown only when phosphates were withheld.

FUNCTIONS PERFORMED IN PLANTS BY PHOSPHORUS.—From an analytical examination of Oat grain and Turnip seed it was found that Oat seeds contain 0.26 per cent. of phosphorus, and Turnip seeds 0.833 per cent. of this element. But 5 grammes (the weight used in the analyses) of Turnip seed were found to represent 2415 seeds, while 5 grammes of the much larger Oat grains represent only 160 seeds. Taking this into account, it follows that 100,000 Oat seeds contain 8.127 grammes of phosphorus, while 100,000 Turnip seeds contain only 1.724 grammes of phosphorus, that is to say, a Turnip seed contains only one-fifth of the phosphorus contained in an Oat seed. Therefore, whatever work phosphorus performs at the germinating stage, there is five times as much in the Oat to do the work as there is in the Turnip seed. While submitting this statement, Mr. Jamieson does not venture to say that it is an explanation of the fact, that an Oat crop is so much less influenced by the application of phosphatic manures than is the Turnip crop.

FIXED ROTATIONS AND FALLOWS.—Farmers are frequently bound by covenants for the cultivation of their land under a certain rotation, little consideration having been given by those who drew up the agreements that the same course of cropping is not suited to every class of soil, even within the narrow compass of the same farm. Again, in most covenants there is a stipulation to the effect, that so many acres are to be left each year in fallow, under the notion that the land requires "rest," in order, it is said, to give Nature time to make a store of plant food. But we would remind cultivators of the soil, that exhaustion takes place in bare uncovered soils sooner than in such as are overgrown with plants. On this point Mr. Jamieson remarks that perpetual cropping is rational farming, and if intelligently done must benefit all concerned. Towards this system advancing agriculture must tend, and by this system the most profitable cultivation—the agriculture of the future—will be characterised. It is stated that farmers lean to the "resting" system, partly because it is easy, and partly because the crops that follow three years in grass are both good and healthy. But it is not sufficiently understood that these crops are got at a sacrifice of some £20 per acre over the two years, less about one-fourth—say £5—which may be debited to each acre of land as manure given by grazing animals. The decreased produce and the grazing manure are sufficient to account for the good after-crops. But if the sum of £5, which is given as grazing manure, were spent in suitable artificial manure over the three years, and an equivalent sum spent in labour during the second and third years, there is no reason to doubt that the sacrifice would be avoided, thus leaving £10 of additional profit; and if carried out judiciously the system would not entail hurt, either to quantity or quality of the succeeding crops.

EXPERIMENTS ON ROOTS.—The greatest increase of crop was got by artificial manure alone, and at a much less cost per acre than by farmyard manure alone, or by farmyard manure with a small quantity of artificial manure in addition. The following results show that it is injudicious to apply farmyard manure alone, however heavy a dose. That the addition of 50*s*. to 60*s*. of artificial manure to a moderate dose of yard manure gives a much heavier and more profitable crop per acre. Also, that roots can be grown successfully and profitably by means of artificial manures alone :—

Table Showing Manure and Produce of Turnips per Acre.

	Average Produce.	Cost of Artificial Manure.
	Cwt.	£ s. d.
Farmyard manure alone, 12½ tons ..	259	..
Farmyard manure alone, 25 tons ..	317	..
Farmyard manure, 12½ tons, and sulphate manure	327	2 13 6
Farmyard manure, 12½ tons, and guano	309	2 9 2
Nitrogen as sulphate ammonia	339	5 6 3
Nitrate as nitrate sodium	331	4 13 3
Nitrate as dried blood	317	3 12 3
Nitrate as horn-dust	334	4 3 9

The superintendent of these investigations seems to think that the results may ultimately have an important bearing upon the economy of manuring. That they imply a reduction of the essentials of plant life, showing that the mineral ingredients deemed essential to plants may be a much simpler group than the seven-sided one at present accepted; that the whole subject of manures may be simplified; and that much useless expenditure in manures may be spared.

ABERDEENSHIRE EXPERIMENTS.—These experiments are stated to have produced evidence that :—

1. The Turnip plant can no more grow without phosphorus than without water or air.

2. It must have the phosphorus applied in an unhurtful form (that is to say, it must be neutralised by oxygen and lime, or a substance similar to lime; this triple compound is termed a phosphate).

3. A full crop of Turnips (say 30 tons) contains only about 30 lb. of phosphorus.

4. Bone is an effective manure, mainly on account of the phosphorus it contains.

5. The more thorough the pulverisation by grinding (or "finer the division") of bone, the earlier the action on the growing plant.

But the work by which this Association is more particularly known and individualised is that abundant evidence is now at hand to prove the following statements :—

6. Undissolved phosphate in finely ground coprolite acts almost identically with phosphate in crushed bone—that is to say, the action is slow, but lasting, and the crop produced is healthy.

7. Dissolved phosphate acts more quickly than undissolved phosphate, and gives usually a rather heavier crop, but a less healthy one.

8. Too quick action, resulting in rapid early growth, tends to produce ultimate disease in the plant.

9. Steamed bone-flour possesses nearly the same rapid action as the dissolved manures, combined with the healthy and lasting action of the undissolved manures, and produces heavier crops than either.

Seven years ago steamed bone was unknown to farmers as a manure. By boiling or steaming bone its glue is extracted, and grinding then brings it down, not to a coarse sawdust-like state, but to a state of division like Wheat-flour; it is recommended on account of its cheapness, as each pound of phosphorus in steamed bone-flour can be purchased for about 6*d*. It is further stated to possess the advantage of keeping the Turnip free from the "finger-and-toe" disease.

NITROGEN ON ROOT CROPS.—"Plants can no more grow without nitrogen than without water or without air."

"A full crop of Turnips (say 30 tons) contains about 100 lb. of nitrogen."

"Ten to 15 lb. of nitrogen per acre appears to be a sufficient quantity to apply for Turnips grown in granitic (siliceous or clay) soils generally."

(This applies probably to most soils that are not exposed to prolonged hot seasons, and that are cultivated in a similar manner to those in Aberdeenshire, *i.e.*, receiving during a short rotation, a fair dressing (12 tons) of farmyard manure per acre, and grazed one or two years; 10 to 15 lb. nitrogen would be supplied by about ⅔ cwt. of nitrate of soda, and in many cases much less would do.)

"Larger applications of nitrogen than 15 lb. per acre retard ripening, and produce large watery bulbs, without much, or any, increase in solid, nourishing matter."

"To such an extent may this happen that 20 tons of watery Turnips may not contain more nourishing matter than 12 tons of imported Turnips."

NITROGEN ON GRAIN CROPS.—"Nitrogen influences grain crops more than phosphorus. The reverse is the case with root crops."

"A full crop of Oats (say 8 qr.), contains about 80 lb. of nitrogen."

"It is probably unsafe to have less than 160 lb. of nitrogen at the command of the grain crop."

"The soil farmed as indicated above, and aided by the nitrogen in rain, may be depended upon to provide, in suitable form, by far the larger proportion of the nitrogen required."

"The manurial application may, as a rule, be limited to 25 lb. of nitrogen.

(This would be provided by about 1½ cwt. of nitrate of soda, or 1¼ cwt. sulphate of ammonia, or by 2 cwt. of Peruvian guano.)

PLANT PORTRAITS.

ALLIUM MACLEANII, Baker, in *Bot. Mag.*, t. 6707.—A new species from Cabul, with broad flat leaves, and many flowered umbels of lilac flowers.

ALOE PRATENSIS, Baker, *Bot. Mag.*, t. 6705.—A new species of stemless Aloe with spiny leaves, the spines marginal and proceeding from a thickened base. Flowers numerous, reddish, in dense erect spikes a foot or more in length. From Mr. Justus Corderoy.

BEGONIA THOMAS MOORE, *Florist*, July.—A variety raised at Chiswick, with comparatively small circular flowers of a brilliant scarlet colour.

CALANTHE REGNIERI, *Garden*, July 21.—A newly introduced plant. Native of Cochin China. The segments are ivory-white, with a three-lobed rosy-pink lip. Messrs. Veitch.

CAMELLIA EUGÈNE MASSINA, *Florist*, August.—Flower large, full, imbricated, soft rose. W. Paul.

CYPRIPEDIUM BARBATUM VAR., *Belgique Horticole*, t. 7 (1883).

DENDROBIUM LEECHIANUM, *Garden*, July 7.

DENDROBIUM REVOLUTUM, Lindl.; Hook. f., in *Bot. Mag.*, t. 6706. — A peculiar species of purely botanical interest.

DIPLADENIA PROFUSA, Hort., *Illustr. Horticole*, t. 491.—A variety of D. splendens, with large funnel-shaped, rosy-crimson flowers.

ECHINOSPERMUM MARGINATUM VAR. β MACRANTHUM, Lehmann; Regel, in *Gartenflora*, t. 1119 (1883).—A Russian species of Borage-wort, with erect stems, lanceolate, rough leaves, and many-flowered racemes of pale blue Forget-me-Not-like flowers.

GERRARDANTHUS TOMENTOSUS, Hook. f., *Bot. Mag.*, t. 6694.—A Melon-like plant, with enormous tuberous roots, and palmilobed rough leaves. The flowers are on short stalks in the axils of the leaves; the male flowers have five sepals and five oblong petals, with recurved margins, and five stamens, the anthers prolonged at the top into a long tail-like process. The female flowers are similar, with a three-celled ovary, the numerous ovules descending from the top of each cavity. The fruit is capsular. Native of Natal

GUZMANNIA DEVANSAYA, E. Morr., *Belgique Horticole*, tt. 8-9 (1883).—A remarkable Bromeliad, strongly resembling Bonapartea strobilantha, an Ecuadorian species with tufted leaves, each dilated at the base, purple striped, and with a central spike, consisting of numerous flowers tightly packed within broad acuminate scarlet bracts.

GYPSOPHILA CERASTIOIDES, Don.; Hook. f., in *Bot. Mag.*, t. 6699.—A dwarf pubescent herb, with small obovate subsessile leaves and terminal clusters of small pinkish flowers. Caryophyllaceæ. Native of Sikkim. Hort. Kew.

IRIS STYLOSA, *Garden*, July 28.

Home Correspondence.

Tuberous Begonias.—I send you a box of tuberous Begonia blooms, to further illustrate their value as autumn bloomers. We have now a grand display of flowers, which will continue in fine condition for some weeks yet. Most of them are my own seedlings, sown early last March, and grown in small pots. They began blooming early in June, and have continued up to the present time. I have to-day cut down some for want of room, and the box contains those I have cut down. I should like your opinion about them as to quality, &c. *Robert Owen, The Gardens, Yewden, Henley-on-Thames.* [A very pretty lot of flowers, showing us not only how useful they are for autumn decoraton, but what good things can be obtained from a packet of seeds. Ed.]

—— Amongst other varieties that we have now in bloom is Empress of India, which is very striking, and more or less distinct from the rest. It commenced flowering in May, and is still in bloom. The foliage is handsome in itself; its green, velvety leaves, mottled with bronze and veined with greenish-yellow, look as fresh and as healthy as when they first appeared in spring, and its beautiful yellow blooms, rising and spreading over its leaves, make it a very conspicuous object. Too much cannot be said in favour of this variety for its beauty and durability. I do not think it would be at all a difficult matter to have some plants in bloom all the year round. *G. Harris, Arle Court Garden, Gloucester Road, Cheltenham.*

Ampelopsis Veitchii.—This has become a very popular creeper for covering the walls of white houses, or those built of limestone, on both of which the contrast in colour produces a most lovely effect. In the neighbourhood of Exeter it may frequently be seen on the walls of the whitewashed cottages, and it is not unusual to see it in possession of the thatched roof, at this season of the year presenting a novel and charming picture for an artist. Perhaps one of the grandest displays it is possible to find, is to be seen on the walls of the residence of John Drew, Esq., Park Villa, Kenton. The building is of limestone, with gabled roof; the whole of the walls are entirely covered, and at the present time are a perfect glow of colour. When travelling by the South Devon Railway from Exeter, and near to Starcross, I have often heard travellers exclaim, "How lovely!" and "What plant can it be to produce an effect so really beautiful, as seen through the trees about one mile distant as the traveller speeds along?" Being perfectly hardy, and possessed of self training and supporting qualities like the Ivy, it gives so little trouble. Even before the autumn tints are put on, the foliage is very handsome, and very useful when dishing up the dessert. By-the-bye, have any of your readers found it adhering to walls that are kept painted with oil and lead paints? I know one case where several plants refuse to attach themselves. *D. C. Powell.*

Camellias of Irregular Form.—The taste for flowers, that please the more they depart from regularity in form, seems to be a growing one, if we may judge from the interest manifested in autumn-flowering Asters, single Dahlias, Marguerites, tasselled Chrysanthemums, and the single-flowered annual Chrysanthemums like maximum, segetum and carinatum. For winter use in the conservatory, or for house adornment I would recommend the following sorts of Camellias, as combining many of the admired points of the irregular flowers:—C. Chandleri and C. Chandleri tricolor, rose, and white and rose mottled, and most profuse bloomers; also C. pæoniflora, a very large loosely formed red flower, and an almost certain bloomer; C. pæoniflora rosea, which is similar to the above, excepting in the colour, which is a pleasing deep pink. The semi-double and single kinds in red and white, with generally a very prominent bunch of golden stamens in the middle, are very showy and floriferous, as is also C. Wahratta—a very large crimson kind of peculiar form. *M.*

Lapagerias.—I have read with much interest the remarks of Mr. Cromwell, and fully endorse all that he says in favour of these beautiful greenhouse climbers. I have at present under my charge a young plant of L. alba, which we planted out in March, 1881, and which has made two unusually fine growths during the last twelve months. They sprang up, Asparagus-like, last October, from the base of the plant, and have each up to the present time attained a length of 36 feet; but my experience differs from Mr. Cromwell in this respect, for there are now on one of these growths, on a length of 4½ feet, forty-six flowers, twenty-two of which are fully expanded, the others swelling up. I may add that it is planted in a prepared compost of two-thirds fibry peat, the remainder being turfy loam broken up roughly, coarse sand and charcoal. During the growing season we have used weak liquid manure once a week, with copious syringings overhead twice a day. There is also on the same plant another growth, which had grown to a length of 10 feet, when the point accidentally got broken off, and it will be interesting to note whether, as Mr. Cromwell suggests, it will induce them to flower in clusters. I hope to report the result to you at some future time. *G. Hall, Tabley House Gardens, Knutsford.*

Chrysanthemum Lady Selborne. — Among the new varieties of Chrysanthemum this is a decided acquisition. It is a sport from James Salter, which it resembles in shape and arrangement of petals, but pure white. Being an early-flowering variety, like its well-known parent, it will be found most useful to cultivate. For the decoration of ball-rooms during the month of October, intermixed with Maidenhair and other Ferns, it cannot fail to produce a charming effect. In culture it will be found necessary to thin the buds to one on each shoot, that sufficient room may be given for each flower to develope. *D. C. Powell, Powderham.*

Influence of Stock upon Scion.—We send you a sample of Pears which we believe to be the produce of a Beurré Diel graft upon the stock of a Jargonelle, and which strikingly illustrates the influence of stock upon scion. The fruits we send have been gathered from the original standard, which was grafted by our deceased principal, the late Mr. James Backhouse, some sixteen or eighteen years ago. The tree in its

Fig. 102.—Graft Hybrid Pear.

habit of growth has much of the upright shoot of the Jargonelle, whilst the foliage has more the appearance of Beurré Diel. The fruits are large, more of the form of the latter; but in some instances having the elongated form towards the stalk of the Jargonelle, whilst the flavour is much more that of the Jargonelle with a melting flesh that we do not get with Beurré Diel from standard trees in these parts. We have been using the fruits for a fortnight (most of the best already used), so that the season of ripening may also be said to be midway between the two kinds. The tree never fails to bear—generally very abundantly—thus showing its suitability as a standard for this northern climate. We propose to call it Backhouse's Beurré. *J. Backhouse & Son, York.*

Camellia Popf is an exceedingly handsome cream-coloured flower, of exquisite colouring that is quite unique. The variety is still an uncommon one in collections, although it has been in commerce for many years. The form is perfect, and it is an admirable flower for personal adornment. The plant has large foliage, and is a robust grower and free flowerer. *M.*

The Finest and Latest Gladioli. — We are now, in November, with unusually mild weather here for the season, the average temperature for the past week, night and day, being about 53°. This has enabled late Dahlias, double and single, but especially late Gladioli, to open their blooms to perfection. Never have I seen richer tints of colour, or finer spikes, in Appianus and La France, for instance, among whites, and Lady Newport, Hercules, and Rossini, shading from rose to deep red: they last twice as long in autumn with little sun. Upon the review of the season I give the palm to James McIntosh for size and rich contrast of colours, while at present, and last season, with its immense recurved spike of glorious blooms twenty-four in number, Duchess of Edinburgh stands unapproached. What do other growers say? *W. J. Murphy, Clonmel.*

The Chou de Gilbert.—You mention in connection with Chou de Gilbert, that it is remarkable I should so soon have got what I wanted, and I must say that it is indeed remarkable, but none the less it is a fact. Two years ago last January I potted-up one stem of Brussels Sprouts and one plant of Chou de Burghley, both of which were taken into a cold Cherry-house, and when they came into bloom I crossed them, making Chou de Burghley the seed-bearing parent. Only six flowers were operated upon, and, strange to say, the six pods where nearly twice as large as those not operated upon. In due time the seeds ripened, and I sowed them under glass last March, raising sixty plants, which are now growing entirely by themselves, and from which I picked those sent to you last week. I must here say that they are not all alike, they will of course want selecting and growing for some time before I get them fixed. I shall be happy to send you a stem from these, and it will give me great pleasure to show them to any one you can send here to see them. I may add that some other of my crossed Brassicas, of quite another breed, can be seen at the same time. *Richard Gilbert, Burghley.*

Chou de Burghley.—It is three years since I first tasted this vegetable, and found it had such a delicate flavour. I made up my mind to grow it in quantity as soon as I could procure seed. I obtained a supply in the following spring, which gave me a fine batch to cut from September till March, which I consider the worst months in the year to produce mild flavoured vegetables in the Brassica tribe. My employer tells me it is one of the best vegetables he gets on the table when nicely cooked; and gentlemen visiting here speak very highly of it, and ask where they can procure seeds. I have sown it in March for autumn cutting, and in May for spring cutting. *North of the Trent.*

Birds and Fruit.— Like your correspondent "R. C. E. H." (p. 538), the tom-tits make sad havoc among my fruit. We are almost surrounded by woods, which abound with small birds. I have a good many Sunflowers, but on looking to-day I cannot discover that the birds have found out the seeds. Two years ago, I had a large bed of Carnation and Pæony-flowered Poppies, which were allowed to seed. The tom-tits attacked these voraciously, and they were the means of beguiling them from my Apples and Pears, also the late Peas. I have not grown them this season, but am sorry I did not, for the largest and best of my Apples and Pears were destroyed by these little pests. *D. C. Powell.*

A Mixed Flower-bed.—One of the prettiest of old-fashioned combinations came under notice last August in a country garden, where many choice old things are still the pets of to-day. The bed was a round one, that had for its centre some few plants of that graceful plant, Hyacinthus candicans, specimens of which were also dotted about sparingly among the other occupants of the bed. The white bells of this contrasted charmingly with the scarlet of Lobelia cardinalis, and assorted with them were plants of Salvia patens, the blue colour of which seems never out of place. The outside lines were Begonia fuchsioides B. Ingrami, and Poa variegata. *X.*

Maréchal Niel Rose.—There seems no doubt but that Madame Berard, one of the most robust growing of Teas, makes a capital base on which to work the Maréchal. I have had remarkable success with it on that kind in a house, and from ten buds put in last summer have, on one plant, grown to the extent of about 80 or 90 feet, all stout and short-jointed. Three buds put in close together in one stout branch of Madame Berard have each given 12 feet of growth, if not more. All the buds were not inserted at the same time, but just as I could get young wood here and there to receive them, and some did not get put in till August. I fear I greatly shocked budding canons by putting some buds into old wood, but it mattered little to me so long as the rind would lift and not one refused to grow; still farther, I used the blade of my penknife only in the process, having no budding-knife, and yet not the most perfect budder in the world could have ensured greater success. Finding the buds on the one tree to take so well I worked a second Madame Berard in the same way, with similar good results; and I feel that next year, were I to sacrifice all other kinds, I could fill the house with the growth from these buds. The real stocks are standard Briers, the roots in our stiff clay soil, and the heads inside running up the wires as Vines are trained. Some old

stems planted inside twelve years ago having become cankered at the base, I had them soiled up, and they seem to have emitted roots from the broken parts, as they are making new robust growth. The Maréchal on the Dog Brier seems to like our stiff soil very much, and grows almost too freely; in fact, it is necessary to thin severely to keep the plants within bounds. The roots want plenty of room, feeding, and moisture, and the heads ample space and a warm covering. *A. D*

A New Lycoperdon.—Some time since Dr. Harkness, of San Francisco, a zealous and painstaking botanist, informed me that he had seen in the hands of a woodsman on the Sierra Nevada mountains a remarkable Puff-ball, which he was so much struck with that he endeavoured to obtain possession of, but without success, as the woodman refused to part with it. I have now received a letter from him, saying that he has this summer rediscovered this Puff-ball, but that as he has found only two specimens he is unable to distribute them amongst his friends. He, however, sends me a portion of the fruit and one of the sculptured tubercles. The colour of the spores in the mass is pale ochre, the individual spores are spherical, smooth, with an excessively short pedicel, .005 mm. in diameter. The threads are dark brown, .003 mm. in diameter. The tubercle from the exterior of the peri[illegible] is sexagonal, the size of an English florin, having six triangular incurved segments, which are impressed with a series of striations from the circumference to the centre. Dr. Harkness describes the Lycoperdon as 5 inches in diameter, creamy-white in colour, and found growing from 5000 to 10,000 feet above the level of the sea. He proposes to call it Lycoperdon (Arctoperdon) sculptum, Hark., M.S., and to publish its description in the forthcoming *Report of the Academy of Sciences*, San Francisco. *William Phillips, Shrewsbury.*

Irish Forests.—In the hurry of gardening and farming, my eye only to-day caught the interesting article on this subject, p. 540, in your last issue, so I will only ask your space for a line or two. First, to thank the writer for the courtesy of his remarks, and second, to ask your permission to add, in reference to "afforestation" with seed *versus* established plants (transplanted several times as in most nurseries), though your correspondent is technically right as to the advantage of a tap-root undisturbed, &c., I must still maintain, knowing most of Ireland, that the quantity of land fit to sow seed in, or that could be made so with reasonable expense, and the number of landlords, not to say tenants, willing to wait to be reimbursed "eighty to one hundred years hence," is so small as not to need consideration. The latter method is the best, I think. Three or four years' nursery stuff can be planted at once where you could not dream of sowing seed at all. *W. J. Murphy, Clonmel.*

A Second Apple Exhibition in March Next.—The Apple Show at Chiswick may, it is to be hoped, like the Fisheries Exhibition at South Kensington, prove even a greater financial success than its promoters anticipated; and if so, the Royal Horticultural Society might, in the interest of horticulture, wisely devote a portion, at least, of the proceeds to the holding a competitive exhibition of this fruit, say, in the early part of next March, as has been suggested by your correspondent, "*£ s. d.*," see p. 526. This would form an admirable sequel to the magnificent display exhibited at Chiswick during the last month of October. The varieties which might be exhibited in March next would necessarily be possessed of the keeping qualities which are so desirable in this useful fruit, which ought to be divided into at least two classes or divisions—viz., dessert or table, and culinary varieties, which might be further divided into classes, such as Nonpareils and Pearmains; and as regards culinary sorts, into Codlins, Beefings, &c. There can be little doubt that very many comparatively worthless varieties of the Apple are cultivated in this country, and a good many such were sent to Chiswick in October last; and such varieties, it must be borne in mind, occupy space, and require attention in all respects similar to varieties of greater excellence; so that this movement will doubtless result not only in the rectification, to a great extent, of the nomenclature, and the identification of synonyms, &c., which is very desirable, as well as the ascertaining of varieties suited to various soils, localities, and climates, and the discarding of numerous comparatively worthless sorts. And this may be readily accomplished by the practice of regrafting, which, in the course of a very few years, would greatly enhance the value of such trees, and secure for the consumer a supply of fruit of superior quality. *P. G.*

MR. JOHN CATTELL'S ESTATE.—We are informed, and mention the fact for the information of Mr. John Cattell's creditors, that the trustee appointed to liquidate his affairs, Mr. Robert Gifford, 148, Grosvenor Road, S.W., has absconded, and there is little doubt has left the country.

The Apiary.

BEES AND BLUE FLOWERS.—Permit me to make a few remarks on this subject, as I have always taken great interest in hive-bees, and given some attention to their habits. It is asserted that blue colour in flowers is owing to the preference of bees for this colour. Does this mean that flowers have assumed this colour after finding out that their other attractions were insufficient to draw the attention of bees and butterflies, or that Nature has effected this alteration in colour knowing that these insects have a preference for blue? If the change has taken place in this manner and for this object, it seems to me that it has not proved altogether a success, and I fear that in many instances some other allurement must some day be adopted, as flowers of a less gaudy colour are still able to hold their own, and apparently have greater charms for these coveted insects even without the blue. Take, for instance, a Gooseberry bush or Palm Willow in bloom, a plant or bed of blue Forget-Me-Not, or of blue Viola, and it will be found that those sober-coloured plants are preferred before the Myosotis or Viola. Ageratum again is a flower not particularly well frequented by bees, while Ivy, sometimes seen in bloom at the same time, does excellent business, its customers being numerous, noisy, and seemingly happy. I allow that Borage and many other blue flowers are very much frequented by bees, but that may not altogether be caused by the colour. My own observations lead me to the conclusion that bees are attracted by the scent of flowers a great deal more than by their colour, and am very doubtful if they can distinguish colours at all. Bees leave their home in search of three different and distinct articles of food, namely, water, pollen, and honey, and I think—although I am not quite sure on this point—that the bee that goes out for water, will not collect or bring home either of the other two articles, but will confine itself to water only, and the same with those that go out for honey or pollen. I have repeatedly watched bees on Peach trees in bloom as well as other flowers, and followed some from flower to flower, and could distinctly see that the pollen gatherers never entered into the flower, but simply gathered pollen off the stamens, while the honey gatherers acted in the same way with the honey, and had no pollen whatever on their legs like the former; neither do I remember ever seeing pollen on the legs of those collecting water. It is my firm belief that they are mainly, if not altogether, attracted to these different articles of food by their keen perception of scents. If there is wax being melted or honey run out of the comb in a house with doors or windows open bees are very soon attracted by the smell, and they are not backward in making their way into the house; it matters not whether it is painted blue, black, or any other colour, so long as the smell is there. Bees do not know by sight members of their own family or even their queen, which in my opinion goes a long way to prove that they have but little perception of colour or form. If a bee is bruised or otherwise annoyed to cause it to sting one, it emits a peculiar smell, which I have often noticed, and which soon attracts its friends, if at all near, to the rescue. All who have studied this subject know that bees are very much attached to their queen, and would very soon destroy another put in her place if they knew it. They are a great deal worse than the Chinese ever were against strangers taking up their abode in their colony, or even visiting them there, let that stranger be queen or worker bee; they dislike it so much that they are at all times ready to sacrifice their lives to keep out intruders, or in their endeavours to expel them if by any means they have gained an entrance. Now, with all this prejudice against strangers, they can be introduced into their hives without detection by simply destroying the distinctive scents of those introduced—an operation well known to apiarians. A maiden princess a few hours old can be substituted for an aged queen, mother of hundreds of thousands, or *vice versâ*, and they cannot see any difference if deceived in the scent; more than that, a Ligurian queen of quite a different colour, even to the human eye, can be substituted for an English one by the same process, and the bees cannot detect the difference if the distinctive scent be destroyed before introducing her; but if not her presence would soon be detected, and would cost her life. Butterflies and bumble-bees I find are very partial to single Dahlias; may we expect the blue one so long looked for? *H. Henderson.*

Notices of Books.

The Larch: a Practical Treatise on its Culture and General Management. By C. Y. Michie. London: William Blackwood & Sons. 1882.

The Forests of England, and the Management of them in Bygone Times. Compiled by J. C. Brown, LL.D. Edinburgh: Oliver & Boyd. London: Simpkin, Marshall & Co. 1883.

Finland: its Forests and Forest Management. Compiled by J. C. Brown, LL.D. London: Simpkin, Marshall & Co. 1883.

French Forest Ordinance of 1669; *with Historical Sketch of Previous Treatment of Forests in France.* Compiled and Translated by J. C. Brown, LL.D. London: Simpkin, Marshall & Co. 1883.

Elements of Sylviculture: a Short Treatise on the Scientific Cultivation of the Oak and other Hardwood Trees. By the late G. Bagneris. Translated from the French by E. E. Fernandez and A. Smithies, B.A. London: William Rider & Son. 1883.

The best of this batch of books beyond all comparison, from the forester's point of view, is Mr. Michie's practical treatise on the Larch. It tells us exactly what we want to know, and it imports into the narrative nothing irrelevant which ought not to appear in a complete description of one of the most useful of our naturalised trees. The story of the introduction of the Larch—the common white Larch, Larix europæa, (not the pendulous varieties, the Black Larch, L. pendula, or the American L. microcarpa), from the Alps of Europe to those of Scotland; the success of the Duke of Athole; the shipbuilding of the Tay, in which Larch was the timber used; the *Athole* frigate, of 1818; the Duke's coffin; the Coccus Laricis; old McCrosty, the forester, throwing his shoe at his Grace for ordering him to cut one of the big Larches; the claims of the rival trees of note; Duke John, the Planter, the Fourth Duke, and his 15,473 English statute acres of trees—chiefly Larch—all these are familiar matters of history, and Mr. Michie tells the story briefly and well. Thirty years' experience as a forester have enabled him to treat the practical part of his subject exhaustively, and within the limits of 284 pages the tree planter will find probably all that is known of the cultivation of the Larch, from the nursery to the matured tree, the soils adapted to it, the methods of planting, and the general management, with the rate of growth and average crop, diseases, uses of the wood, and other matters important to the planter—as, for example, the effect upon the soil of the shedding of the leaves of this deciduous Conifer, and the value of the pasturage below. Mr. Michie has given us a genuine book—a book of facts; and considering how completely the Larch is naturalised in this country, especially among the clear dry highlands of Scotland, that it is the most valuable of the Conifers, and that a flood has commenced—leading us to fear a deluge—of works relating to forestry, it seems surprising that this should be the first practical treatise on the Larch. We do not expect to see it surpassed, and it can hardly be superseded, on account of its abundant information, but from the point of view of literature a good deal requires recasting, and the author should be more careful to acknowledge the sources of his information. The *Elements of Sylviculture*, in spite of certain merits, will, we fear, in its present form, repel readers, in consequence of the number of its uncouth and foreign terms, and inaccurate definitions. In the chapter on "definitions and general ideas," for example, we are told that "the words shrub and bush are used to designate woody plants that do not attain this height [*i.e.*, 20 feet] and whose stem is branched from the base itself." Neither the English of this sentence, nor the definition it conveys, seems to us to be correct. If shrubs and bushes are necessarily branched from the ground, how shall we define Gooseberry bushes and other shrubs whose stems are single? Passing over other terms which are not recognised in English forestry—"high forest" among them—we come to the word "exploit." "To exploit a forest, or crop," we read, "means to fell it in accordance with the principles of sylviculture. A forest is exploitable when it has attained the maximum of utility for its proprietor. The state of a forest in which this condition has been realised is expressed by the word exploitability." These pedantic terms are not English either, and we cannot believe that our foresters, North

or South—and we boast of some as skilled and accomplished as any in the world—will find it necessary to adopt them. The late author of the *Elements of Sylviculture* stated that he wrote this manual for the use of foresters at the French schools; and no doubt the broad principles of forestry may be taught even from a French text-book—but not so effectively, we submit, as from one of English origin. The book is by no means without merit. The supplement on the fixing of the dunes, p. 248, is excellent, but so far as the practical part of the book generally is concerned we greatly prefer our native authorities, Grigor and others.

Dr. Brown is a voluminous writer, whose works on forestry, published or in the press, number ten, including, we are sorry to say, *Reboisement in France*, though why such a title should be given to a book about replanting, we cannot conceive. Dr. Brown, however, is a very skilful compiler, and an attractive, though certainly a discursive writer. His travels as a botanist and minister of religion have extended over fifty years, and in whatever hemisphere or country he rambled, observations on forestry have always engaged him. In each of the three volumes under notice he has gathered together a large amount of information from the best sources, while his own personal knowledge has given life to the narrative. The *French Forest Ordinance of* 1669, is a work for the student and the antiquarian rather than for the general reader. *Forest Lands of Finland*, on the contrary, is a book which even those who do not care for forestry may read with interest if they only skip the various reports on that subject, and pick out the pages on the fauna, the flora, and the natural history of Finland, with those incidents of travel which Dr. Brown has skilfully introduced.

The Forests of England, by the same indefatigable compiler, treats of forests from the earliest times down to the latest episode in connection with Epping Forest. It includes an account of forest legislation anterior and subsequent to *Charta foresta*, and under the head of forestal literature it includes short notices of Evelyn's *Sylva* and Gilpin's *Forest Scenery*. Inverted commas run through the book, and no fisherman was ever more skilful with his net than Dr. Brown in sweeping into one small volume the collections of preceding authors. It is very much to his credit that on all occasions, so far as we can see, he is perfectly honest in acknowledging his borrowings, even when he borrows, as he does largely, from that delightful old book, *English Forests and Forest Trees*, whose anonymous and modest author could at this date make no complaint.

Our attractive contemporary, *Forestry*, has very properly given due space to the romance and history of our woods and forests, and in its pages Dr. Brown has found a mine of story and anecdote which he has freely worked. He has thus obtained capital accounts of Sherwood Forest and Robin Hood, of Epping Forest and Dick Turpin, with very readable materials relating to the New Forest and several others, including the little forest of dwarf Oaks in Dartmoor, known as Wistman's Wood. We are happy to observe that our own columns have also assisted him in preparing what is essentially a book for general readers—not a technical work.

The Arboretum.

The Lombardy Poplar.—The *Garten Zeitung* for September of the present year contains an article by Dr. W. O. Focke, on the apparent dying out of the Lombardy Poplar in Germany, with especial reference to its origin. It appears, according to our authority, that this tree seems to be dying out everywhere in North and Middle Germany, and similar phenomena are observable in this country. Gardeners who are asked for their opinion of the cause answer, as a rule, that it was the severe cold that prevailed in December, 1879. Dr. Focke, however, states that several circumstances are against the cold being the real cause of the disease. In the first place the Lombardy Poplar began to dwindle long before 1879; and, secondly, the frost of 1879 in north-west Germany, where the Poplar has suffered so extraordinarily, was not so sharp as to injure the fruit trees, whereas in the plain of the Upper Rhine, where the Poplars still look pretty healthy, innumerable fruit trees were killed. Furthermore, in Bremen, for instance, it was not so cold in 1879 as it was in 1821, in which year the Poplars cannot have suffered appreciably, because the handsomest, complete avenues of them existing after that date, are known to have been planted during the first and second decades of the present century.

About twenty years ago the greater part of the Weeping Willow (Salix babylonica) in Germany perished in a similar manner, and their death was attributed to frost. Since then the weeping varieties of Salix purpurea and S. caprea have been imported in the place of the old Weeping Willow. The few examples of the last that Dr. Focke has had an opportunity of seeing have not visibly suffered from the cold of 1879; and of course, as he adds, it is not credible that the frost would prove one year injurious only to Poplars, and in another only to Willows.

Professor Landois suggests that the debility of the Poplars is due to in-breeding; but, as Dr. Focke observes, it cannot be so, because it is almost invariably propagated from cuttings and not sexually. This raises the old question, "Do varieties wear out?" Dr. Focke is of opinion that the Lombardy Poplars may be dying from old age, and that it is possible that, with few exceptions, the trees have all been raised from cuttings since the origin of the first Lombardy Poplar. In fact, he says it is questionable whether a single tree of this Poplar has since originated from seed. Female trees of the Lombardy Poplar are exceedingly rare, and their origin is unknown. He thinks it possible that these may have been raised from cuttings from the male, in which particular branch there had been a change of sexes—a phenomenon not unknown in the allied genus Salix. This is probable, for a complete alternation of function has been observed in various deciduous trees. Another possibility Dr. Focke suggests, namely, the repeated spontaneous sporting of the Lombardy Poplar from ordinary P. nigra. This would account for the great vigour of some individuals of the former. He strongly inclines to the view that the Lombardy Poplar is dying from old age in Germany, and he formulates a number of questions bearing on the subject, not alone as affecting the Lombardy Poplar, but plants generally that are propagated vegetatively.

Karl Koch (*Dendrologie*, ii. abtheilung c., p. 190) states (giving Manetti as his authority) that the Lombardy Poplar was continually raised in quantity from seed, especially in the neighbourhood of Mantua. This statement seems to require some modification, for in the records of which Manetti was the author I have found the facts are different, and I append some extracts which are of interest. It is perhaps true that I have not found the article from which Koch obtained his information, as he cites the *Gardeners' Magazine*, ix., p. 159. If he refers to Loudon's *Gardeners' Magazine* the reference is incorrect. The first extract is from an article communicated by Mr. John Denton, and deals particularly with the introduction of the Lombardy Poplar, and the question of the presence of one or both sexes in this country. It may be well to mention that the names Populus fastigiata, P. pyramidalis, and P. dilatata have all been applied to the Lombardy Poplar.

"While curator of the botanic garden at Bury St. Edmunds I examined all the blooming specimens of Populus dilatata which grew in the town and neighbourhood, in the hope of acquiring both sexes for the collection of the garden. I could, however, find only the male. I told this fact to Mr. Sabine on his visiting the garden, and I understood him to reply, 'The female is not in this country. The Duke of Argyll imported some statuary from Italy to Whitton, in Middlesex, part of the packing of which, on being planted, disclosed Populus dilatata, male; and there has been no other importation.' I repeated this statement to a very intelligent gentleman, W. C. Oldham, Esq., then (in the autumn of 1827) residing at Rickinghall, near Diss, in Norfolk, who could not assent to its having been exclusively introduced as above stated, himself and other gentlemen of his acquaintance having always understood that it was first brought to this country by the Earl of Rochford while he was Ambassador to the Court of Turin in 1751, and who established it at his seat at St. Osyth, Essex—the Rev. S. Carter and other relations of the Rochford family having also this impression. Mr. Oldham once saw the very old gardener at the above seat, who attested the truth of this notion, and stated that he himself was the person by whom the twigs of the Poplar were planted. They were incidentally sent over, as in Mr. Sabine's account; but if Mr. Oldham rightly remembers it was in this instance as the package of Orange trees.

"As to the fact of the importation of this species of Poplar both accounts are probably correct, if I rightly understood Mr. Sabine's remark; but as there has been another importation the female may be in the country, and the examination of the Lombardy Poplars about St. Osyth, if any still exist there, would determine this question. As it blooms in the end of March and early part of April, perhaps some of your readers in the neighbourhood will examine the blossoms and settle this point. Having, however, since learned where the female exists, I would record the place in your magazine, that all who desire it may procure it thence. It is at the University Botanic Gardens at Göttingen: M. Christopher Abraham Fischer, the inspector of which, in reply to an application for it from Mr. N. S. Hodson, superintendent of the botanic garden at Bury St. Edmunds, remarks in a letter dated December 16, 1828:—'Many years since I looked fruitlessly for the female of Populus dilatata among many thousand trees all round Göttingen. Last year I was so fortunate as to find a single tree, and send you some cuttings.' These cuttings, although planted as soon as received, and duly attended to, all failed; but as Poplars are notorious for freedom of growth, this should not deter from other importations."*

The foregoing communication does not contain any absolute proof of the existence of female trees of the Lombardy Poplar. The following letter on the same subject was written by Manetti, whom K. Koch quotes as his authority for the tree being raised from seed:—

"The Lombardy, or, as we call it, the Cypress Poplar, is not now so frequently seen in the Milanese territory as formerly, and the few that still remain there appear to have been planted on the banks of rivers and brooks, or near houses, for ornament. I have not been able to convince myself that it grows anywhere spontaneously, except in the garden of Comte Orrigo, as I mentioned in a former letter; and when I wrote to my brother Luigi to ascertain if it grew spontaneously in the province of Venice, he informed me that, although very fine trees of it are to be seen about villas between Venice and Verona, and also near the river Brenta, he never saw it grown spontaneously; and that it is there always propagated by cuttings.

"I think that this Poplar is a native of the banks of the Po, because, though it is cultivated to a considerable extent in Modena, Bologna, and Ferrara, it is found in the greatest abundance on the banks of that river, particularly on the Bolognese side. A friend of mine, who has property on the low ground near Mantua, has also observed, that, when the soil is dug up there, or when the river overflows its banks, and carries off part of the soil, so as to expose the virgin earth, a great quantity of black Poplars always spring up, and among them many of the Cypress or Lombardy Poplars. These seeds were no doubt produced by the forests which once covered the banks of the Po, the remains of which are still to be found in some places. In my letter of January 24, I told you that I agreed with Professor Morretti in thinking that the Cypress Poplar was a hybrid; but since I have studied it more closely I must say that I consider it a distinct species, because all the plants raised from seed preserve the characteristics of the parent.

"I do not know why those who make plantations of Poplars prefer raising them from cuttings rather than from seeds; and as I told you in my last letter, the agriculturists in Brescia cut down the plants grown from seed to the collar, in order to make the whole into cuttings. I cannot think this desirable, and on the contrary maintain that, if you wish the plant to have a strong root, you should give the preference to the one that has been raised from seed rather than from cuttings.

"I wrote also to my valuable friend at Florence, Signor Palli Falbroni, Secretary to the Academy of Geography, to ascertain if the Lombardy Poplar was indigenous there. He informed me that they had only the male plant in Tuscany; and added, to my great surprise, that it was not introduced till 1805, by the Marquis Strozzi."†

Manetti's letter seems either to have been written by a person not well acquainted with English, or translated by a person who imperfectly understood Italian; for it is very contradictory and vague in some parts.

With regard to the cause of the Lombardy Poplar dying off in North Germany, we think there can be little doubt that it was the severe cold of 1879-80, for here in England the same phenomenon as we have stated, was observed in many places, and commented upon in this journal.

As to the sexes, we have seen no female trees in this country, and the only dried specimens we have seen that grew in Europe are from Carlsruhe and Switzerland; but the real home of this tree is Western Asia, and not Italy, where it is only an introduced tree. Boissier, in his *Flora Orientalis*, treats it as a

* John Denson, in Loudon's *Gardener's Magazine*, vi. (1830), p. 419.

† Loudon's *Gardeners' Magazine*, xii. (1836), p. 56.

distinct species, and records it as wild in Macedonia, Anatolia, Armenia, Antilibanon, Persia, and Turkestan. Griffith regarded it as wild near Cabul in Afghanistan. It is extensively planted in North-Western India, where the female exists, though it seems to be relatively rare. Perhaps the finest avenue of this Poplar in existence is one at Sirinagar in Kashmir. All travellers mention it; and Dr. Brandis, in his *Forest Flora*, states it is about a mile long, and perfectly straight, and the trees are from 90 to 105 feet high.

Magnolia Soulangeana nigra.—A medium-sized shrub, deciduous, very floriferous, and continuing a long time in bloom—in fact, from March till June. The plant is perfectly hardy, and makes an excellent subject for a solitary specimen on the lawn. The flowers are Tulip-like, and dark purple, about the size of a goose's egg.

Magnolia Lennéi, another hardy or half hardy shrub, rather weaker in growth than the former, is well adapted for a single specimen, or for a wall. The foliage is very fine, being about 7 inches in length, not reckoning the leaf-stalk. It is deciduous. The blooms, which are very large and cup-shaped, are rosy-purple outside, and pure white within, appear before the leaves in spring. In warm positions seed-pods are formed, which are dark green when ripe, and contain large scarlet seeds.

FORESTRY.

Forest Work for November.—Planting.—Push forward all operations that may have been delayed last month from the stormy and wet weather, so as to allow all hands to be turned on to the planting as soon as the nature of the weather and the state of the young trees permit. The great advantages of autumn planting are apt to be too much overlooked, and work that could be most successfully performed just now left over till necessity compels its being performed in spring. That spring planting is still rigidly adhered to by many foresters is beyond a doubt, and for what reasons it would be difficult to say—more, perhaps, from a disinclination to get out of the old and worn track than that any arguments in favour of the practice can be adduced; however, as knowledge spreads, and the principles of plant life are better understood, autumn planting will be more generally adopted, with not only a saving to the landowners, but greater success and credit to the operator. When the weather is unsuitable for planting the workmen may be employed in fencing, draining, and fitting ground intended for planting in spring, such as cold stiff clay or peat bog. In a clayey ground it will also be needful to adopt some means of ameliorating the mechanical texture of the earth, so as to render it sufficiently pervious to air and moisture to enable it to carry a healthy vegetation. For this purpose sand, road-scrapings, light loamy earth, vegetable ashes or leaf-mould are amongst the best substances that can be used. Stagnant water should also be removed, as nothing is more injurious to tender plants than an accumulation of water about their roots; it produces a coldness in the soil, which, in spring especially, is so far mischievous that it frequently effects the destruction of the plants, and generally causes an inertness, which is not recovered from for a considerable length of time. Examine carefully all transplanted trees, especially such as are of large size, and consequently liable to be tossed about with the wind. To the success of every transplanted tree it is absolutely necessary that motion of its roots be prevented, so that all the fibres issuing from the injured roots be preserved, their services being early and eminently needed to supply sap before the buds shall have perished or the tree become stunted from the contraction of the sap-vessels. A recently removed tree that has been upset or rocked about with the wind, so as to have the tender rootlets damaged, may perhaps live, but if so it will be several years before becoming either fruitful or ornamental.

Hedging.—November is a good time for planting hedges, and no time should be lost in having such work in hand, as the Hawthorn is one of our first plants to break into leaf. Thorough preparation of the ground intended for quicks is all-important, and any little expense incurred in this way is amply repaid by the increased and ultimate value of the fence thus formed. A good deal has been said and written lately regarding the oval-leaved Privet (Ligustrum ovalifolium) as a hedge plant, and its extensive use here urges me to say a few words in its favour. Nearly a couple of dozen different shrubs have been employed here in the formation of hedges, but for quick dense growth, as well as ornamental appearance, this new Privet bids fair to outrival all others. The habit is strict and close, which, combined with its free growth and adaptability to the pruning-hook, renders it a first-class plant for division or screen fences. It is much stronger than the common Privet, quite as hardy and equally applicable for planting in different soils and situations. Although better than the common Privet for a farm fence, or where resisting powers are required, yet this plant cannot with confidence be recommended for such purposes alone. Planted time about with the quick it soon forms both a useful and ornamental fence, alike suitable for the farm, forest, or garden.

Shrubbery.—In the shrubbery little can now be done, except in maintaining thorough neatness, a point which cannot be neglected with impunity at any season. Dressing lawns, edging walks, and planting of shrubs should be persevered in as far as weather will permit. Many plants, especially some of the new species of Pinus, which are frequently used for the embellishment of prominent positions on the lawn, will require protection when making their first growth in spring; for although hardy enough to stand unprotected through the winter, they are very liable to sustain injury in consequence of the early period at which they commence their growth.

Nursery.—In the nursery, lift and plant in lines all layers, at the same time layer for a succession of plants. Dig roughly all vacant ground, at the same time exposing as much as possible of each spadeful to the influence of the winter weather. Cones, as well as other tree-seeds yet ungathered, should now be collected and stored away in a dry and airy loft. The seeds from cones need not be extracted but left as they are until spring, or such time as required for sowing. Transplant seedlings into rows, being careful to allow sufficient room for hoeing and weeding. For refilling the nursery with seedlings it is well to have a portion of the stock ordered to hand. This will enable the nurseryman to embrace every opportunity of getting on with his work during fine weather—a point of much importance both for the plants and the cleaning of the ground. Those having home nurseries should not lift more plants in one day than can be used in the same time.

Thinning.—The cutting of underwood and general thinning of plantations may now be proceeded with, although where game is preserved it may be some time yet before the covers are shot through; in such cases thinning will have to be deferred until then. All outlying plantations may, however, be thinned, and the produce disposed of as early as possible, so as to have the plantations cleared out and finished up at once. In this country it is seldom thinning is done at the proper time, and when it must be it is difficult to prevent its being overdone. All dead or broken trees should be removed at once, and branches that have become twisted during the late stormy weather pruned off, and either burned on the ground or removed from sight, especially such as are visible from drives or roads in the park, lawn, or pleasure-ground.

Roads and Walks.—An unusual amount of attention and labour will, during the wet weather, require to be expended on roads, drives, and walks, so that they may be preserved in a sound and passable condition. Carriage drives and walks within the policy grounds should receive special attention, to guard against the formation of ruts and inequalities, either of which are anything but pleasant to foot or other passengers. We find it a good plan to keep a few men constantly employed in cleaning and repairing the carriage drive, so as to guard at all times against the consequences of allowing these to get into a dirty, rough, or furrowed condition. The drives and rides in plantations should also be gone carefully over, and wherever rabbits are found burrowing under them the holes should be followed up with the spade to their furthest extremity, and again filled firmly up; such holes are treacherous to hunters and shooting parties, and should, therefore, be looked to and remedied at once.

General Work.—See that all drains and ditches are properly cleaned out, as during the past successively wet weather they have in many instances been taxed to their utmost here. Leaves may now be gathered and carted to convenient places to rot. On the farm prune all hedgerow trees, and cut down such as are intended for removal during the winter season and while the ground is destitute of crops. *A. D. Webster, Penrhyn Castle, North Wales.*

THE FRUIT SHOW OF THE WOOLHOPE CLUB, HEREFORD.

The above exhibition was held in the Shire Hall (thus giving more space than before), and the fine room was well filled with a remarkable display of 3000 dishes of Apples and Pears. The orchestra was relieved by a few well arranged plants in pots—some lifted specimens of Pampas-grass giving lightness to the arrangement. We did not learn who kindly lent these, but expect the Cranston Company could answer the question. To our minds a few of the Palms would have relieved the flatness of the tables, and it struck us that the two central ones were far too wide for a proper examination of the fruit. Possibly the fine tall ladies and gentlemen of Hereford could see all they desired, but the exceptions fared badly: another 18 inches at the side tables would have been more in character. However, we have done our grumble, and those who know the "authorities" will quite understand that much of the success of the show was due to the courteous urbanity of the esteemed President, Dr. Bull, who was ably seconded by H. Cecil Moore, Esq., M.D., and Mr. D. R. Chapman, who well deserved the thanks of the exhibitors and the general public. The judges especially owe them gratitude, for they had the hall entirely to themselves, and the arrangement considerably facilitated their labours, which appeared to have given general satisfaction, except, perhaps, in the "heaviest Apple" class, where the Herefordians would have liked to see the prize go to Mr. Higgins for his wonderful example of Peasgood's Nonsuch, but the schedule did not state beauty, but size, weight, and quality, so that the scales decided for Belle Dubois (20 oz.), from the Barham Court exhibit, which was 2 or 3 oz. over the Nonsuch. In the heaviest Pear all the points came together, and Pitmaston Duchess, also from Barham Court, was 1st with a bulk of 24½ oz.

Accustomed as our eyes were to the Chiswick congress we were struck with the brilliant colour of the Hereford fruit—the Tom Putt section rivalling a batch of Dahlia Mariesii blooms, and the rich orange-yellow of the King of the Pippins was remarkable. In the cider fruit the "carnation stripes," the "crimson flushes," and the "bronze blacks" were admirable, and we anticipate we shall hear 1883 called a cider "vintage" year.

The following notes may be interesting to exhibitors. Taking the Pears first, Mr. Haycock, gr. to Roger Leigh, Esq., Barham Court, Maidstone, Kent, was well 1st with fifteen varieties, which were all grand, the Pitmaston Duchess being very large, and just colouring elegantly; Doyenné Boussoch, Triomphe de Jodoigne, Doyenné du Comice, Beurré Diel, Easter Hardy, Superfin, General Todtleben, Conseiller à la Cour, Durandeau, Passe Crassanne, Duchesse d'Angoulême, Nouveau Poiteau being all large and of good shape. The grand late Pear Marie Benoist was also included. Sir Henry Scudamore Stanhope (who only a few days ago inherited the title of the Earl of Chesterfield) was a good 2d with a fine collection from the Holme Lacey cordons, Beurré Hardy, Flemish Beauty, finely coloured; Marie Benoist, Doyenné Boussoch, Chaumontelle, and Beurré Rance being conspicuous. The third award fell to Red Stacey, whose fruit was very fine, and we learn grown on a very poor soil and in an exposed place, so that it was green, but heavy, and promising to keep well; Doyenné du Comice, Marie Louise, and Pitmaston Duchess, Hacon's Incomparable, and Conseiller à la Cour being very good. The dishes of Marie Louise were very fine, and the Louise Bonnes large but not so fine as we have seen. The Uvedale's St. Germain and Grosse Calebasse in the cooking Pears were very fine, the latter hailing from Kent (Mr. Fremlin's, Prestons Hall, Wateringbury).

There was a keen competition for the premier prize—twenty-four varieties of kitchen Apples. Here again Mr. Haycock was *facile princeps* with finer fruit

than that staged at Chiswick, the best being Peasgood's Nonsuch, Belle Dubois, Lord Derby, Alexander, Reinette du Canada, Loddington, Royal Russet, Mère de Ménage, very large, well coloured; Beauty of Kent, and Warner's King. He was well followed by Mr. Watkins, who had Waltham Abbey, Yorkshire Beauty, Blenheim, Striped Beefing, Gloucester Costard, New Hawthornden, and Wellington. Lady Emily Foley was 3d with a fine lot, well coloured, but smaller than the preceding. The competition for the fifteen table Apples was well contested, and six prizes would have been well bestowed. Mr. Haycock was 1st, his collection being very well set up and varied, but possibly the fruit was a little too large for a select dessert. Pine Golden Pippin, Washington, Blenheim, Margil, Melon, Golden Russet, King of Pippins, Ribston, Braddick's Nonpareil, Queen Caroline (a fine foil for the others, but a dessert fruit by courtesy ?); Court Pendu Plat, Mother, well coloured; and Ross's Nonpareil. Mr. John Griffiths, Tillington, was 2d, and had finely-coloured and well-kept Red Astrachan, Ribston, Yellow Ingestrie, and Melon.

In the class, best Apple, present flavour, there was a keen contest. Ribston was out of it, not being ripe, and Mother Apple was well 1st; Cox's Orange 2d, Hereford Old Pomeroy 3d, and Crimson Gilliflower 4th.

In the Pears for present flavour there were a large number entered. First honours fell unanimously to Thompson's, grown by Mr. Piper, of Ledbury; and 2d to Marie Louise (from a standard tree); 3d to grand Seckles, from Welford Park; 4th to Beurré Superfin; and the old Aston Town was next on the list.

In the single dishes of Apples there was a grand display. Mr. Haycock took first honours for Ribstons, Hereford Pearmain and Cox's Orange Pippin. In the Blenheims, Mr. Griffiths was 1st, in a class of thirty-one plates; the Rev. H. Tweed was a good 2d in the Cox's Orange. The Blenheims were astonishing—size, colour, weight, and beauty being well brought out. The specimens of King of Pippins were wonderful, and a dozen prizes would scarcely have covered the meritorious dishes, twenty-eight competing. Here the honours fell to a local grower, Mr. Higgins.

The trade were well represented by the Cranston Nursery Company, Messrs. Davidson of Whitecross Nurseries, and Mr. Grove of Tupsley, doing duty for Hereford. Messrs. J. C. Wheeler & Son, Gloucester, showed a similar lot to their Chiswick collection. Messrs. George Bunyard & Co., of Maidstone, championed Kent: and the local cider celebrity, Mr. Watkins, had 200 dishes of the best cider, and also kitchen and dessert fruit—very cleanly grown. In the Cranston collection were grand plates of Peasgood's Nonsuch, Stirling Castle, Ecklinville, Lord Suffield, Lane's Prince Albert, Worcester Pearmain, large and well kept; Bess Pool, Ribston, Golden Spire, Gloucester Costard, Brownlee's Russet, Annie Elizabeth, Lord Derby (grand); Lord Grosvenor, Pomona, Tom Putt, Cornish Aromatic, Ringer, and, lastly, fine dishes of the Herefordshire Beefing, which is an Apple that must make its way, because it can be kept well into May. This lot was well set-up, and contained about 260 dishes. Messrs. Davidson showed fine examples of Flanders Pippin, Devonshire Red (very like Jefferies' Honeymoon), Blenheim, Warner's King, Catshead (Query: if a cat has nine lives, how many heads has it, for Puss was well represented here); Pomeroy, Stirling Castle, New Hawthornden, and Fearn's. Mr. Grove had fine Alexander, Minchall Crab, Cox's Orange Pippin, and New Hawthornden, and many other finely coloured dishes.

Mr. Watkins had Costard, New Hawthornden, Catshead, Waltham Abbey, Blenheim, Beauty of Kent, Ribston, Scarlet Nonpareil, Duke of Devonshire, Warner's King, and many others well grown. Mr. W.'s soil is evidently suitable for Apple growing.

Messrs. J. C. Wheeler & Son had Waltham Abbey, Yorkshire Greening, Wormsley, Royal Russet, Golden Noble, Wellington, Worcester Pearmain, Fearn's Pippin, and many well grown Russets, of course including the Ashmead's Kernel.

Messrs. Bunyard had good dishes of Loddington Seedling, Warner's King, Worcester Pearmain, Cox's Pomona, Lord Derby, Alfriston, New Hawthornden, Cellini and Pitmaston Pine-apple among the dessert fruit. Three fruits were also shown of the Grenadier.

For the novelty class there were several entries, which the judges divided into sections. The first, for culinary fruit, was awarded to Saltmarsh's Queen, very finely marked fruit being sent from Chelmsford. The second to the Rev. Mr. Pilson, for a pale primrose Apple of the Golden Noble race. In dessert, the 1st went to Ballard's Seedling, which is an Apple we ought to hear more of. Cox's Orange is one parent, and probably Braddick's Nonpareil another, handsome, fine in colour and shape, and which will keep till March, we fancy. Second honours fell to a good plate of Gipsy King, which were very heavy and well coloured, shown by Messrs. Geo. Bunyard & Co., of Maidstone. In the class for nine varieties, culinary Apples, given by the Cranston Company, there was one remarkable exhibit from Mr. Higgins. The Peasgood's Nonsuch, Warner's King, Cox's Pomona, here shown were better than many Apples at Chiswick, and the gardener would have done well to have competed in the open class. We have omitted to say that the prize for Tom Putt fell to Mr. Haywood in a large class, remarkable for its striking beauty.

In the miscellaneous lots we noted a plate of the new Bramley's Seedling Apple, lately certificated, from Mr. H. Merryweather, Southwell, evidently a useful fruit. There were also seventy-five varieties of orchard and cider fruit from Normandy, and a collection of vintage fruit from Devonshire; a plate of very fine Pitmaston Duchess Pears from Sawbridgeworth, and a dish of fine Kent Cobs from Bunyard's.

In one corner lay a branch of what looked like a Willow, but which proved to be a Pear, with long silvery leaves. It was sent by Sir Rupert Kettle, and the small green fruit, about the size of an Azarolus Thorn, is supposed to possess the tannin principle (so valuable in cider making) in a remarkable degree. On tasting they caused one to shut the left eye with their peculiar acidity. We believe this to be Pyrus salicifolius pendula, grown in some nurseries as a handsome and distinct tree. Loudon says P. salicifolia is a native of Siberia, and that trees 20 to 30 feet high exist at Whiteknights.

In conclusion, we are glad to say that the show was well patronised by the local nobility and gentry, and also by the Apple farmers and gardeners, and we believe has proved a financial success. The judges were Mr. R. S. Carrington, of Worcester, and Mr. George Bunyard, of Maidstone; the cider and perry fruit being judged by experts, whose names we did not hear. Mr. Phillips and Mr. Piper, of Ledbury, we believe, did good service.

LIST OF GARDEN ORCHIDS.

Epidendrum.—*Continued from p. 477.*

147. E. (Encyclium — Sarcochila) ochraceum, Lindl., *Bot. Reg.* 1838, t. 26, Misc., p. 14; *Walp. Ann.*, vi., p. 325; *Refug. Bot.*, t. 88; *E. triste*, A. Rich. and Gal., *Ann. Sc. Nat.*, série 3, iii., p. 20.—Guatemala and Mexico. Introduced by Skinner, and first flowered in Sir C. Lemon's garden. Small yellowish-brown flowers.
E. ochranthum = virens.

148. (Euepidendrum — Paniculatæ) ochriodes, Lindl., *Fol. Orch.*, n. 165; *Walp. Ann.*, vi., p. 371.—New Grenada, at 7000 feet. Introduced by Linden. Habit of nutans, with a dense raceme of pale violet flowers.

149. E. (Encyclium—Hymenochila) odoratissimum, Lindl., *Bot. Reg.*, t. 1415; *Fol. Orch.*, n. 33; *Walp. Ann.*, vi., p. 330. *Macradenia lutescens*, Lodd., *Bot. Cab.*, t. 1556, not of R. Br. *Encyclia patens*, Hook., *Bot. Mag.*, t. 3013. *Epidendrum glutinosum*, Scheidw., Otto and Dietr., *Allg. Gart. Zeit.* 1843, p. 110.—This has green and brown or wholly green "delightfully fragrant" flowers. Lindley states that none of the above figures is good, all having been made from unhealthy cultivated plants.

150. E. (Encyclium—Hymenochila) oncidioides, Lindl., *Bot. Reg.*, t. 1623; *Fol. Orch.*, n. 29; *Walp. Ann.*, vi., p. 327. *E. affine* and *E. spectabile*, Focke, *Bot. Zeit.* 1853, pp. 229 and 341. *E. guatemalense*, Klotzsch; Otto and Dietr., *Allg. Gart. Zeit.* 1852, p. 249.—Guiana. Cultivated by Mr. R. Harrison, of Liverpool. A stately species, having broad foliage and branching panicles of yellow and brown, very fragrant flowers. In a wild state the panicles are as much as 6 feet high, according to Schomburgk. A variety called graniticum, from its growing among boulders, is described as having smaller green flowers, dotted with red, and a white lip, rosy-red at the base.
E. ornatum = floribundum.

151. E. (Encyclium—Hymenochila) ovulum, Lindl., *Bot. Reg.* 1843, Misc., p. 55; *Fol. Orch.*, n. 42; *Walp. Ann.*, vi., p. 333.—Mexico. Imported and cultivated by Loddiges. Flowers olive-green, with a white crimson-veined lip.

152. E. (Encyclium) oxypetalum, Lindl., *Orch. Linden*, p. 8; *Fol. Orch.*, n. 35; *Walp. Ann.*, vi., p. 330; *Ill. Hort.*, xxviii., p. 96.—Cuba. Introduced by Linden. Flowers pale yellow.

153. E. (Encyclium—Hymenochila) pachyanthum, Lindl., *Bot. Reg.* 1838, p. 31; *Fol. Orch.*, n. 25; *Walp. Ann.*, vi., p. 326.—Demerara. Discovered by Mr. Schomburgk, who sent it to Messrs. Loddiges. A large green-flowered species.
E. pachysepalum = variegatum.

154. E. (Euepidendrum—Amphiglottideæ) palliflorum, Hook., *Bot. Mag.*, t. 2980; Lindl., *Fol. Orch.*, n. 180; *Walp. Ann.*, vi., p. 378.—Dominica. Sent by the Rev. L. Guilding to Glasgow, where it flowered in 1829. Flowers pale yellowish-white, with a purple stain on the column. The *Botanical Magazine* figure was from a weak plant.

155. E. (Euepidendrum—Amphiglottideæ) palpigerum, Rchb. f., *Gard. Chron.*, n. s., xii., p. 40.—Mexico. Introduced and cultivated by Mr. W. Bull in 1880. Flowers larger than those of E. ellipticum, of an exquisite lilac colour; column green, with a purple top. Hort. Kew.

156. E. (Aulizeum) pamplonense, Rchb. f., *Linnæa*, xxii., p. 837; *Walp. Ann.*, vi., p. 356; Lindl., *Fol. Orch.*, n. 118.—New Grenada, at 6000 feet. Introduced by Linden in 1848. Flowers yellow and white, flecked with purple.

157. E. (Euepidendrum—Amphiglottideæ) panchrysum, Rchb. f. and Warsc.; Otto and Dietr., *Allg. Gart. Zeit.* 1854, p. 313; *Walp. Ann.*, vi., p. 397.—Peru. Introduced by Warscewicz, and cultivated by Senator Jenisch, Hamburg. A pretty species, with golden-yellow flowers, about half the size of those of a healthy E. ellipticum.

158. E. (Euepidendrum—Paniculatæ) paniculatum, Ruiz and Pav., *Fl. Peruv. et Chil. Syst.*, p. 243; Lindl., *Fol. Orch.*, n. 174; *Walp. Ann.*, vi., p. 376; *Ill. Hort.*, n. s., t. 211; *Bot. Mag.*, t. 5731; *Gard. Chron.* 1868, p. 1338. *E. lævе*, Lindl., *Bot. Reg.* 1844, p. 24.—New Grenada to Peru. Cultivated by Messrs. Veitch in 1868. A tall, vigorous species, bearing ample panicles of purple or lilac-purple flowers, with some yellow at the tip of the column. Described as the most superb of the paniculate species, and perhaps the most free-flowering of all Orchids. Hort. Kew.
E. papilionaceum = bifidum.
E. papillosum = adenocarpum.
E. Parkinsonianum = falcatum.
E. Pastoris = Linkeanum.

159. E. (Euepidendrum—Amphiglottideæ) patens, Swartz., *Fl. Ind. Occ.*, iii., p. 1495; Lodd., *Bot. Cab.*, t. 1537; *Bot. Mag.*, t. 3800; Lindl., *Fol. Orch.*, n. 235; *Walp. Ann.*, vi., p. 384.—West Indies and Guatemala. Introduced by Skinner. Flowers rusty-yellow, about 1½ inch across. Hort. Kew.

160. E. (Euepidendrum — Amphiglottideæ) paytense, Rchb. f., *Bonplandia*, 1855, p. 220; *Walp. Ann.*, vi., p. 391; Otto and Dietr., *Allg Gart. Zeit.* 1855, p. 185.—Peru. Imported and cultivated by Mr. Nauen, of Berlin. Flowers cinnabar, half as large as those of E. cinnabarinum.

161. E. (Aulizeum) pentotis, Rchb. f., *Linnæa*, xli., p. 81.—Brazil. Cultivated by Linden.

162. E. (Encyclium—Hymenochila) phœniceum, Lindl., *Bot. Reg.* 1841, Misc., p. 57; *Fol. Orch.*, 78; *Sert. Orch.*, t. 46; *Gard. Chron.* 1841, p. 551, and 1842, p. 423; Paxt., *Mag. Bot.*, ix., p. 97, with coloured plate, copied in *Fl. des Serres*, May, 1846, t. 8; *Walp. Ann.*, vi., p. 344. *E. phœniceum vanillosmum*, *Fl. des Serres*, t. 306. *E. Grahami*, Hook., *Bot. Mag.*, 3385.—Cuba. Originally introduced and cultivated by Loddiges. A very handsome, large flowered species, with branching panicles 2 to 3 feet high. Sepals and petals leathery, deep purple, mottled with green; lip clear bright violet, veined and stained with crimson. Thus Lindley described the original variety; but there are great differences in the coloration of the varieties referred to this species. The one figured by Paxton has a bright rosy lip, and it is very much like E. macrochilum var. roseum; and E. Grahami has yellowish-green and brown sepals and petals, and a whitish lip veined with red.

163. E. phyllocharis, Rchb. f., *Xenia*, iii., p. 11, t. 208.—Costa Rica. Introduced by Mr. Endres, and cultivated in the Hamburg Botanic Garden.

164. E. physodes, Rchb. f., *Gard. Chron.* 1873, p. 289.—Costa Rica. Sent to Messrs. Veitch by their collector, Mr. Zahn. A mere botanical curiosity, with whitish-brown flowers.

165. E. (Encyclium—Hymenochila) pictum, Lindl., *Bot. Reg.* 1838, Misc., p. 32; *Fol. Orch.*, n. 45; *Walp. Ann.*, vi., p. 334.—Demerara. Cultivated by Messrs. Loddiges. Resembles E. odoratissimum, with dull yellow flowers neatly striped with crimson.

166. E. (Euepidendrum—Amphiglottideæ) piliferum, Rchb. f., *Linnæa*, xli., p. 83.—Costa Rica. Originally discovered by Warscewicz, and subsequently imported both by Mr. Linden and Messrs. Veitch. Allied to E. floribundum. Sepals greenish, petals white, lip white spotted with violet.

167. E. Pipio, Rchb. f.; Otto and Dietr., *Allg. Gart. Zeit.* 1856, p. 98; *Cat. Orch. Samml. Schiller*, ed. 3, p. 32. — Brazil. Cultivated by Consul Schiller, Hamburg, in 1857.

168. E. (Encyclium — Hymenochila) plicatum, Lindl., *Bot. Reg.* 1847, t. 35; *Fol. Orch.*, n. 32; *Walp. Ann.*, vi., p. 329.—Cuba. Imported and cultivated by Messrs. Loddiges. A handsome

species, having green and rich purple flowers, with a little white and yellow on the lip.

169. E. (Euepidendrum — Paniculatæ) polyanthum, Lindl., *Gen. and Sp. Orch. Pl.*, p. 106; *Fol. Orch.*, n. 187 (excluding the synonyms E. densiflorum, Hook., and E. rubrocinctum, Lindl.); Batem., *Orch. Mex. and Guat.*, t. 34; *Refug. Bot.*, ii., t. 112. *E. bisetum*, Lindl., *Bot. Reg.*, 1841, Misc., p. 68. *E. funiferum*, Morren, *Ann. de Gand*, iv., p. 211, t. 198. *E. colorans*, Klotzsch; Otto and Dietr., *Allg. Gart. Zeit.* 1851, p. 250. *E. Lansbergii*, Regel, *Cat. Hort. Petrop.* 1855?—Mexico and Guatemala to Venezuela and Brazil. First imported and cultivated by Messrs. Loddiges. As represented by Bateman, this is a very ornamental species, though it rarely attains perfection under cultivation. The sepals are brown or yellow-brown, the exceedingly narrow petals white, and the labellum and column yellow, white and green.

170. E. (Encyclium — Holochila) polybulbon, Swartz, *Fl. Ind. Occ.*, iii., p. 1491; *Bot. Mag.*, t. 4067; Hook., *Exot. Fl.*, t. 112; Lodd., *Bot. Cab.*, t. 1230. *Dinema polybulbon*, Lindl., *Gen. and Sp. Orch. Pl.*, p. 111.—West Indies and Mexico. Introduced by Mr. C. Horsfall, of Everton, near Liverpool, and presented by him to the Liverpool Botanic Garden, where it flowered in 1882; 3 or 4 inches high, with solitary small white flowers proceeding from between the two leaves borne by each pseudobulb.

171. E. (Encyclium) porphyrospilum, Rchb. f., *Linnæa*, xli., p. 80.—Native country not given. Sepals and petals olive-green; lip white, with an amethystine-violet disc.

E. primulinum = rufum.

172. E. (Encyclium—Holochila) prismatocarpum, Rchb. f., *Bot. Zeit.* 1852, p. 729; Lindl., *Fol. Orch.*, n. 23; Rchb. f., *Beitr. Orch. Cent. Am.*, p. 34; *Gard. Chron.* 1865, p. 413; *Bot. Mag.*, t. 5336; *Xenia Orch.*, ii., p. 83, t. 123; Warner, *Sel. Orch.*, ser. i., t. 9. *E. maculatum*, *E. nigromaculatum*, and *E. Uro-Skinneri*, Hortulan. Central America on the Volcan de Chiriqui. Discovered by Warscewicz. A strikingly handsome species, having tall, erect, many-flowered racemes. Sepals and petals yellow-green, with a few large, very dark purple almost black spots; lip lilac-purple bordered with white. A robust plant, with broad, recurved leaves. Hort. Kew.

173. E. (Euepidendrum—Amphiglottideæ) Pseudepidendrum, Rchb. f., *Xenia Orch.*, i., p. 160, t. 53; *Bot. Mag.*, t. 5929; *Walp. Ann.*, vi., p. 414; *Gard. Chron.* 1872, p. 763. *Pseudepidendrum spectabile*, Rchb. f., *Bot. Zeit.* 1852, p. 733.—Central America. Discovered by Warscewicz; flowered by Messrs. Veitch in 1871. A very striking species, having flowers 3 inches across; sepals and petals wholly green; lip rich orange-red and yellow.

174. E. (Encyclium—Sphærochila) pterocarpum, Lindl., *Hook. Journ. Bot.*, iii., p. 82; *Bot. Reg.* 1841, Misc., p. 60; 1844, t. 34; *Walp. Ann.*, vi., p. 326; Lindl., *Fol. Orch.*, n. 22; *E. cinnamomeum*, A. Rich. and Gal., *Ann. Sc. Nat.*, série 3, iii., p. 19.—Mexico. Imported and cultivated by Mr. G. Barker, of Birmingham. Flowers brown and green, with a broad yellow variegated lip, whose middle lobe is whitish.

E. pulcherrimum = cochlidinum.

175. E. (Aulizeum — Holochila) punctiferum, Rchb. f., in *Gard. Chron.*, n.s., xvi., p. 38, under *E. tripunctatum*. *E. tripunctatum*, Lindl., *Fol. Orch.*, n. 126, but not n. 12; *Walp. Ann.*, vi., p. 359.—Brazil. Imported and cultivated by Messrs. Loddiges. Flowers small, yellowish, with three purple spots in front of the callosities, and two or three smaller ones on each side above the furrows of the lip.

E. purpurascens = clavatum.

176. E. (Euepidendrum — Paniculatæ) purum, Lindl., *Bot. Reg.* 1844, Misc., p. 75; *Fol. Orch.*, n. 289; *Walp. Ann.*, vi., p. 412.—Venezuela and New Grenada. Introduced by Mr. Linden, and cultivated in this country by Mr. Rucker. Flowers pale green. Hort. Kew.

177. E. (Encyclium — Hymenochila) pyriforme, Lindl., *Bot. Reg.* 1847, t. 50; *Fol. Orch.*, n. 74; *Gard. Chron.* 1847, p. 671; *Walp. Ann.*, vi., p. 343.—Cuba. Imported and cultivated by Messrs. Loddiges. A dwarf plant, with pear-shaped pseudobulbs and rather large flowers, having red and yellowish-green sepals and petals, and a straw-coloured lip, veined with crimson.

E. quadratum = varicosum.

178. E. (Aulizeum—Holochila) radiatum, Lindl., *Bot. Reg.* 1841, Misc., p. 58, and 1844, t. 45; *Gard. Chron.* 1841, p. 503, and 1844, p. 607; *Fol. Orch.*, n. 130; *Walp. Ann.*, vi., p. 359. *E. marginatum*, Kl., Link., Klotzsch and Otto, *Ic. Pl. Rar. Hort. Berol.*, p. 89, t. 36. *E. bracteolatum*, Presl., *Relig. Hænk.*, i., p. 100?—Mexico and Guatemala. Imported and cultivated by Messrs. Loddiges. Allied to E. cochleatum. Pseudobulbs strongly ribbed; lip crisp and crenated. Flowers pale green, striped with deep, bright purple rays on the lip. Hort. Kew.

179. E. (Euepidendrum — Amphiglottideæ) radicans, Pavon, Lindl., *Gen. and Sp. Orch. Pl.*, p. 104; *Fol. Orch.*, n. 220; *Walp. Ann.*, vi., p. 390; Paxt., *Mag. Bot.*, xii., p. 145, with a coloured plate, copied in Burnett's *Pl. Util.*, iii., t. 78 a. *E. rhizophorum*, Batem., *Bot. Reg.* 1838, Misc., p. 8.—A very handsome species of the same group as E. cinnabarinum, but having more numerous flowers of a dark orange-red, with a lighter coloured lip and column. Lindley says it always has long white roots proceeding from the sides of the stem.

180. E. (Euepidendrum—Strobiliferæ) ramosum, Jacq., *Stirp. Amer.*, p. 221, t. 132; Lindl., *Fol. Orch.*, n. 238; *Walp. Ann.*, vi., p. 399. *E. rigidum*, Lodd., *Bot. Cab.*, t. 1600, not of Jacq.—Mexico to Brazil. Cultivated by Messrs. Loddiges in 1829. Flowers quite small, greenish-yellow.

181. E. (Euepidendrum) raniferum, Lindl., *Bot. Reg.* 1842, t. 42; *Gard. Chron.* 1841, p. 518; and 1842, p. 511; *Fol. Orch.*, n. 167; *Walp. Ann.*, vi., p. 372; *Fl. Mag.*, n. s., t. 445.—Mexico. Cultivated by Mr. G. Barker and others before 1842. A striking species, having yellowish-green flowers, thickly studded with purple-brown spots. Described as one of the most attractive of the genus. Lindley describes a variety, luteum, having bright yellow flowers spotted with red, and a whiter lip. Hort. Kew.

182. E. (Euepidendrum — Paniculatæ) raphidophorum, Lindl., *Fol. Orch.*, n. 164; *Walp. Ann.*, vi., p. 371.—Venezuela, at 6500 feet. Introduced by Linden in 1846. A coarse plant, with the habit of E. nutans, but having large spathes and needle-like bracts. Flowers white or pink.

183. E. (Euepidendrum) recurvatum, Lindl., *Bot. Reg.* 1845, Misc., p. 77; *Fol. Orch.*, n. 280; *Walp. Ann.*, vi., p. 410; *Ill. Hort.*, xxviii., p. 96.—Venezuela. Introduced by Linden. Flowers rose-coloured.

184. E. (Encyclium—Hymenochila) replicatum, Lindl., Lindl. and Paxt. *Fl. Gard.*, ii., p. 167, fig. 224; *Fol. Orch.*, n. 27; *Walp. Ann.*, vi., p. 327.—New Grenada? Cultivated by Mr. S. Rucker. Flowers yellowish stained with brown; lip white and pink.

185. E. (Euepidendrum—Amphiglottideæ) resectum, Rchb. f., *Linnæa*, xli., p. 82.—Central America. Introduced by Mr. Zahn for Messrs. Veitch.

186. E. (Euepidendrum—Strobiliferæ) rigidum, Jacq., *Stirp. Amer.*, p. 222, t. 134; Lindl., *Fol. Orch.*, n. 239; *Walp. Ann.*, vi., p. 400; Hook., *Ic. Pl.*, t. 314.—Mexico and the West Indies to Brazil. Cultivated by Loddiges. A very curious species, with quite small green flowers that turn yellow.

187. E. Rückeræ, Rchb. f., *Hamb. Gart. Zeit.*, xxi., p. 385; *Xenia Orch.*, ii., p. 136, t. 149.—Country unknown. Cultivated in Hamburg gardens in 1865.

E. rhizophorum = radicans.

E. rigidum, Lodd. = ramosum.

E. rubrocinctum = densiflorum.

187*. E. (Encyclium—Hymenochila) rufum, Lindl., *Bot. Reg.* 1845, Misc., p. 33; *Fol. Orch.*, n. 50; *Walp. Ann.*, vi., p. 336. *E. primulinum*, Batem., in Lindl. and Paxt. *Fl. Gard.*, i., p. 151.—Bahamas (?), Brazil (?). Cultivated by Sir C. Lemon, in whose garden it flowered in 1844. Flowers in narrow, slightly branched panicles; very sweet, like Primroses, brownish-yellow.

E. Sagræanum = fucatum.

188. E. (Euepidendrum) sarcochilum, Linden and Rchb. f., *Bonplandia*, 1854, p. 281; *Walp. Ann.*, vi., p. 363.—New Grenada, at 5000 feet. Introduced by Linden.

(*To be continued.*)

THE PALM CABBAGE.

Palm Cabbage is much esteemed in the West Indies, but not so largely used as its quality, plentifulness, easy culture, and the lack of true Cabbage and other vegetables, would appear to justify or require. Though it is very probable that the majority of the larger-growing Palms would yield this vegetable, some species are too fibry in the texture of their leafage to be of service, while in others the presence of some bitter principle makes the cabbage unpalatable. Only a few are therefore known, or supposed to be available for the purpose. The plants mostly employed are the several species of Oreodoxa and Euterpe. They are vigorous, rapid-growing, soft-wooded trees, usually attaining, in good situations, very large dimensions, and their cabbage is delicately tender, possessing a sweet, smooth, nutty flavour. The cabbage is obtained in two forms: first from the heart of the crown of the tree, *i.e.*, the nascent, germinal leaves; and second, from the young, undeveloped flower-spikes, which at the time of gathering are closely sealed in their protecting spathes. To obtain the first kind mentioned it is necessary to cut down the tree, then sever the trunk from the head just at the base of the long-clasping petioles, and cut away the leaves above at the point where they diverge from the centre and the leaflets begin. These operations leave a solid cylinder, as much in some cases as a man can lift, 4 or 5 feet long and several inches in diameter, according to the particular species and age of the tree, wrapped in the tight-fitting sheaths. Longitudinal slits are then made in this, and layer by layer the strong ligneous sheaths are removed, till the white succulent heart is reached. In medium-sized trees this is about 3 or 4 inches thick, but in full-grown ones of the larger kinds it is twice as much. Only from half a dozen to about a dozen dishes are obtainable from the best specimens, for however tempting and nice it may look, all but the very centre is too tough and fibry for table use. Judged simply by the result, of all the efforts at waste and thoughtless extravagance in Nature that one could commit, this seems to be the greatest. You take a tree, it may be of many years' growth, which perhaps was in the hey-day of its robust youth ere your father or grandfather breathed. With a stately grandeur unmatched, it stands erect, and hardly bends to the fiercest storm that blows, its naked column-like trunk reaching 50 to 100 feet high. The power and skill of a woodsman are required to bring it down. It falls at length with a thud that makes the solid earth vibrate for many yards around. You remove its royal head, that has quivered through generations with the faintest breeze, and tossed aloft in the rudest and wildest storms, not losing, however, its infinite grace. You hack—and it requires herculean labour—to remove the exterior sheaths, and your reward is—just in a measure for your act of vandalism—a few pounds of cabbage; good cabbage it must be admitted, but, nevertheless, only cabbage.

In British Guiana, the second system I have mentioned—one that is very simple and neither laborious nor difficult to perform, and which inflicts no injury whatever on the tree—is that mostly practised. The coast lands of this territory, wherever they have been cultivated, and the banks near the estuaries of the rivers, abound more or less plentifully with a social species of Oreodoxa, which seems to follow, and remain after, agricultural clearings, as it is nowhere found in more than a semi-wild state, and this only on the lower parts of the rivers which were once coffee or sugar estates. It is one of the largest of the family; and to obtain cabbage recourse is had to the half-grown flower-spikes. These are found to be as tender and delicious as the material obtained from the heart of the tree, if not, indeed, superior. At certain seasons of the year (and a tree is rarely quite bare of them) these spikes make their appearance, several at a time, around the top of the trunk, just below the plume of foliage. They spring from the lateral buds, which, after the age of reproduction is reached, are produced with the leaves. With the aid of a ladder, as the stem is too stout to be clasped, a boy climbs the tree and pulls, or cuts one or two off. The spathe is then split down and removed, and the delicate wax-like spadix appears most carefully packed in a quantity of snowy, crystalline dust, and more brittle than the best bleached Seakale. This is the cabbage, ready for use after boiling. An excellent and much-esteemed pickle is also made from both this and the heart of the tree. The cabbage of one of them—the well-known Manicole—is sometimes eaten raw by travellers; and, with unimpaired powers of digestion, it is not to be despised on a long tramp through the forest, with a late, or afternoon, breakfast only remotely in view. Cooked, it is one of the best of all kinds, as is that, also, of the kindred Rayhoo. Cabbage Palms might be cultivated for market, or for family use, as easily as cabbages are, and with much less trouble and expense; and they would possess the further advantage over Cabbages that there would be no danger of their spoiling by delay in cutting them. The objection that is felt to destroying old and venerable trees, and the labour that attends obtaining the cabbage thus, would not apply to young plants purposely grown for table. The best species to adopt for this purpose would be some of the bulky and fast growing Oreodoxas. Any unoccupied piece of land, not too swampy, would do for their growth, but it would be much the better if rich and well watered. About 500 plants might be put in to the acre, or raised from seed *in situ*, to be cut as required at from three to five or more years of age; the ground to be replanted, or sown, as they were gradually removed. An acre established in this way, and kept supplied as cut, would be an inexhaustible source of Palm-cabbage for a house; and the little maintenance it would require—merely in cutting out any immigrant growth that might spring up in it—would be only a trifling cost annually. If a few of these trees, fairly scattered over the ground, were left to seed, very little replanting after a time would be necessary, as these plants are

abundantly spontaneous wherever the conditions in the least favour their growth. If the cabbage from the inflorescence should be preferred, the plants might be gradually thinned out to rather less than half the number first planted, and these allowed to grow on alone to the flowering state, when the flower-spikes would be gathered instead of cutting the trees down. About half a dozen species of this genus of Cabbage-Palm are known, two or three of which are firmly established, and grow self-sown in Georgetown, any or all of which might be cultivated to produce more plentifully than it is now to be obtained there, Palm-cabbage. *G. S. J., Botanic Garden, British Guiana, Aug.* 24.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, OCTOBER 31, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 59 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Oct.	In.	In.	°	°	°	°	°	°	°		In.
25	29.70	−0.02	60.9	53.5	7.4	57.1	+ 9.6	52.9	85	W. W.S.W.	0.00
26	29.84	+0.11	59.2	53.0	6.2	55.6	+ 8.4	49.8	82	S.S.W.	0.04
27	29.95	+0.22	61.2	49.0	12.2	54.3	+ 7.4	50.1	77	N.W. WNW	0.00
28	30.04	+0.31	60.0	45.0	15.0	51.5	+ 4.8	47.4	86	E. S.S.E	0.00
29	30.11	+0.37	57.0	49.0	8.0	52.1	+ 5.5	50.9	96	Fog. E.	0.02
30	30.25	+0.52	53.5	46.5	7.0	50.1	+ 3.6	46.4	89	E. E.N.E	0.02
31	30.09	+0.35	51.9	47.5	4.4	49.0	+ 2.6	46.9	93	W.SW E.S.E.	0.02
Mean	30.00	+0.27	57.7	49.1	8.6	52.8	+ 6.0	49.2	87	E.	0.06

Oct. 25.—Fine day, bright at times in morning. Dark sky at night.
— 26.—Fine day and night; dull.
— 27.—Fine and bright at times, dull mostly. Fine calm night.
— 28.—Fine day, clear sky from 10 A.M., overcast at 5 P.M. Dark sky at night.
— 29.—Thick fog all the morning, clear during the afternoon. Fine night, dark sky.
— 30.—Fine, dull day and night.
— 31.—Fine day and night, dull.

LONDON: *Atmospheric Pressure.*—During the week ending October 27 the reading of the barometer at the level of the sea increased from 29.74 inches at the beginning of the week to 30.05 inches by 3 P.M. on the 22d, decreased to 29.73 inches by 9 A.M. on the 23d, increased to 29.84 inches by 9 A.M. on the 24th, and decreased to 29.77 inches by midnight on the same day, increased to 30.06 inches by 9 A.M., and decreased to 29.98 inches by midnight on the 26th, and was 30.20 inches by the end of the week.

The mean reading for the week was 29.93 inches, being 0.03 inch above the average of the week, and 0.20 inch above last week.

Temperature. — The highest temperature in the shade in the week was 61°.2, on the 27th; the highest reached on the 22d was 49°. The mean of the seven high day temperatures was 56°.9.

The lowest temperature was 37°, on the 27th; the lowest on the 25th was 53°.5. The mean of the seven low night temperatures was 44°.7.

The greatest range of temperature in one day was 19°, on the 23d; and the smallest was 6°.2, on the 26th. The mean of the seven daily ranges was 12°.2.

The mean temperatures were—on October 21, 46°.5; on the 22d, 43°.6; on the 23d, 48°; on the 24th, 50°.8; on the 25th, 57°.1; on the 26th, 55°.6; and on the 27th, 54°.3; of these the first three days were below their averages by 2°.5, 5°.1, and 0°.3 respectively, and the last four days were above by 2°.9, 9°.6, 8°.4, and 7°.4 respectively.

The mean temperature of the week was 50°.8, being 0°.3 lower than last week, and 2°.9 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 102°, on the 27th. The mean of the seven readings was 85°.5.

The lowest reading of a minimum thermometer with its bulb on short grass was 31°, on the 21st. The mean of the seven readings was 37°.2.

Rain.—Rain fell on four days, to the amount of 0.22 inch.

ENGLAND: *Temperature.*—During the week ending October 27 the highest temperatures were 65°.5 at Cambridge, 62°.2 at Leicester, and 62° at Truro, Sheffield, and Hull; the highest at Preston was 56°, at Bolton 56°.1, and at Bradford 57°.4. The general mean was 59°.9.

The lowest temperatures in the week were 30°.6 at Bolton, 31° at Truro, and 32° at Sheffield; the lowest temperature at Liverpool was 38°.1 and at Brighton, Blackheath, and Leicester was 37°. The general mean was 34°.5.

The greatest ranges of temperature in the week were 31° at Truro, 30° at Sheffield, and 29°.5 at Cambridge; the smallest ranges were 20°.1 at Liverpool, 23° at Preston, and 23°.5 at Brighton. The general mean was 25°.4.

The mean of the seven high day temperatures was highest at Cambridge, 58°.8, at Truro 57°.6, and at Blackheath 56°.9; and was at Bradford 52°.5, at Preston 52°.6, and at Bolton 52°.9. The general mean was 55°.4.

The means of the seven low night temperatures was highest at Truro and Bristol, 46°, and at Liverpool 45°; and was lowest at Bolton, 39°.2, at Wolverhampton 40°.5, and at Hull 40°.6. The general mean was 42°.8.

The mean daily range of temperature was greatest at Cambridge, 16°.2, at Hull 15°.6, and at Sheffield 15°.3; and were least at Liverpool, 8°.9, at Bradford 10°.2, and at Bristol 10°.8. The general mean was 12°.6.

The mean temperature was highest at Truro, 50°.9, at Blackheath 50°.8, and at Bristol 50°.5; and was lowest at Bolton, 45°.1, at Preston 46°.2, and at Wolverhampton 46°.4. The general mean was 48°.2.

Rain.—The largest falls were—1.83 inch at Bolton, 1.47 inch at Preston, and 1.11 inch at Bradford; the smallest falls were—0.22 inch at Blackheath, 0.24 inch at Cambridge, and 0.26 inch at Brighton. The general mean was 0.64 inch. Rain fell on every day in the week at Bristol.

SCOTLAND: *Temperature.*—During the week ending October 27 the highest temperature was 57, at Edinburgh and Greenock; at Dundee the highest in the week was 54°.6. The general mean was 55°.9.

The lowest temperature in the week was 29°, at Glasgow and Perth; at Greenock the lowest in the week was 36°. The general mean was 31°.4.

The mean temperature was highest at Edinburgh, 46°.6; and lowest at Perth, 44°.3. The general mean was 45°.3.

Rain.—The largest fall was 3.28 inches, at Greenock; and the smallest was 0.26 inch at Aberdeen.

JAMES GLAISHER, F.R.S.

Obituary.

"AT Pitcairlie, on the 23d ult., JOHN LAING, in his seventy-fifth year, forty-nine years head gardener at Pitcairlie—much esteemed and deeply regretted by Mr. Cathcart and the family." Such is the brief record of the death of a man who for a long period was known as one of the most successful gardeners in Scotland. The marvellous crops of Grapes, Muscats especially, which he annually grew for some years were widely known, and attracted many visitors to Pitcairlie. Kitchen gardening was also a speciality with Mr. Laing, with whom close cropping and excellent order were always carried out. He was one of the most painstaking, industrious, and kindest of men, and his death will be regretted by a wide circle of friends.

Variorum.

NYMPHÆA LOTUS ORTGIESIANA. — There are several varieties of this fine old Water Lily in cultivation, differing more or less in the colour or size of the flower, but the one under notice may claim precedence as a really handsome and free flowering sort that may with propriety be introduced to any, or the most select collection of aquatics for the warm stove. Even at this dull season a considerable display of bloom enlivens the tanks at Kew, and attracts the attention of visitors, both by the size of the individual flowers as compared with other species presenting here and there a stray bloom, or by their bright rosy colour. When fully expanded, a profusion of orange-red stamens adds materially to their handseme appearance. There is a figure of the species in the *Botanical Magazine*, 797, and it is described in some books as pink, or in others as white-pink sepals. This could easily be accounted for by the wide geographical distribution it enjoys, and its consequent likliability to varietal differences. The ample foliage is beautifully scalloped, and communicates a crimp appearance to the water where the margin comes in contact. The seeds of this species were made into a kind of bread by the ancient Egyptians.

TREE GROWTH IN FLORIDA. — In travelling through these swampy woods I have been particularly interested in noticing a striking peculiarity of nearly all kinds of trees growing in water, or in places frequently flooded with it. The peculiarity to which I allude is a prominent bulging of growth near the ground. Many trees have a butt which would measure 2 feet through near the ground, and would dwindle into a stem from 8 to 12 inches in diameter 4 feet above this widest point. This process of growth does not seem to be confined to any single species of tree, and although it is most pronounced and conspicuous in deciduous Cypress (Taxodium distichum), yet it could be seen in Ashes, Maples, slightly in Oaks, and quite distinctly even on some Pines, but only in tress growing in wet ground. What particular purpose is served by this abnormal growth, or what occasions it, I am unable to say. *W. Saunders, "Observations on the Soil and Products of Florida."*

Enquiries.

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

BELLADONNA LILIES.—Can any of your readers suggest a reason for my Belladonna Lilies not flowering? I have a good many under my charge, some in pots, others planted out under the wall of a stove, but cannot get a flower from any of them. Some of the plants in pots I have repotted; others have not been disturbed (except a little top-dressing) for the last three years; but all with the same effect. *F. P.*

Answers to Correspondents.

AMERICA: *W. Easily.* Advertise either in the *American Gardeners' Monthly*, published at 814, Chestnut Street, Philadelphia; or the *American Agriculturist*, Broadway, New York.

CYCLAMEN CULTURE: *W. J. M.* The phrase "constant and unvarying heat" we take to be only another way of saying "a regular and even temperature." Nothing was said about fire-heat.

DOUBLE-SPATHED ARUM: *Parr.* A common condition, of which we once gave a large illustration. Why do not our gardeners try to perpetuate such occurrences?

FERN-LEAVED BEECH: *C. W.* Fagus sylvatica var. dissecta.

FORCING FOR MARKET: *A. F.* As soon as you please, and the sooner the better, if you want a good return.

MEDICINAL BERBERIS: *T. J. P.* Berberis lycium. Probably any of the species will answer the purpose.

NAMES OF FRUIT: *Reader, Colinton.* 1, Blenheim Orange; 2, Stirling Castle; 3, Yorkshire Greening; 4, Cellini; 5, Ecklinville, probably.—*S. B. O.* 2, rotten; 3, Chaumontel; 4, Bergamot d'Esperen; 6, Cox's Orange Pippin.—*E. Burbery.* 1, Beurré Rance; 2, Knight's Monarch; 3, Vicar of Winkfield; 4, Beurré Capiaumont; 5, Passe Colmar; 6, not known. — *J. T. Mason.* Mere scrubs! — *R. B.* 1, Cellini; 2, Hanwell Souring? 3, Winter Strawberry; 5, Sturmer; 6, Cat's Head. — *J. Day.* 1, Van Mons Leon Le Clerc; 2, Helotte Dundas; 3, Beurré Hardy; 4, Knight's Monarch; 6, Verulam.—*Pope & Sons.* 1, Lane's Prince Albert; 2, King of the Pippins; 3, Fearn's Pippin. — *J. F., York.* 1, French Crab; 2, Early Nonpareil; 3, Passe Colmar; 4, Beurré Clairgeau; 5, Glou Morçeau; 6, Easter Beurré; 7, Beurré Diel; 8 and 9, Passe Colmar.—*J. F. H.* 1, King of the Pippins; 2, ditto; 3, Scarlet Nonpareil; 6, Calville Blanche. Others not recognised.

NAMES OF PLANTS: *R. E.* 1, Anthoxanthum odoratum Puelli. — *F. J. T.* 1, Pyrus aria, var. græca? 2, P. pinnatifida; 3, P. torminalis.—*J. G.* The Wild Gueldres Rose (Viburnum Opulus).—*R. W.* 1, Erigeron canadense; 2, Erythræa Centaurium.—*C. Nesbitt.* Not Veronica, but Polygonum vacciniifolium.—*H. J. Ross.* Aspidium trifoliatum.—*G. B. A.* Epidendrum radiatum.—*A. R. L.* A poor variety of Zygopetalum Mackayi.—*Stuart & Mein.* We fail to identify it.—*H. B., Tanfield.* A species of Eucalyptus, probably E. globulus.—*Miss Percival.* Calvary Clover (Medicago echinus).—*R. M E. A.* 1, Cupressus Lawsoniana, golden var.; 2, Cupressus Lawsoniana, erect variety; 3, Tamarix germanica; 4, Cryptomeria elegans; 5, Thuia orientalis; 6, Rhipsalis Cassytha; 7, Vinca major foliis variegatis; 8, Cephalotaxus Fortunei.

ODONTOGLOSSUM ROEZLII: *P. Marchand, Sangatuck, U.S.A.* The leaf sent shows traces of yellow thrips, and also of a rust-like fungus, both peculiar to this plant when it is badly cultivated. O. Roezlii, while liking a warm, airy, light situation, is very impatient of direct sunlight. It does well in pots in a shady corner, where the warm-house Cypripediums are grown, or on a shady shelf in the Phalænopsis-house. Syringing lightly twice a day when not in flower aids much in giving vigour to the plants, and thus keeping down the pests which beset it. Frequent dippings of the heads of the plants in weak tobacco-water is also

very serviceable in the same direction. Use rain-water only for this and all other Orchids. We will take an early opportunity of noticing the culture of this plant in our columns.

Single Dahlia: *Kelway & Son.* Your seedling single Dahlia, James Kelway, is very pretty, and, we believe, distinct. It is not too large, good in shape, white, with a well-defined purplish-rose margin to the petals.

Strawberries in Autumn: *S. S.* We believe you are quite correct in your facts, but the gardens you mention do not constitute Great Britain, and it must do good to notice such things for the benefit of the rising generation.

The Large Vine at Harewood: *N. F. J.* Mr. Barron states, in his *Vines and Vine Culture*, that the Muscat of Alexandria is often called the Charlesworth Tokay in the North of England, and alludes to the Muscat of Alexandria at Harewood House as being one of the largest examples known. This we take to be conclusive.

Transplanting Evergreens: *W. F.* Portugal Laurels are frequently moved by hundreds at this season; and, when done carefully, without any losses. If planted early it will do no harm to cut-back slightly a few of their longest shoots, but severe pruning should be left until the spring.

CATALOGUES RECEIVED.

Dickson & Robinson, 12, Old Millgate, Manchester—Fruit Trees.

Herrman A. Frommer, Budapest, Hungary—Farm and Garden Seeds, Tree Seeds, &c.

Waite, Nash, Huggins & Co., 79, Southwark Street, S.E.—New and Choice Seeds.

Garlies Mitchell, Stranraer—Forest and Ornamental Trees, Roses, &c.

Dicksons & Co., 1, Waterloo Place, Edinburgh—Roses.

L. Jacob-Makoy et Cie., Liége, Belgium—Stove and Greenhouse Plants.

Anthony Waterer, Knap Hill Nursery, Woking—American Plants, Hardy Trees and Shrubs.

Communications Received.—G. B.—T. Dobson.—H. J. R.—E. H.—C. M. O.—R. G.—J. V. & Sons.—G. B.—W. E.—T. W. B. & Sons.—J. E.—T. S. C.—C. N.—G. B.—W. B. H.—M. T. (thanks).—J. B.—B. C.—A. Grant.—J. C. (we did not receive the canister).—W. M. G.—J. D.—E. O.—W. B.—E. V. B.—D. T. F.—H. Witte, Leiden—E. P.—H.—N. S.—W. M.—J. H.—G. W.—Rev. S. L.—J. P.—G. C.—Bell & Sons.—J. R.—J. B. T.—A. S.

Markets.

COVENT GARDEN, November 1.

[The subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. Ed.].

Our market is more clear of common Apples. Good samples are in fair demand, and prices have been well maintained. Grapes heavy; Cobs in demand at higher quotations. *James Webber, Wholesale Apple Market.*

Plants in Pots.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	12 0–24 0	Ferns, in variety, per dozen	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 0
Asters, per doz.	4 0– 9 0	Fuchsias, per dozen	4 0– 9 0
Begonias, per doz.	6 0–12 0	Liliums, various, per dozen	12 0–30 0
Bouvardias, doz.	12 0 18 n	Marguerite Daisy, per dozen	8 0–12 0
Caladiums, per doz.	6 0–24 0	Mignonette, doz.	4 0– 6 0
Chrysanth., per doz.	6 0–18 0	Myrtles, per doz.	6 0–12 0
Coleus, doz.	2 0– 6 0	Palms in variety, each	2 6–21 0
Dracæna term. doz.	30 0 60 0	Pelargoniums, scarlet, per dozen	2 0 6 0
— viridis, per doz.	12 0–24 0	Solanums, per dozen	8 0–15 0
Erica, various, doz.	9 0 18 0		
Euonymus, various, per dozen	9 0–18 0		
Evergreens, in var., per dozen	6 0–24 0		

Cut Flowers.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Liliums, 12 blooms	0 6– 1 6
Arum Lilies, 12 blms.	4 0– 6 0	Marguerites, 12 bun.	4 0– 6 0
Asters, 12 bunches	4 0–12 0	Mignonette, 12 bun.	2 0– 6 0
— French, per bun.	1 0– 3 0	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 6
Azalea, white, 12 spr.	1 0– 2 0	Narcissus (Paper-white)	2 0– 4 0
Bouvardias, per bun.	1 0– 1 6	Pansies, 12 bunches	0 9– 1 0
Camellias, per doz.	2 0– 5 0	Pelargoniums, 12 spr.	1 0– ..
Carnations, 12 blms.	1 0– 3 0	— zonal, 12 sprays	0 3– 0 6
— 12 bunches	3 0– 6 0	Primula, double, bun.	1 0– ..
Chrysanth., 12 blms.	1 0– 4 0	Roses (indoor), doz.	2 0– 6 0
— 12 bunches	4 0– 9 0	— (outdoor), 12 bun.	3 0– 6 3
Cornflower, 12 bun.	1 6– 4 0	— coloured, doz.	3 0– 8 6
Cyclamen, 12 blooms	0 3– 0 6	Stephanotis, 12 spr.	4 0– 6 0
Dahlias, 12 bun.	2 0– 4 0	Sweet Peas, 12 bun.	2 0– 4 0
Eucharis, per doz.	4 0– 6 0	Tropæolum, 12 bun.	1 0– 2 0
Gardenias, 12 blms.	4 0– 6 0	Tuberoses, per doz.	1 0– 2 0
Gladioli, 12 spikes	1 0– 3 0	Violets, 12 bunches	1 0– 1 6
Heliotropes, 12 sp.	0 6– 1 0	— French, per bun.	1 0– 1 6
Hyacinths (Roman), 12 sprays	2 0– 4 0	— Parme, per bun.	4 0– 5 0
Lapageria, white, 12 blooms	3 0– 6 0	Wallflower, 12 bun.	3 0– 4 0
— red, 12 blooms	1 0– 3 0	White Jasmine, bun.	0 6– 1 0
Lilac, white Fr., bun.	8 0–10 0		

Fruit.—Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	1 0– 3 0	Lemons, per case	20 0–30 0
Cobs, per 100 lb.	115 0–125 0	Melons, each	1 0– 3 0
Figs, per dozen	1 0– ..	Pine-apples, Eng., lb.	2 0– 4 0
Grapes, per lb.	1 0– 3 0		

Vegetables—Average Retail Prices.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 5 0	Lettuces, Cabbage, per dozen	1 0– ..
— Jerusalem, bush.	4 0– ..	— Cos, per dozen	1 6– ..
Beans, French, lb.	0 6– ..	Mint, green, bunch	0 6– ..
— Scarlet, per lb.	0 3– ..	Mushrooms, p. baskt.	1 0– 2 0
Beet, per doz.	1 0– ..	Onions, per bunch	0 6– ..
Cabbages, per doz.	1 0– 2 0	— Spring, per bun.	0 6– ..
Carrots, per bun.	0 4– 0 6	Parsley, per bunch	0 4– ..
Cauliflowers, English, dozen	2 0– 3 0	Radishes, per doz.	1 6– ..
Celery, per bundle	1 6– 2 6	Salsafy, per bundle	0 8– ..
Cucumbers, each	0 4– 0 8	Seakale, per punnet	2 6– ..
Endive, English, per dozen	1 0– ..	Small salading, pun.	0 4– ..
Garlic, per lb.	0 6– ..	Spinach, per bushel	3 6– ..
Herbs, per bunch	0 2– 0 4	Tomatos, per lb.	0 6– 0 9
Horse Radish, bund.	3 0– 4 0	Turnips, new, bun.	0 4– ..
		Vegt. Marrows, each	0 2– 0 4

Potatos.—Kent Kidneys, £4 to £4 10s. per ton; do., Regents, £3 10s. to £4 10s.; Champions, £3 10s. to £3 15s. per ton.

SEEDS.

London: *Oct.* 31.—An improved demand for red Clover seed is now experienced, and values are advancing. Fine samples of foreign seed being scarce are inquired for. Long prices are asked for white Clover seed, choice qualities being in very short supply. There is no change in either Alsike or Trefoil. In Italian Rye-grass there is not much doing. A further advance is demanded for Hemp seed, but Canary continues dull and neglected. Spring Tares are firm. Linseed steady. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday fine white Wheats were steady at the previous Monday's rates, but red Wheats showed easier rates on the se'nnight. For dry foreign Wheats suitable for mixing there was rather a better market than on Friday, but as compared with Monday last all foreign Wheats were easier. Flour showed prices also in favour of buyers, though not worse than last reported. Fine malting Barley was firm, but other grades 6*d.* and 1*s.* lower, as compared with rates a week back. Grinding sorts are 6*d.* lower. There was a decidedly better market for American mixed Maize. Round corn closed without much alteration. Oats were 3*d.* lower than Monday se'nnight for common qualities.—On Wednesday, after a limited business in Wheat, the market finished quiet, with for English no improvement upon Monday's rates, but white Wheats continued fairly firm. Flour was dull. Barley generally firmer, and grinding descriptions 3*d.* to 6*d.* dearer. Beans and Peas were unchanged. Oats were slow, and prices steady. Flat Maize was again dearer at 25*s.* on the spot; round corn steady at the same price.—Average prices of corn for the week ending Oct. 27:—Wheat, 40*s.*; Barley, 35*s.*; Oats, 19*s.* 9*d.* For the corresponding period last year:—Wheat, 40*s.* 3*d.*; Barley, 34*s.* 4*d.*; Oats, 19*s.* 10*d.*

CATTLE.

At the Metropolitan Market on Monday cattle supplies were quite equal to demand, which was slack. Sheep supplies included a large number of Danish, at 5*s.* 4*d.* to 6*s.*; and Canadian at average 5*s.* 8*d.* English sheep were a slack sale at barely supported value. The calf trade ruled dull. Quotations:—Beast, 3*s.* 10*d.* to 5*s.*, and 5*s.* 4*d.* to 6*s.*; calves, 5*s.* to 5*s.* 6*d.*; sheep, 5*s.* 4*d.* to 6*s.*, and 6*s.* 8*d.* to 7*s.* 2*d.*—Thursday's trade was firmer. Supplies were short; both beasts and sheep were in demand, and prices hardening. Calves were scarce and dear, and pigs remained unaltered.

HAY.

Tuesday's Whitechapel Market report states that large supplies were on sale, but with a dull trade. Quotations:—Prime old Clover, 100*s.* to 112*s.*; inferior, 60*s.* to 75*s.*; prime second cut, 90*s.* to 108*s.*; best meadow hay, 80*s.* to 90*s.*; inferior, 40*s.* to 65*s.*; and straw, 30*s.* to 40*s.* per load.—On Thursday a large supply of hay and straw was on sale. The trade was very dull, and prices were with difficulty maintained.—Cumberland Market quotations:—Superior meadow hay, 80*s.* to 90*s.*; inferior, 60*s.* to 72*s.*; superior Clover, 100*s.* to 112*s.*; inferior, 70*s.* to 84*s.*; and straw, 34*s.* to 46*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that good supplies were on offer, but demand dull, at the following prices:—Magnum Bonums, 80*s.* to 100*s.*; Regents, 80*s.* to 100*s.*; Champions, 60*s.* to 80*s.*; Roses, 60*s.* to 70*s.* per ton.—The imports into London last week consisted of 506 bags from Antwerp, 6549 Hamburgh, 17 Rotterdam, 10 baskets Terneuzen, 8 packages St. Nazaire, and 844 tons from Roscoff.

COALS.

The following are the prices current at market during the week:—East Wylam, 17*s.*; Walls End—Hetton, 17*s.* 6*d.*; Hetton Lyons, 15*s.* 6*d.*; Lambton, 16*s.* 6*d.* and 17*s.*; Wear, 15*s.* and 15*s.* 6*d.*; Caradoc, 17*s.* 6*d.*; Thornley, 17*s.*; Tees, 17*s.* 6*d.*

Government Stock.—Consols closed on Monday at 101⅜ to 101½ for delivery, and 101 7/16 to 101 9/16 for the account. Tuesday's figures were 101⅜ to 101½ for both delivery and the account. The final quotations of Wednesday were 101⅛ to 101¼ for delivery, and 101 3/16 to 101 5/16 for the account. As usual on November 1 (Thursday), the Stock Exchange was closed.

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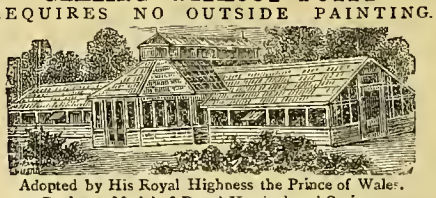

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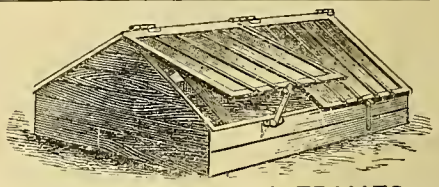

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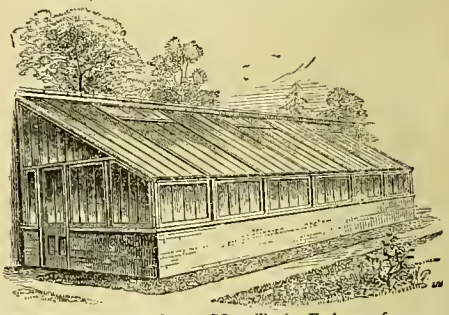

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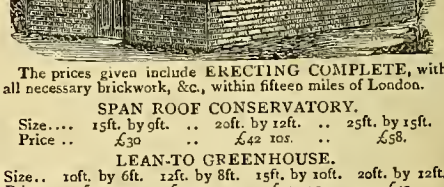

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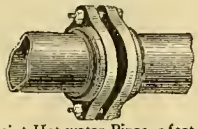

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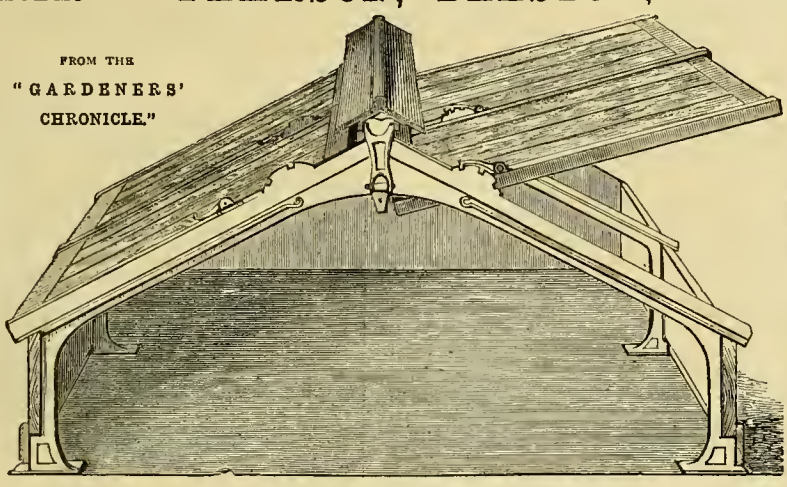

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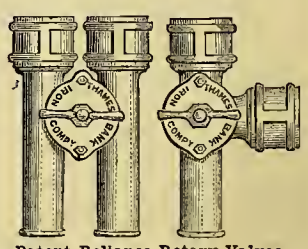

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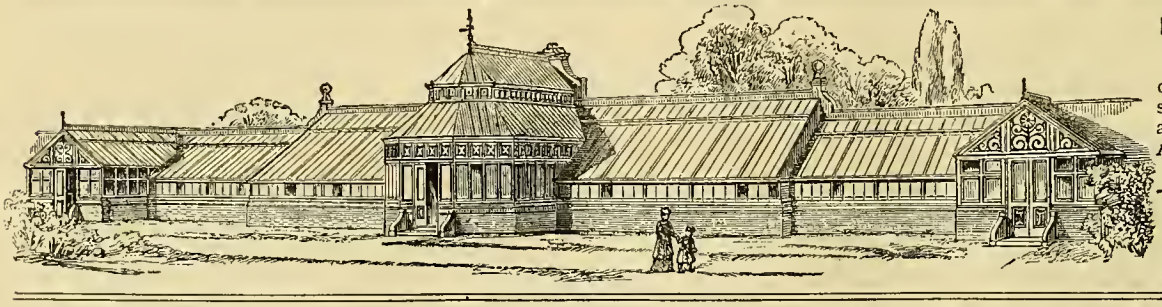

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ROYAL AQUARIUM, WESTMINSTER, WEDNESDAY and THURSDAY, November 14 and 15. The following amounts are offered in Prizes:—
About SIXTY POUNDS for Cut Blooms.
,, FORTY-FIVE POUNDS for Specimen Plants.
,, TWENTY-SIX POUNDS for Fruits and Vegetables.
,, TWENTY POUNDS for Grapes, &c., &c.
Schedules are now ready, and may be had on application to
WILLIAM HOLMES, Honorary Secretary.
Frampton Park Nursery, Hackney, London, E.

STAINES, EGHAM, and DISTRICT CHRYSANTHEMUM SOCIETY.
The SECOND GRAND SHOW of CHRYSANTHEMUMS and AUTUMN FLOWERS will be held at the Literary Institute, Egham, on THURSDAY, November 15.
THOS. J. RAWLINGS, Secretary.
Windsor Street, Chertsey.

KINGSTON and SURBITON CHRYSANTHEMUM SOCIETY.
The SEVENTH ANNUAL EXHIBITION will be held in the Drill Hall, Kingston, on THURSDAY and FRIDAY, November 15 and 16; when, in addition to valuable Money Prizes, the CHAMPION CHALLENGE VASE, value 25 Guineas, will be competed for. For Schedules and further particulars, apply to
Fife Road, Kingston. T. JACKSON, Hon. Sec.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER and the NORTHERN COUNTIES. — CHRYSANTHEMUM SHOW, in the Town Hall, Manchester, on TUESDAY, November 20. For Schedules apply to the undersigned,
Royal Botanic Gardens, Manchester. BRUCE FINDLAY.

TWICKENHAM HORTICULTURAL and COTTAGE GARDEN SOCIETY.
AUTUMN SHOW at the Town Hall, NOVEMBER 20 and 21. Admission, 20th, 2 to 7 P.M., 1s.; 8 P.M., Promenade Concert, 2s. 6d.; 21st, 10 A.M. to 5 P.M., 6d.; 5 P.M. to 6.30 P.M., 3d. 7.30, Concert, 1s.
ALEXR. ALLFREY, Hon. Sec.

NOTTINGHAMSHIRE HORTICULTURAL and BOTANICAL SOCIETY.
A GRAND CHRYSANTHEMUM SHOW, FRUIT, and POTATO EXHIBITION, will be held at the Mechanics' Hall, on WEDNESAY and THURSDAY, November 21 and 22. Schedules, Entry Forms, and all other information can be obtained from
Messrs. DON AND STEWARD, Hon. Secs.
Mechanics' Institute, Nottingham.

BRISTOL CHRYSANTHEMUM SOCIETY.
The TWENTIETH ANNUAL EXHIBITION will be held on NOVEMBER 21 and 22, at the Victoria Rooms, Clifton. For Schedules and further information apply to
Westbury-on-Trym, Bristol. GEO. WEBLEY, Hon. Sec.

READING HORTICULTURAL SOCIETY.
A CHRYSANTHEMUM SHOW (in connection with the above) will be held at Reading, on NOVEMBER 22. Regulations and Schedule of Prizes on application to
97, London Street, Reading. WM. SMITH, Secretary.

IPSWICH and EAST of ENGLAND HORTICULTURAL SOCIETY.
A GRAND CHRYSANTHEMUM and FRUIT SHOW will be held in connection with the above Society, in the Corn Exchange, on THURSDAY and FRIDAY, November 22 and 23. Entries Close November 17. Schedules may be obtained on application to the
Rev. HUGH A. BERNERS, Hon. Sec.
Harkstead Rectory, Ipswich.

BOUVARDIAS.—TO THE TRADE.—Special low offer of the following:—Alfred Neuner (double white), President Garfield (double pink), and Humboldti corymbiflora, nice vigorous stuff, in 60's and 48's. Write for prices and sample plant to
JAMES CARTER, DUNNETT AND BEALE, 237 and 238, High Holborn, London, W.C.

TUBEROSES.—TO THE TRADE.—JAMES CARTER, DUNNETT AND BEALE have received their Second Consignment of AFRICAN TUBEROSES, in fine condition, and will be pleased to quote special prices to large buyers on application.
237 and 238, High Holborn, London, W.C.

CARNATION, "MARY MORRIS."
Plants now ready for delivery.
First-class Certificate was awarded at Kensington, Aug. 22, 1882. A beautiful Rose-coloured Self, very highly scented, of great size, very full, and of perfect shape; does not burst the calyx, a very free bloomer and vigorous grower, and perfectly hardy. See *Gardeners' Chronicle*, August 4, 1883, page 146. Price and all particulars on application to
H. G. SMYTH, 21, Goldsmith Street, Drury Lane, W.C.

CHRYSANTHEMUMS.—20,000 White, Cut Blooms, to offer; fine, under glass, Elaine and Mrs. G. Rundle, at per dozen, 100, or 1000.
R. LOCKE, Red Hill, Surrey.

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

MESSRS. SQUELCH AND BARNHAM, FRUIT and FLOWER SALESMEN, Covent Garden Market, W.C., are open to RECEIVE CONSIGNMENTS of choice FRUIT and FLOWERS. Baskets and Labels supplied. Terms and references on application.

WANTED, EUCHARIS, STEPHANOTIS, GARDENIAS, ORCHIDS, ROSES, White CAMELLIAS, TUBEROSES, Double PRIMULA, CHRYSANTHEMUM (large blooms with long stalks), BOUVARDIAS, White AZALEAS, and other choice CUT FLOWERS.
N.B.—SPIRÆA JAPONICA, LILY of the VALLEY, LILIUMS, and numerous other PLANTS and BULBS to offer, at low prices.
W. DENMAN, Salesman and Horticultural Agent, Covent Garden, W.C.

WANTED, Transplanted QUICKS, 1 to 2 feet. Send sample per parcels post only, stating quantity to offer, and lowest price to
WM. WOOD AND SON, Maresfield, Uckfield, Sussex.

WANTED, 5000 well-rooted clean grown Common ASH, 4 feet and above; also 1000 BEECH, same height. State lowest price for cash to
S. MAYOR, 6, Coronation Street, Albion Street, Leeds.

Notice to Senders.
WANTED, GRAPES, TOMATOS, MARIE LOUISE PEARS, &c. Also STEPHANOTIS, EUCHARIS, GARDENIAS, TUBEROSES, Maréchal Niel and other ROSES; White CAMELLIAS, &c.
WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, White Elephant POTATOS. Quote per Ton to
HOOPER AND CO., Covent Garden, London, W.C.

SUTTON'S Collections of HYACINTHS for Pots and Glasses.

SUTTON'S SPECIAL EXHIBITORS' COLLECTIONS.
25 splendid varieties, 42s. } Carriage
12 ,, ,, 21s. } Free.

ONE HUNDRED HYACINTHS in 100 very choice sorts, 84s. Carriage free from Sutton & Sons.

ONE HUNDRED HYACINTHS in 50 very choice sorts, 70s. Carriage free from Sutton & Sons.

FIFTY HYACINTHS in 50 very choice sorts, 42s. Carriage free from Sutton & Sons.

FIFTY HYACINTHS in 25 very choice sorts, 35s. Carriage free from Sutton & Sons.

TWENTY-FIVE HYACINTHS in 25 very choice sorts, 21s. Carriage free from Sutton & Sons.

TWELVE HYACINTHS in 12 extra fine sorts, 12s., from Sutton & Sons.

TWELVE HYACINTHS in 12 choice sorts, 9s., from Sutton & Sons.

TWELVE HYACINTHS in 12 good sorts, 6s., from Sutton & Sons.

SUTTON AND SONS, THE QUEEN'S SEEDSMEN,
READING, BERKS.

The Best White Lily.
LILIUM PHILIPPINENSE is the most handsome White Lily in cultivation. Price 10s. 6d. each, 4 guineas per dozen.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

AQUILEGIA GLANDULOSA (GRIGOR'S, guaranteed true).
Twelve Plants of this beautiful Columbine, to bloom next season, free to any part of the United Kingdom, at 6s. per dozen. Cash with order.
JOHN GRIGOR AND CO., The Nurseries, Forres, N.B.

FRANCIS BELL, NURSERYMAN, Easingwold, offers for sale 2,000,000 LARCH, 2 to 5 feet, recently transplanted, with good leads and well rooted, at greatly reduced prices.

Fine Transplanted Larch, all sizes.
W. JACKSON AND CO., Nurseries, Bedale, have very fine Trees to offer this season. Buyers will be supplied with Samples and Prices on early application.
November 1, 1883.

CUTTINGS of CALCEOLARIA "GEM" (First-class) for Sale, at 7s. 6d. per 1000.—Apply
T. A. SKENE, Rose Cottage, High Road, Leytonstone, E.
Cash with order.

STRAWBERRIES—Next Summer, by planting now: capital roots, 4s. per 100; 6d. extra per 100 for delivery by Parcels Post. In a Few Months, by forcing: plants in pots, 16s. per 100. Only the best varieties are offered. Descriptive LIST on application.—RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

EIGHTY THOUSAND CLEMATIS, in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants.
Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

BRAMLEY'S SEEDLING APPLE.
Certificated at the Great Apple Congress in London.
DWARF MAIDENS, 1s. 6d. each.
,, BUSH, 2s. each.
STANDARD, 5 feet boles, 2s. 6d. each.
HENRY FRETTINGHAM, Beeston Nurseries, Notts.

Vines—Vines—Vines.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this season, as usual, a splendid stock of VINES, suitable for Fruiting in Pots and Planting Vineries. Also a fine stock of Maréchal Niel, Gloire de Dijon, and other TEA ROSES.
Descriptive Priced LIST on application.
The Vineyard, Garston, Liverpool.

ROSES, TREE CARNATIONS, CLIMBERS, &c.
My CATALOGUE of above is now ready, and contains, in addition to above, Selections of PANSIES, BEDDING VIOLAS, CLOVES, CARNATIONS, PICOTEES, PHLOXES, PYRETHRUMS, DELPHINIUMS, and many others.
THOS. S. WARE, Hale Farm Nurseries, Tottenham, London.

Firms in the Nursery and Seed Trade
wishing to publish their announcements in Ireland, will find
THE IRISH FARM, FOREST, and GARDEN, an excellent medium. Specimen Copies, Scale of Charges, &c., on application to
Mr. THOS. MOORE, Sole Proprietor, 39, Lower Ormond Quay, Dublin.

SALES BY AUCTION.

Dutch Bulbs.—Great Unreserved Sales.
Every MONDAY, THURSDAY, and SATURDAY.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every MONDAY, THURSDAY, and SATURDAY, at half-past 11 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other ROOTS from Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Feltham, Middlesex.
Within 10 minutes' walk of the railway station.
WITHOUT THE SLIGHTEST RESERVE.
GREAT UNRESERVED SALE, under the Will of the late Mr. Charles Lee.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, Lee's Nursery, Feltham, and Hounslow Heath, Middlesex, on TUESDAY, November 13, at 12 o'Clock punctually, a portion of the beautifully grown NURSERY STOCK, which has been carefully prepared for transplanting. It includes a great variety of handsome Specimen Coniferæ, from 2 to 7 feet; 2000 Golden Yews, 1 to 4 feet; 700 Cedrus Deodara, 3 to 7 feet; 100 Wellingtonia gigantea, 2 to 4 feet; 300 Abies Engelmanni; 2000 Ponticum Rhododendrons, 1½ to 2½ feet, many well budded; several hundreds of Common Hollies, 7 to 8 feet, recently transplanted; 3000 Dwarf Roses, and other Stock.

May be viewed. Catalogues may be had on the Premises; of Messrs. LEE AND SON, Royal Vineyard Nursery, Hammersmith, W.; and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B. The Auctioneers beg to call special attention to this important Sale. It is seldom that such a good stock comes into the market.

Tuesday Next.
7000 LILIUM AURATUM, from Japan; 1200 IMANTOPHYLLUM MINIATUM SPLENDENS; and 1000 Double African TUBEROSES from the Cape.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, at half-past 12 o'Clock precisely, 7000 LILIUM AURATUM, just received from Japan in unusually fine condition; 1200 IMANTOPHYLLUM MINIATUM SPLENDENS; and 1000 Double African TUBEROSES, received direct from the Cape; 1000 LILIUM HARRISII; 500 HELLEBORUS NIGER; 500 Tuberous-rooted BEGONIAS; a choice assortment of hardy English-grown LILIES, all extra fine roots; MILLA BIFLORA, and other PLANTS and BULBS.

On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Petersfield, Hants.
Well-grown NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. C. Bailey to SELL by AUCTION, on the Premises, the Petersfield Nurseries, Petersfield, Hants, on WEDNESDAY, November 14, at 12 o'Clock precisely, a large quantity of valuable NURSERY STOCK, in fine condition for transplanting, comprising an immense quantity of Evergreens and Conifers in the borders, amongst which will be found a large number of handsome specimens, Golden Variegated Hollies, and other stock described in Catalogue.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Wednesday Next.
400 CAMELLIAS and AZALEAS, FICUS, and other DECORATIVE PLANTS from Belgium; STOVE and GREENHOUSE PLANTS and FERNS in variety; a choice assortment of Standard and Dwarf ROSES, HYACINTHS, TULIPS, CROCUS, and other DUTCH BULBS; CARNATIONS, PICOTEES, and a variety of PLANTS and BULBS for the garden.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, at half-past 12 o'Clock precisely, without reserve.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Friday Next.
ODONTOGLOSSUM ALEXANDRÆ, superb forms.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, at half-past 12 o'Clock precisely, an extra fine consignment of ODONTOGLOSSUM ALEXANDRÆ, consisting of splendid masses; and the whole are exceptional varieties from the mountains whence came the so-called O. Reilly varieties some years ago. They are the best forms Mr. Sander has ever been able to offer. Also CATTLEYA MENDELII, C. TRIANÆ, C. IMPERIALIS, and others; ODONTOGLOSSUM VEXILLARIUM, &c.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Friday Next.
ODONTOGLOSSUM SPECIES (in flower.)

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, a fine plant of ODONTOGLOSSUM species in flower. This is a very lovely thing. On the stem are nine flowers, and these combine in themselves the prettiness of crocidipterum, nævium, and blandum.

On view morning of Sale, and Catalogues had.

Friday Next.
Mill Cottage, Woodford, near the "Napier Arms," and about a mile from Mile End or George Lane Stations.
CLEARANCE SALE, by order of G. W. Booth, Esq., the residence being let.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION on the Premises as above, on FRIDAY NEXT, November 16, at 1 o'Clock precisely, without reserve, the whole of the STOVE, GREENHOUSE, and BEDDING PLANTS, choice CAMELLIAS and AZALEAS, several GARDEN FRAMES and PITS, MOWING MACHINES, GARDEN ROLLERS, TOOLS, and numerous other effects.

On view day prior to Sale. Catalogues had of the Gardener on the Premises; at the principal Local Inns; or of the Auctioneers, High Road, Leytonstone, and 67 and 68, Cheapside, and 8, New Broad Street, E.C.

November 14 and 15.
SPECIAL CLEARANCE SALE.

MR. F. J. THORNBER has received instructions from Mr. Charles Wilson, who is retiring from Business, to SELL by AUCTION, at the Summerhow Nurseries, Kendal, on WEDNESDAY and THURSDAY, November 14 and 15, the remaining portion of his valuable stock of STOVE and GREENHOUSE PLANTS, comprising many thousands of Tea Roses, Stephanotis, Eucharis, Adiantum, Palms, Solanums, Lygodiums, Fuchsias, Bouvardias, Azaleas; Pots, Tallies, and other Horticultural Items. The whole of the Stock will be Sold without the slightest reserve. Also, TOOLS and General WORKING PLANT.

On the SECOND DAY, at 3 P.M., will be offered the whole of the GLASS HOUSES, viz., Vinery, Rosery, Gardenia, Camellia, Cucumber, Green, Stove, Propagating and Grafting Houses. 5 large BOILERS, PUMPS, VALVES, and other FITTINGS. The Sale will commence each day at 11 o'Clock prompt. Conveyances will run from the Station.

Lists may be had by application to Mr. WILSON, or the Auctioneer, Exchange Chambers, Kendal.

Dutch Flower Roots, every Monday, Wednesday and SATURDAY.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely, a large consignment of first-class DOUBLE and SINGLE HYACINTHS, in all colours; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, Early ROMAN HYACINTHS, and other BULBS, just received from well known farms in Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale, and Catalogues had.

An Importation of
CATTLEYA SPECIES (supposed new species).
Collected by Mr. John Carder in a remote district beyond Popayan. The plants offered are of the same variety and from the same ground as those collected by the late Mr. J. H. Chesterton, and which were sold at Messrs. Stevens' Great Rooms on January 24, 1883. Mr. Carder's estimate of the plants tallies with that of Mr. Chesterton. He considers that it more nearly approaches C. Mendelii than it does C. Trianæ. This Cattleya is remarkable for the great number of snow-white forms which it produces, many of them appearing identical with the rare white Cattleya Bluntii, while the coloured forms exhibit a breadth of petal and perfection of form which places them in the front rank of Cattleya. The flowers measure 7 and 8 inches in diameter, and we believe they will prove most valuable winter flowering varieties. The consignment is offered as received, the white and coloured forms mixed.
ODONTOGLOSSUM VEXILLARIUM, the dark-flowered autumn var.
BOLLEA SPECIES, PAPHINIA RUGOSA, very rare.
HOULLETIA CHRYSANTHA and HOULLETIA sp., supposed floribunda.
ODONTOGLOSSUM CRISPUM (Alexandræ) and O. PESCATOREI, of the very best type.
The whole of the above, in good condition, will be SOLD by AUCTION by

MR. J. C. STEVENS at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, November 14, at half-past 12 o'Clock precisely, by order of Messrs. Shuttleworth, Carder & Co.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6517.)
PLANTS and BULBS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, November 14, at half-past 12 o'Clock precisely, first-class Standard, Half-standard, and Dwarf ROSES, in all the leading varieties, from English nurseries; specimen hardy ornamental CONIFERS, Standard RHODODENDRONS, with bloom-buds; Green HOLLIES, 7 feet high; LAURELS, AUCUBAS, and other PLANTS from Holland; a consignment of 100 AZALEA MOLLIS, FERNS, PALMS, DRACÆNAS, and other GREENHOUSE PLANTS from Belgium; and an importation of choice named Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, and other DUTCH BULBS for present planting.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6517.)
5000 LILIUM AURATUM, just received from Japan; splendid Bulbs, in very fine condition.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, November 14, 5000 fine Bulbs of LILIUM AURATUM, just received from Japan in very fine condition.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6519.)
RARE MASDEVALLIAS.
VANDA HASTIFERA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on THURSDAY NEXT, November 15, at half-past 12 o'Clock precisely, some very rare MASDEVALLIAS, consisting of Masdevallia Wallisi discoidea, Winniana, Roezlii, chimæra aurea, Rœzlii rubra, Schlimi, Armini, and others; the rare and fine VANDA HASTIFERA, Rchb. fs; also consignments of CATTLEYAS, ODONTOGLOSSOMS, LÆLIAS, also fine CATTLEYA MENDELII, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.
ODONTOGLOSSUM WILCKEANUM, Rchb. f., grand variety in flower.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, November 15, by order of Mr. J. H. Bath, a fine plant in flower of a grand variety of ODONTOGLOSSUM WILCKEANUM, of which Professor Reichenbach speaks in the highest terms; also another plant of a very rare and distinct ODONTOGLOSSUM in bloom.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6519.)
FLOWERING ORCHIDS.

MR. J. C. STEVENS will include in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, November 15, fifty plants of ODONTOGLOSSUM ALEXANDRÆ, in flower and bud.

On view morning of Sale, and Catalogues had.

Choice Home-grown Lilies.

MR. J. C. STEVENS is instructed by the New Plant and Bulb Company, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 20, at half-past 12 o'Clock precisely, a fine selection of home-grown LILIES and other BULBS, IRIS, and other PLANTS, including Liliums, Washingtonianum, Harrisii (the Bermuda Lily), Hansoni, Leichtlini, Coridion, concolor, excelsum, Szovitzianum, (Colchicum), Parryi, Brownii, Dalmaticum, Catanei rubescens, and a new form of Lilium longiflorum, and other LILIES; also 100 bulbs of the new white Tigridia, MONTBRETTIA CROCOSMIÆFLORA (new), IRIS Robinsoniana, Iberica, Amaryllis, Crinums, and other BULBS.

On view morning of Sale, and Catalogues had.

Unreserved Sale of a Choice Collection of Orchids, comprising Dendrobiums, Cattleyas and Oncidiums; also CLERODENDRONS, ANTHURIUMS, ALAMANDAS, PANDANADS, AZALEAS, ERICAS, Specimen ACACIAS, PALMS, FERNS, PHORMIUMS, YUCCAS, CYCAS, CHRYSANTHEMUMS, 160 strong and healthy Queen PINES (some now in fruit); GERANIUMS, STRAWBERRIES in pots, for early forcing, Ornamental Garden STATUARY and VASES, GARDEN TOOLS, WINES, &c., which

MESSRS. C. B. SMITH AND GOLDSMITH will SELL by AUCTION, on the Premises, Western House, Fareham, Hants (without reserve), on SATURDAY, November 17, at 12 o'Clock.

Catalogues of the Auctioneers, Fareham.

Comely Bank Nursery, Walthamstow.

TO BE SOLD, or LET on Lease, this well-established NURSERY.

For particulars apply as above.

TO BE LET, an old-established NURSERY, FLORIST, and SEEDSMAN'S BUSINESS, with immediate possession, on account of the death of the late proprietor, who has carried on a successful business for the last thirty years. The Premises comprise a convenient Dwelling-house, Seed Shop, and good Storage. There are 8½ Acres of deep rich Soil, and all the necessary Glass-houses, &c., for carrying on a large business. For particulars apply to J. WATSON, 38, Crown Street, Bury St. Edmund's.

Market Garden Ground.
Close to Beddington Railway Station and about 2 miles from Croydon.

TO BE LET, 16 Acres of LAND, well planted with Fruit Trees, &c.

Apply to BLAKE, HADDOCK AND CARPENTER, Estate Agents, &c., 21, High Street, Croydon, and 32, Nicholas Lane, E.C.

Pine-apple Nursery, Peckham Rye, E.C.

TO BE LET, on Lease, this well-known NURSERY, with extensive Grape and Orchard-houses, planted with the choicest Vines and trees; Hothouses and numerous Outbuildings, Cottage, Stabling, &c.

For terms apply to RUSHWORTH, ABBOTT AND STEVENS, 22, Savile Row, Regent's Street, W.

MESSRS. PEED & GREAVES,
AUCTIONEERS AND ESTATE AGENTS,
1, HOLLAND ROAD, BRIXTON, LONDON, S.W.

THE above Firm will be happy to Furnish Estimates or Terms for the SALE by PUBLIC AUCTION of all Classes of NURSERY and FLORIST STOCK, either at the Nurseries of Clients, or to be removed to the Sale Rooms, as above. Mr. W. G. PEED (son of Mr. John Peed, the well-known Exhibitor, Nurseryman, and Florist), by his practical knowledge of the Trade, the nomenclature of all classes of Plants and Trees, as also his intimate knowledge of the value of every variety of Nursery Stock, can guarantee a like competency and thoroughness of Sale only possessed by one well-known firm in the Trade, and Messrs. P. & G. will undertake any such Sales at lowest possible terms.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

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

NOTICE.—WILLIAM SUTHERLAND, late of the Barbourne Nurseries, Worcester, and previously of Liverpool, begs to intimate that, having effected an engagement with Messrs. James Dickson & Sons, his present address (at which he hopes to hear from his various friends) is "Newton" Nurseries, Chester.

LILIUM AURATUM.—Good, plump, sound bulbs, 4s., 6s., 9s., 12s., 18s., and 24s. per dozen; extra strong, 30s. and 42s. per dozen. All other good LILIES at equally low prices.

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

SHOW and FANCY PANSIES.—An Amateur has for Sale his surplus stock of the above, in about 100 varieties, good plants, 17s. 6d. per 100, 10s. per 50; 2s. to 6s. per dozen, named.

G. W. DUTTON, Summerfield, 15, Curzon Park, Chester.

LIMES, 12 handsome, girth 10 inches at 4 feet.
ELMS. 25 English, girth 7 inches at 4 feet.
R. AND G. BESTER, Mount Pleasant, Cambridge.

FOR SALE, a quantity of good LARCH FIRS, 2½ to 3½ feet, 22s. per 1000.
PRIVET, 2½ to 3¼ feet, 9s. per 100.
QUICK, 13s. per 1000.
And Green and Variegated HOLLIES and YEWS, &c.
All this is good rooted and grown stuff.
JOSEPH SPOONER, Goldworth, Woking Station.

MANNETTI STOCKS, clean-eyed, good stuff, 20s. per 1000 for cash with order. Sample sent GEO. BOLTON, The Nursery, Wyddial, Buntingford, Herts

DWARF ROSES, splendidly rooted, the best sorts, 6s. per dozen, from ground; fifty for 21s.
TEA ROSES, in pots, 15s. per dozen, fifty for 50s.
FINE CLIMBING PLANTS, Hardy, for Walls, Trellises, Arbours, Rockeries, &c., in twelve varieties, 6s. and 9s.
FINE HARDY HEATHS and other Dwarf American Plants, in variety, 4s. and 6s. per dozen.
PRETTY DWARF SHRUBS of various kinds, for Pots, Boxes, Winter Bedding, &c., in variety, 4s. or 6s. per doz.
PRETTY TABLE PLANTS, in variety, for immediate use, 6s., 9s., and 12s. per dozen.
BEAUTIFUL FERNS, twelve sorts, 4s. 6d., 6s., or 9s.
For all classes of Plants, Bulbs, Seeds, Fruit and other Trees, Shrubs, or Garden Sundries, see our Catalogues.
Many acres of ground and many thousand feet of glass are stocked with the best of everything in the respective classes.
Visitors invited.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Beautiful Flowers for Gardens.

POTENTILLAS, PYRETHRUMS, DELPHINIUMS, lovely hardy flowers for Cutting or Garden Bloom. Named, 5s. per dozen.
SPLENDID PHLOXES, Pentstemons, Pinks, Pansies, in the finest varieties, 3s. 6d. per dozen.
HARDY HERBACEOUS PLANTS, the most showy sorts (too numerous to mention here—see Catalogues for List), 3s. per dozen, 21s. per 100.
CARNATIONS and PICOTEES, good exhibition sorts, 6s. per dozen plants. Fine Clove and Border Self varieties, 4s. per dozen—all from layers.
LILIES, candidum, Orange, and Tiger Lilies, 3s. per dozen. Many other sorts in Catalogue.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

HERBACEOUS, ALPINE, and ROCK PLANTS.

Collections of 100 choice varieties		..	30s.
,,	50 ,, ,,	..	17s. 6d.
,,	25 ,, ,,	..	10s. 6d.

Packing free and extra plants sent to compensate for carriage.
R. H. VERTEGANS, Chad Valley Nurseries, Edgbaston, Birmingham.

Outdoor Flowers in Spring.

DAISIES, Red, White, Rose, &c.; POLYANTHUS, Single PRIMROSES in variety of colours, WALLFLOWERS, CANTERBURY BELLS, 9d. per dozen, 4s. and 5s. per 100. PANSIES and VIOLAS (colours separate), ARABIS, ALYSSUM, SILENE COMPACTA, AUBRIETIAS, MYOSOTIS, 1s. 6d. per dozen, 8s. per 100. Or 500 assorted Spring-flowering Plants for 17s. 6d.; 1000 for 31s. 6d.
TULIPS, various colours, 5s. per 100 CROCUS, 1s. 6d. and 2s. per 100 SNOWDROPS, 2s. 6d. per 100. Border HYACINTHS, 18s. per 100. NARCISSUS, of sorts, 5s. and 7s. 6d. per 100. Or 500 assorted Spring-flowering Bulbs for 12s.; 1000 for 21s.
HEPATICAS, Blue and Red, Double PRIMROSES, White, Lilac, or Sulphur, 3s. 6d. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

CABBAGE—CABBAGE.—Extra strong and fine Plants of autumn sown Early Rainham, Early Enfield Market, Early Battersea, and Early Nonpareil, 3s. per 1000; Robinson's Champion Drumhead, 3s. per 1000. The above are well-rooted, and free from club. No better plants can be had. Post-office Order, or reference from unknown correspondents. Free on rail. Samples on application. Apply,
W. VIRGO, Wonersh Nurseries, near Guildford, Surrey.

ROSES (20 acres).—Well-rooted, many shooted, truly named, of matured vigorous growth, and of the best kinds. Bushes, R. S. & Co.'s selection, 8s. per dozen, 60s. per 100; packing and carriage free for cash with order. Standards, 15s. per dozen, or 100 free for 120s. These world-famed Roses cannot fail to give the greatest satisfaction. Descriptive LIST free on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

A Gay Conservatory.

PRIMULAS, CINERARIAS, 2s. 6d., 4s., and 6s. per dozen, according to size.
HERBACEOUS CALCEOLARIAS, 1s. 6d. per dozen, from stores.
SOLANUMS, full of berries, CYCLAMEN, BOUVARDIAS, TREE CARNATIONS, DEUTZIA GRACILIS, in pots for early blooming, 6s., 9s., 12s., and 18s. per dozen. Three at same rates.
HYACINTHS, TULIPS, CROCUS, SPIRÆAS, LILIES, &c.—see Catalogue.
AZALEAS, Ghent, mollis, Pontica, or indica, all with buds, for Forcing, 18s., 24s., and 30s. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

ARAUCARIA IMBRICATA, 1, 2, and 3 feet high.
CUPRESSUS LAWSONIANA, 3, 4, to 6 feet high.
CUPRESSUS ERECTA VIRIDIS, 2, 3, 4, 5 to 10 feet high.
RETINOSPORA PLUMOSA, 2, 3, 4, 5, 6 to 10 feet high.
RETINOSPORA PLUMOSA AUREA, 1, 2, 3, 4 to 6 feet.
RHODODENDRON PONTICA, 2 to 5 feet, bushes.
RHODODONDRON, named kinds in great variety.
TEA ROSES, in pots, choicest sorts, including a fine stock of NIPHETOS, in 4½ and 6 inch pots, 1½ to 4 feet high and bushy.
A large stock of the above plants to offer cheap. For prices and other Stock see CATALOGUES, post-free on application to
F. STREET, Heatherside Nurseries, Golden Farmer, Farnborough Station, Surrey.

TREES and SHRUBS. 100,000 Hardy HEATHS, nice plants, suitable for planting on banks and mounds. Can be supplied in 20 or 30 varieties, at 4s. per dozen, 25s. per 100, or £10 per 1000.
LARCH, 2 to 3 feet, 21s. per 1000; 2½ to 3½ feet, 23s. per 1000; 3 to 4 feet, 25s. per 1000; 3½ to 4½ feet, 30s. per 1000.
FIR, Scotch, 1 to 1½ foot, 18s. per 1000; 1½ to 2 feet, 27s. per 1000.
CEDRUS DEODARA, 2 to 2½ feet, 12s. per dozen, 90s. per 100; 2½ to 3 feet, 24s per dozen, 160s. per 100; 3 to 4 feet, 30s. per dozen, 230s. per 100; 3½ to 4½ feet, 36s. per dozen, 275s per 100—beautiful plants, having been recently transplanted.
RHODODENDRONS, Hybrids, 9 to 15 inches, 27s. per 100, or 250s. per 1000; 12 to 18 inches, 32s. per 100, or 300s. per 1000; 15 to 20 inches, 42s. per 100; 1½ to 2 feet, 50s. per 100.
CATALOGUES, containing other Evergreens and Flowering Shrubs, may be had on application to
JAMES SMITH AND SONS, Darley Dale Nurseries, near Matlock.

Rhododendrons and Azaleas.

ISAAC DAVIES AND SON have 100,000 RHODODENDRONS to offer this season, including first-class Hybrids, from 1 to 4 feet high, and the choicest named kinds, mostly well-budded, as well as Sweet-scented, and other Novelties of their own raising. 50,000 AZALEA MOLLIS and other choice Azaleas, and a fine general NURSERY STOCK, all extra transplanted and in fine condition for removal.
Descriptive CATALOGUE with prices on application.
Brook Lane Nursery, Ormskirk, Lancashire.

CREEPERS for WALLS, TRELLISES, &c., in great variety. See Descriptive LIST. Most of these plants, being in pots, may be moved now.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Orchids, Bulbs, Lilies.

THE NEW PLANT AND BULB COMPANY, Lion Walk, Colchester, have just published their AUTUMN LIST, No. 64, containing more novelties and rarities than ever.

PICOTEES, CARNATIONS, CLOVES, &c.—My Annual Autumn CATALOGUE is now ready, and contains all the best of the above families, and in addition Collections of ROSES, TREE CARNATIONS, CLIMBING PLANTS, PÆONIES, SHRUBS, PINKS, &c.
THOS. S. WARE, Hale Farm Nurseries, Tottenham, London.

NEW RASPBERRY, "BAUMFORTH'S SEEDLING."
Testimonial from Mr. THOMAS LAXTON, *Bedford*:—"'Baumforth's Seedling' Raspberry has again proved the best of all Red Raspberries tried at Girtford (14 varieties)."
Prices—Planting Canes, 25s. per 100, 4s. per dozen; Fruiting Canes, 35s. per 100, 6s. per dozen.
Early orders respectfully solicited.
EDMUND PHILIP DIXON, The Yorkshire Seed Establishment, Hull.

To the Trade.

SEAKALE, for FORCING.—Selected Crowns of the Fulham variety, at 9s. per 100; 80s. per 1000. Cash in one month. Fine Dwarf Maiden Moorpark APRICOTS, PEACHES, NECTARINES, CHERRIES and PLUMS—*Osborn's true stock.*
WILL. TAYLER, Osborn Nursery, Hampton, Middlesex.

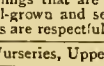
—THE OLD ESTABLISHED—
NURSERY, SEED & IMPLEMENT BUSINESS
PLANTING SEASON
UNRIVALLED FOR
QUALITY VARIETY & EXTENT
FOREST · FRUIT ·
& ALL OTHER
TREES & PLANTS
EVERGREENS · ROSES · VINES &c.
PRICED CATALOGUE POST FREE
JAMES DICKSON & SONS
"NEWTON" NURSERIES
— CHESTER —

New Catalogues.

CHARLES TURNER'S New Descriptive CATALOGUES for the season are now ready, comprising Roses, Fruit Trees, and all kinds of Hardy Trees and Shrubs; also Carnations, Picotees, Auriculas, and other Florist Flowers, Bulbs, &c.
The Royal Nurseries, Slough.

READING HERO.—A few Tons of this famous POTATO for Sale. Price £8 per ton, or 9s. per cwt., on rail, bags included. Cash with order.
J. J. CLARK, Goldstone Farm, West Brighton, Sussex.

ANNIE ELIZABETH APPLE, which has been shown so well and highly spoken of at the Apple Congress. Trees can be supplied by the introducers,
HARRISON AND SONS, Leicester.



Winter Flowering Plants.

B. S. WILLIAMS begs to announce that his Stock of
AUTUMN and WINTER FLOWERING PLANTS
is now ready for sending out, consisting of
AZALEAS, CAMELLIAS, CYCLAMEN, BOUVARDIAS, CARNATIONS (Tree, or perpetual-flowering), ERICAS—all the leading kinds, EPACRIS, SOLANUMS—unusually well berried; ACACIAS, GENISTAS, AZALEA MOLLIS, and a number of other things that are required for this season.
The whole are well-grown and set with flower-buds.
Early orders are respectfully solicited.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

TWO HUNDRED THOUSAND VIOLAS, BEDDING PANSIES, HARDY PERENNIALS, ALPINES, &c.—One uniform price, 1s. per dozen, transplanted. Land sold for Railway Extension. Guinea Garden Collection increased to thirty dozen, worth £6; half, 12s.
CATALOGUE gratis.
JOHN PIRIE AND CO., Stechford Birmingham.

Sharpe's Seeds.

CHARLES SHARPE AND CO., SEED GROWERS and SEED MERCHANTS, Sleaford, will be glad to forward, Post-free on application, Special Wholesale quotations of their own selected stocks of Garden and Agricultural Seeds. Sleaford.—October, 1883.

To the Trade.

LILIUM AURATUM, home-grown, from £5 per 100, sizes on application.
"Some of the finest examples of Lilium auratum bulbs that have come under our notice."—*Gardeners' Chronicle*, Oct. 27, page 534.
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"Past all ordinary precedent."—*Gardener's Magazine*, October 27, page 594.
COLLINS BROS. AND GABRIEL, 39, Waterloo Road, S.E.

HOLLY for HEDGES.—12 to 15 inches, 25s.; 15 to 18 inches, 35s.; 18 to 24 inches, 50s. per 100. Forest LIST, containing heights and prices of well-grown transplanted Quick, Ash, Larch, Spruce, Pines, Oaks, Cover Plants, &c., free.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Mitchell's Goossberry.

WM. MITCHELL now offers to the Trade Cuttings of this extraordinary variety of Goosberry, which is the largest and greatest cropper known. To all Growers, Salesmen, and Buyers attending Covent Garden Market this fine variety is too well known to need description.
Cuttings, £5 per 1000.
WM. BROADLANDS, Enfield Highway, N.

CATALOGUE of FERNS, illustrated and descriptive, with Cultural Notes. Three stamps.
CATALOGUE of ALPINE PLANTS, illustrated and descriptive. Free on application.
LIST of HARDY ORCHIDS, with full cultural instructions. Free on application.
The following expression of opinion is from one of the highest authorities in the land on the subject of Ferns:—"* * * I have gone very carefully through your list, and, without complimenting you, it is by far the best nurseryman's list of British Ferns out."
F. W. AND H. STANSFIELD, Nurserymen, Sale, near Manchester.

Kent, The Garden of England.

300,000 FRUIT TREES in 600 varieties.
GEORGE BUNYARD AND CO. beg to intimate that their stock was never finer, and intending purchasers are invited to come, and see for themselves. The New Illustrated Descriptive CATALOGUE of Fruits for 3 stamps. Reference LIST free.
The Kent Roses do Live.
Extra well-rooted stuff, very good, very cheap.
Descriptive Rose CATALOGUE Free.
The Old Nurseries, Maidstone.—Established 1796.

FRUIT TREES (74 acres).—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, &c., as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety. VINES, excellent canes, 3s. 6d. to 10s. 6d. ORCHARD HOUSE TREES in pots, from 5s. FIGS, from 3s. 6d. Descriptive LIST, containing a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also information as to Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., free by post.
RICHARD SMITH AND CO., Worcester.

DUTCH BULBS. All first size and quality. Cash prices.
HYACINTHS, finest named, 4s., 5s., and 6s. per dozen; ditto, finest for beds, 2s. 6d. per dozen.
TULIPS, finest named, 5s. to 8s. per 100; ditto, finest mixed double or single, 4s. per 100.
CROCUSES, first size, all kinds to name, 1s. 6d. per 100.
The CITY SEED AND BULB DEPOT, 162, Fenchurch Street, and 80, St. Paul's Churchyard, E.C.

To the Trade.

HOME GROWN VEGETABLE and FIELD SEEDS.
H. AND F. SHARPE are prepared to make special offers of all the varieties of VEGETABLE and AGRICULTUAL SEEDS they have grown this season from choice selected stocks. The quality of the seeds is excellent, and the prices are very low.
Seed Growing Establishment, Wisbech.

BERMUDA EASTER LILY (Lilium longiflorum Harisii).—Having ordered direct a large quantity of the best procurable bulbs from America, we are enabled to offer the true variety at the low price of 2s. 6d. each. More than forty beautiful pure white trumpet-shaped flowers have been produced from a single bulb. For further description of this valuable acquisition, see Bulb LIST, free on application.
RICHARD SMITH AND CO., Seed Merchants and Nurserymen, Worcester.

SEEDS of CLIVIA MINIATA, fertilised by C. Lindeni × C. robusta.

12 SEEDS, guaranteed		..	5 francs.
100	,,	,,	.. 40 francs.
1000	,,	,,	.. 350 francs.

Free by Post.
ED. PYNAERT, Ghent, Belgium.

FRUIT TREES—FRUIT TREES In all the Best Cropping Varieties.
APPLES, PEARS and CHERRIES, Dwarf-trained, good trees, 15s. and 18s. per dozen.
PEARS, Pyramid, 40s. and 50s. per 100; good fruiting trees, 75s. and 100s. per 100; Maidens, 30s. per 100.
APPLES, Pyramid, 40s., 50s., and 75s. per 100.
CHERRIES, Dwarf-trained Morello and May Duke, 15s. and 18s. per dozen.
CURRANTS, Red and Black, of sorts to name, 8s., 10s. and 12s. per 100.
RASPBERRIES, Fillbasket, 6s. per 100.
ROSES, Dwarf H.P.'s, 30s. per 100.
CONIFERS, bushy, for pots, window boxes, &c., 2 to 15 in., 25s. per 100.
POPLARS, Lombardy and Ontario, from 5 to 10 feet, 8s. to 35s. per 100; 12 to 16 feet, extra fine, for screens, grown in single lines, 15s. per dozen, 100s. per 100.
SHRUBS, Deciduous, 12s. and 15s. per 100, good plants.
HEATHS, Hardy, of sorts to name, 15s. per 100.
THORNS, Double and Single, of sorts, Standards and Pyramids, 50s. and 75s. per 100.
SPIRÆA PALMATA, fine forcing clumps, 10s., 15s. and 20s. per 100.
AUCUBAS, well coloured, for boxes, pots, &c., 9 to 12 in., 16s. per 100; 12 to 15 inches, 20s. per 100.
WM. CLIBRAN AND SON, Oldfield Nurseries, Altrincham.

NEW EARLY RHUBARB,

Charles Kershaw's "Paragon."

This is unquestionably the finest variety of Rhubarb ever offered; in mild seasons it is ready to pull in February. The crowns and stalks are produced in such profusion that more than twice the weight can be pulled from this than from any other sort. The colour is a splendid red, flavour excellent, and it has this qualification over all others, IT NEVER SEEDS.

PRICE—per Plant, 1s. 6d.; per Dozen, 15s.

Price to the Trade on application.

For Testimonials and all other information, see back page of *Gardeners' Chronicle* for October 13. May be had of all the principal Nurserymen and Seed Merchants, or direct from

CHARLES KERSHAW,
THE SLEAD SYKE NURSERIES,
BRIGHOUSE.

POTATOS.—Sutton's Reading Hero, White Elephant, Beauty of Hebron, and Asbleaf Kidney. A few Tops each of these popular sorts cheap for cash, to save spring. BRINKWORTH AND SONS, Reading.

NEW LILIUM HARRISII (True).

We were the introducers of this distinct and floriferous variety of L. eximium last year.

EXTRACT FROM *Gardeners' Chronicle*:—"Lilium Harrisii.—We have received a two-flowered stem of this Lily from Messrs. Watkins & Simpson, who introduced it into the London market, and which is the second flower-stem produced this season in the manner described by Mr. Clausen, at p. 53, by a second-sized bulb in the possession of Mr. Walker, of Whitton, near Hounslow. The flowers are very fine, and evidence seems to be accumulating that it is distinct from L. longiflorum, or at least a well-marked variety of that species. It does not appear to do well out-of-doors, preferring the shelter of a cool greenhouse; and it stands forcing well.

"*We understand that one of the most extensive growers of plants for market has given a large order for bulbs for forcing next spring.*"

Price of Bulbs of the above and many other Lilies on application to

WATKINS & SIMPSON,
Seed and Bulb Merchants, Exeter Street, Strand, W.C.

ROSES IN POTS,

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

These World-famed ROSES cannot fail to give the greatest satisfaction.

DESCRIPTIVE LISTS on application.

RICHARD SMITH & CO.,
WORCESTER.

AMERICAN SEEDS.

2½*d.* Postage on a Letter of Inquiry will secure you by return Mail our PRICES—Wholesale or Retail.

SEEDS of MAIZE for Field or Garden, PEAS, BEANS, CUCUMBERS, PUMPKINS, SQUASH, CANTALOUPES, WATER MELONS, TOMATOS, OKRA or GUMBO, COTTON SEED, TOBACCO, OSAGE ORANGE or MACLURA, TREE SEEDS, AMERICAN GARDEN TOOLS, BOOKS, &c.

All offered by the *oldest and ever the most extensive* Seed Farmers in America.

Founded in 1784.

ADDRESS:—

LANDRETH & SONS,
PHILADELPHIA.

HERBACEOUS and ALPINE PLANTS.

CATALOGUE, of fifty pages, containing full information as to colour, height, situation, time of flowering, &c., free on application.

A CAPITAL COLLECTION for Rocks, Stumps, and Borders, from 25*s.* per 100, or 4*s.* per dozen.

Most of the plants being in pots may be despatched at any time, or by Parcels Post when fit.

RICHARD SMITH & CO.,
NURSERYMEN AND SEED MERCHANTS,
WORCESTER.

ANTHONY WATERER

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

HOLLIES, Common Green, 3, 4, 5, 6, 7, 8 to 10 feet high.
,, laurifolia, ditto. } many thousands.
,, Hodgins', 3, 4, 5 to 8 feet.
,, myrtifolia, ditto.
,, Saw-leaved, ditto.
,, Scottica, 3 to 8 feet.
,, Yellow-berried, altaclarense and others.
,, Variegated, of sorts, 3, 4, 5, 6, 8 to 10 ft.
,, Waterer's, splendid plants, 3, 4, 5 and 6 feet, 8 to 15 feet in circumference.
,, Golden Queen, 3, 4, 5, 6, 7, 8 to 10 feet, hundreds of beautiful specimens.
,, Perry's Weeping Holly, on straight stems, with beautiful heads, ten to fifteen years' growth, hundreds.
,, new Golden Weeping, a large number of very beautiful plants.
BOX, Green and Variegated, 3, 4, 5, 6, to 7 feet, many thousands.
YEWS, Common, 3, 4, 5, 6, to 10 feet, thousands.
,, Golden, of all sizes up to 10 feet. We have many thousands as Pyramids, Globes, Standards, in point of variety and size unequalled.
CUPRESSUS ERECTA VIRIDIS, 3, 4, 5, 6, to 8 feet, thousands.
,, Lawsoniana lutea, 3, 4, and 5 feet, hundreds of beautiful specimens.
THUIOPSIS DOLABRATA, 3, 4, and 5 feet, hundreds.
RHODODENDRONS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet. The plants are covered with buds.
AZALEAS, Hardy, the finest varieties known, 2, 3, 4, and 5 feet high, thousands.
JUNIPERS, Chinese, 7, 8, and 10 feet high.
PICEA PINSAPO, 6 to 8 feet.
,, NORDMANNIANA, 6, 7, and 8 feet.

Knap Hill Nursery, Woking Station, Surrey.

Old Established.

Fruit + Trees

50 ACRES, SPLENDID QUALITY.

Pronounced "Unequalled" by competent judges.

Prices strictly Moderate.

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CATALOGUES.

NURSERIES 200 ACRES IN EXTENT.

Reliable always. *Address in full—*

F. & A. Dickson & Sons
THE QUEEN'S SEEDSMEN,
Chester.

NEW APPLE.

"HEREFORDSHIRE BEEFING."

CRANSTON'S
NURSERY & SEED COMPANY
(LIMITED)

have much pleasure in now offering, for the first time, good healthy young trees of this valuable, late-keeping Apple, which for beauty and general good qualities they have every confidence in stating is unsurpassed. The tree is upright in habit, very vigorous and healthy in growth, never failing to produce, even in the most unfavourable seasons, abundant crops of large and very handsome fruit. Colour deep red all over; flesh white, very firm, crisp and juicy. It will keep in good condition till June, and is excellent for either dessert or culinary purposes.

This excellent Apple was much admired by all who saw it at the Great Apple Congress recently held at Chiswick.

Strong Maiden Trees.. 3s. 6d. each.
,, 2-yr. ,, .. 5s. 0d. ,,

Fruit Tree Catalogue free on application.

CRANSTON'S NURSERY & SEED CO.
(LIMITED),
KING'S ACRE, near HEREFORD.
Trade Price on application.

HARDY ORCHIDS.—Twelve choice kinds, including six exotic, with full cultural instructions, 5*s.*
STANSFIELDS, Sale.

Special Culture of

FRUIT TREES and ROSES.—A large and select stock is now offered for sale. The Illustrated and Descriptive CATALOGUE of Fruits, post-free for threepence. The Descriptive CATALOGUE of Roses post-free.
THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

Tea Roses—Tea Roses.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this year a splendid stock of Tea and other Roses in pots. Prices and full particulars on application to
The MANAGER, The Vineyard, Garston, Liverpool.

To the Trade.

NEW EARLY RHUBARB, KERSHAW'S PARAGON.

WILLIAM KERSHAW has pleasure in again offering this splendid new variety, in extra strong roots, such as gave general satisfaction to the many leading London and Provincial Houses, who obtained supplies from him last autumn. Price, 9*s.* per dozen, 65*s.* per 100.
Airedale Nursery, Bingley, Yorkshire.

BOX EDGING.—A large quantity for Sale.
Address—
GARDENER, Mr. G. B. Smith, Chipping Norton, Oxon.

SURPLUS STOCK.—Fine bearing PEACH TREES, in excellent condition, grown under glass, and well ripened.
W. WOODFIELD, Gardens, Ketton Hall, Stamford.

Forest and Ornamental Trees and Shrubs.

THE LAWSON SEED AND NURSERY COMPANY (Limited), Edinburgh, have an immense Stock of the leading kinds of Seedling and Transplanted FOREST TREES and SHRUBS, &c.—all in healthy condition and prices moderate. Special offers on application.

SPECIAL TRADE OFFER.—200,000 Dwarf ROSES, on Manetti, fine, our own selection, 25*s.* per 100, £12 per 1000. 300,000 MANETTI STOCKS, fine, 30*s.* per 1000, £13 per 10,000. 10,000,000 ASPARAGUS, 2-yr. Connover's, 17*s.* 6*d.* per 1000; 3-yr. Connover's, 20*s.* per 1000; 2-yr. Giant, 15*s.* per 1000; 3-yr. Giant, 17*s.* 6*d.* per 1000, for Cash with all Orders, otherwise will not be attended to.
R. LOCKE, Royal Nurseries and Rose Farms, Redhill, Surrey.

CLEMATIS COCCINEA.—A new, distinct, and very beautiful Climber, with small, bright orange-scarlet flowers, perfectly hardy, and one of the best climbing plants in cultivation.

LILIUM TENUIFOLIUM.—A brilliant scarlet Turk's-Cap variety. Very early; blooming out in the open ground in June, or will stand forcing well. Very suitable as Cut Blooms for Buttonholes or Bouquets. It is perfectly hardy.

For prices of above and all varieties of DUTCH, ENGLISH, and JAPANESE BULBS, see our Wholesale Bulb CATALOGUE, free on application.
WATKINS AND SIMPSON, Exeter Street, Strand, W.C.

SEAKALE.—A large Stock of fine strong Roots, for Forcing and Planting.
Also good 2-yr. old GIANT ASPARAGUS.
FRUIT TREES.—Fine healthy stock of horizontal and dwarf-trained Apples and Pears, and dwarf-trained Apricots, Cherries, Plums, Peaches and Nectarines.
Price on application.
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LATANIA BORBONICA, well shaped sturdy plants, 150*s.*
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1 STANDARD ORANGE TREE, fine.
1 BUSH ORANGE, full of fruit, 4½ feet high.
4 CAMELLIAS, double red and pink, 6 to 7 feet high, bushy, hundreds of buds, healthy, in 18-inch pots.
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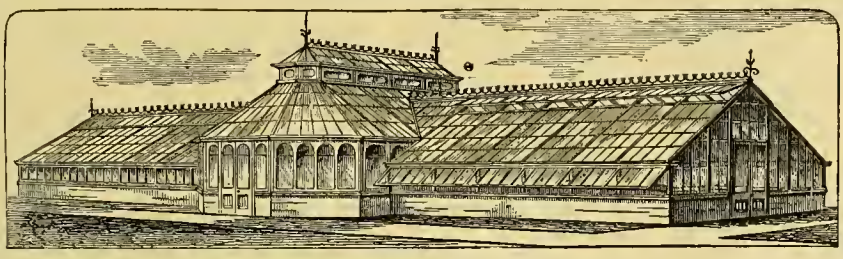

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Manufactured by the

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and Sold by them and all Nurserymen and Seedsmen.

This is the Manure used to produce the splendid Grapes grown by Messrs. WM. THOMSON & SON, Clovenfords.
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Quality **the Best** in the Market.
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COCOA-NUT FIBRE REFUSE (see special advertisement).
Terms, strictly Cash with order.

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Important Discovery.

For Cleansing Plants from Aphides, and all Parasites. To prevent American Blight, all kinds of Scale, &c., and for Washing all Hard-wooded Plants, always use

HUDSON'S EXTRACT OF SOAP.

A ¼ lb. Packet to 3 Gallons of Water.
A strong solution thickened with clay makes an effective Winter Dressing.

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For destroying ALL INSECTS and PARASITES that infest Trees and Plants, whether at the Roots or on the Foliage. Kills all Vegetable Grubs, Turnip Fly, &c. Cures Mildew and Blight. Cleans Grapes from Mealy Bug, &c., and makes a good Winter Dressing. Of all Seedsmen and Chemists, 1s. 6d., 2s. 6d., 4s. 6d. a bottle. Per gallon 12s. 6d., or less in larger quantities. Maker, E. GRIFFITHS HUGHES, Manchester. Wholesale from HOOPER & CO., CORRY, SOPER, FOWLER & CO., C. E. OSMAN & CO., and from all the London Seed Merchants and Wholesale Patent Medicine Houses. New York: RÖLKER & SONS.

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Wholesale Agents—IRELAND AND THOMSON, Waterloo Place, Edinburgh.

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The whole at usual Trade Prices.

Until the Stock is Exhausted.

CHARLES NOBLE will supply the finest forcing clumps of crowns ever offered of:—
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LILIUM GIGANTEUM, nice bulbs, 3s. 6d., 2s. 6d., and 1s. 6d.
Orders with cash or reference should be sent at once — Bagshot.

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Invite Visitors to view the above in their Winter Garden,

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The following are offered at exceptional low cash prices:—

ORCHIDS.	s.	d.
12 choice free flowering sorts for	21	0
12 " " extra size	30	0
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100 in 50 sorts for	200	0
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Special Cash Price LIST on application will be posted of the Sweet-scented RHODODENDRONS for Greenhouse, AZALEAS covered with Flower-buds, CAMELLIAS, TREE CARNATIONS, EPACRIS, &c., and NEW PLANTS.

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Large and Healthy Stock, in Prime Condition for Removal.

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SPECIAL CASH OFFER OF OVER 20,000 PALMS,

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Price Lists free on application.

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BOLEYN NURSERY, UPTON, ESSEX.

The Nursery is about Five Minutes' Walk from Upton Park Station (London, Tilbury, and Southend Railway), and Ten Minutes from Forest Gate Station (Great Eastern Railway).

LILIUM HARRISII

(the Bermuda Easter Lily),

one of the most valuable introductions of late years, a long trumpet-flowered white Lily, beautifully reflexed, bearing frequently from 6 to 10, and has been photographed with over 30 flowers on one spike. Forces in pots with great facility, and is so full of vitality that several and continued growths frequently spring from one bulb. It is quite distinct from L. longiflorum.

Bulbs, 2s. each, 18s. per dozen, 120s. per 100.

Delivered free. Special terms to Trade growers in quantity.

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RESPECTFULLY INVITE EARLY ORDERS FOR

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SELECTED FROM THE

Finest Stock ever held by any English Rose-grower.

The Cheshunt Roses have, during the past season, obtained more First Prizes than any other House—showing the Firm maintains the reputation they have enjoyed for so many years.

An Inspection of the Stock and Personal Selection of the Plants is invited. Descriptive CATALOGUES Post-free on application.

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STANDARDS and HALF-STANDARDS	21s. to 24s.	per dozen;	£8 0s.	per 100
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" Teas, all on Brier	15s. to 18s.	"	£6 0s.	"

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ANNULAR SAIL

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STAR WINDMILLS,

Self-Winding and Regulating, for Pumping, Supplying Farms, Railways, Mansions, &c.
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WARNER'S WINDMILLS
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Hyacinths for pots and glasses .. .. from 4s. doz.
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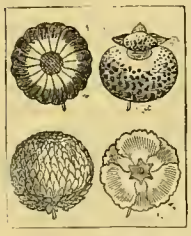

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THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 10, 1883.

GARDENERS TO THE RESCUE.

A MAN must live: only cynics, and not many of them, will deny that proposition. We go further, and say that a man ought so to live as to be good in the estimate of his own conscience, and good in the eyes of his fellows. How is he to accomplish this? Moralists and priests will answer this question in their own several ways. For their teaching we have the highest respect; but we shall not venture to trench on their province further than may be incidentally necessary in helping on their good work. All we can say in this place is, that to compass the good results before-mentioned the conditions must be favourable. A man may have every desire to do his duty, whatsover it be, but he is let and hindered in various manners. As to these lets and hindrances some are innate to the man, some are external to him, some are remediable, others are inevitable. If his food be insufficient or unsuitable—if the water he drinks be contaminated, the air he breathes impure, the soil he lives upon fouled with corruption, his dwelling-place unwholesome, his clothing inadequate, his work noxious, his recreations debasing, the man cannot be good. His moral and physical qualities alike will be deteriorated in direct proportion to the force of these adverse influences, and these influences do not act singly, they are apt to join their forces. Moreover, the man not only suffers himself, but as a direct and necessary consequence he injures, to a greater or less degree, all he comes in contact with, and his failure to help himself and his fellows is hardly less deplorable than the direct injury he does. All this is trite to the verge of truism. What is equally obvious, though less regarded, is the share which we as plant-growers have or ought to have in promoting the welfare of our fellow men. We feed them, we supply their wants in the house they live in, and in the clothes they wear. We furnish wholesome labour and healthful recreation. We only ask to be allowed further to do our share in securing to the community fresh air, pure water, uncontaminated soil. This brings us to the especial object we have in view in thus writing. From the period of its establishment till now the *Gardeners' Chronicle* has, when opportunity served, advocated the establishment of TOWN GARDENS, and published directions for their formation and management. Hitherto we have dealt with the subject chiefly from the point of view of the recreative needs of the community, but the time has now fully come when gardeners should take up higher ground, and enrol themselves among the band of sanitary reformers. They have the means of recognising the unwholesome character of any particular locality long before it comes under the notice of the doctor. Plants, speaking generally, are less long suffering than men—they hoist the signal of distress or vanish utterly long before the man is stricken down. On this account, then, their indications are most valuable. It may be Utopian to say that

a man should not live where a Rose will not grow, but the principle is sound, and the more closely it is acted up to the better it will be for every one. Again, if gardeners possess in the observation of plants a rough and ready, but none the less excellent, test of the healthiness of any locality, they also possess the means of counteracting unwholesome agencies, or of banishing them more or less completely.

With these views it is our intention to pass under review, from time to time, the provisions that have been or are being made in certain of our large towns to secure open spaces for the public use. Where men congregate, as in our towns, they defile the air in proportion to their numbers, apart from any noxious employment they may carry on, and apart from any special disease-germs or poison-vapours that may be imported from elsewhere or generated in their midst. Open spaces, if they do nothing else, secure the population against the evil effects of overcrowding, and serve to dilute and attenuate the inevitable air-pollution.

The first thing to do, then, is to secure open spaces before the opportunity for so doing is blocked by the energetic builder. Of course in all cases the larger the space the better, but we should hope, in the course of our inquiry, to be able to get at some opinion as to the actual average area of open space that should, as a matter of practice, wherever possible, be allotted to a definite number of people, and to form some opinion as to the relative advantages of larger areas as compared with more numerous spaces dispersed at intervals over the town. Circumstances would, of course, vary in different localities according to the nature of the site and the manufactures carried on. A small provincial town, for instance, with no specially noxious trade carried on in or near it, ought to be as healthy, and more so, than a detached hamlet in the heart of the country, destitute of the sanitary appliances which even our smaller towns now possess. In such a case it is clear that, so far as pure air is concerned, no large area need be set aside for open spaces, but only so much as will serve for recreative purposes. If it were possible to start afresh, and found a city of Hygeia, as advocated by Dr. RICHARDSON, or to build new cities as they do in America, there would be little doubt as to the general plan to be adopted to secure adequate open spaces, but as it is we are trammelled in all sorts of ways and have to make the best we can of existing conditions.

The space secured, the next question is, What shall be done with it? The answer to this depends almost entirely on the means at disposal and on the taste and good sense of the authorities or their delegates. Details, of course, must vary according to locality. The essentials are a sufficiency of trees, shrubs, flowers, grass, ample space for walks, for games, for shelter. The requirements of the old and feeble, of the infant as well as of the athlete, should be carefully provided for. The disposition of the planting should be efficient as regards shelter and utility, effective as regards ornamental character. There is no necessity, where means are scanty, to plant expensive trees and shrubs, or to indulge in elaborate styles of garden decoration. These are all very well in their way, and no doubt the poor highly appreciate them, but they are not primarily important, and public money would be better spent in extending and specially in multiplying open spaces than on elaborations of this kind. It is found in the case of museums and picture galleries that as soon as the good management of such institutions becomes evident, and their advantages appreciated, that donations in kind or in money may be expected; so we have no doubt it would be in the case of public gardens. Were these established by public funds and properly administered, private zeal and generosity might be called on to supply the purely ornamental details, the expenses of which it is hardly just to take from the pockets of the ratepayers.

It is with a view of calling public attention to the means at the disposal of the gardener as a sanitary reformer, and of eliciting practical opinions as to the best method of securing to our town-populations the advantages that the gardener can offer, if the chance is given him, that we purpose from time to time to allude to the provisions made in some of our cities to secure pure air and healthful recreation to their inhabitants. The information will be collected by our own special reporters, or by reliable correspondents who have kindly undertaken to aid us in this matter. A few typical illustrations will serve our purpose as well as a larger number, to which we should find it difficult to allot space.

In our present issue, at p. 590, we pass under notice the public parks and gardens of Newcastle-on-Tyne.

New Garden Plants.

SALVIA DISCOLOR, H. B. K.

IN the *Gardeners' Chronicle*, n.s., xix., p. 341, I identified a Salvia, exhibited by Mr. Cannell as Salvia nigricans, with S. mexicana var. minor of Bentham. I had only the drawing and a few flowers to guide me, but the species was so distinct from all others of which I had seen specimens that I had no doubt at the time of the correctness of my determination; yet I was certainly wrong, as a specimen sent to Kew by Mr. Lynch, of the Cambridge Botanic Garden, for a name, clearly shows. There is no specimen of S. discolor in Kew Herbarium, but Prof. Oliver and his assistants did not rest until they had succeeded in "running down" Mr. Lynch's plant, which was then handed to me to give me an opportunity to correct my blunder. S. discolor is figured and described by Kunth in Humboldt and Bonpland's *Nova Genera et Species Plantarum*, ii., p. 294, t. 146; and although the drawing of the inflorescence of the present plant at the places cited in the *Gardeners' Chronicle* strongly resembles S. mexicana, there can be no question of the identity of the living plant under observation with S. tricolor. S. discolor is of shrubby or half-shrubby nature and erect habit, with almost terete stems, entire ovate-oblong leaves on rather long petioles, and purple and black flowers in long terminal spikes. The stems and the upper surface of the leaves are covered with viscid glands, which secrete a very bitter principle. The petioles, the under surface of the leaves, and the calyces are clothed with a hoary pubescence, like the common Sage, which our plant is not unlike in odour. The tubular portion of the corolla, which is almost wholly concealed by the calyx, is of a dark purple colour, while the projecting lips are nearly black, or rather the violet-black such as one sees in some Pansies. I am not able to say anything respecting the general effect of the plant, because every flower had fallen from the stems sent by Mr. Lynch; but I should think it must be a very striking object. The cultivated plant differs only from the wild specimens described and figured in the work cited in being somewhat larger in all its parts, due to the greater vigour acquired under cultivation. Thus the largest leaves in the figure of S. discolor are represented about 3 inches long, whereas in the cultivated plant they are nearly 6 inches, and they do not taper quite so much towards the tip. In the *Gardeners' Chronicle* figure cited they are intermediate between the two in size. All the forms of S. mexicana have leaves much thinner in texture, and invariably more or less distinctly toothed, besides being more ovate or ovate-cordate in outline. In a wild state S. discolor is described as growing 2 or 3 feet high, but it will probably grow more than double that height under cultivation, for the specimen sent by Mr. Lynch measures 20 inches from the last pair of leaves to the tip of the flower-spike. When or by whom this handsome Salvia was introduced I am unable to say, and its degree of hardiness is likewise unknown to me; but on this point Mr. Lynch may be able to give some information. Humboldt records it as growing at an elevation of about 6000 feet in shady mountains of the Andes of Peru, in the lovely valley of the Guaneabamba River. I had almost forgotten to mention that the upper lip of the calyx is represented rather deeply bifid in the *Gardeners' Chronicle* figure—incorrectly I should say, because it is entire in the living plant and it is so described by Kunth; the lower lip, however, is slightly bifid. The upper lip, if split at all, would be trifid or three-toothed. *W. Botting Hemsley.*

ODONTOGLOSSUM PESCATOREI SCHRODERIANUM, *n. var.*

This fine variety was imported and grown by Mr. Sander, of St. Albans, and brought under Messrs. Protheroe & Morris' hammer the other day in full flower and with four growths. Messrs. J. Veitch & Sons secured it for 70 guineas, and it is now enthroned in the collection of Baron von Schrœder, at The Dell, where is also the type of Odontoglossum Pescatorei Veitchianum, so that in the Baron's collection there are to be found the rarest and best Pescatorei known as yet in the world.

I learn a great excitement arose at those rooms, as is not seldom the case. The name Pescatorei Veitchianum was declared wrong. I have been honoured with the invitation to act act as arbiter, and if ever I could do so I can do so now, having before me the exceedingly well preserved dried type and a carefully prepared sketch in water colours of Pescatorei Veitchianum.

I am in the very agreeable position to say "both parties are right.". If we assign to Pescatorei Veitchianum the character of having bands and blotches of purple-mauve colour on the sepals and petals, as a botanist would prefer to do, then Mr. F. Sander's naming is right. If, however, we regard the narrow sphere that is given now-a-days to varieties, then we may as well distinguish the fresh plant adorning it with Baron von Schrœder's name. The former one had pure mauve bands and blotches, reaching further towards the ends of sepals and petals; the new one has them more purple and not reaching so far.

For the moment the question may be regarded as settled. We may, however, expect Mr. F. Sander taking a different view, by bringing forward a third plant intermediate between the two and connecting both. *H. G. Rchb. f.*

MASDEVALLIA BREVIS, *n. sp.**

Messrs. J. Veitch & Sons have sent me a specimen of this new introduction from British Guiana. It is of great botanical interest to see this variation from the well-known types of Masdevallia ochthodes and macrodactyla. The present plant is far more slender, the leaf is smaller, the flower shorter, and the lateral pair sepals quite ventricose. The upper sepal is of fine yellow, with three rows of dark purple spots, the thick tail dark purple. The lateral sepals are divided into unequal halves by the lemon coloured keels running over the median nerves, prolonged into the lemon coloured, slender, long, subulate tails. The anterior superior area is orange with purple, the other three quarters are brown. The irregular rhomboid petals are characterised by an inflexed apiculus. Colour yellowish and brown. The long narrow lip has a distinct stalk and a pandurate blade, whose anterior part is neatly fimbriate, as well as the anterior parts of the blade above and which bears two fimbriate crests. *H. G. Rchb. f.*

ROSES ON TWEEDSIDE, BERWICKSHIRE.—To-day we have cut a charming bouquet of Roses composed of Prince Camille de Rohan, Annie Wood, Souvenir de la Malmaison, and Victor Verdier. Besides these there are still blooms of Captain Christy, Marquise de Gibot, and Duchesse de Caylus, but not very fine; and Reynolds Hole, Pierre Notting, and Monsieur Noman show a wealth of buds which, however, mildew at the stalks and rot off without opening out. November gave us a taste of the "drear and surly blast" yesterday, which stripped many of the trees of their lovely covering of various tinted leaves. *T.*

* *Masdevallia brevis*, n. sp.—Aff. Masdevalliæ ochthodi, Rchb., f., sed omnino gracilior: folio cuneato oblongo obtuse acuto; pedunculo gracili racemoso; flore brevi; sepalo impari galeato triangulo in caudam crassam longiorem extenso; sepalis lateralibus navicularibus conoatis, supra nervum medium carinatis, in caudas subulatas acuminatas extensis; tepalis obtusato-rhombeis irregularibus, apiculo inflexo; labello unguiculato anguste pandurato, partitione antica fimbriata, superiori etiam antice fimbriata utrinque fimbriato-carinata; columnæ alis subablongis minute lobulatis. Ex Demerara imp. cl. Veitch. *H. G. Rchb. f.*

A BELGIAN GARDEN.

The garden of which we give a plan (fig. 103) affords a good illustration of the way in which, in the hands of a competent landscape-gardener, the disadvantages of site and surroundings may be overcome. The garden was laid out by M. Burvenich, of Ghent, on the estate of Mr. Eug. Beaudoux, the owner of coloured glass-work manufactories at Jumet, Hainaut. The garden has an extent of 96 ares (1 are = 119.6 square yards), and it is situated in the picturesque valley of the "Hameau des Hamendes." The culminating points are, one at the entrance, the other at the pavilion. The elegant residence is built in the valley. This position, at first sight, may appear strange, but it is not without an object. The approaches are carefully concealed, as the vicinity is in no way alluring. The traffic of the heavy waggons on roads covered with ashes and waste of furnaces, raises clouds of dust, the speciality of the environs of the city of Charleroi. Thus, the house could not be built near the entrance. M. Burvenich resisted the proposal to build the mansion on the site now occupied by the summer-house, already narrow enough, as the garden would then have been crossed from one end to the other by the carriage-road leading to the mansion. Besides, the more you advance to the further end of the garden the nearer you approach the glass manufactories. It must also be borne in mind that the lower parts of the garden are about 7 feet higher than the southern levels which surround them.

The railway passes at the southern limit of the property. Then the water line in that locality is at least 6 feet below the lowest level of the ground; and the stream, being in the remotest part of the garden, runs through a deeply excavated channel, the banks of which run down in a very deep slope towards the summer-house; its current is provided for by the numerous declivities of the ground.

The soil is fertile and argillaceous, but too stiff. At this spot cultivation becomes possible. We are here just outside the coalfields of the Bassin de Charleroi. Where the schist abounds the dusty smoke, the sulphureous emanations from the glass-houses, and the *débris* of the manufactories of that little Newcastle render cultivation difficult.

The garden is planted with a very varied choice of shrubs and trees, but with very few Conifers. Only the Taxus and deciduous Coniferæ, such as Larix and Taxodium distichum, can be grown here.

The projected pavilion has not been executed; the owner preferred to supply its place by a sample of his rich and magnificent industry, in the shape of a very fine kiosk of coloured glass, which was much admired at the National Exhibition at Brussels in 1880. The view from the north-east and western side is unattractive, the neighbourhood being flat and monotonous; but from the southern side, light piercing through the trees shows a large undulating landscape; and in the distance the imposing prospect of manufactories, coal-pits, glassworks, and foundries—a hundred little craters spluttering out their blazing fires on the black horizon.

The inhabitants are as proud of that spectacle as the Swiss are of their mountains and the Flemish of their monotonous but fertile fields. The stranger is especially struck by that feverish bustle of life which characterises the locality, and is going on night and day. Nowhere accordingly does a beautiful garden well designed with plantations elegantly arranged at a great expense afford more delight to the owner than in such a district.

Before the mansion extends a regular elliptic lawn, the whole set of which has been treated after the same manner. A basin of the Italian Renaissance style in cement, better known under the name of "Miroirs Louis XV.," is fed by an elegant wheatsheaf jet. At each extremity of the lawn are two mosaic beds and four globes, formed of Taxus baccata aurea. The remaining part is treated naturally, and, as may be seen upon the plan, the walks afford the double enjoyment of shade and variety.

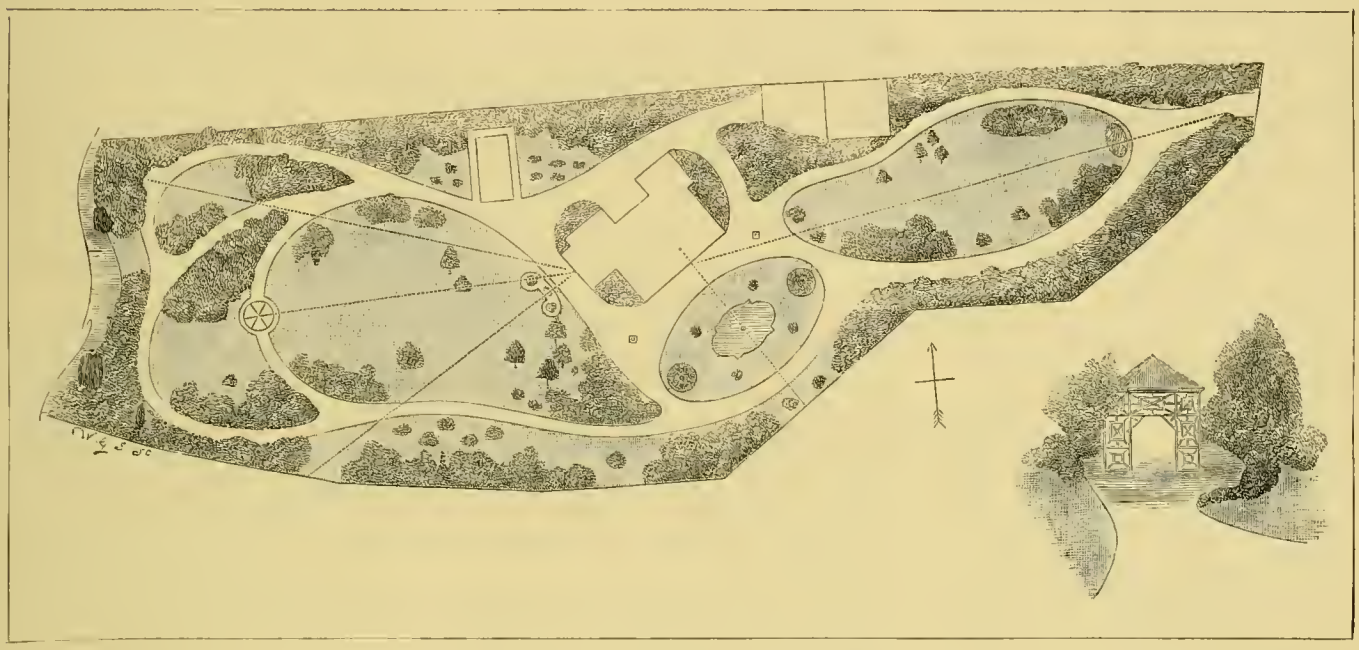

Fig. 103.—Plan of a garden near Charleroi.

THE FENHAM NURSERIES.

A small hamlet a few miles to the west of Newcastle-on-Tyne, lying high and exposed, should be a suitable place to obtain hardy, enduring trees and shrubs, plants that will be well able to carry themselves safely through the rigours of a Northern winter. Keeping the climatic influences firmly in view, there is but little to be found here that can be called half-hardy or tender. In fruits there is a total absence of Peaches, Apricots, Necarines, or Figs, in the open quarters, such as may be seen in the nurseries further south. It is only on walls that such trees are grown and trained for sale, and then only to a small extent. Hardier fruits of all kinds, and in considerable variety, are grown in the sheltered breaks, surrounded by tall hedges that intersect the nursery in all parts. Such-like stock was looking uncommonly well at the time of my visit, being robust in wood, and very healthy in foliage. The season had been exceptionally warm and dry, so much so indeed, that in a neighbouring garden the red-spider had quite denuded pyramidal Apple trees of their leaves, and, although it was only the month of August, the trees had a winter aspect.

Forest stuff and deciduous shrubs take up a large portion of the nursery. Poplars are largely grown, chiefly P. canadensis, this being one of the trees that are much used in town parks, street planting, and town gardening generally. It seems to have the ability to withstand, with but the minimum of injury, the injurious gases of the large manufacturing towns. It forms also one of the best shelter trees on exposed sites. The Elders are much grown here, especially the golden leaved sort, and for much the same reason that makes the Poplar so useful. Several cut-leaved varieties were seen, among them a sort with finely dissected leaves edged with silver is being quickly propagated for sale. These Elders are usually cut down to the ground every year or two, and thus are made to form pretty round-headed or pyramidal bushes as the case may be. Of Hollies there are many varieties grown, and several varieties of Retinosporas, Thuias, and Conifers generally, for ornamental garden planting. These plants seemed to be doing very well, and were exceedingly healthy in foliage—a proof that the soil suited their requirements, and that they were too far from the smoke to be affected by it.

The old kitchen garden of Fenham Hall is now a part of Mr. Watson's nursery, and is devoted to the growing of herbaceous plants and the younger portion of the general nursery stock. The walls surrounding this old garden, which are high and in tolerable order, are utilised for the training of fruit trees, and some wall and creeping plants. It is seldom a forest tree is seen doing duty as a wall trailer, but such is the case here with Salisburia adiantifolia, which is trained to the wall of a cottage in the nursery, and that, judging from the peculiarity of its habit, has been raised from a cutting.

Roses seem greatly in demand, and receive accordingly much attention at Mr. Watson's hands. The quarters filled with maidens and cutback stock, although these were making less growth than one is used to seeing in warmer localities, were very vigorous, stocky, and at the time wonderfully free from mildew.

The general impression of the visitor is, that this is a place which is kept well abreast of the requirements of the day, having regard to locality and climate, and that only plants of proved hardiness and general usefulness meet with much favour at Fenham Nursery. *M.*

*

NEWCASTLE PARKS AND GARDENS.

Newcastle-on-Tyne now comprises within its boundaries several villages and hamlets that were a generation since without the city limits. In consequence of the rapid growth which has followed on the development of the mining, manufacturing, and shipping industries these places have been gradually absorbed. The population is upwards of 147,000; the death-rate per thousand for 1882 was twenty-three, the average for fifteen years, from 1868 to 1882, being 25·4. Zymotic diseases, or those which are more or less preventible by sanitary measures, occasioned last year a mortality of 3.9 per thousand of the population—a rather larger proportion than usual. It is interesting to see from the map attached to the health officer's report that the prevalence of these disorders was, on the whole, decidedly less in immediate proximity to the open spaces than elsewhere. The mean temperature is given as 48°.9; that of the first quarter as 44°.3; of the second, 50°.9; of the third, 57°.2; and of the fourth, 43°.1. The total rainfall for 1882 was 2.83 inches for the first quarter; 8 inches for the second; 7.23 inches for the third; and 10.48 inches for the fourth quarter; for or the whole year, 28.55 inches. Of course, that part of the population engaged in manual labour is greatly in the majority, and, having comparatively limited incomes on which to subsist, the demand has arisen for a class of houses, the rent of which will not make too heavy a demand on their means. Therefore, in the suburbs, and in that encircling belt of new dwellings round the nucleus of the old town, small houses of from six to ten rooms abound. These are arranged generally in wide streets, which in most parts are paved throughout; the roadway with boulders, the side paths with flags, and sometimes smaller boulders on each side of the flagged portion. As many of these streets ascend the steep acclivities which stretch up from the Tyne side to the country beyond the drainage will doubtless be efficient and the exit rapid; the more need, therefore, to pave the streets in that thorough manner generally seen. The width in many of these breezy streets is as much as 40 yards, in many also much less.

Open places abound, especially in the western and northern portions of the town, such as burying grounds and gardens held in common by a whole street, surrounded by walls, in which the householder can cultivate within certain stipulated limits what he fancies. These abound with smallish trees, fruit and other, forming excellent private playgrounds for the children of that particular street. One of these is at the least 300 yards long by 80 yards in width.

The total area of open space to which the inhabitants have free access is, as we learn from the courtesy of Mr. Armstrong, the medical officer of health, 1268 acres—almost one-fourth of the entire city, and at the rate of 1 acre to every 114 persons; an amount probably unequalled in any other large city. Excepting the district of Byker and some parts of the old town, the people are nowhere so closely housed as, for instance, in Bermondsey or Lambeth.

The Town Moor. — For generations the Town Moor, a large open space on the north-west, has been the recreation-place of the town, and it was only after much persistent advocacy that the town authorities were induced to make the first small park in the town suburbs, so that the inhabitants could enjoy the sights and fragrance of trees and flowers, and more pleasing surroundings, than were possible on the old moor of 1100 acres. The day may not be far distant when, owing to the growth of the town, and possibly to the impracticability of growing anything in the neighbourhood, the moor will be partially treated as a park, reserving a large portion of the wild part just as it has been for centuries.

The Leazes.—The first-made, and certainly one of the pleasantest and enjoyable of these parks, is the Leazes, or, more correctly, the Castle Leazes, which was opened in the year 1873. It is a long narrow area extending from north to south, and has been slightly extended on several occasions, till it now includes within its boundary 35 acres of comparatively level land, which has been laid out by the present superintendent, Mr. Wilson, under the direction of the Town Council, at a cost of £3000. The confines are well masked with vigorous young trees and shrubs, which will in time shut out much of the view of houses and chimney stacks that are now conspicuous in the immediate neighbourhood, and also at a distance. Winding walks, just intricate enough to lend variety without being puzzling, lead between groups and belts of shrubs and trees, of common and flowering kinds, chiefly Thorns, varieties of Elder, many of which are of the golden-leaved kind; Willow, Poplar, and Lilac. These groups, except in the least frequented parts of the park, are bordered with flowering plants of an annual character mostly—Clarkias, Venus' Looking-glass, Asters, Stocks, Lupins, Foxgloves, Gladioli of commoner sorts, Saponaria, Marigolds, and Silenes being the sorts mostly used, although bedding Pansies, Pelargoniums, Calceolarias, and Verbenas are seen here and there. But the annuals give the charm to these borders, being exceedingly bright and cheerful looking, without that elaborate stiffness and primness we are accustomed to see in the London parks. The best things amongst the flowers last autumn were Nasturtium Her Majesty, a free, dwarf, most floriferous scarlet, that is used by every one who has a garden; and Calceolaria Bothwelliana, a capital free flowering yellow not much known in the South.

Bowls being the popular game among rich and poor, the designer had to make provision for it, and so that many parties could engage in play at the same time; and altogether there are three capital level well turfed lawns, slightly sunk below the surrounding level; and one lawn tennis ground. These are each pleasantly surrounded, on three sides at least, by a nice broad path of asphalte, a grass verge on either hand, then the encircling shrubbery with its foreground of flowers. There is a pretty piece of water with an island of rock formation, on which Willows and other trees and shrubs are thriving and healthy. The bank of this lake, which may be 600 yards round is embanked with unhewn stone, and grass margined, and therefore is too artificial-looking, and is not improved by a pendent chain of an ornamental character running round it — perhaps to keep the Newcastle babies from falling into the water. There seemed to be an almost total absence of water-loving plants in the lake, so that its artificiality was excessively conspicuous. It may be taken for granted that where the air is sufficiently pure for trees to flourish, water plants will also grow satisfactorily. The level of this park being a "hanging one," advantage was taken to erect a terrace of stone, balustraded, gravelled, and furnished with steps. One naturally looks for some imposing building, to which the terrace is the base, but here, as in all the town parks —and there are terraces in all of them but one—the ostensible reason for an architectural terrace is conspicuous by its absence. From here a fine view is had of the surrounding country, and of the park itself. Under the walls of this terrace is a wide border of hybrid Rhododendrons interspersed with Digitalis, Aconites, Gladioli, and Lilies; in front of this are some rectangular and circular flower beds, alternately, then a broad walk, and further down the slope a band-stand, and a wretched terra-cotta fountain, to act as a balancing object evidently to the latter. Here, as in all the parks, is an aviary, with some common birds, which are doubtless as great delights to the town children as they would be in the heart of London. This is certainly the best kept and most tastefully arranged of all the places of recreation belonging to the town, and is evidently the work of one who, while having to cater for the particular fancies of the visitors, has a good eye for the beautiful and the pleasing in landscape and garden embellishment.

Elswick Park is at the south-western side of the town, just above the foundry and works of Sir W. Armstrong, and in the neighbourhood of an extensive chemical factory, whose poisonous fumes are decidedly injurious to all vegetation within half a mile. In some senses, then, this park is specially well placed. This rectangular piece of ground was formerly the garden and pleasure grounds of Elswick Hall, which were sold entire by Christian Alhuesen, Esq., to the Newcastle Corporation. The extent of it is only 8½ acres, abutting on the Westmoreland Road, surrounded on three sides by roads and terraces of houses, being bounded partly by the old walls of the place, and in part by iron palisading. The entrance in the Westmoreland Road is by one of the old lodges. The old mansion, a plain building of stone, has been converted into a depository of the Lough and Noble plaster-casts of busts of county worthies and others, and of other groups and subjects, many of which have become famous, in marble. These gardens, which are a favourite resort of all classes in the locality, are perforce laid out in terraced fashion, and overlook the beautiful scenery of the Derwent and the Leam valleys, and other parts of the county of Durham, which lies like an enormous amphitheatre to the south and south-west.

The first or upper terrace is laid out chiefly in turf, and is utilised for bowls; the next terrace is more architecturally treated, having a balustraded front wall, a birds' house, and shelters from the rain provided with seats. Good masses of rock—of which fortunately Newcastle has abundance—fill up what would otherwise be unsightly angles, and bare banks are seen in three or four different parts of the grounds. These are planted chiefly with Saxifrages and common rock plants. On a lower terrace stands the old mansion, right and left of which are groups of trees, mostly Beeches, most of them showing signs of soon succumbing to the poisonous fumes of the chemical works below, which will in fact annihilate trees, shrubs, and most other kinds of vegetation. On a still lower terrace, backed with a semicircular shrubbery and flower border, is a large piece of lawn of a half-moon shape, laid out with flower-beds, and a long border following the line of the walk. The beds and borders were filled with Petunias, Nasturtiums, Pelargoniums of the more robust sections, Calceolarias, Perillas, Lobelias, annuals hardy and tender; looking at the time of my visit fairly well, in view of the exposed bleak position and the inimical odours and gases of the quarter. Below this garden, partly hidden by great natural rocks and shrubs, was a piece of water of an irregular shape. Here shrubs grew quite luxuriantly for Newcastle; further down still was a young plantation, formed with the intention doubtless of hiding the terrace of houses from view. Walks of easy gradients are carried all about the place, and level ones on the terraces.

The place is charmingly situated, is very enjoyable, and a great boon to the immediate neighbourhood, so that it would be a pity should circumstances hinder its continued maintenance as a place of resort.

Brandling Park, an enclosure of 4½ acres, was formerly a place for shooting rubbish, and in consequence a danger and a nuisance to the adjoining neighbourhood. It has now for several years been turned into a pleasant promenade and place for the favourite game. Under the auspices of the Town Council, ably assisted by the superintendent of the Leazes Park, the garden has been quickly made and furnished. The many Thorns, Syringas, and numerous other flowering shrubs, have grown into fine healthy specimens, that will soon be large enough to furnish shade to the frequenters. A large bowling-green, accurately levelled, and bounded with a low turf bank to prevent the balls straying, occupies the middle portion of the garden. A walk encircles the place, and several cross-paths connect with the opposite side. A little piece of water with some waterfowl, and borders full of very gay flowers, many of them annuals, completes the furnishing of what is quite a gem in an ocean of dirt and coal-dust. Houses surround it, and the shape is a long oblong, but the planting has been so managed and well grouped that the visitor has not much idea either of its form or of its size.

The Jesmond Dene, a picturesque dell, with a brawling stream flowing over a rocky bed at its deepest part, will eventually be made the most charming of all the resorts of the Newcastle people. It is at the present moment the private property of Sir W. Armstrong, who admits the public on one day in the week, but the public-spirited baronet, to whom the town is so much indebted for a great deal of its present prosperity, intends shortly handing it over, conditionally, to the town authorities, together with some additional adjoining lands and house property, so as in a degree to make the place self supporting. Entering the dell by the gardener's house, the descent is soon made, past a spacious banqueting pavilion, to the broad path which skirts a wall of rock, covered with Saxifrages in great masses and of many varieties, intermixed with which are even greater masses of various kinds of Ivies. This walk may range from 40 to 60 feet above the stream that flows beneath. Trees are scattered over the dell in promiscuous wildness, chiefly of common deciduous kinds, at some more open spots relieved by groups of Thuia, Silver and common Spruce. The walk above mentioned leads by devious windings to a water-mill, now useless, except for its effect, as a

picturesque object, for the water flows many feet below it; the bed of the stream having been lowered from above the mill to a considerable distance. Here the stream is crossed by a single arch of light elegant appearance, which has evidently been constructed of the stone dug up in deepening the burn. On crossing this a great mass of sandstone is left on the left-hand, through which a path descends, passing a half-hidden pool, down to a ford across the water. On reaching the other side of the bridge the bank is much less steep and rocky, allowing of a more diversified style of planting. Here were found great masses of Hedera caenwoodensis, many yards square; H. aurea variegata, several kinds of Vincas, great patches of Pernettya mucronata which bloom and berry finely, Ericas, and Menziesias in many varieties form great colonies, looking quite as if they were indigenous to the place; enormous growths of Spiræa Ulmaria, S. sorbifolia, Bog Beans, Coltsfoot, and great Equisetums luxuriate in the boggy land near the stream. A fine Rubus, whose light mauve flowers made it a very conspicuous object, was met with in quantity in the undergrowth in damp places. On the banks, in some spots, Gaultheria Shallon was growing away vigorously; and in others Andromedas, Dielytra formosa, Berberis Darwinii, and B. stenophylla. The soil here being rather thin and stony, the plants made short growth and grew less luxuriantly than those on the opposite hand in the boggy soil down the slope. The intention had evidently been to copy Nature in her methods of plant arrangements, with results particularly pleasing to an observer surfeited with the formality too often seen in gardens. The things had been planted with care, they were adapted to the climate and to the locality, and were meddled with as little as possible afterwards, beyond keeping them within bounds and free from weeds. The walk continues onwards, passing under an enormous iron viaduct, that stretches right across the dene. This was built at Sir W. Armstrong's expense for the convenience of the traffic, which formerly had to make a long *détour*, and by a road almost impassable in the winter season.

Armstrong Park.—A short distance beyond this viaduct a lodge is reached, by which the Armstrong Park is entered—a portion of the property which has been in the possession of the town for several years. The dene widens out here considerably, but has still sharp descents in places. Where the configuration of the ground was favourable some attempts have been made to form flower parterres and borders of shrubs and foregrounds of flowers, but it cannot be said that they have been successful, at any rate the impression one receives after passing out of the dene is not altogether one of pleasure. The efforts of the designers have certainly received a misdirection, much of the undergrowth, whatever it was, having been cut away, and nothing but puny shrubs and herbaceous plants put in its place; and the trees being here meagre and stunted, although old, have an unsightly look, much of which, had the undergrowth remained, would have been hidden from view. The flower garden part proper has its inevitable terrace, of rather pretentious dimensions, but which supports nothing better than an aviary, a refreshment stall, and a shelter from the weather. The terrace has a broad border of bedding plants in the front that looked very gay for the end of the month of August.

Nearly 2 acres of lawn facing this border was taken up by two bowling lawns, divided from each other by a broad walk. The means secured to the public to watch the games were well devised, as high ground surrounds the lawns on all sides but one. Masses of shrubs surround the whole of these, borders and banks of flowers, both on the slopes and on the level, lend a glow of colour grateful to the eye.

This park of 50 acres, formerly a part of the demesne of Heaton Hall, abutting as it does on a neighbourhood called Byker, abounding with factories and workshops, is a great boon to the weary workers at grimy trades. Here they can wander on Sundays and holidays under the shade of the trees, and breathe an atmosphere comparatively pure. Byker is to Newcastle what Bethnal Green and Whitechapel are to London, and the Armstrong Park is the lung.

Much remains to be done ere the work can be said to be completed, but with so energetic a Corporation as that of Newcastle a very few years should see its consummation.

The statistical data we have quoted in this article are taken from the Report of the Medical Officer of Health for 1882. This document is not only elaborate, but it is so carefully drawn up that it is a veritable scientific treatise.

THE TRUE CHRISTMAS ROSE.

(Helleborus niger angustifolius.)

The history of this most beautiful of all the Hellebores is even more obscure than that of H. niger altifolius, which formed the subject of my last communication (p. 527). From several letters received I am glad to find the conclusions I arrived at on that subject have met with general acceptance. The late Miss F. J. Hope, of Wardie Lodge, brought the Scotch variety of H. niger angustifolius into notice in the *Gardeners' Chronicle*, January 22, 1876 (Mr. MacNab, of the Edinburgh Botanic Garden, had identified the plant as entitled to this name). "It is," she wrote, "a most desirable variety, and one which, owing to the time at which it flowers, is more useful even than Helleborus maximus, coming in as it does at least two months later than that kind, and with me a little earlier than H. niger. . . . That it is a strong grower is proved by the reserve beds of it being taken by a good judge of Christmas Roses for those of H. maximus. In another part of the garden, however, where the two sorts grow side by side H. angustifolius could never be mistaken for either H. maximus or H. niger. . . . It has large white flowers, tinged on the back with rose. . . . Its flower-stalks, which bear two or three flowers on each, are comparatively tall and stout. It is a very free flowerer, and ripens its seed."

It is a curious fact that this valuable Hellebore should have almost passed out of notice by the public, and altogether so by the professional gardener, only to be thus casually reintroduced by the identification of Mr. MacNab.

On applying to Messrs. Backhouse, of York (who offered it in their catalogue), as to the origin of the name angustifolius they replied that they could not give any further explanation except that they received the plants originally under that name from Mr. MacNab after Miss Hope had drawn attention to it. In the *Hortus Cantabridgensis*, edition 1845, p. 379, the name occurs, the plant being then grown in the Cambridge Botanic Garden. It is entered as "Helleborus niger β angustifolius, the narrow-leaved Hellebore, white," but the columns in which its native habitat and the date of its introduction should have been recorded are left blank. Mr. Lynch, the present Curator, informs me that it is not now in the gardens, and that he cannot trace any early records of it.

Johnson's *Gardeners' Dictionary* has "H. niger angustifolius (narrow-leaved), pink, March, Austria, 1596." Perhaps its present Editor can tell us whence this information was obtained. I have searched in vain for the plant in the Austrian Floras. There is H. angustifolius (Host), plate ciii., Reichenbach's *Icones Floræ Germa. et Helveta.*, but this is one of the green-flowered Hellebores, its synonyms being H. Bocconi and multifidus. It is possible enough that we may find in Austria the native habitat, but it is by no means an ascertained fact, so far as I have been able to learn. Herr Gusmus has, in his *Alpenflora Katalog*, "H. niger v. laciniatus," which may possibly be the plant. I have written to ask him for a leaf of it. I have, however, come to the conclusion that this Hellebore was introduced into England quite as early as 1596, the date given, as above stated, in Johnson's *Gard. Dict.*, and I believe it has been grown in this neighbourhood down to the present time. It is curious how one naturally turns to Parkinson's *Paradisus* and Gerard's *Herbal* for the early record of our garden favourites, and here again we find a full description of the plant in the former, and a capital plate of it in the latter, thus carrying us back to Queen Elizabeth's reign.

"There are three sorts of black Hellebor," writes Parkinson (*Paradisus*, c. 81). "One that is the true and right kinde, whose flowers have the most beautiful aspect, and the time of his flowering most rare, that is, in the deep of winter, about Christmas, when no other can be seen upon the ground. . . . The true black Hellebor hath many fair green leaves, rising from the root, each of them standing on a thick, round, fleshly, stiffe green stalk, about a hand-breadth high from the ground, divided into seven, eight, or nine pairs of leaves, and each of them nicked, or dented, from the middle of the leaf to the pointward on both sides, abiding all the winter, at which time the flowers rise up, on such short thick stalks as the leaves stand on, every one by itself, without any leaf thereon for the most part, or very seldom having one small short leaf, not much under the flower, and very little higher than the leaves themselves (the flower), consisting of five broad white leaves, like unto a great white single Rose (which sometimes change to be either less or more purple at the edges, as the weather or time of continuance doth effect, with many pale yellow thrummes in the middle, standing about a green head, which after groweth to have divers cods set together, pointed at the ends like hornes . . . It groweth in the gardens of those that are curious and delight in all sorts of beautifull flowers in our country, but wilde in many places of Germany, Italy, Greece, &c. . . . It flowers in the end of December and beginning of January. It is called the Helleborus niger verus. We call it in England true black Hellebore or the Christmas flower, because it is commonly in flower at or before Christmas."

The woodcut in Parkinson gives a bud, flower, and two leaves, all cut off short (2d ed., 1656).

In Gerard's *Herbal* (Johnson's edition, 1633), p. 976, there is an excellent illustration of this Hellebore, evidently drawn from a living specimen, and which shows all the distinctive features in root, leaf, petiole, and flowers. By comparing it with the illustration of H. niger in *Bot. Mag.*, vol. i., pl. 8, the differences are at once evident. Gerard's plate exactly represents H. angustifolius. The description is not so full as in Parkinson, and appears to have been partly copied from that author's; but of the root he more specifically says, "the roots are many, with long black strings coming from one head;" which is a distinctive difference in this variety as compared with the ordinary form of the root of H. niger.

Gerard says:—"In high Dutch it is called Christ's-wurtz—that is, Christ's-herbe, or Christmas herbe—and in low Dutch Maylich kerst crupt, and that because it flowereth about the birth of Jesus Christ." Curiously, however, the first edition os Gerard contains a very different illustration of this plant, and one entirely unlike it in every particular.

We are told by Johnson, in his address to the courteous reader of his new edition, that the plates of the first edition were not engraved especially for that work, but were obtained by Mr. Norton, the printer, from several sources. Many of them had been used in the German *Herbal* of Tabernaemontanus, printed at Frankfort in 1588. In Johnson's new edition very many additions and emendations were carried out, and the new matter by Johnson was marked in the body of the text, there being also a full catalogue of additions, in which F stands for figure, and D description.

Now although a new woodcut is substituted for the former one of H. niger verus, there is neither the mark which would attribute it to Johnson, nor is it catalogued in his additions; we therefore conclude that the whole chapter on Hellebores, and the new illustrations, are entirely as Gerard left them amended for any future edition of his work.

Mr. Baker, of Kew, has very kindly compared this plate with the German *Kreuterbuch* of Tabernaemontanus, and has ascertained that the two are entirely different. It is thus pretty clear that the plate is Gerard's own, and that it was a new one made specially for this work

Gerard had a large garden in Holborn, wherein were grown over 1000 species of plants. He devoted twenty years of his life to botanical pursuits, and was the means of introducing many new plants into England. It is thus that the date 1596 so frequently occurs in our records of plant history. His was the earliest botanic garden. He was a much better botanist than a scholar. He drew up a full catalogue of his plants in 1596 and 1599, and these are fortunately preserved in the British Museum. To make quite sure that Gerard grew the plant, I wrote to the British Museum requesting that reference might be made to these catalogues, and received a very courteous reply from the Chief Librarian, as follows:—"'Helleborus niger verus, and Helleborus niger alter,' are given at p. 8 of the list contained in the 'Catalogus arborum, fruticum, et plantarum tam indigenarum quam exoticarum, in horto Johannis Gerardi, Londini, 1596.'" I think we may, therefore, fairly conclude that H. niger angustifolius, under the name of H. niger verus, the true Christmas Rose, was thus growing in Gerard's garden during the reign of Queen Elizabeth.

John Gerard was a Cheshire man—born in Nantwich in 1545. Mr. Sutton, Chief Librarian at our Manchester Free Reference Library, tells me that he recollects of Gerard's writings that he frequently refers to his "garden in Cheshire," as well as to that in Holborn near to London, and also that our local

botanists have been struck by the completeness of his knowledge of Cheshire plants, showing that he cultivated his botanical pursuits in his native county. What, then, more likely than that he should either have been the means of introducing this true Christmas Rose into Cheshire, or that, if it were already there (which is by no means improbable), that he should have become acquainted with it in one of his visits to his kinsfolk at Nantwich?

I have lately been endeavouring to ascertain how long this plant has been grown in our neighbourhood, and have found one gardener who has cultivated it for twenty-two years; another who has known or grown it for thirty-two years; and an old man—a retired gardener—who can recollect it for fifty years, during all which period it was grown in his own and his father's gardens. He says that even then it was a common plant in all the gardens round. This Hellebore likes a light soil, and it abounds with us on what were formerly old moors to the south of Manchester, on the borders of Cheshire — Barlow Moor, Sale Moor, and Baguley Moor. In gardens on these it thrives and abounds. It is common all over Cheshire, and appears to have all been propagated by divisions, as it is always alike. It is largely grown for cut flowers, which sell readily in winter, and there are many gardeners who live by this plant almost entirely.

Its stalks and petioles are purely green, without any purple mottling. It has narrow leaves; its flowers are of the purest white. There is a slight shade of pink in the buds, but it passes away as the flower expands. Whilst H. altifolius has a pinkish tint of white, which deepens in colour at the margins of the sepals, H. angustifolius has a greenish hue of white, with a green centre, like the flower of Eucharis amazonica. It is exceedingly floriferous, and has a compact habit of growth. In early winter the leafage completely covers over the plant, but as the buds are lifted up the leaves gradually fall around, so that the flowers may have room, and they thus fill up the centre with a mass of white blossoms of the greatest purity and beauty. They are at their best from the middle of December to the middle of January, and are thus indeed true Christmas Roses.

The Scotch variety is not nearly so free from colour, the petioles and flower-stalks having each a slight pink mottling, which also shows in the leafage. The flower was also described by Miss Hope as "large white flowers tinged on the back with rose." I have obtained a large plant of this variety from Messrs. Backhouse, of York, and by the kindness of my Edinburgh friends a fine plant has also reached me from the Wardie Lodge garden. I have not yet seen it in bloom.

There is a third variety, which is well known from frequent mention of it in the columns of the *Garden* as being grown in great perfection on the Hill of Howth. This appears to be very similar to the Brockhurst variety, and was obtained originally by Mrs. Laurenson from an old garden in Kildare, where it had been grown for at least thirty years. It does not appear to have existed anywhere else in Ireland.

I am indebted to Mr. Burbidge and "St. Bridgid" for a fine plant of this variety; and, so far as I can yet see, there is no difference in the leafage from the plants which abound here. I have never seen it in flower. It was figured by "F. W. B." in the *Garden* of March 24, 1883, as "H. niger angustifolius—St. Bridgid's Christmas Rose." Mr. Burbidge proposes to give the plant the latter name in the future. If it should prove, as he states, that it is a new variety, he may with perfect propriety give it a name, and that an Irish one; but if it should turn out to be the same as old Gerard's variety, surely even St. Bridgid would hesitate before giving her name to "Christ's-herbe, the true Christmas Rose." Mr. Barr is growing all these three varieties side by side at Tooting, for which purpose I sent him one of my large plants some weeks ago. The same is being done here, and we shall thus be able to compare the varieties when in bloom. I hope there will be no attempt made to rob this grand old plant of the name given to it by our dear old masters Parkinson and Gerard—the True Christmas Rose.

Wm. Brockbank, Brockhurst, Didsbury, November 3.

TRADE MEMORANDUM.

Enquiries are being made for the address of Mr. A. J. Curtis, who lately traded under the name of A. J. Curtis & Co., at 45, Lower Essex Street, and Laxey Cottage, Nechells, Birmingham.

—— We are sorry again to have to caution gardeners seeking situations against the wiles of so-called agents, who, under pretence of gaining them occupation, fleece them of postage-stamps and small sums of money. No less than three such instances, all emanating from the same source (a man unfavourably known to us under more than one name, and whose letters are dated from more than one address), have come under our notice this week. We would also warn them against sending their testimonials to such men.

THE GERMINATION OF SEEDS.

Dr. Sturtevant, the Director of the New York Agricultural Experimental Station, reports that:—

It early came to our attention that seeds which responded well to the test for vitality in the germinating apparatus did not equally respond under circumstances of garden planting. Hence a few investigations have been made, in order to decide what relation might exist between the germinating and the vegetating power. By germination we mean a vitality in the seed sufficient to put forth the radicle. By vegetation, in our tests, we mean that vitality which enables the seed planted under the favourable conditions of a testing apparatus to form the cotyledons, or seed-leaves.

Thus far we have found no constant relation between the percentage of seeds which germinate and those which vegetate. In some exceptional cases seed which gave 100 per cent. of germination were unable to vegetate a single plant. These exceptional differences were, however, found only in the case of some seed which required quite an extended period for vegetation, and, therefore, was more subjected to accident than other seeds whose habit was to vegetate more quickly. In the case of Cauliflowers our best result was 98 per cent. germination, and 96 per cent. vegetation while the poorest result gave 87 per cent. for germination, and 24 per cent. for vegetation. In general, the Cauliflowers (nine trials being made) varied in germination from 43 to 98 per cent., and in vegetation from 34 to 96 per cent. Turnips (as the result of twenty-two trials) varied from 20 to 100 per cent. for germination, and from 2 to 98 per cent. for vegetation. The following table represents the presumed age of the seeds, the number of the samples and the per cents. of germination and vegetation:—

	Presumed age.	Number of samples.	Average per cent. germinated.	Average per cent. vegetated.
Cauliflower ..	2 years	6	87	54
	3 years	2	51	36
	4 years	1	43	30
Collards ..	2 years	2	95	78
Mustard ..	2 years	1	80	34
	3 years	6	90	74
	10 years	2	4	0
Turnip	1 year	2	100	90
	3 years	13	89	60
	4 years	7	77	31
	7 years	3	39	14
	12 years	1	36	6

There is yet much to be learned in regard to the value of the germination trials of seeds, as also in regard to the methods for interpreting the results gained. Thus, if twenty-five seeds be taken for the test, and twenty-four germinate, the percent. of germination is 96. If a hundred seeds be taken, and ninety-nine germinate, then the percentage figure is 99 per cent.; while if 1000 seeds be taken for trial, and 999 germinate, then the nearest percentage figure that we can use is 100 per cent.

It is plain, therefore, that the value of the figures expressed in percentages depends somewhat upon the number of the seeds taken for trial. In the first case supposed it is evident that we must either have 96 per cent. or 100 per cent. for the result, according as the twenty-four or twenty-five seeds germinate, or, in other words, that the matter of 4 per cent. can hardly be taken into consideration as meaning a real difference. If two seeds were taken for trial, and one germinated, then the percentage of germination would be 50, and it would be impossible to have any figures other than 0.50 or 100 per cent. in our trial. This 50 per cent. could scarcely be compared with the result of trials with a hundred seeds where any germinated, as the results do not admit of interpretation within sufficiently narrow limits, and accident of selection has too free scope. In order to eliminate this difficulty of interpretation it would be well for experimenters to use the same number of seeds whenever it is possible, and a hundred seeds for this purpose form a convenient unit.

Some seeds will germinate when quite immature. Thus, Sweet Corn kernels, while in prime edible condition, if carefully removed from the cob, will germinate perfectly. The same fact is true of Peas while in the edible state. In some trials with unripe Corn it was found that immaturity of seed hastened the germinative processes, and it is certainly worthy of trial whether by the use of immature seed we may not attain earliness in our crops through a series of successive selections. If earliness be gained, even at the expense of some other quality of growth, it may be possible, through a series of selections, to attain earliness in varieties and yet retain qualities which may be sufficient for the purposes of the grower.

A FLOWER MARKET FOR THE THAMES EMBANKMENT.

Mr. E. J. Tarver, in the current number of the *Builder*, gives a plan for a new flower market, accompanied by a letter, from which we take the following extracts:—

In July of last year, long before the Mid-London market scheme was published, a private client asked me to find a site for a building much needed by Londoners, namely, a market where they could go in cleanliness and comfort to purchase flowers and "table" fruit and vegetables such as they could carry away or their footmen could take to them in their carriages. After seeing two or three sites, he at once preferred that—at present—melancholy waste at the foot of Adelphi Terrace, which is screened from the Embankment Gardens by a raised bank; for, by throwing this open to the gardens its position for a flower market would be most appropriate. Upon making due inquiries, there was reason to hope that there would be no difficulty in making the approach from the one to the other, but that, on the contrary, such an arrangement would develope the resources of the beautiful gardens.

The approaches from the Strand exist already, but, alas! they are a standing disgrace to London, being nothing more nor less than the notorious "dark arches of the Adelphi."

The question of access and departure of wheel traffic was also considered, and consisted chiefly of a return to the very purpose for which these dark arches were built by the brothers Adam, in July, 1768, according to a print in the British Museum, which shows the busy riverside wharf (the site now in question), with laden carts approaching by the easy gradient from "York Buildings," and the empty carts departing by the steeper gradient towards the Strand. There would be no interference with the privacy of Adelphi Terrace, while the inhabitants of that select locality could have their own approaches, guarded by lock and key, down to the market. Neither would there be any of the nuisances connected with Covent Garden Market and its nauseous street litter, for the goods would be sold from the stalls only, and be too precious to admit of waste or refuse. These stalls would face on to a covered avenue on the ground-floor, and on to terraces over them, these upper stalls being again surmounted by a second terrace, open only to Adelphi Terrace, and commanding perhaps the finest view in London, while a fountain would plash in the centre, and impart a pleasant freshness to the whole. The freeholder, however, demurs to his land being used for the purpose, and so the matter rests.

The preparation of this design naturally led to incidental suggestions for the improvement of the Embankment gardens, &c., which might or might not have followed in course of time:—

1. The erection of fountains thereon, one of which was actually proposed by the Board of Works some years ago, but afterwards abandoned.

2. The restoration of York Gate to its original purpose as a thoroughfare, and the revelation of its buried base, which might fairly stand in a basin of ornamental water.

3. The erection of a shelter for a band, to be used in the evenings only, so as not to disturb busy people during office hours.

4. The miserable wooden stairs to Charing Cross foot-bridge would surely give way to a more dignified double flight of stone steps.

Lastly. The dangerous condition of the Embankment, which holds out no chance of rescue to a drowning person, has suggested the double row of heavy chains, one within reach at high tide and the other at low tide, thus giving some employment to the lions who have held the mooring-rings in their mouths all these years, and must have been wondering when we should find a use for them.

THE KIOSK IN REGENT'S PARK.

When the First Commissioner of Her Majesty's Office of Works granted permission to the Kiosk and Coffee Stall Company (Limited), of which the Duke of Westminster, K.G., is the President, to erect two kiosks in Regent's-Park, he granted one of the greatest boons that could have been conferred on the thousands of frequenters using this park for recreation — the privilege of being able to obtain light refreshments on the spot, of good quality, and at a moderate cost. The large circular kiosk near the Broad Walk has been in use some time, but the small one, depicted in fig. 104, was only erected this summer, by Messrs. James Boyd & Sons, of Paisley and London, as an auxilliary. It stands near the Hanover Gate, close to the end of the lake, and is 25 feet long and 12 feet 6 inches wide, with the roof projecting all round. It is a solidly built and well finished structure, and handsome withal. The ornamental columns and pilasters, brackets, and drip, are of Pitch Pine, turned, and perforated with fretwork designs. The exterior is covered horizontally with Red Pine lining and overlap joints, while the interior is lined vertically with narrow Pitch Pine lining, as is also the ceiling, which is coved up into the roof. The counter is of Pitch Pine, and panelled, with shelves behind, and a small enclosed office in one corner, and the front can be closed with shutters. The roof is covered with Broseley tiles of a dull brindle colour, which harmonises well with the woodwork below, which is stained and varnished, and is now assuming a pleasant russetty-brown tint. The lofty iron finial and cresting on the ridge finish off into the clear blue sky in the most effective manner, the wind vane pointing due west when, as on the day our photograph was taken, it blew from that quarter. In its present position the little kiosk seems to want a backing of shrubs to finish it off, but the public who find it such a boon will not quarrel with it on that score, but on the contrary will, like Oliver Twist, cry for more of the same sort, as they are badly wanted in all the parks.

Fig. 104.—Refreshment Pavilion in the Regent's Park.

BEES AND BLUE FLOWERS.

In reference to this subject, which has been treated of at pp. 538 and 570, if space could be granted, I might append a few observations and incidental remarks. Why bees should prefer one colour more than another is difficult to see, unless the attractions of that particular one were supplemented by some useful product of which the insects were in search. The industrious habits of bees are so well known as to require no comment, therefore it is far from likely that they would waste their time in the mere gratification of a liking for colour (if they have any); on the other hand, what advantage would be gained were Nature to practise deception in alluring bees by their known liking for any one colour only to disappoint them in not ministering to their requirements? That colours do serve the purpose of attracting insects from a short distance there is no doubt, as is evidenced by their alighting on many flowers temporarily without nectar—owing, probably, to its extraction by a fellow-worker, or otherwise, at an earlier time, and from which flower they withdraw hurriedly to another, of the same kind perhaps.

Viewed in the light, that mere colour would be useless without other object—if bees are observed to frequent blue flowers, examination would most likely detect the presence of some useful product in the economy of the hive. As nectar, from which they manufacture honey, is the most important, a study of those flowers much frequented by bees would show the observer a special set of organs, such as glands, discs, or nectariferous scales, or other parts of the flowers (principally petals and stamens), specially modified for the same purpose. Larkspur and Monk's-hood have blue flowers admirably adapted for the accommodation of bees, but at the same time providing entertainment for their guests in the curiously constructed nectar-bearing petals. Many members of the Crucifer family are highly attractive objects for bees in spring; their influence on the garden forms of the Brassica tribe being particularly noticeable. Here, then, we have yellow, purple, or white flowers, not merely serving the purpose of allurement, but furnished with nectar-bearing glands at the base. The same thing holds good with other flowers that have at various times been recommended to be grown for the use of bees, as Mignonette, Collomia, Impatiens Roylei, &c., the latter having the posterior sepal converted into a nectariferous spur. Sedum spectabile, Heaths, Honeysuckle, Telekia speciosa, and Ruta graveolens, are all examples of flowers much frequented by bees, none of which, it will be observed, have any trace of blue, but all are accompanied by honey-bearing glandular processes of one shape or

other. Notwithstanding the disagreeably strong odour of Ruta, and its yellowish-green flowers, bees seem to be particularly fond of it, while various flowers in the immediate neighbourhood are comparatively deserted. The various members of the Pea and Rose families have an annular nectar-bearing disc in the calyx tube, and the preference of bees for such as Clover, Mellilot, Peas, Beans, Lupins, fruit rees, Roses, and hundreds of others, is a well-known fact; and whether the flowers are red, blue, yellow, or white, they all receive due attention, as is proved by actual observation and the freedom with which fruit is produced.

In the large genus Salvia there are flowers of every hue, and all well adapted for fertilisation by insects. In Salvia pratensis, however, the length and narrowness of the tube make it difficult or inconvenient for bees to reach the bottom, and they accordingly perforate the corolla near its base, where they insert their proboscis. This happens to the blue, rose, and white coloured varieties of the species alike. Some species of Symphytum, and Lindelofia spectabilis, having their throats closed with scales, are pierced in the same manner. These are mostly blue, but an analogous case occurs amongst some of the long-flowered Heaths, as in Erica Aitoniana and E. Shannoniana, with nearly white flowers, where it is absolutely impossible for bees to enter by the narrow orifice. With considerable expenditure of energy they, however, manage to break through; and the question may well be asked (and possibly answered, by their sense of smell), what leads them to expect anything inside such pale-coloured flowers? That this is no unusual practice amongst these highly instinctive insects (especially hive-bees) is apparent by the unhesitating readiness with which they find the small aperture. *X.*

Notices of Books.

The Pinetum Britanicum.

We are glad to be able to announce the publication, after a long interval, of five parts of this important work, devoted to the illustration, by means of large coloured figures and woodcuts, of the hardy trees of the Pine tribe cultivated in Great Britain. The expression Pine tribe must be taken in a broad sense, since even in the present parts we find included the Cypress and the Cedar, the former of which, at any rate, is hardly of the Pine tribe in its generally accepted botanical signification. This, however, is a matter of comparatively little moment. In the parts now before us we have coloured figures of Cupressus Lambertiana, now generally called C. macrocarpa, as there is no specific difference between the two, and the name Lambertiana has only provisional and temporary rank, never having been authoritatively published according to the recognised rules of botanical nomenclature. The Corsican Pine, Pinus Laricio, is also the subject of a coloured plate, while a photograph of the Cedars on Lebanon *in situ*, and a map of their geographical distribution are given. The text comprises descriptions technical and popular of the following species:—Pinus albicaulis, the flexilis of gardens; P. Balfouriana, P. aristata, P. porphyrocarpa, and Cedrus Libani in part. Since the preceding parts were published more attention has been paid to the leaf-structure and the description of the resin canals than formerly, and in conformity with this we find in the present part diagrams representing the arrangements in question. Similarly, the text, some of which had been prepared for several years, has been brought to date, in illustration of which we may mention that the Cyprus variety of the Cedar finds a place, and that the most recent information as to the distribution of the tree has been given. Although this intercalation of new matter will in some sense produce some discrepancy between the older and newer portions of the work, still it was clearly the duty of the Editor to bring his information down to the present time. We are glad to learn from an announcement issued with the present part that the whole work will be completed, with title and index, in January, 1884. The work may be had from Mr. Ravenscroft, 14, Loudoun Road, St. John's Wood, London, N.W.

Guesses at Purpose in Nature, with especial Reference to Plants. By W. P. James, M.A. (Society for Promoting Christian Knowledge.)

In this little book an English Vicar, accompanied by his daughter, make what we can but call a somewhat unfair attack upon a young and susceptible doctor. They get him first of all in the saloon of a steamer bound for the West Indies, and not content with that they seize upon him afterwards in the study at the vicarage in Wales, and there they, or at least the Vicar, pound him with discussions as to the evidence of design in Nature, and on the assumption that evolution necessarily precludes the idea of design. The Doctor probably, as the result of his training, would necessarily admit the principle of evolution, the operation of which is daily brought under his notice, but how he could account in a rational manner for the existence of anything to be evolved without postulating the existence of an "evolver," or supreme First Cause, it is difficult to see. If it be true that mutual adaptations and adjustments have taken and are taking place there must be some power, in virtue of which such changes take place. Wonderful as a lump of protoplasm may be both actually and still more potentially, we cannot by any analysis, chemical or physical, understand its marvellous endowments, still less create them synthetically. So we have no doubt that the Doctor and the Vicar, however much they may have differed upon points of minor detail, and however differently they may have regarded the same object, had a common starting point from which each diverged according to his own innate tendencies and the diverse operation of external causes. Because the sun at mid-day sends his beams northward, southward, eastward, westward, and which are reflected and refracted in all sorts of ways, according to the varying density of the media they traverse, do we infer that there is any essential difference in those rays however wide apart they become? And so it seems to us, that the author of this book is rather slaying the slain, unless, indeed, he be, as we do not think he is, one of that persuasion who think that no other line of thought but their own can be right. Whether or no, the book is pleasant and suggestive, more accurate as to statement of fact and more temperate in argument than such books are wont to be. Incidentally the author alludes to the rarity of truly blue fruits, but he has forgotten the fruits of Psychotria cyanococca, Coccocypselum discolor, and others. We have our doubts as to whether the form in which the book is cast is quite the best that could have been adopted. To us it seems much too artificial, not to say fictitious, and *Sandford ana Merton* like. Readers who from the opening paragraphs may fairly infer that the law of natural selection is to be illustrated in the instance of Miss Trevor and Ross will find themselves disappointed, and will judge the book accordingly!

—— *Hardy Perennials* (Gill, 170, Strand) has now reached the genus Saxifraga in the alphabetical sequence. It is a handy little book, which will prove useful to lovers of these plants. Some of the figures are good, others are hard and stiff. The cultural directions seem as judicious as they are clearly stated.

—— *Bulbs and Bulb Culture* (Gill, 170, Strand) is broad in its comprehensiveness, since it includes Gloxinias, Alströmerias, Pæonies, Agapanthus, Oxalis, with short descriptive notes, directions for culture, and illustrative woodcuts.

Orchid Notes and Gleanings.

Mr. J. E. Bonny's Orchids, Hackney Downs.—The six little houses, all as it were under one roof and covering a very small town garden at 88, Downs Park Road, situate close to a busy thoroughfare, and within a few yards of a railway, serve to demonstrate the ease with which Orchids may be grown even in towns, provided due regard be paid to the consideration of their wants. The houses are ventilated into each other and also to the outer air, and most extensive provisions are made for catching and storing the rain-water. The latter arrangement, no doubt, has a great deal to do with the wholesome character of the air in the houses and consequently with the good condition of the plants, for wherever a bulk of water is collected in a house an additional lung seems to be supplied to it, not so much by reason of the moisture it gives off as by the well known property water has of attracting and condensing impurities in the air. The main features of the little collection are Odontoglossums, Cattleyas and Lælias, and Phalænopsis, and these are remarkably well done, some of the plants of Cattleya Trianæ having as many as a dozen flower-sheaths on each, and even the smallest pieces exhibit a desire to bloom, which proves that they are comfortable. To an observant grower the small and sickly plants are sure indications of how the large strong ones are doing. If the poor pieces go back now the strong ones will follow shortly, but if the weak ones thrive all is well, and the success of the whole certain. The cold houses are bright with the never failing Odontoglossum Alexandræ, O. Pescatorei, Sophronitis grandiflora (one having a bloom 3 inches across), Oncidium Forbesi, O. prætextum, Lycastes, &c. The Phalænopsis-house is a neat little structure, containing a good stock of P. Stuartiana, P. Sanderiana, P. violacea, P. Schilleriana (with grand round fleshy leaves), and indeed specimens of most of the good Phalænopsids, and all in fine health. The house also contains some good plants of C. Spicerianum and other warm-house Cypripediums, and on a moss-covered shelf at one end is a sturdy clean lot of Odontoglossum Roezlii. In this situation it thrives well, the house is generally at a mean temperature of 65° to 70°, and consequently the plants are never dried up and weakened by excessive heat, neither are they perished by cold currents of air. They are syringed lightly with rain-water once or twice a day, and are found to thrive better thus than when they are watered profusely in the pot. Teak wood baskets of good quality are much in use here, and the plants seem to find something very grateful to the roots in them. Mr. Bonny began by making his own, and now he has extended his operations in the making of Orchid baskets, so as to be able to supply them both good and cheap to other growers, either with copper or galvanised iron wires. It cannot, however, be too distinctly understood that no other than copper wire should be used; leaves touching it are not injured, but whenever they touch galvanised iron they are hopelessly damaged.

Odontoglossum grande.—Amongst cool-house Orchids probably no genus affords an equal number of species so popular and valuable for horticultural purposes as that of Odontoglossum. There is, moreover, so great a degree of variation that the number of distinct types is considerable. The present is a striking instance, and may well claim rank as a species that possesses both size and substance, together with a colour which, if it cannot be described as gorgeous, is nevertheless sufficiently defined to be highly attractive. The chief colours are yellow and rich chocolate-brown, which in the sepals alternate in irregular transverse bands and blotches; but in the petals the brown is confined to the lower half. Curiously enough the labellum is almost orbicular, of a creamy colour, and marked at the base with pale brown spots. The crest, always a very marked characteristic, is here large and prominent. By the latter mark alone a keen observer could probably recognise most of the species, so great is the range of variation, yet constant in each. The plant is now flowering in the Kew collection, and by its dwarf habit and other qualities well merits cultivation. There is a figure of it in the *Botanical Magazine*, 3955.

Plants and their Culture.

Stoves.—Flowering Plants.—Many of these that have been giving good returns for several months past, both for cutting purposes and in rendering the stove gay, will now be pretty well spent. All superfluous growth on these may be taken away, and the plants reduced in compass to economise space for the winter stock of plants advancing into bloom. Care must be taken in performing this operation with such as Ixoras and other hard-wooded subjects, not to be unduly severe. The better plan with Ixoras is always to have a young stock coming on. Such as Allamandas, Bougainvilleas, and Clerodendrons, can be considerably reduced. We like to winter these things in a dry warm pit by themselves, so that their somewhat ungainly appearance when divested of their foliage may not be an eyesore in the arrangement of the general collection. The deciduous section that are now going to rest should be kept pretty dry at the root, avoiding the extreme, however, of excessive drought. Caution must also be exercised with Dipladenias, not to keep them so freely watered as

when in more active growth. I do not think it a good plan to dry them off too severely; if examined at the root, even when the plant appears to be in a dormant state, the roots will be found invariably to be in a fairly active condition. D. amœna is still in flower with us; its pale coloured blossoms, after the way of D. splendens, are very distinct and pleasing. Unlike the high-coloured forms, as D. Brearleyana and D. hybrida, which intensify in colour with the age of the bloom, D. amœna grows paler in its tints, fading into a delicate pale flesh colour. This variety ought to be more grown than it is for its distinctness and decided contrast to the high coloured kinds. The present is a good time to cleanse the Dipladenias of mealy-bug and scale. The former parasite appears to be more at home on plants of this genera than any other, increasing most rapidly. Every means should, therefore, be used to thoroughly eradicate it during the resting season. The foliage of the Dipladenia being very susceptible to the least injury, the milky juice exuding so freely, great care is needed in the cleansing process. By-and-bye, when young shoots are put forth, a considerable amount of injury will be occasioned if insect destroying has to be followed. Thrips will often attack the Ixoras at this season of the year, the more so if the plants are near the hot-water pipes. A sharp watch should be kept, and measures be taken in time; sponging with a weak insecticide will answer where there is only a small colony, but if more prevalent, three fumigations on succeeding afternoons with a dry atmosphere will be the most effectual remedy.

That part of the stock of Eucharis that has recently given a good return in flower-spikes should be induced to make fresh growth. By this means some of the bulbs that missed putting up spikes when the others did, may be induced to send up some now that will come in useful after the Chrysanthemums are over. We have some that are doing this at the present time; but they are not in any case the same bulbs that have yielded a return for some considerable time past. Some weeks back, when we had several spikes up at one time, we kept some of the plants in a cooler house, the blossoms that opened in this lower temperature kept in perfection longer than the others, being of more substance. The night temperature of this house was about 60° on the average; this has occasioned me to consider whether it would not be better to always open the flowers in a temperature a trifle lower than that in which the plants make their growth. I mean to experiment in this direction when the first opportunity occurs.

Part of the stock of Poinsettias may with advantage be kept a bit cooler for a few weeks longer; this will bring them in fresher for Christmas time. As long as they do not remain in a lower night temperature than 55° no fear need be apprehended of their coming to any injury. Feeding with manure-water will greatly aid those that are now fast developing their floral bracts. The stock of Gesneras grown for display at this season will now be in good form, these will require watering pretty freely whilst the spikes are being developed. Unfortunately, we cannot succeed with them through the proximity to the fog and smoke. We are also failing with Clerodendron fallax from the same cause. Lately, we had some beautiful little plants of this handsome stove shrub in full flower, a day or two, however, of foggy weather brought the expanded blossoms and many of the buds off in numbers, the surface of the soil being more gay with them than we liked to see it. We succeed with Thyrsacanthus rutilans. Fortunately, spring struck stock are now showing a good number of spikes, that will make a gay display in December. The fog above referred to was also very destructive amongst Begonia Knowsleyana when making a good show. This species is most valuable for the dull autumn months, coming into flower well before B. insignis. Keep an eye on the Gloxinias that are now resting, a little water occasionally should be given, sufficient to prevent the bulbs from exhausting themselves. These and the Achimenes will winter safely in a temperature not lower than 50°. Now that every available space is needed to accommodate the general collection of plants, all overgrown or useless stock should be dispensed with, to give more room for those most in request. Instead of thus parting with some tall plants of flowering Begonias, we have them trained against a bare and rather unsightly wall. This being a bit damp at all times, seems to suit them well whilst the room they thus occupy is very little. Gesnera oblongata, a shrubby species, is also at home in the same position, emitting roots that are clinging to the wall. The night temperature of the stove proper should now range from 65° to 67° in mild weather, 5° lower if frost or cold winds prevail. Allow from 7° to 10° rise during the day, with a little ventilation on favourable occasions. In damp weather the atmospheric moisture should also be reduced; when additional heat in the pipes however has to be maintained, an increase should be made to counteract the otherwise injurious effects of the drier atmosphere. *James Hudson, Gunnersbury House Gardens, Acton, W., Nov. 6.*

The Kitchen Garden.

Take advantage of every favourable opportunity to get manure on to the land and to dig or trench vacant ground. During summer one oftentimes simply points the ground over, but it is most essential now that the garden should be thoroughly dug over not less than 10 or 12 inches deep. All half worn out spades should be handed over to the pleasure-ground staff for flower borders, &c., and let nothing but good tools be found in the kitchen garden, where deep cultivation is indispensably necessary. Make a sowing of Early Mazagan Beans, and if the soil is light and the rainfall not excessive a few quarts of early Peas may be sown on a south border. The Celery may soon need protection should frost come—some protective material should be at hand; Sedge-grass, Fern, or straw will do best. On no account use stable litter nor damaged hay; the former will ruin the flavour and the latter fill the ground with grass seeds, which will grow in the spring. Where wood is plentiful the labourers can easily, with feather-edged boards, knock up on wet days a light span-roof cap to the ridge, easily lifted off in fine weather. Jerusalem Artichokes keep best in the ground, so that it is well to cover the ground with something to keep out the frost: not that they are in the least affected by it, only it will prevent the ground getting frozen, making it difficult to dig them up.

Forcing.—The daily decline in the temperature reminds us that a part of our Calendar must now be devoted to the forcing ground. Seakale is a most important vegetable, which, from the beginning of December, ought to be daily found on the table during that and the three following months. In all the best gardens the old plan of forcing it in the open border has been abandoned, the plan of lifting the entire crop, which is annually planted in March, being adopted instead, therefore in some warm place introduce sufficient heads to furnish a supply for ten days. The Mushroom-house answers perfectly, or under the stage of the stove-house; but perhaps the best is a three-light box placed on the top of a bed of leaves, and half-filled with light soil; and a light planted every ten days will yield sufficient for a good sized family; 1500 heads can easily be forced in this way during the winter months. Add fresh linings to the bed when the heat declines, and keep the lights well covered up to blanch the Kale. Perhaps no plant is more impatient of heat at the roots than this, therefore be careful to see that the soil is only lukewarm. Rhubarb can be forced in exactly the same way as the former, but the finest we always get from a border where it is grown purposely for forcing; covered with barrels, and surrounded by fermenting materials, it comes fine and in abundance. If a supply of new Potatos is required during March and April, the planting must be seen to at once. In districts where there is an abundance of tree leaves, it is much the best plan to dig out a pit in a sheltered place, and fill it with leaves, afterwards covering it with three-light boxes which answer perfectly. The soil should be light, the sets whole, and some new early kind planted about a dozen sets in a light. For a supply during May and June we plant at once in pits or frames, but no heat is required for these, and between every row we plant strong plants of early Lettuce; these come in most useful for salad during early spring and are seldom much in the way of the Potatos. The earliest Lettuce which we have found for this purpose is Tom Thumb, and the Cabbage kinds are best for this purpose. Take up several roots of Tarragon and Mint and place them in a gentle heat to come on for winter use, and introduce Chicory and Dandelion roots into the Mushroom-house or some such place where they can be forced in the dark for salad. Keep the Mushroom-house warm and moist and be most careful in syringing the beds if they get dry to see that the water is not below 80°—cold water applied at this time of the year will ruin a whole bed. Give abundance of air to Cauliflower and Lettuce plants in frames, the great secret is to keep them dry rather than otherwise, and to give plenty of air to keep them hardy for the coming winter. A three-light box should be placed on a gentle hot-bed and filled with Asparagus, keeping the lights close till the grass comes well up, admitting air according to the weather, and take care to see that there is plenty of Sedge-grass, Fern, or other litter, ready in case of severe weather coming unexpectedly. *J. Rust, Eridge Castle, Sussex.*

Peaches and Nectarines.

Carry out the directions given in my last Calendar as to preparing the early house for starting by the middle or end of the month. I seldom start ours before the end, as there is very little, if anything, gained by commencing so very early. Any little time apparently lost now will be easily made up by a little extra forcing after the stoning process is complete; but if desirable a house may be started at once. All that will be necessary for the first two or three weeks will be to close the house, for with a continuation of the unusually mild weather we are having, no fire-heat will be required for the present. Ventilate freely succession and late houses, and go over the trees and remove all leaves that are at all loose, or any late lateral growths, so a sto give the young wood all the light and air possible. Any root-pruning in these houses, or any trees that it is desirable to move, may be pushed on with at once, for the sooner such work is now done the better it will be for the welfare of the trees. Examine the roots in all borders, and if at all dry give liberal supplies of water. If the wood in late houses is not thoroughly ripe a little fire-heat may still be used. I find it necessary to use a little here for a short time longer. This may seem rather late to be using fire-heat in Peach-houses, but our late houses are somewhat shaded by tall trees a short distance away, and being kept as late as we can possibly keep them, they require plenty of fire-heat to get the wood thoroughly well ripened. *J. Wallis, Keele Gardens, Nov. 6.*

Cucumbers.

The plants put out in the end of September will by this time have furnished the greater part of the trellis with bearing shoots. They should not, however, be allowed to fruit providing they have ample scope for root-action, and the fruit is not required before Christmas. But, on the other hand, if the roots are growing in a confined space, such as in pots or boxes, and which they have filled with roots, then it will be advisable to allow the plants to swell off a few fruits, but let the number be only sufficient for the purpose, for upon the judicious or unwise cropping of the plants through November and the early part of December depends success or failure (other points being properly attended to) in maintaining a supply of fruit equal to the demand during the winter months. Therefore crop lightly, and otherwise attend to the stopping, thinning, and tying of the shoots, and remove forthwith any decayed portion of wood or leaf that may appear, and let cleanliness prevail throughout. Damp the house and plants more or less morning and afternoon, shutting up the house at 1 o'clock; but be always guided in the execution of these details by the internal and external conditions of the atmosphere and temperature. Let the fires be stopped soon after 8 o'clock on bright mornings, by which time solar will have taken the place of artificial heat. The fires should be again started in the afternoon as the sun is going off the houses and decreasing in force, so that by the time the heat husbanded by entrapping the sun's rays by shutting up early has declined to 65°, the heat radiated from the hot-water pipes may be sufficient to maintain that temperature in the house during the night; but in the event of severe frost a night temperature of 60° will be ample, and to obtain and maintain even this low temperature in a moderately large-sized house the supply of piping must be liberal. *H. W. Ward, Longford Castle.*

Bouvardia strigosa.—As a species this is very distinct in habit and foliage from those garden forms or hybrids on which growers depend for their autumnal and winter display of this class of plants. It is an old introduction now flowering in the stove at Kew, and producing its flowers in terminal umbels—a character common to all, and which, although not individually large, are of an intense red or scarlet colour, with a yellow hairy eye. Unlike those better known sorts, however, instead of forming an erect branching undershrub, the slender shoots depend in a graceful manner, so that it would form an excellent basket plant, or at least lend additional variety and interest to a collection grown for decorative purposes.

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Nov. 12	Stoke Newington Chrysanthemum Society's Show (two days). Lambeth Amateur Chrysanthemum Society's Show (three days). Sales of Dutch Bulbs, at Stevens' and Protheroe & Morris' Rooms.
Tuesday,	Nov. 13	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M. Royal Horticultural Society of Southampton's Autumn Show (two days). Putney and District Chrysanthemum Society's Show. Sale of Lilium auratum and other Lily Bulbs, at Protheroe & Morris' Rooms. Sale of Nursery Stock, at Lee's Nursery, Feltham, by Protheroe & Morris.
Wednesday,	Nov. 14	Borough of Hackney Chrysanthemum Society's Show, at the Westminster Aquarium (two days). Croydon Chrysanthemum Show (two days). Sale of Hardy Plants, Bulbs, and Imported Orchids, at Stevens' Rooms. Sale of Camellias, Azaleas, Roses, &c, at Protheroe & Morris' Rooms. Sale of Nursery Stock, at Bailey's Nursery, Petersfield, by Protheroe & Morris.
Thursday,	Nov. 15	Kingston and Surbiton Chrysanthemum Society's Show (two days). Chrysanthemum Show at Staines. Linnean Society meets at 8 P.M. Sale of Imported Orchids, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
Friday,	Nov. 16	Chrysanthemum, Fruit, and Vegetable Show at Canterbury (two days). Sale of Imported and other Orchids, at Protheroe & Morris' Rooms. Sale of Plants and Effects, at Mill Cottage, Woodford, by Protheroe & Morris.
Saturday,	Nov. 17	Sales of Hardy Plants and Bulbs, at Stevens' Rooms; and Dutch Bulbs, at Protheroe & Morris'.

THE introduction of a little fresh blood is admitted on all hands to be, in all probability, a very valuable resource in cases where, from the accidents incidental to long cultivation and in-and-in breeding, the stock has become enfeebled or prone to disease of various natures. On this account we hasten to call the attention of our readers to what is described as a NEW SPECIES OF POTATO in the current number of the *Revue Horticole*. The species in question is named after its discoverer, a surgeon in the French navy, named OHROND. By this gentleman the Solanum Ohrondii was gathered on the Island of Goritti, in the mouth of the Rio de la Plata. The soil in which the plant grows is described to be of a sandy character, the climate temperate, with marked seasonal fluctuations and a cool summer. The tubers of the plant, not larger than a Hazel-nut, were found on the surface of the sand. Some tubers were sent in 1880 to M. BLANCHARD, the gardener of the naval hospital at Brest, who has cultivated them ever since, as also has M. CARRIÈRE at Montreuil, near Paris.

M. CARRIÈRE gives a full description of the plant, and says that with him the growth is nearly continuous, so that under favourable circumstances two crops of tubers have been yielded in one season. Moreover, the plant produces underground runners, which send up flowering shoots. M. BLANCHARD, in the moist, mild climate of Brest, finds it almost impossible to destroy the plant, owing to this habit of producing stolons.. Moreover, he declares it to be perfectly hardy at Brest, and asserts that already the tubers show a tendency to increase in size, and that the plants have in no instance been attacked by the Potato disease. The flavour of the tubers when cooked is a little acrid, resembling that of Potatos which have become green by exposure to light; and they are said also to be waxy. It seems clear, from the experiments of M. BLANCHARD and M. CARRIÈRE, that the plant is susceptible of improvement, and that it may prove serviceable either directly or as furnishing means of hybridisation with our present varieties.. We hope that our French friends will give us the means of trying the cultivation of this new species in this country, for it seems certain, from the detailed report given in our contemporary, that the "potentialities," as old SAM JOHNSON would have said, of this new species (if new it be) are so great as to render it desirable that every effort should be made to investigate the qualities of the plant. Those who may be able to do so need not be discouraged at the results at first obtained. We do not suppose that the tubers of Solanum tuberosum first produced in this country were any better than those of the new Solanum Ohrondii.

It is a singular coincidence that we should be able on this occasion to bring under notice another esculent root of some promise. Some tubers placed at our disposal by the courtesy of Sir JOSEPH HOOKER enable us to confirm what is said with reference to the "Kumara," by Mr. HEMSLEY, at p. 601.

—— ERICA CAVENDISHIANA.—The accompanying illustration (fig. 105) represents an extraordinary specimen of the Cavendish Heath (Erica Cavendishiana), which has been grown by Mr. CYPHER at Cheltenham, and exhibited this season at Oxford and other places. It is a very large, well grown plant, 5 feet 4 inches in diameter, and the most profusely flowered example of this fine Heath we have ever seen—the flowers all over the plant, from top to bottom, back as well as front, being literally piled on each other. Respecting large specimens of this description there was a time when the leading exhibitions were overdone with them, consisting almost wholly of such; but at the present day there is some danger of the opposite extreme coming about, as where the display is all but entirely made up of small stuff possessing nothing remarkable in cultivation: the result is poor in effect, and does little to illustrate what can be accomplished by skilful culture. There is room enough for all, large, small, and medium sized; and of such, to be instructive, horticultural exhibitions should consist.

—— PYRACANTHA BERRIES.—We all of us owe it to the birds to defend them from unjustifiable charges, as they have had to suffer so much from our prejudice and ignorances. A gardener remarked to us recently that the birds had made very early inroad into the berries of the Pyracantha, and indeed the lacerated and spotted berries bore out that interpretation. It was not the true one, however, for on examining the berries more carefully it became obvious that the fruits had cracked, as Pears do upon occasion, and that the apparent lacerations were nothing but the separation of the fleshy flower-stem from the dry hard carpels in the interior, which would the more readily be dispersed. And so the birds, indirectly and unconsciously, were the means of confirming the notion that the so-called "fruit" of the Apple, Pear, Cratægus, Medlar, is nothing but the end of the flower-stalk, which swells out into a fleshy mass surrounding and partially adherent to the carpels or core in the interior.

—— "THE SCIENCE MONTHLY."—This is the title of a new monthly periodical published by BOGUE, St. Martin's Place, and devoted to various sciences, treated from a "popular" point of view. It is well got up, illustrated with numerous woodcuts, and very low priced. The contents are very varied, ranging from Astronomy to Zoology. Botany and Horticulture are less well represented than other departments, but no doubt they will get their turn in due course.

—— LINNEAN SOCIETY OF LONDON.—Papers to be read at the meeting, Thursday, November 15, at 8 P.M.:—1. "Reproduction of the Zygnemaceæ;" A. W. BENNETT. 2. "Antennæ of the Honey Bee: their Structure and Functions;" T. J. BRIANT. 3. "Structural Peculiarities in the Stem of Rhynchopetalum montanum;" F. O. BOWER.

—— BROWNING OF THUIAS.—A correspondent sends us sprays of Thuia occidentalis of a rich brown colour, and which he thinks are attacked by some disease, the more so as the discoloration is confined to certain plants in a particular situation. The appearance in question is common enough in Thuias, and in Retinosporas, and is hardly to be called a disease, since it is merely a natural process consisting in the shedding of the branches in the same manner as the leaves of the deciduous trees. This process was long ago described in our columns under the name "Cladoptosis," by the Rev. M. J. BERKELEY. A similar phenomenon is common enough in the Oak and the Ash. It is a species of natural pruning or thinning, whereby the plant disburdens itself of excessive growths. No doubt particular circumstances hasten and increase the process, such as overshading, unsuitable soil, and the like. Gardeners whose Thuias show this condition need not concern themselves much about it, as in due time the browned branches will fall, new ones will form, and the appearance of the tree will be restored. A large plant of T. gigantea (Lobbi) under our own observation was so disfigured in this manner that we had some thoughts of removing it, but have now reason to be glad that we had a little patience; of course if there are any morbid conditions that is another matter. We see none in the specimens before us.

—— BENZOIN.—Mr. HOLMES tells us in the *Pharmaceutical Journal* that there are four varieties of this fragrant gum in commerce, called respectively Sumatra, Palemberg, Penang, and Siam Benzoin. Sumatra Benzoin is the produce of Styrax Benzoin. The source of the other varieties is not definitely known. Mr. HOLMES has been enabled to secure material, including a living plant of the Sumatra Benzoin. The evidence at present is not conclusive, but there are reasons for thinking it the produce of a species allied to S. Benzoin.

—— ENGLISH BOTANY.—Messrs. BELL & SONS send us No. 86 of the third edition of this valuable publication, containing full descriptions and coloured illustrations of many of our British Ferns and Equiseta.

—— THE CULTURE OF VEGETABLES AND FLOWERS, &c.—We have received from Messrs. SUTTON a copy of a work just issued under this title. It is handsomely got up, and contains articles on the work to be done in the vegetable and flower gardens, the formation of lawns, the insects and fungi attacking cultivated plants, and other matters which will necessitate a more detailed notice at a future time. The publishers are HAMILTON, ADAMS & Co., Paternoster Row.

—— WOODS, FORESTS, AND ESTATES OF PERTHSHIRE.—We are glad to see that Mr. HUNTER has reprinted the valuable and pleasant series of articles that have from time to time appeared in the *Perthshire Constitutional*. The work is published at Perth by HENDERSON, ROBERTSON & HUNTER, and demands a fuller notice at our hands, which we propose to give it on another occasion.

—— ORCHIDS AND NEPENTHES AT THE VICTORIA AND PARADISE NURSERY.—In the house where the principal lot of Orchids in flower is stood there is now a grand variety of Odontoglossum Insleayi, bearing the name of Insleayi splendida; the sepals and petals are much finer coloured than the ordinary form, the lip is very large and exquisitely coloured, the centre is a clear bright yellow, with a well defined margin of vivid crimson bars running all round from the extreme outer edge inwards for about an eighth of an inch; the spike is large, and altogether it is a beautiful Orchid. With it is Cattleya Gaskelliana, a fine variety; C. Dowiana aurea, and C. gigas, another fine form of a fine species. Amongst a number of Oncidiums were several varieties of O. Forbesii, quantities of O. verrucosum, including the true verrucosum Rogersii, with its large pure yellow lip. The pretty Cœlogyne ocellata maxima, bearing unusually long racemes; Dendrobium formosum, D. superbiens, with its long-lasting deep purple flowers, the colour, rare in Orchids, not unlike that of Polygala Dalmaisiana; and Zygopetalum Gautieri. Amongst Cypripediums is C. Maulei var. Chantinii, the finest of this section, the clear white colour of the dorsal sepal extending in a broad band all round the outer edge; C. Spicerianum, the variety with pure white sepal, and also that with the violet shade. Grown as Vandas are by Mr. Williams, the long house they occupy is always a treat to see, and seldom more so than about this season, when Orchid flowers are scarcer than at any other time. There are a number in bloom, including several examples of V. suavis, differing considerably in character, but all fine; of V. tricolor there is V. tricolor var. Patersoni, a variety with large highly-coloured flowers; V. tricolor formosa, the true form, the flowers are of great substance and very distinct in the marking. If the requirements of Vandas had been generally undestood, and their cultivation so successful as with Mr. Williams, these noble plants would have been as much in fashion as Cattleyas and Odontoglossums. All they want is keeping with their heads close to the glass, with a very thin shade, and that only when the sun is on them, and an absence of the stewing, hot, vapour-laden atmosphere, which results in quick growth, but the long soft foliage made under such conditions

as quickly perishes. The plants here are furnished down to the pots with short stout leaves, that seem to retain their vitality for an indefinite time. Hung up, almost touching the roof in this house are some grand specimens of Saccolabium guttatum, with eight or ten growths each, masses of healthy leaves, with an unusual quantity of roots, that half hide the baskets in which the plants are grown. In the cool Orchid houses the large stock of Odontoglossum crispum and O. Pescatorei are bristling with bloom spikes, in various stages of development, promising a profusion of flowers through the winter; many fine forms are now open, some in which the flowers are whole coloured without spot or freckle, others heavily marked; the length of the spikes and the size of the individual flowers, telling their own tale as to the strength and condition of the plants. O. Pescatorei is in equal form, the big, many-branched spikes being almost as attractive as the larger flowered O. crispum, and for cutting even more useful.

Nepenthes.—Always attractive as are Pitcher-plants when well-grown, at no season are they to be seen in such condition as in the autumn, when their summer's growth is fresh on them, with every leaf bearing a pitcher. The roofs of the houses here, in which the plants are closely hung in long rows, are literally a mass of pitchers in endless forms, varying much in colour and marking. Amongst them are a number of the beautiful seedling varieties in which this nursery is so rich:—N. Henryana, a fine free pitchering sort, highly coloured; N. Williamsii, a strong grower; N. atrosanguinea, distinct in colour; N. hybrida, a deep-coloured variety; with N. Rafflesiana, still one of the best. There are many with medium-sized pitchers, distinct in habit, affording a nice contrast to the largest as well as the small kinds. Any one possessing a stove wherein a brisk heat is kept up who does not grow Nepenthes is so far short of getting all the interest they might out of it, for in the whole vegetable kingdom there is nothing existent that contains so much that is singularly beautiful. The long house running across the western end of the nursery, where used to be grown large Camellias, is now filled with greenhouse Rhododendrons, of which there is a large collection, in plants of various sizes.

Fig. 105.—Specimen plant of Erica cavendishiana: 5 feet 4 inches in diam. (see p. 596.)

—— Heaths at Kingston.—Of the many who will assuredly flock to see the grand show of the popular Chrysanthemum at Kingston next Thursday and Friday, not a few will look in at the Messrs. Jackson's nursery to see their fine display of that flower—and as becomes so classic a locality, a good one will be found. Some may perhaps find as much of interest in looking over the truly grand collection of Heaths, for which the firm have long been famous—and not only many in variety, but represented by such splendid specimen plants, that it is most refreshing to find some things grown that are neither Palms, Ferns, nor foliage plants. Heaths are not only remarkably well done at Kingston as ordinary trade stuff, but they are made into splendid exhibition plants, and indeed the collection of these in Messrs. Jackson's hands is, perhaps, one of the finest in the kingdom. Even at this time of the year, when few are in bloom, the plants are rich in their foliage, and are thus beautiful to look upon when all outside is dull and dreary. The fullest exposure seems to be given to all the plants when the weather is open, and as a result the growth is singularly dense and compact, yet vigorous. It is amusing to learn that the cats which abound in the quiet Surrey market town exhibit a special *penchant* for some of the more bushy Heaths when the houses are open, and make the heads of the plants their beds, to the injury of the specimens, and the discomposure of the growers. A few sharp-pointed sticks, however, will compose a mattress that even Grimalkin finds uncomfortable. Some of the Heaths are now in bloom, and, indeed, it may be said of the family—as can be said of few others—that some of its members are never out of flower. We should like to see Heaths somewhat more universally grown, for few plants are more floriferous, and when in bloom more beautiful. Perhaps a sight of Messrs. Jackson's fine collection just now may help to that desirable end.

—— Dracæna Smithii.—A large plant of this species, which was introduced about nine years ago, and is said to be a native of west tropical Africa, occu-

pies a prominent position amongst the surrounding plants of tree-like dimensions in the Palm-house at Kew. Like all others of its kind it is characterised by a tuft of leaves on the top of a slender naked stem, from amongst which the inflorescence shows itself. In this instance it consists of a pendent panicle of 2 or 3 feet in length, with a small globular head of flowers terminating the branchlets. These flowers, although small individually, and of a yellowish-green colour, are sufficiently distinct from the leaves to make themselves noticeable and in some degree attractive. The leaves are relatively broad, of a deep green colour, and assume an erect or ascending direction. D. fragrans, also flowering in the same house, is far less conspicuous both in the inflorescence and the foliage.

—— PRESENTATION TO MR. J. D. DICK.—All whose business has at any time called them to the offices of the Royal Horticultural Society will be pleased to hear that Mr. J. DOUGLAS DICK, who, during the time the Fisheries Exhibition was open, had charge of the turnstiles, was on Thursday week entertained at a complimentary dinner by his staff, numbering thirty in all, and presented with a ring, bearing the following inscription:—"Presented to J. D. DICK, Esq., as a mark of esteem by his staff, I. F. E., 1883." Mr. DICK so closely attends to the details of his office, and at all times is so courteous in his demeanour to those who have to do business with his department, that we are not surprised his "Fisheries staff" should have paid him so graceful a compliment. We feel sure it was well deserved.

—— A NATIONAL CHRYSANTHEMUM SOCIETY.—The suggestion thrown out by Mr. HENRY CANNELL some time since, and supported by others, that there was need for a National Chrysanthemum Society, has had effect given to it in a way that is perhaps best adapted to meet the ends of the advocates of the proposition. At a recent meeting of the committee of the Borough of Hackney Chrysanthemum Society a proposition was submitted to the following effect:—"That at the expiration of the current year the present title of the Society be altered to that of 'The National (late Borough of Hackney) Chrysanthemum Society.'" The proposer and supporters of the resolution contended that the Borough of Hackney Society was, to a considerable extent, national in its scope and aims, that its roll of membership contained a large number of country subscribers, that it was a society rapidly growing in extent, and while one of the oldest was also one of the most comprehensive Chrysanthemum Societies in existence. After considerable discussion the resolution was referred to a meeting of the members of the Society, and this took place on Tuesday evening last, when there was a very large attendance. The subject was fully considered, and eventually the resolution given above was adopted by an almost unanimous vote. In the course of the discussion the members contended that certain classes must be reserved for borough cultivators, as heretofore, and this was distinctly understood; while further efforts will be put forth to encourage the culture of the Chrysanthemum within the area of the Parliamentary boroughs in the metropolis.

—— RAIN GAUGES GRATIS.—Mr. G. J. SYMONS, 62, Camden Square, London, N.W., writing to the *Times* of Thursday last, says:—

"It is not often that those who make wills leave anything to scientific objects, it is still more rare for the appropriation of the amount to be left at the disposal of one person. A deceased correspondent has placed me in that almost unique position, and as I wish to effect the largest possible amount of benefit with the money I am obliged to ask your help in spending some of it. Miss ELEANOR NUNES, who had been keeping an extremely accurate record of the fall of rain at Langtree Wick, Torrington, Devon, died last spring, having left the sum of £100 to me 'to be applied to meteorological purposes.' I am sure that there are few things which would have pleased the testatrix more than the establishment of additional rain gauges in those parts of the British isles where even yet there are large tracts of country without any—for instance, there is not even one in co. Kildare or co. Roscommon. The object of this letter is, therefore, to announce that I am prepared to consider applications from all parts of the kingdom for rain gauges to be sent gratuitously on loan subject to very easy conditions, and to send them to all accepted applicants who reside five miles from any rain gauge now at work, and the same distance from any other applicant. Copies of the rules to which observers will have to conform will be sent free upon application, but it will save some correspondence if you will allow me to subjoin the first part of Rule I., as it is useless for any one who cannot comply with it to apply for a gauge:—I. Site.—A rain gauge should not be set on a slope or terrace, but on a level piece of ground, at a distance from shrubs, trees, walls, and buildings—at the very least, as many feet from their base as they are in height."

—— COVENT GARDEN MARKET.—At a meeting of the Court of Common Council on the 1st inst. the Markets Committee brought up an important report on the reference to them of a letter from the Duke of BEDFORD, in which his Grace informed the Court that a large block of buildings between Covent Garden Market and the Strand fell out of lease during the current year, and before dealing with the premises by way of re-letting he was desirous of knowing whether the Corporation of London wished to acquire Covent Garden Market as part of any general scheme of market extension in the metropolis. At the outset Mr. BOURNE, the Duke's agent, courteously offered to supply any information that might be desired, and accordingly attended before them. As a result of that interview they felt that before they could be in a position to express any opinion as to the advisability of the Corporation taking any steps with a view to the purchase of the market it was essential they should have some knowledge of the approximate sum asked by the Duke. Collateral points also occurred to them, and for the purpose of obtaining information thereon the officers, by their instructions, placed them in communication with Mr. BOURNE. Mr. BOURNE replied that no approximate valuation of the market and adjacent property had been made, but he was authorised to say, for the information of the committee, that if the Corporation should elect to purchase the Duke's trustee would be advised to concur in any reasonable agreement that might be suggested for the ascertainment of the fair market value, and, if acquired under the powers of a special Act, that the sale should be treated as a voluntary and not as a compulsory one. The Duke would be ready to sell as much of his estate outside the market area as the Corporation would consider to be needed in the interests of the public. He (Mr. BOURNE) had supplied the City architect with a plan showing the property at present available and indicating other property that would be available within a reasonable time. It would not be practicable to sell the market franchise apart from the market area. By the original charter the franchise could not be severed from the soil. He (Mr. BOURNE) should be pleased to supply the committee with any *data* that they might think would help them in advising on the subject, and if it should appear desirable that the Corporation should acquire the market they might rely on every assistance being given by the Duke to facilitate the necessary arrangement for its transfer. The committee thus conclude:—"We have, with the assistance of the officers, given the subject the best attention, approaching it from the broad view of the public interest, possibly even predisposed in its favour, and certainly appreciating the courtesy of the Duke in affording the Corporation the opportunity of looking fully into the question with a view to see whether the acquisition of the market would assist to elucidate the question of suitable market accommodation for the metropolis. After the fullest consideration, we are of opinion that it would not do so, its position, its contracted area, the nature of the approaches, and the value of the market and land surrounding being primary elements in this decision. We therefore beg to report that, after a full and careful inquiry, we do not consider that it would be expedient for the Corporation to take steps to acquire Covent Garden Market; and this is our unanimous opinion."

—— A HISTORY OF BRITISH BIRDS.—The new edition of "YARRELL," now under the direction of Mr. HOWARD SAUNDERS, has reached its nineteenth part, and comprises descriptions and figures of various Snipes, Sandpipers and allied birds. It is published by VAN VOORST, and is quite indispensable to bird lovers.

—— VARIATIONS IN NATURE.—We have before us a copy of Mr. MEEHAN'S address before the American Association for the Advancement of Science, in which he controverts the view that the variations met with in plants are connected with some benefit to the plant, and shows that many variations occur which are no special advantage to the individual plant in which they occur. In Mr. MEEHAN'S opinion it is posterity at which Nature aims. Self-sacrifice, not self-interest, is Nature's demand on us all. In support of his view he notes the great waste that goes on in Nature; the millions of pollen-grains, for instance, that are produced for every one that is of service in fertilisation. All these pollen-grains are useful, not to the parents that bore them, but as sacrifices to posterity. They serve as food; they die that something else may live. In illustration of his subject Mr. MEEHAN cites the case of Pinus rigida:—

"Here we have a series of cones made up from trees growing within a circuit of, say, a day's ride around Hammonton, N.J. They are all from trees of Pinus rigida. From one tree we have cones 4 inches long and almost round; others 4 inches long and not 2 inches wide; the one would be called almost linear, the other almost globose. Others are flat at the base and will stand upright; the others are rounded and roll over like marbles. One is so small as to be not more than an inch in length, and yet with perfect seeds. Some have very narrow scales, others have very wide ones. Some open slightly, but never much, others open so much that they reflex. Then there are some which to the best of my belief never open. Then we find several characters going along together. For instance, it is the narrow scaled forms which recurve; while the broader the scale the less tendency there is in the cone to open and scatter the seed. We see that all these cones belong to Pinus rigida, because between each cone there is but a shade of difference. Now I have already shown you that seeds of any one of these cones would produce trees bearing cones with a general resemblance to the parent cone. Supposing all these intermediates were to be crowded out, and only the two extremes left, there is not a botanist but would regard them as two distinct species. Now what I have given you as a supposititious case is an actual truth. We have at one end Pinus rigida, at the other Pinus serotina of the older botanists. Pinus serotina is no longer considered a good species. Why? Not because there was any error in the original description, but simply because we have found the missing links. You cannot conceive of any physiological value to the individual or to the race to spring from any of these changes from the original form; you will not for one moment believe that in any one of these forms there is the slightest advantage to be gained over the other in what would be generally understood as the struggle for life. On the contrary, you will find one which has the cone closed, and in this particular lost the power to readily distribute the seeds—lost the great advantage of numbers in the tremendous battle—is the one form which has so well succeeded in establishing itself as to be the only one which has gained a distinctive botanical name.

"I think you will come to agree with me that 'the race is not always to the swift, nor the battle to the strong' is just as true in the development of species as in morals; that the whole round of organic existence is not one of self-seeking advantage over one's neighbour, but one of intrepid self-sacrifice; and that the doctrine of evolution and the theory of natural selection are rendered clearer and stronger by the perception of these facts."

—— "WOODS AND FORESTS."—Under this title it is proposed to issue shortly a weekly journal intended to be a practical journal of planting for use and ornament, and devoted to the subject of estate management generally. The office is at 37, Southampton Street, Strand.

—— PREMATURE FLOWERING.—Many years ago we noted the early development of the leaves and flowers of a Horse Chestnut tree at the corner of Lyndhurst Road, Peckham. Every year this particular tree was some weeks in advance of its associates. We now learn that what is presumably the same tree, is now expanding its blossoms, to the detriment of its appearance next spring.

—— BOROUGH OF HACKNEY CHRYSANTHEMUM SOCIETY.—At a meeting of this society which took place at the "Milford Arms" Hotel, Hackney, on the 6th inst., considerable interest was imparted to the proceedings by Messrs. HENRY CANNELL & SONS, of Swanley, and Messrs. MAHOOD & SON, of Putney, sending a number of cut blooms of new Japanese incurved and pompon varieties of Chrysanthemums for inspection. In a letter which accompanied the flowers, Mr. CANNELL pointed out that there are now a considerable number of Japanese Chrysanthemums, especially among the newer sorts, that flower in October, and there being no meeting of the Floral Committee of the Royal Horticultural Society between October 9 and November 13, when many of the early flowering varieties are over, there was much need of some

body that could take cognisance of the flowers that could not be sent to South Kensington, and he requested that the Hackney Society, being metropolitan in its scope, should pass some opinion on the flowers submitted on that occasion. Mr. Cannell's collection was a very interesting one, numbering quite fifty varieties. Mr. Cannell's suggestion being favourably received by a full meeting of the committee, Messrs. Orchard, Davis and Gilbey were appointed a sub-committee of censors, and they made a report as follows, which was unanimously approved by the committee :—First-class Certificates of Merit to Messrs. Cannell & Sons for the following Japanese varieties :—Mary Major, a beautiful pure white variety—very chaste and distinct ; Chinaman, a large full flower of a brilliant violet-purple hue, dashed with silvery white ; and La Vierge, an extremely pretty pale variety of good quality ; also to Lord Wolseley, an orange-bronze sport from Prince Alfred, and classed among the incurved larger flowering varieties. This gives an acceptable hue of colour in this class. Messrs. Cannell & Sons also received Second-class Certificates of Merit for the following : —Mdlle. Louise Sabatie, bright violet-rose, tinted white—long and slightly tinted petals ; Mons. Boyer, rosy-lilac—large and distinct ; and J. Hillier, with long curled drooping petals of a rich amaranth colour, spotted with violet. The foregoing were all, we believe, of Continental origin. Messrs. Mahood & Son were awarded First-class Certificates of Merit for the two following new Japanese varieties of their own raising, viz. :—Mrs. Townsend, bright orange-red deepening to maroon at the points of the narrow slightly twisted petals ; Joseph Mahood, orange, tinted with cinnamon—a fine large flower of great beauty ; and R. Ballantine, a very fine incurved Japanese variety, which, when fully developed, is of a soft pinkish-violet colour, the reverse purplish-crimson. This comes so near to the large flowering incurved type that it will very soon be difficult to discriminate between them. Thomas Todman, pale purple, and a pretty orange and crimson seedling, unnamed, were also shown by Messrs. Mahood & Son. The following newer Japanese varieties in Mr. Cannell's collection were particularly noticeable :—Rosea superba, deep rosy-lilac and buff ; Mons. R. Larios, Cœur Fidèle, Mons. Deveiller, Beauté de Toulouse, and Dormillon. Some pretty new pompon varieties were also worthy of notice, viz., New Marabout, white and delicate lilac, the petals much fimbriated ; Yellow Lilac, large and very full symmetrical flowers of a pale lilac-purple colour ; Elegant, very small bronzy-red, borne in clusters ; Vulcan, dark chestnut-red ; and Dupont de l'Eure, pale purple, very fine form.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Nov. 5, issued by the Meteorological Office, London :—The weather during the first few days was generally dull, with fog or mist, but as the week progressed it became very unsettled, squally and rainy. The temperature continued above the mean in all districts, the excess varying from 1° over central, southern, and north-western England to 4° over Scotland and the north of Ireland. The maxima, which were recorded in most places on the first day of the period, ranged from 55° in the north of England to 58° in "Scotland, E.," and 59° in "Ireland, N." The minima were registered at most stations on the 4th, and varied from 30° in "England, N.W.," and 32° in "England, S.," to 37° in "Scotland, E.," and "Ireland, S.," and 38° in "Ireland, N." The rainfall has been rather less than the mean in "Scotland, E.," and "England, N.E.," but more in all other districts. Bright sunshine has been very deficient in all places, the percentages ranging from 27 to 28 in Scotland to 7 in the "Midland Counties," and 6 in "England, S." Depressions observed :—During the earlier part of this period the barometer over our islands continued high and uniform, with light breezes, generally easterly in the south, and southerly in the west and north. Later on, however, several important depressions travelled from west to east off the north of Scotland, while on the night of the 5th a deep depression, subsidiary to the larger disturbances in the north, passed rapidly across Ireland and England. Strong winds between south and west were consequently general during the last few days, and on many parts of our coasts they reached the force of a moderate to fresh gale.

—— Gardening Appointments. — Mr. J. Kettle, late Foreman at Ashley Park, Walton-on-Thames, as Gardener to Lady Scott, The Hurst, Walton-on-Thames.—Mr. S. Vinney, lately Gardener to J. R. R. Barker, Esq., Fairford Park, Gloucester, as Gardener to H. Foley Vernon, Esq., Hanbury Hall, Droitwich.—Mr. William Stewart, Gardener at Arrochar House, N.B., as Gardener to F. Clifford Allbutt, Esq., Carr Manor, near Leeds.

THE CLIMATE OF CENTRAL AMERICA.

(*Concluded from page* 559.)

A comparison of my records of the temperature in Costa Rica in the month of August with similar records made in the same month at Chiswick indicates that the temperature of Central America is remarkable for its equality, especially for the minima which are reached every day towards the end of the night. Neither do the maxima differ very much. There is one exception, on August 9, when the heat attained 79° F. It was because that day was the second on which no rain had fallen ; perhaps it may have been sunny even in the afternoon. At all events there is never any excessive heat, as in summer, on the continent of Europe, where the thermometer reaches sometimes 100° F., whereas the maximum in my station of Costa Rica was 79° F., and that of Chiswick 75° F. ; the difference between the two is therefore only 4°. In the night the temperature is very pleasant, never falling below 60° F., whereas in London it descends even to 50° F. As for England, although the most temperate of Central European countries, it strikes us by its sudden changes of temperature : there are days where the minimum reaches almost the maximum of the preceding day—a thing quite unknown in the Tropics. For the other regions of Central America the proportion of maximum and minimum are always the same. If I want to form a diagram of the temperature on the coast, I know that the mean temperature there is 79°, whereas at my station it is 70°, and I have only to shift up this diagram by 9°, the result is then pretty correct. I do the same for the mountain region, lowering the diagram by 3° F. for every 1000 feet rise. The temperature is about the same all through the rainy season, and even in the dry season the difference is only 2° F. ; the minimum is then 57°, instead of 59°, for if the sun shines all day, on the other hand the cool wind comes down from the high mountains. The greatest heat I have ever observed in the dry season at an altitude of over 3000 feet was 86° F. (March, 1881).

As to the rainfall, as a rule the mornings are rainless. In the afternoon it is just the reverse, a dry afternoon is then the exception ; out of the thirty-one afternoons of August there were twenty-three with rains or storms, of which I have described one of the heaviest.

We have yet to mention one factor more of the climate ; this is the dew, which is exceedingly heavy, much more so than in any part of Europe, and in the dry season makes up partly for the want of rain.

Now that the reader is fully acquainted with the climate of the place, let us see what we may infer therefrom as to the culture of Orchids.

Orchid Culture. — It is evidently useless to try to imitate Nature too closely in our hothouses, and many of the elements thereof are beyond our power to create, such are light and electricity ; others are only produced very artificially, such as moisture, ventilation, and heat. We must use what we have, but we can say that all want of harmony in the means we apply is fatal. For instance, heat and light are proportioned to one another in Nature ; it is, therefore, a mistake in our pale northern light to create artificially a tropical heat for plants accustomed to tropical light. The Trichopilias grow in their natural habitat in a mean temperature of 70° F., the minimum never falling below 57° F., and in full sunshine ; but in our dark winters no Orchid grower would think of keeping his temperate-house at a mean heat of 70°. Gardeners have found out this law by experience after many failures.

But if we must not try to imitate Nature too closely, on the other hand we must not disdain its teachings. It is clear that Pescatorea, which grows in the dark shadow of the virgin forest, must not be treated like a Cattleya or a Lælia which grows on rocks, or in the open savannah on trees, which in the dry season are leafless, and, therefore, grow in full light. The plants of the coast will require more heat than those of the mountains.

I shall say nothing about the heat to be given to each category of plants. By experience and the communications of travellers it is now generally known what degree of heat is most favourable in the case of most of the known species, and as to the new plants it is the duty of the collector to furnish precise information.

An essential question is that of the amount of light. All that remarkable section of Orchids without pseudobulbs, such as Pescatorea, Warscewiczella, Bollea, grow only in the interior of forests, on stones, on the stem or on the lower branches of trees, and therefore require absolute shade—too much light would kill them. I can say the same of the Trichopilia, the Cypripedium longifolium, the Chysis and most of the Masdevallias.

Near these plants are to be found in the same locality but on the top of the trees the Odontoglossum cariniferum, Schliperianum, Oerstedti, and most of the same genus, the Epidendrum prismatocarpum and others, the Oncidium cheirophorum, Cypripedium caudatum, &c. As these plants grow on the top of the trees they require more light, the direct rays of the sun are unfavourable to them but much more so the shade. I have seen Epidendrum prismatocarpum, Odontoglossum cariniferum, and others displaced by accident grow and flower in full sunshine but with faded colours, on the other hand I have seen the same fallen at the foot of trees inside the forest rot away and die in a short time.

The plants which require most light are amongst the most brilliant. Such are the Cattleyas, of which the C. Skinneri and Dowiana are Central American kinds ; the Lælia, of which few are found in Central America (excluding Mexico) ; most Oncidiums, splendid Sobralias (Fenzliana, &c.), fine Epidendrums (macrochilum, Stamfordianum).

I must insist on the fact that these plants in their habitat enjoy sunshine only during the dry season ; during the rainy season, on the contrary, they are shaded by the leaves of the trees, and also during the hotter part of the day by a thickly clouded sky, and in the evening often by dense fogs. It is therefore not rational to expose them to continuous sunshine.

This leads me to the question of moisture and watering. During the rainy season in the Tropics the air is always so saturated with humidity that no gun, tool, knife, or any object in steel or iron can be kept free from rust ; the clothes you put on in the morning are wet through, however dry you may try to keep them, and your boots are white with mouldiness. At other times of the year the north wind dries up everything, it is true, but the nights are nevertheless very damp, as we can see by the dew. We must, therefore, keep our Orchid-houses in a permanent state of moisture ; but I doubt whether it be well to let the air be saturated with the same, as the ventilation is so defective (compared to that of their native abode), even with the very best systems, that the air if too damp might possibly favour rot. As to watering, I believe that, even in winter, light and frequent syringing is useful to the plants, and makes real watering useless, unless they actually begin to grow. The Huntleyas (Pescatoreas, &c.), Sobralias, and Cypripediums require all the year round much moisture at the roots. The first especially grow in the middle of the forests, and never receive the direct drops of the rain ; I think, therefore, the best way of watering these plants is to dip them into water —I have done so most successfully.

As to ventilation, I say only—what is already known—give as much as you can ; there is a great difficulty to surmount in doing so, for free ventilation dries up the air in summer and cools it in winter ; but I have no doubt that some system will be found by which these drawbacks may be avoided.

I do not mean in this paper to go further into the details of this subject, but I may say before ending that the advice I have given is based not simply on the theoretical suggestion of a traveller, but on experiments in my own culture of Orchids in Chiswick, which I began only a few months ago, and their

present state is so satisfactory that I feel sure the result will prove the treatment I have indicated to be a quite rational one.

Before concluding I beg to add that I consider it to be the main duty of the botanical traveller and explorer to seek to enrich horticulture by his discoveries with unknown or rare and beautiful specimens of the plants that are scattered in the untravelled parts of the world; but yet it ought not to prevent him from taking notes which may be useful either to men of science or growers, and if I have succeeded in interesting either I shall have fully accomplished my purpose while writing these lines. *Richard Pfau, Chiswick, October.*

PLANT PORTRAITS.

BEGONIA OLBIA, O. Kerchove, in *Revue de l'Horticulture Belge*, November.—A species like B. Diadema, but with short fleshy stem and irregularly toothed leaves, of a blackish-green above, spotted with white, and of a rich vinous-red beneath. The flowers are white. Introduced by M. Pynaert, of Ghent.

BLANDFORDIA CUNNINGHAMI SPLENDENS, *Garden*, October 27.

CARAGUATA SANGUINEA, *Revue Horticole*, October 16.—A handsome Bromeliad, discovered in New Grenada by M. André, and now introduced by him into cultivation. The plant is of tufted habit, with orange-scarlet leaves surrounding a central tuft of small whitish flowers. It is a very handsome species, of moderate dimensions.

CRINUM HILDEBRANDI, Vatke; Baker, in *Bot. Mag.* (1883), t. 6709, and in *Gard. Chron.* 1881, vol. xvi., p. 180.

CYPRIPEDIUM WARNERIANUM, LAURENCEANUM SPECTABILE, *Garten Zeitung*, September.

LEUCOIUM HYEMALE, DC.; Baker, in *Bot. Mag.*, t. 6711 (1883).—One of the rarest of European plants, confined to the sea shore between Nice and Mentone. It has linear leaves and small nodding star-like whitish flowers.

PHALÆNOPSIS SANDERIANA, *Garden*, September 29.—A form of P. amabilis.

PRIMULA FLORIBUNDA, Wallich; Hook. fil., in *Bot. Mag.* (1883), t. 6712; see also *Gard. Chron.* 1882, vol. xix., p. 113, f. 17.

RHAMNUS LIBANOTICA, Boiss,; Hook. f., in *Bot. Mag.*, t. 6721.—A hardy deciduous shrub, with bold, alternate, shortly stalked, lanceolate leaves, turning of a beautiful bronze colour in autumn, and inconspicuous green flowers.

RHEUM HYBRIDUM "FLORENTIN," *Revue Horticole*, September 16.—A spontaneous hybrid grown in the garden of the Faculty of Medicine at Paris, and presumed on good evidence to be a cross between R. Collinianum of Baillon, and R. officinale. The branched spikes of flowers are of a deep pink colour, and very showy.

SARMIENTA REPENS, Ruiz and Pavon; Hook. f., in *Bot. Mag.*, Nov. 1883, t. 6720.—A pretty little Chilian Gesnerad of creeping habit with small opposite fleshy roundish acute subsessile leaves, slender axillary peduncles exceeding the leaves in length and bearing solitary flowers about 1 inch in length, with tubular corollas, narrow at the base and throat distended in the middle and with a short five-lobed limb, beyond which project two long stamens, the other stamens being much shorter or abortive. It is best cultivated in a cool greenhouse.

TULIPA KOLPAKOWSKYANA, Regel; Baker, in *Bot. Mag.* (1883), t. 6710; see also *Gard. Chron.* 1880, f. 111 and 113, and 1883, vol. xix., p. 789.

DISEASE OF LETTUCES.

PERONOSPORA GANGLIONIFORMIS.

THE Rev. M. J. Berkeley pointed out in the first volume of the *Journal* of the Royal Horticultural Society in 1846 that Lettuces were at that time subject to a putrefactive disease, caused by a fungus closely allied to the fungus of the Potato disease, and named by him Botrytis ganglioniformis. Besides the fungus of the Potato disease, Mr. Berkeley described four other allied species, and stated that he knew "many other undescribed species." In the volume above adverted to there is an illustration of Botrytis ganglioniformis probably not improved from the original sketch by the process of lithography. As the paper referred to is restricted almost entirely to the Potato disease the Lettuce fungus is not referred to at any length, neither is there any scale of magnification on the plate. The season of growth is not given. Soon after, however, Mr. Berkeley supplied the period of the year in the *Annals of Natural History*, ser. 2, vol. vii., p. 526, where he said "very common on Lettuce leaves in the spring."

As too often happens with names of fungi, various botanists have, with insufficient reason, altered the name of the Lettuce fungus. Corda was the first to do this, and he changed Botrytis to Peronospora, and since then the fungus has been generally known as Peronospora ganglioniformis. De Bary did not approve of ganglioniformis so altered it to gangliformis. Then Tulasne renamed the fungus Peronospora parasitica var. lactucæ, and lastly we observe that Dr. Max Cornu prefers P. gangliiformis. We have recently

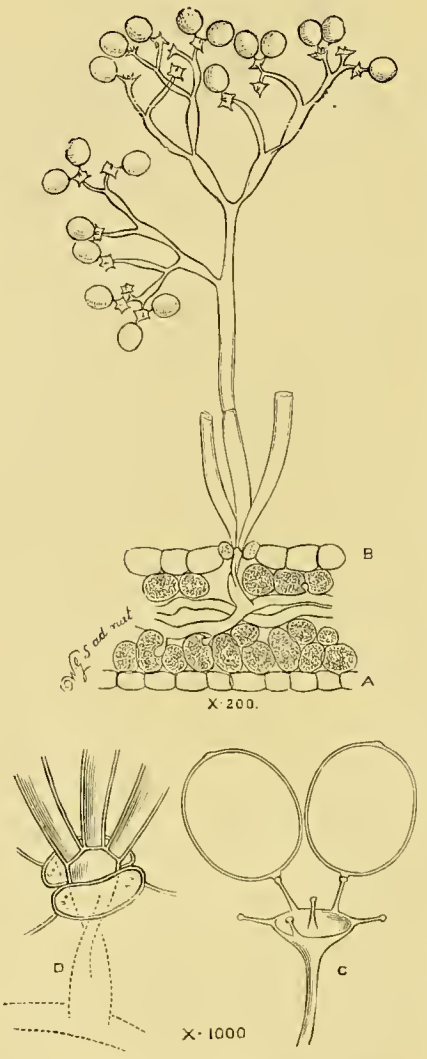

FIG. 106.—FUNGUS OF LETTUCE DISEASE (PERONOSPORA GANGLIONIFORMIS),

Growing out from the lower surface of the leaf, but shown in the reversed position in the drawing.

seen it suggested that a society should be formed for the purpose of taking back Cleopatra's Needle and other Egyptian and Greek antiquities now in Europe to Egypt and Greece. Perhaps the time may some day arrive when a society will be formed for the reconstitution of old generic names and the obliteration of the many worthless new ones. Botrytis is a far better name than Peronospora, for the former means a bunch of Grapes, and refers to the appearance of the fungi as they hang down from the undersurface of leaves very much in the style of bunches of Grapes. Unfortunately the gentleman who invented the name of Peronospora (Corda) is not alive to tell us what his views really were—ganglioniformis refers to the fruiting threads of the fungus resembling the natural enlargements termed ganglions in the course of a nerve. It is a curious fact that in the lithograph of Mr. Berkeley's first hasty sketch these ganglionic swellings are wholly omitted, and it is still more curious that in all the copies made by different authors during the last thirty-seven years the ganglions are wholly omitted—so is the scale of measurement. Mr. Berkeley said the plant was common in the spring, so do the since published handbooks; but the fact is, there are two crops of this Peronospora every year, and the most virulent is generally in September and October. The invasion of Lettuces in the late autumn is often so destructive that it entirely destroys the harvest of Lettuce seeds.

In fig. 106 we have made an attempt to illustrate Peronospora ganglioniformis from Nature, but enlarged 200 diameters. The peculiar ganglion-like swellings of the branches are seen in the upper part of the illustration. The end of each fine ultimate branch is most beautifully dilated into a saucer-like expansion, with a single excessively attenuated spicule growing from the centre of the saucer, with from three to five spicules round its margin. This extremely beautiful growth (something like the leaf of a Drosera, with its glandular hairs) is illustrated at C, enlarged 1000 diameters; each spicule is slightly dilated at the tip, and on each tip a comparatively large globose spore is balanced, four to six on the dilated end of each tiny branchlet. The Cabbage Peronospora, P. parasitica, to which Tulasne wished to refer this plant, is destitute of these saucer-like expansions. At the top of the spores will be noticed a small almost invisible papilla, best seen in the figure at C; at this papilla the spore bursts, and the vital material streams out on germination.

The illustration shows the fungus growing in and on a Lettuce leaf; the letters A and B indicate the thickness of the lamina of the leaf, which really in the Lettuce is unusually thin; the spawn inside the leaf is furnished with minute suckers, with which the fungus pierces the cells and supports its life. Three fruiting threads are shown emerging from one of the minute mouths or organs of transpiration of the leaf (stomata), and it will be seen at a glance that the mycelial threads are too large to get from the inside, through the little mouths into the air. To meet this difficulty the threads inside the leaf, as they approach the stomata, twist round once, like a corkscrew, flatten themselves, and push through the stomata with a chisel-edge (see fig. 106 D). As soon as this chisel-edge is pushed into the air a septum appears, and from this septum one, two, or three fruiting threads arise. Corda said that genuine species of Peronospora had no septa or joints, but it often happens that authors and Nature are a little at variance. The growth of the threads through the stomata is shown enlarged from Nature 1000 diameters at D.

Happily the Lettuce Peronospora is not everywhere in Britain. It is only recorded as growing on Sow Thistles in Scotland. Some market gardeners have never seen it, others know its spring and autumn visitation too well. It causes large pallid patches to appear on the leaves, and on the outside of these patches little white nodules of the destructive mould may be seen. In the spring the pest begins on the outside leaves, and proceeds inwards, carrying putrefaction in its course. In bad cases summer Lettuces are quickly reduced to lumps of wet putridity. In the autumn the flowers and fruits or seeds are chiefly destroyed. Thickly sown plants are worst affected.

Peronospora ganglioniformis grows on various other living Composite plants in addition to the garden Lettuce. Of these the different sorts of Sow Thistles are most often attacked, then Cnicus arvensis, Cichorium Endivia, the Nipplewort, Lapsana communis, Groundsel, Senecio vulgaris, and other plants, both wild and cultivated. Weeds nurse the fungus for the Lettuces, and as Peronospora ganglioniformis is known to produce resting-spores it is desirable that all decaying Lettuce material as well as the decaying weeds above-mentioned, should, where possible, be gathered together by children and burnt. *W. G. Smith.*

GARDENERS' SOCIETIES.

HOW is it, that in Kent—and especially in the Maidstone district—gardeners' societies appear to be not only numerous (as they are to be found in almost every village), but prosperous also? Any one taking up a county newspaper, which circulates in the particular district, will find duly reported meetings of gardeners' societies; and it would seem that not only do the brethren of the spade meet together for reading and discussing papers bearing on practical gardening, but they also exhibit any fruit, plants, flowers, and vegetables, and, in not a few instances, prizes are offered for the best subjects, and this kind of useful, practical meeting appears to be almost unknown elsewhere. In the suburbs round London,

where gardeners of all degrees abound, it is very difficult indeed to get such a society to exist, either from a want of interest, or from a lack of a feeling of unity and mutual confidence. The balance-sheet of receipts and expenditure of the Maidstone Gardeners' Society for the year ending September 30 last is a very interesting and instructive document. The Society includes in its roll of followship 155 honorary and 143 ordinary members; and it has a balance of something like £370 at its bankers. Notwithstanding that the Society undertakes important financial responsibilities, it not only pays its way, but during the year just closed was able to add the sum of £7 to its balance at the bank. It holds a Chrysanthemum and Fruit Show in November at a cost of some £80, and nearly, if not quite, makes it pay, taking the large sum of £30 3*s.* 6*d.* as payment at the doors; it holds six monthly shows in the year in addition, viz., in January, February, March, April, May, and June; also an Aster Show in September; and gives prizes for essays on different aspects of gardening. The meetings are always well attended, and the honorary members, but few of whom are directly connected with gardening, attend in large numbers. There is also a kind of benevolent fund in connection with the Society, and members needing pecuniary assistance at times receive it from this fund. The sum of £10 was expended in this way during the past year, and it is certain that these monies are distributed only in deserving cases, and after full consideration.

Perhaps as far as the suburbs of London are concerned, we must discriminate between real and sham gardeners; and, however much the fact is to be regretted, yet it is undoubtedly true, that many ne'er-do-weels join the ranks of the jobbing gardeners, and, besides bringing the gardening profession into disgrace, they lower the rate of wages for really competent men. Why should there not be some attempt at combination among *bonâ fide* gardeners to bring their claims before the public, and so oust, as far as possible, the non-professional class? This might be done through the agency of gardeners' societies, and there is quite enough of the proper element in each suburban district to keep an organisation of this kind on its legs and fairly prosperous. Such an association can be worked inexpensively. From it might emanate a circular addressed to suburban residents, setting forth the names and addresses of men really competent to manage gardens. Such a document would be welcomed by many who at present take their gardeners upon trust, and have cause to rue the day they did so. Such a society would afford gardeners the means of meeting together and discussing the difficulties of their position and any means of improving it.

Other matters of importance would also suggest themselves as fitting topics for consideration. Meeting places can be secured at a comparatively trifling cost, and as a last resource a room can be had at a public house, though for obvious reasons it is desirable these places should only be resorted to when none other offers. One great difficulty is the want of qualified leaders, men with intelligence, tact, business capacity, and steadiness of character. Once form a nucleus, and we think men fitted to lead will be forthcoming. I do not advocate mere tyrannical trades unionism, but the establishment of helpful means, so that men may be encouraged to do something in the way of attempting to better their condition. And it is certain that all laudable attempts in this direction will receive some measure of support at the hands of the public, if the efforts are of a nature to command sympathy and deserve assistance. *R. D.*

THE "KUMARA."

A New Vegetable for this Country.

Of all our colonies New Zealand, almost at our antipodes, possesses a climate nearest to that of the Mother Country, though the mean annual temperature is some degrees higher, and the winter-cold is never severe. It is from this country that the Kumara, a kind of sweet Potato, comes. The earlier voyagers, who paid attention to the vegetable productions, wild and cultivated, of New Zealand, speak very highly of this vegetable, which was cultivated with great care by the Maories. It is the Convolvulus chrysorrhizus of Forster, and probably only a race of Ipomœa Batatas, so widely cultivated in the Pacific Islands and elsewhere. For the last ten years Sir Joseph Hooker has been trying to introduce it into this country, and Mr. W. Colenso, who knows more, probably, than any living person concerning the Maories, from their language to their food, has several times sent tubers to Kew; but from some cause they have not grown. This year, however, some tubers sent to Kew by Mr. Cheeseman have grown and increased, and Sir Joseph Hooker is sanguine that the Kumara may be successfully cultivated in this country. The small crop of tubers obtained at Kew has been widely distributed, so that others may test the value and capabilities of the Kumara in Europe. We have been favoured with half-a-dozen small tubers for our drawing (fig. 107) and a taste, and we agree with Sir Joseph Hooker that the Kumara is an excellent vegetable, likely to prove valuable if it flourish in our climate. It is too early yet to say anything on the last point. The flavour is that of a good sweet Potato, over which it has the advantage of a convenient size, resembling more in this respect the common Potato; and it may be cooked and served in almost as many ways as the latter. There are many varieties cultivated by the Maories, concerning which we cannot do better than make some extracts from an article, by Mr. W. Colenso, in the *Transactions of the New Zealand Institute*:—

"The first (among the vegetables cultivated by the Maories) in every respect and degree was the Kumara. This plant is an annual (rather herbaceous plant) of tender growth, and was one of their vegetable mainstays.

Fig. 107.—The Kumara Tuber: real size.

Their use of this plant, as I take it, is from pre-historical times, as their many legends about it evidently show, which I purpose to lay before you in a future paper. In suitable seasons and soils its yield was very plentiful. It had, however, one potent enemy of the insect tribe, in the form of a large larva of one of our largest moths. This larva was named *anuhe*, *awhato*, and *hotete*, and as it rapidly devoured the leaves of the young Kumara, it was quite abhorred by the Maories, who always believed that they were rained down on their plants. Sometimes their numbers were almost incredible, as some of us have also seen in the abundance of the more common caterpillar pests in certain seasons. I myself have often marvelled at them in their number, and where they could possibly have come from, basketfuls being carefully gathered from the plants, and carried off and burnt. This job of gathering them, though necessary, was always greatly disliked. Long before the roots or tubers of the Kumara were of full size they were regularly laid under contribution; each plant was visited by old women with their little sharp-pointed spades or dibbles, who were quite up to their work, and a few of the largest young tubers selected and taken away, and the earth around the plants loosened, when it was again "hilled" up—an operation not unlike that of our Potato hoeing, only much more carefully performed, as at the same time they took away every withered leaf and upper outlying rootlet and weak sprout. Those young tubers were carefully scraped, and half dried on clean mattings in the sun, being turned every day and carefully covered from the dew, and when dry, either eaten or put away in baskets as a kind of sweetish confection or preserved tuber, greatly esteemed by them either raw or soaked and mashed up with a little warm water, and called *kao*.

"At the general digging of the crop in the late autumn, but always before the first frost, great care was observed in the taking up of the roots, when they were carefully sorted according to size and variety (if of two or more varieties in the same plantation), all bruised, broken, or slightly injured ones being put on one side for early use; then they were gathered up into large flax baskets, always newly made, and in due time stowed away in the proper store, taking great care to do so only on a perfectly dry sunshiny day, as they had to guard against mouldiness of every kind, which was destructive and dreaded. It is impossible to estimate, even approximately, the immense quantity of this root, which was annually raised by the old Maories, especially before they took to the cultivation of the introduced Potato.

"At their large and noted tribal feasts enormous quantities were used, as well as at their commoner feasts held on account of births, betrothals, marriages, deaths, &c.; on such great occasions the quantity was often increased through profuse ostentation, for which, while the chief and the tribe gained a great name, they all (especially the women and children) subsequently suffered severely

"But, in my opinion, one of the most remarkable things pertaining to this useful root, or tuber, has yet to be noticed; its many marked varieties, which were also old and permanent. I have, I think, known more than thirty varieties; and I have lists from the north and the south of several others, and have also heard of others—possibly ten more—while some old sorts were known to have been lost. In this respect the tubers differed just as Potatos do with us. Some were red-skinned, some purple, and others white; some were rough-skinned, and others smooth; some had red flesh, or were pink, or dark purple throughout, others were white; some were even and cylindrical, others were deeply grooved or regularly channelled; some were short and thick, with obtuse ends, others were long and tapering, with pointed ends; and I never once noticed that there was any mixture (as it were) of the several varieties—all came true to sorts planted, as in the Potato with us; their only sign of degeneration through soil or drought was in the size. Now all those several varieties were of old, and only handed down by the strict preserving of the seed (or tuber); and the question with me has ever been, How were they first derived? From the Maories themselves I never could learn anything satisfactory respecting them, save that they had had them of old from their forefathers. Of course, for the time I set aside their legends concerning them.

"I have carefully inquired if the old Maories had ever known the Kumara to flower, but they all said, 'No; never heard of such a thing.' And they never harvested their crop until after the withering of the leaves of the plant. I have also frequently enquired if any sort or variety had ever been newly raised by them or their immediate fathers. To this they also replied, 'No.'

"Is it not possible that in ancient times this plant did flower here, and that the old cultivators, either by design or accident, obtained their sorts by sowing seed? The northern tribes, especially the Nagapuhi, had, more than forty years ago, obtained several new varieties of Potato by sowing its seed; to which, however, they were first led by accident, having noticed some young plants which had sprung from self-sown seed of the ripe Potato berries, and from them they had obtained several good and prized sorts.

"Is it also not possible that this plant (Kumara), through constant, assiduous, early, artificial cultivation, extending throughout centuries, has permanently changed in this respect of non-flowering, as it is known the early varieties of Potato have done in England through repeated cultivation? There the earliest varieties do not produce flowers or seed. There is an excellent paper by Mr. T. A. Knight in the *Philosophical Transactions* for 1806 (London) bearing on this subject, in which Mr. Knight shows, from experiments made by him, that the same fluid or sap gives existence alike to the tuber, the blossoms, and the seed, and that whenever a plant of the Potato affords either seeds or blossoms, a diminution of the crop of tubers, or an increased expenditure of the riches of the soil, must necessarily take place. Following this out he succeeded in producing varieties of sufficiently luxuriant growth and large produce, which never produced blossoms. I have previously shown that the Maories used no manure, and planted the Kumara in poor gravelly soils devoid of all richness."

Mr. Colenso gives a list of names of upwards of forty varieties, all of them having small tubers. They are classified as follows:—Varieties with a white skin, and white or whitish flesh; white skin, with a slightly reddish flesh; red skin and flesh; and varieties having dark purple skin and flesh. The variety cultivated at Kew has a whitish skin and flesh, and the tuber figured is represented exactly natural size. Mr. Colenso does not give actual dimensions of the varieties, but we daresay this variety will produce larger tubers than have been obtained this season. *H.*

The Ipswich and East of England Horticultural Society will hold its second annual Chrysanthemum and fruit show on Thursday and Friday, November 22 and 23.

Home Correspondence.

Apples and the Apple Show. — The time has again come round for planting Apples, and many so engaged will no doubt, as usual, feel bewildered with the endless numbers of varieties that are offered. Even where some experience is brought to bear on the matter not a few will be tempted to plant more sorts than admissible were the selection strictly confined to such kinds as calculated to give the best return. If proof were needed of the immense number of varieties existent more than are of any use, the recent Apple show was calculated to abundantly afford it. Notwithstanding the enormous quantity of Apples brought together at Chiswick, and the excellent arrangements made for their display, a good many who went to see the show expressed themselves disappointed with it. Possibly this was through so many encomiums being passed on the exhibition that anticipation had been raised too high. No doubt as a mere display it would have been much more effective if three-fourths of the quantity brought together had been absent, inasmuch as a repetition in so many of the exhibitor's collections of kinds that were undersized and valueless detracted much from the general appearance of the whole. As an instructive exhibition it was calculated to do much, though it may with truth be said that the teaching was more of a negative than a positive character, in showing those who went, with a view to learn, what to avoid in the way of selecting varieties to plant. The different condition of a good many kinds as they appeared from different localities showed the influence of soil and climate, but many of the varieties, whatever their source, were so inferior as to prove the mistake of growing them. This last is a matter already well known to those who, with even a limited experience in Apple culture, possess enough observation to see that it would be much to the interest of all concerned if some possible means could be devised of wiping out of existence nine-tenths of the sorts that are now grown. And if the Chiswick show has done anything to open the eyes of Apple planters to this fact it will have done real service to both growers and consumers of the fruit. Such vast numbers of worthless varieties being grown is no doubt owing to the fact that fruit growing, except with the limited number of individuals who cultivate for market, has always in this country been looked on more in the shape of an interesting hobby than as a business proceeding, in which profit or no profit depended on the sorts grown. The American growers, both in the States and in Canada, have evidently gone into the pursuit in a much more sensible way, by only planting kinds that are well proved as possessing a hardy constitution, as being abundant bearers, the fruit good in quality for the purpose required, table or cooking, and of medium size: this last property is of great importance, much more than is often considered. Varieties that are only big enough to be useful whilst the trees are young, or where they get the attention such as usual when grown in a kitchen garden, where they receive the pruning necessary to keep them within a limited size, with the manure that under such conditions is within reach of their roots, will not produce fruit large enough to make them worth a place when they get large with the little or no pruning usually given to orchard trees. On the other hand there are few, if any, of the very largest cooking kinds, that have such an imposing appearance on the exhibition stage, that are free enough to place them on a par with the medium-sized sorts, at least this is my experience with the biggest varieties, and it is further supported by what I have seen of them in the hands of others. There was an excellent cooking Reinette, Blanche d'Espagne or Cobbett's Fall Pippin, shown in Messrs. Veitch's fine collection, that I have not seen noticed in anything that has been said about the exhibition; yet, if I were planting an orchard for profit in the southern half of the kingdom (how it would succeed further north I cannot say), I should devote one-fourth of the space to this variety alone. The fruit is large, as big as that of any kind with which I am acquainted that is a real heavy cropper; it rarely misses a season bearing, added to which it is a good keeper. The tree is vigorous and, like Blenheim Pippin, grows to a large size. Tender indifferent growers should be counted as worse than useless, a tree that fails to thrive and bear occupies as much room as one that succeeds. What is wanted in cooking Apples—and it is these alone that are of most consequence looking at the subject from a profitable point of view—is sorts that are thoroughly hardy, and heavy bearers, like Keswick Codlin, Lord Suffield, Ecklinville Seedling, Cellini, Tower of Glamis, Cockpit, Wellington, syn. Dumelow's Seedling, and Proctor's Seedling: the last is another of the hardy, immense bearing sorts raised in Lancashire, that scarcely ever fails, even in seasons when most sorts are fruitless. It is of medium size, a good cooker, and will keep until late in spring; it does not seem to have yet made its way southwards. The above varieties have the merit of succeeding in any locality where Apples can be grown so as to give a fair return, very different in this respect to the favourite dessert kinds, many of which are much more particular as to soil and situation than the cooking sorts, although the latter are of much more importance to those who grow Apples for profit, as well as to the public who consume them, consequently in the selection of dessert kinds it is well to ascertain the varieties that do best in the locality. The surpassing merits of Ribston Pippin are such as to give it the first place in all situations where it will succeed; it is more particular in the matter of soil than climate, and usually does well where the land is of fair quality, if not too cold and heavy. Where the conditions are such as it requires, this fine old sort should always find a place. Irish Peach is one of the most reliable bearers that I have had to do with, a good grower, and not easily beaten as an early sort. Cox's Orange Pippin, an excellent kind, and a very free bearer where the conditions suit it, but, like the Ribston, it will not do everywhere; and, so far as my own experience goes with it, it is more suitable for the South than the North of the kingdom, in this way being the reverse of the Ribston, which seems to do best where the air is cooler and the rainfall greater. King of the Pippins is an Apple of fair quality, and one of the heaviest and most certain bearers of all dessert kinds, doing better under greater difference of soil than most of the table varieties. Fearn's Pippin has a combination of good properties; it has a hardy constitution, is a very free bearer, and keeps late. Claygate Pearmain is also a good keeper, equally good in quality, and an abundant bearer in most situations. Syke House Russet is another sort that I should plant in a very select assortment; it is a great bearer, in condition all through the winter. Blenheim Pippin.—The only fault which this fine Apple has is that the tree is longer in coming into bearing than most, and when an attempt is made to induce a fruitful condition by root-pruning I have found that the fruit thus obtained is much below the natural size. In this it differs from any of the many varieties that I have subjected to root-pruning. Sturmer Pippin, although a small Apple, deserves a place for its late keeping property, usually being in good condition when other sorts are over; it is a good grower, and very free bearer. The above dozen and a half sorts cut a poor figure, so far as numbers go, amongst the hundreds of sorts to be met with in almost every county. Yet if the gardens and orchards throughout the kingdom were confined to something like the above-named varieties, I venture to say that Apple growers would get a very different return for the labour and expense they go to, and the public also would be much better supplied. *T. Baines.*

—— The Apple show recently held at Chiswick scarcely realised the title claimed for it of national. An exhibition that would give us even a moderate representation of the pomological riches of Britain would be indeed worth seeing. In spite of the number of Apples exhibited there was a tiresome amount of repetition in the several stands, and the impression was conveyed that it was more of a nurseryman's parade of well-known sorts than an exhibition fairly representing the products of the orchards of this country. The merits of two Apples well known to many fruit growers, but scarcely if at all known to some of the persons officially employed by the Royal Horticultural Society, Bramley's Seedling and the Grenadier, are likely to be brought more prominently and deservedly into notice; and a more extended acquaintance with fruits proved to possess some at least of the good qualities it is desirable yet to secure in our Apples may be classed as one good result of a large central show. But it must not be presumed that no other valuable and little known seedling Apples exist in the country; sought for, I believe that many excellent Apples raised from seed by country people might be found. Indeed, I know of several good Apples undistinguished by names, and the result of carefully set pips now profitably fruiting in the gardens of a neighbouring village. I was instrumental some years ago in bringing to general notice a local seedling Apple, one to be seen on many catalogues under the name of Betty Geeson, the raiser an old woman residing in a village near Belvoir. I mentioned this Apple to the late Mr. Thos. Rivers, and sent him grafts, and it was in this way distributed. I believe it to be a fact pretty generally recognised by pomologists that a fruit tree originated on a soil of a very marked character, receives a certain constitutional bias in favour of that particular soil; that being so, the raising of Apples adapted, or likely to be, to particular latitudes and soil formations, is a matter that should excite the attention of horticulturists in various parts of the country. One reason why the show at Chiswick was not more representative, was the early season at which it was held. Not half of my large collection was gathered, and although the Kentish Apples were ripe or mature, the majority of those named as being so were far from being in the same condition in the majority of places in the North Midlands. Persons who go to Apple shows for the purpose of selecting sorts for cultivation should be very careful in their inquiries as to the bearing habit of the various kinds before them. I have on other occasions brought to notice the importance of this point, having suffered from the marked unfruitfulness of sorts which in their fruits, exhibited without comment, promised so much. One illustration may be given of a tree uncertain in its habit of bearing fruit is Bess Pool, an Apple excellent both for dessert and table, but wanting long periods of rest between the heavy crops it occasionally bears. Sorts that possess the very desirable property of producing crops annually without suffering exhaustion cannot be too well known, and these the secretaries or other officials of shows, if they happen to be able to distinguish, should specially mark. I have several sorts that possess the distinguishing recommendation of habitual fruitfulness, and one specially that is not at all noticed or generally known, and yet it is by far the best table Apple, the best keeping Apple, and the most constant bearer I possess. It was named for me by the officials of the Royal Horticultural Society some years ago Herefordshire Pearmain, but I have some doubts about its identity with that variety. I will send a specimen for your opinion. Frogmore Prolific, a seedling of my father's, is another sort that reproduces a crop with unimpaired vitality. Lord Suffield, Stirling Castle, and King of Pippins are kinds that seldom fail to produce crops with us. It was my good fortune at one of the former Apple shows held by the Royal Horticultural Society in London, and acting with the late Mr. Rivers as judge, to distinguish the merit amongst many other sorts, Ribston Pippins included, of Cox's Orange Pippin, which we placed 1st for high quality—a position it has well maintained. It is, I am afraid, too late this year to hold a show for the Midland and Northern Counties, but I hope, when next we are favoured by an Apple crop, to do something to promote a good representative exhibition of both Apples and Pears in one of our great centres of manufacturing industry. *William Ingram, Belvoir, Nov. 6.*

A Second Apple Exhibition in March Next. —At p. 570 "P. G." suggests, if a show is held in March that the Apples should be divided into various classes, and, if the object is simply to thrust so many more prizes into the pockets of some half-a-dozen exhibitors, I think the idea is a most commendable one [there were no prizes at the late show]; but I conclude that something more practical might be accomplished if the country were divided into sections instead of the Apples, and the more of it the better if it is desirable to make the show a representative one. From its experience of the late so-called Congress the Royal Horticultural Society is well armed with materials, and from these their Superintendent, with his organising skill, would be able to draft a scheme in less time than it takes me to write this by which all the competitors might be placed on a fair footing. I reside in Lancashire, and if I were allowed to exhibit (which I am not) no prize would tempt me to make an exhibition of myself by sending Lancashire grown Apples to compete at a London fruit show. I should be sorry to venture south of Manchester. There should be two classes of exhibitors, viz., those growing for sale, and private growers, all eligible to compete in an open class or two for dessert or culinary kinds, the number of fruit in the two classes to be unlimited. I think we may reasonably conclude that the best Beefings and Pippins would be amongst that lot. Assuming that the United Kingdom is divided, those competing in the above classes should be excluded from competing in the division they may happen to reside in, for if that were permitted we should only have a needless repetition of their productions. Open classes might be made in each division, and the number of dishes should graduate from an unlimited number to two, placing some restriction, so that one could not enter in more than two classes. There are numbers of amateurs who may have a dish or two in March and no more who might be tempted to send them if they have only some protection from those who have more trees than they have Apples. Another method by which the Society might be expected to scour the country of every available Apple would be to offer a small sum for every distinct dish sent up, so as to recompense the sender for his expense and trouble. It might also award prizes to the most meritorious collections. *W. P. R.*

—— The proposal to hold another exhibition of Apples next spring is undoubtedly a good one. Although I can bear personal testimony to the good done by the recent congress, I feel sure the keeping qualities of many of the Apples exhibited could not be fairly judged. This was especially noticeable with Annie Elizabeth, a comparatively new kind, which was scarcely noticed by some of the reporters, but which will eventually prove to be one of the most useful kitchen Apples we have; it is of first-rate constitution, vigorous and upright in growth, a sure cropper, of large size, of good colour when ripe, and keeping very late without shrivelling in the least. Another excellent kind, not half so well known as it deserves to be, is Duke of

Devonshire, a fair-sized dessert Apple of first-rate quality, a sure cropper, and which keeps remarkably well until May. Another show in the spring would doubtless bring several other good kinds into greater prominence for their keeping qualities, which the late one could not possibly do. *W. H. Divers, Burghley Gardens, Stamford.*

Graft-changed Pear.—Assuming that Messrs. Backhouse & Son are correct in their conclusion that the Pear described at p. 569 is really Beurré Diel changed in character through the influence of the stock, it would be interesting to learn how far similar results had been obtained by others. We might expect, for instance, to find divergences of this kind following upon double grafting, of which the case quoted is an example, the Jargonelle stock, doubtless, having been originally worked upon the common Pear stock. Mr. Fenn once thought that he had a good case of changed character in connection with the Apple, but the results were not always so apparent to others as to that veteran horticulturist, and in this particular case the Messrs. Backhouse are careful to say that they only believe the Pear in question to be Beurré Diel grafted on Jargonelle. There seems, therefore, to be an element of uncertainty about something that would possess singular interest were the matter positive and absolutely reliable. If exceptions prove the rule then of this curious character exceptions are exceedingly rare, and the rule as to the unchanged nature of grafted or budded fruits seems to need no exceptions to prove its incontestability. It would be of interest were some grafts of this tree worked on common Pear or Quince stock, noting whether any such change as is said to exist now were maintained, or whether the kind reverted to the true Beurré Diel form. If it did not revert it would probably then prove to be some distinctive kind other than Beurré Diel. If it did, then, whilst it would prove that a graft change had resulted it would also show that it was Beurré Diel still and nothing more. *A. D.*

Meconopsis nepalensis.—As far as I know young plants of Meconopsis nepalensis have never been used as edging for spring beds. The beauty of the leaves lasts all winter, and though only a biennial it is so easily raised from seed and seeds so freely that there is no difficulty in getting and keeping a stock of young plants. *George Wilson, Heatherbank, Weybridge, November* 5.

Gardenias.—The culture of Gardenias has been so often described in the gardening papers, that one is almost tempted to say, with some reason, that there is nothing more to say upon the subject; but I fancy many will agree with me that such is not the case. I more particularly refer to those who, like myself, attempt to get their plants to bloom in the depth of winter. My house of Gardenias flowered last March, they were afterwards repotted, placed in brisk heat, kept well syringed, and are now the picture of health, with hundreds of bloom-buds; but, alas! these buds do not seem to progress in the least, while from their base are springing young growths. I have, therefore, begun to question within myself, Is my system of culture the right one? For advice I thought I would turn to my bound volumes of the gardening papers. What do I find?—such conflicting opinions among the leading and best men of the gardening world that I remain more confused than before. One says, "The employment of young plants only is the system adopted by Mr. So-and-So, one of the leading growers; and he believes further that continuous growth and flowering is the only system worth adopting, with a warning never to rest the plants, as it is during this enforced rest that the plants get into bad health." Another says, that "Messrs. S., perhaps the largest growers of these plants, place their plants out-of-doors [!] in August as soon as the bloom-buds have set, in order that exposure to the sun, &c., may check further growth, and cause the plants to be more easily forced in autumn." I, therefore, thought I would write to Messrs. S. for advice; their reply is brief, and to the point, *e.g.*, "We do not rest our Gardenias." Another says "The only way to get a crop of flowers in the winter is to get the buds well forward in autumn;" but does not tell us how he does it. Another says, "Never use bottom-heat," while some one else, an equally good authority, says, "Gardenias are very fond of a plunge-bed, and should be rested in autumn." Others say, "It is only from hard pruned plants that the best flowers are got;" so that, with these conflicting opinions on resting, pruning, bottom-heat, and so forth, I did not benefit much by my reference to back numbers of the gardening papers. I found also an almost equal number of diverse opinions on the culture of the Eucharis, as to resting it, &c. I should much like to know whether I should greatly err by at once placing my Gardenias under a sort of check in the shape of a brief rest for a fortnight or three weeks, then introduce them to the forcing-house again. I almost fear I should lose all my buds. *A. E.* [The development of Gardenia buds at this season is a slow process, even under the most favourable conditions. "A. E." would be very ill-advised to check the growth of his plants now by putting them in a cooler temperature, we should rather increase the heat of the house they are now in, though we cannot say if that would be altogether advisable, because "A. E." does not tell us what temperature the plants have been growing in, upon which more depends than anything else perhaps. Ed.]

Tom-tits.—Although these busy little creatures are at certain periods of the year an intolerable nuisance and annoyance to gardeners, they are nevertheless seemingly anxious to make amends for their mischievousness in a most useful manner, an instance of which has recently come under my own observation. I was greatly amused a few days since, upon noticing two of these busybodies engaged upon the Celery here; upon closer observation I discovered they were in search of the maggot of the Celery Fly (Tephritis onopordinis), which, by-the-bye, is very troublesome here this season. If tom-tits will only assist in ridding us of this troublesome pest, we can to some extent overlook their misdeeds among our Pears, however vexing it may be when they attack our choice table sorts, for which purpose they render them perfectly useless; the only way of utilising Pears thus pecked is to consign them to the stewing pan. *E. Morgan, The Butts, Harrow-on-the-Hill.*

Cut Chrysanthemums. — In arranging these flowers we make use of the foliage of Mahonia (Berberis) aquifolia with good effect. Small shoots with clean growths being first placed in the vases, then the flowers, cut with a good length of stem, are arranged. A good support is given to these by the stiff shoots of the Mahonia. The leaves with the bronzy hues are excellent for the various shades of yellow. *J. Hudson.*

Chou de Burghley. — I fail to recognise any special feature to recommend this vegetable so strongly as some have done. It is certainly a Cabbage of ordinary merit: beyond this I can say nothing in its favour. With regard to its cooking qualities, it is far surpassed by the well tried and useful Coleworts; but of all the Brassica tribe nothing can compare to the Chou de Russie for delicacy of flavour, of which I have previously spoken in these pages. *E. Morgan, The Butts, Harrow-on-the-Hill.*

Boltonia latifolia.—I suspect that of the three forms of this plant mentioned by Mr. Wolley Dod at p. 473, the white-flowered one may be B. asteroides (= glastifolia). The original B. latifolia with us has light violet rays. *Asa Gray, Cambridge, Mass., Oct.* 23.

Doyenné Boussoch Pear Foliage. — Varying from a clear yellow to a rich purple-brown and bright soft red, the leaves of this Pear are very ornamental at this time. The tree, trained to the wall as an upright cordon, looks almost as handsome just now as it did when covered with blossom, or when laden with its large, handsome, bright yellow fruit. Its colouring at present reminds one of the lovely Ampelopsis Veitchii. *T.*

Cupressus macrocarpa.—In reply to "X.'s" query in the *Gardeners' Chronicle* of Oct. 20, at p. 510, in regard to measurements, &c., of Cupressus macrocarpa, I have to inform him that I measured two of our largest specimens with Kay's Dendrometer (one of the cheapest, simplest, and best instruments for measuring the height of trees I have ever come across). The largest, which was planted in 1847, is now 50 feet 6 inches in height, the bole, 4 feet from the ground, being 6 feet 2 inches in diameter. The other, which was planted about ten years later, but in better soil, is now 49 feet 6 inches in height, and 6 feet in diameter 4 feet from the ground. There are two avenues in the grounds from 30 to 40 feet in height, as well as hundreds of smaller heights in the park and pleasure grounds, all in perfect health. There have been no specimens cut here of sufficient size to test the merits of the timber. It ripens seeds freely, and for the last twenty years we have occasionally been raising seedlings, many of which have been planted out, and are thriving equally well with those which have been raised from imported seed. As this interesting tree has been less or more experimented with in most parts of the three kingdoms, for nearly the last half century, it would not only be interesting but useful to arboriculturists if those who have an opportunity would state the results in reply to "X.'s" inquiry. If correspondents could be induced to do so, I believe from extensive observation that it will be found to thrive in a much wider range than at one time it was supposed to do. In localities where the temperature falls very low it will not succeed. If it proves valuable as an economical tree it will produce as large an amount of timber per acre on a light soil in a given period of time as most other trees. In selecting seed for timber purposes care should be taken to collect only from upright growing varieties. The spreading varieties, however useful they may be as ornamental trees, can have little value as timber trees. *Archibald Fowler, Castle Kennedy, Stranraer.*

Golden Queen Grape.—This Grape, which was awarded a First-class Certificate by the Fruit Committee of the Royal Horticultural Society ten years since, is, like some others, a long time in establishing its character. Diverse conclusions respecting it are arrived at, some growers condemning it as unworthy of cultivation, while others (and amongst them good authorities, too) are of opinion that there is a good future awaiting it; that it will become a valued variety when its special requirements as to its culture are ascertained. I hope this will be confirmed, for it has many good qualities, a part of which are wanting in some kinds which are most popular. Different modes of culture as well as climatical changes affect both the flavour and appearance of fruit in a marked degree, so much so in some instances, that even experts fail to identify common varieties because of its influence on their character, yet I very much doubt if skilled culture, or anything else, will occasion sufficient change in Golden Queen to cause it to be worthily classed amongst first-rate Grapes, although there is considerable difference between its fruit grown in a temperature favourable to Muscats, and that which suits Alicantes. We have it under each treatment; under the former we have but one Vine of it, which we consider worthy of its room, principally for the sake of variety, but on account of its flavour also, for though it does not approach that of Muscats it is better than some other white sorts which are commonly grown. Its appearance is likewise improved when it is subjected to more heat than is generally allowed it by its attaining a clearer colour, almost losing the muddy-looking veins which are characteristic of it, especially if its foliage is drawn aside and the bunches are fully exposed to light and sun: when treated in this way it keeps well and retains it full flavour, but after a time begins to deteriorate in appearance, assuming a dull leaden colour. As a companion to the Alicante we find it unsatisfactory, neither its flavour nor colour reaching the standard it does in a Muscat-house. Probably it would be better in the Alicante temperature if we started the house at an earlier date, and consequently ripening it under more favourable conditions; but as it was not convenient to give it the trial we have inarched with other varieties. With the exception of Gros Colmar, it takes longer to swell and finish its fruit than any Grape we have, coming into blossom some days earlier and beginning to colour about the same time, later than Muscat of Alexandria; it therefore requires a long season, and should be started early. Perhaps no other kind possesses a stronger constitution than Golden Queen, it is very rampant in habit and swells its stems exceedingly freely; Vines which we planted four years last May, and were young canes from a nursery at that time, have stems now 7 inches in circumference. As a stock this variety should answer admirably, for not only does it swell its stems freely, but its roots are numerous and strong, and quickly ramify a border, readily grasping any nourishment afforded. When we replanted the vineries here the borders were made piecemeal, and I noticed it was the first to pierce its vigorous roots through the turf walls which supported the soil and run them down their sides. We notice also when top-dressing the borders that it has more surface-roots than any other. *Thos. Coomber, Hendre Gardens, Monmouth.*

Lilium auratum.—Noticing on p. 534 of the *Gardeners' Chronicle* interesting notes respecting some good home-grown examples of this Lily, I think it may be worth while recording the measurement and weights of some very fine bulbs, also home-grown, recently observed at Messrs. James Dickson & Sons' Newton Nurseries, Chester, as follows:—Size 1. Circumference, 17 inches; weight, 1 lb. 9 oz. 2. 15 inches round; weight, 1 lb. 2½ oz. 3. 14 inches round; weight, 1 lb. *Lilium, Chester.*

Pyrus pinnatifida. — The plant so beautifully figured on p. 493 is undoubtedly the P. pinnatifida of Smith, in *Eng. Bot.*, t. 2331, which came from Castel Dinas Bran, but it is not my P. fennica (*Man.*, ed. 8), nor the Sorbus fennica or S. hybrida of Fries. It is the S. scandica of Fries, P. scandica of Syme and of Babington, but is my former P. fennica, erroneously so named. Dr. Boswell (then Syme) paid great attention to these trees, and has, I believe, correctly identified them with the plants named in Scandinavia by Fries and others. He entered very fully into the discussion of the forms or species formerly included under the P. Aria by Linnæus (of these P. pinnatifida, Sm., is one) in the *Report of the Botan. Exchange Club* for 1872, pp. 16—25. He there states that, in his opinion, P. fennica is a hybrid between P. aucuparia and P. scandica, and in that view I am inclined

to agree with him. But as Fries and Nyman do not think so, and the plant is apparently common in Sweden, we must still doubt. There is very little of it in Arran, from whence I have specimens gathered by Mr. Duthie in one glen, and have also received it from another glen in that island, where it was found by Mr. Duthie and also by Professor Balfour. The names to my specimens from both of these places have been authenticated by Dr. Boswell. P. fennica seems to be unknown in cultivation, but P. scandica (P. pinnatifida, Sm.) is not unfrequent. Critical questions like this hardly concern the gardener, who will probably continue to use Smith's name for this beautiful tree. *C. C. Babington, Cambridge.*

Belladonna Lilies.—"F. P." asks if any one can suggest a reason for Belladonna Lilies not flowering, which, without knowing more about those he refers to, is a difficult matter, as their failure to bloom may arise from a variety of causes; but from what he says of them I should think they are not in suitable soil, with proper drainage, and in a situation fully exposed to the sun, without which it is impossible for them to ripen and mature their bulbs. What often interferes with the free blooming of Belladonna Lilies perhaps more than anything else is the loss of their foliage in spring, which, appears early above-ground, and frequently gets cut by frost, to prevent which the border containing the plants should be protected by a heavy mulching of half-rotten leaves and a few evergreen branches stuck in to break the force of the cold cutting winds. The way we prepared for ours was to dig out the narrow border along the front of the greenhouse to the depth of 3 feet, this we drained by putting in about 6 inches or so of brickbats covered with a layer of half-rotten dung, on which we returned the soil, mixed with a good dressing of leaf-mould and sand; in this the bulbs were planted 6 inches deep, and so well have they done that we have had to take them up to thin and replant, as they were pushing each other out of the ground. Although this dividing and replanting was only done a year ago, we have had plenty of flower this autumn, the last of which we have only just cut, and we are now clearing the old stalks away ready to mulch over the bed. As "F. P." appears to have his Belladonnas in front of a stove I should advise particular attention to the taking care and protection of the foliage, as so much depends on the leafage they make: and if he does this, and prepares and plants his border in a similar way to that we have done ours, I do not think he can fail. To give the Lilies a good chance the work should be done now, as the bulbs make their roots during the winter, and if disturbed later many would be injured and spoiled. *J. Sheppard.*

White Violets Turning Blue.—I may endorse Mr. Cannell's experience by saying that it constantly happened to me when at Bromley Common; and, what is more remarkable, I sowed a large quantity of seed of the White Czar, gathered by myself, and out of about 100 seedlings or more there was not a white one in the lot—all common Czar, without even any distinction of colour. I have coming on now another batch of seedlings from White Czar, which will show bloom soon. *A. Rawson, Fallbarrow, Windermere.*

Early-Flowering Chrysanthemums: Madame Desgrange.—There is an interregnum, so to speak, of the reign of floral beauty during the months of October and November, so it would be very desirable to add to the limited number of early-flowering Chrysanthemums that can be had to bloom either in a cool-house or in beds or borders outside during that time, especially for cutting purposes. Those we have got so far have rather poorish flowers, most of which show a centre, with a few exceptions. Nannie, silvery-white, is tolerably good, but not so fine as La Vierge, and neither is as good as Virginia. Précocité, among yellows, and Anastasio, among pinks, are the best I know, but none of them can come near Madame Desgrange as I saw it yesterday at Spring Gardens, the residence of Thomas Phelan, Esq. We measured the magnificent large white blooms, and found them 5½ inches across, and not fully developed. As the temperature here has not fallen much below 50° Fahr., would not this make a magnificent bedder? It seems to have some Japanese blood. *W. J. Murphy, Clonmel.*

Planting Fruit Trees.—In the generality of cases, the planting of fruit trees, like that of other deciduous subjects, is left till much too late in the year for them to do well, as during the dead cold season roots are formed very slowly, and when spring comes and there is a demand for supplies by the buds, there is little or no absorption of water to feed them and assist their swelling; and the result is, as must naturally follow, they break feebly, and the plants make but a poor growth. Moved now, or as soon after this as can be done, fresh fibres are formed at once, striking proofs of which may frequently be seen when trees are laid in by the heels for a short time, as after being lifted again they are often found covered with young rootlets that are fresh looking and full of activity. I have witnessed this again and again, and I always endeavour to give all deciduous plants a good chance by transplanting them early. I have already done this this season, and I have no doubt if they could be examined, that they would be found busy at work. Besides being so beneficial for the trees, there are other advantages in early planting, as first comers to the nurseries get the pick, which is a very important matter where a selection has to be made, especially in the case of Apricots, Peaches, and Nectarines, where so much depends on the stocks, for if these are not free from suckers, and are rough and knotty in the bark, they never swell satisfactorily, and the heads on them fail to do well. It is much the same with Apples and Pears, and it is quite worth while, when many are wanted, to go and pick them out, as then there is no disappointment after they are sent and get planted. In putting them in the ground, all should have a little fresh turfy loam, which, though the natural soil may be ever so suitable, is a great help in giving them a start. Manure is bad, and on no account ought it to be used, except on the top as a mulching, applied in which way it is beneficial in keeping out frost, and maintaining the earth about the roots in an equable state. *J. S.*

Fuchsia exoniensis (see p. 560).—The particulars I gave to Mr. Hemsley about this plant were to the effect that it is common in the West of England, and that it is sometimes known as F. corallina. I have known this plant for many years, and have retained a vivid recollection of its robust arching branches and fine flowers from the time when first it arrested my attention, and for several years I remarked, so far as I knew, its complete absence from the neighbourhood of London. It was not at Kew I know, from the desire I had to get it there. Its name, however, I never knew until after I had obtained plants from near Plymouth for the Cambridge Garden; and then, when it flowered, Mr. Hemsley was so good as to give me the identification which still appears to stand. About the same time it came to me from Mr. Cannell as F. corallina; and this fact I communicated to Mr. Hemsley, who apparently knew nothing of such a name, and said he would look it up. From Mr. Hemsley's letter received then, and as he says nothing about it in his notice just published, and because I can find the name in no book I have at command, I take it that the name was never authoritatively given. With regard to its culture in the West of England, I may quote what Mr. Archer-Hind, of Newton Abbot, says. He did not know what I called F. exoniensis, and so I sent it to him. He says:—"It appears to me to be the same as one I have. It grows as high as the eaves of the houses in many of the seaside villages on this coast, and in some instances the stem is more than 14 inches in circumference; with me, inland, it dies down in winter." Mr. Ellacombe, of Bitton, upon seeing this illustration and the account, enclosed me a specimen of the plant, and says with reference to the name F. exoniensis, "I never heard that name before, but is it not the same as the one enclosed, which I have grown for years as F. corallina, and which is largely grown in these parts under that name?" To this I can only answer that it is the same, but I have not seen these plants cultivated as F. corallina growing under the same conditions with this now figured. It seems to vary (speaking of them as the same, which no doubt they are) in foliage according to position; Mr. Ellacombe's specimen has opposite leaves, and they are comparatively delicate and pale, while I have it flowering now in an open bed with whorls of four leaves bearing six flowers. These leaves are of dark reddish-green, and the stems are very dark red, instead of being pale red. In every case of comparison I have made the flowers have been identical. Mr. Ellacombe says that at Bitton it requires a wall; here it lived last winter in the open bed, without protection, but it should be protected against severe winters, no doubt. I was indebted to Mr. Brimmell, the gardener at Antony House, for my stock. In those gardens it has the herbaceous habit as with Mr. Archer-Hind, and as I have seen it generally. It would be of interest now to know how the name F. corallina came to be applied, and by whom. *R. Irwin Lynch.*

Christmas Roses.—These seem to have got much in advance of their usual season, as already tufts are full of bloom, and most acceptable they are for cutting, for besides being so showy and pure, their thick waxy petals and stout fleshy stems make them very lasting in water, where they stand fresh almost as long as they do on the plants. As their flowers are so near the ground, it is a good plan to mulch under them by placing a thin layer of half rotten leaves or cocoa-nut fibre, which prevents any splashing of the soil, and thus saves the blooms from disfigurement. Another way of protecting them is to cover with handglasses or old lights, which should be tilted over them so as to let in plenty of air, or damp will condense on them and spot the petals by turning them brown. Laurel or other evergreen branches also afford excellent shelter, and any covering adds to the delicacy of the flowers by rendering them more white, as they lose the stain of colour they generally have when left fully exposed. Those who have vases or window-boxes indoors to furnish will find Christmas Roses excellent things for the purpose, as the plants bear lifting well, and may be dug up and potted, if done carefully, and made use of at once, as they are such rooty subjects that they always lift with good balls, and never flag or appear to feel the removal if kept supplied with plenty of water. The sort in most favour with us is H. niger maximus, which has stout spreading leaves and very large blooms, but the smaller variety is the most floriferous of the two, as strong crowns of it come quite crowded with blossoms. The places where these Hellebores do best is near the margins of Rhododendron beds, as they are fond of peat, and like a little natural shade, such as they get there or from trees, and they also do well in prepared beds with peat or rotten leaves mixed in with the soil. The proper time to plant is just when they are starting into growth, which they do early in the year, when they may be pulled apart and divided to almost any extent, as every piece with eyes or buds at the crown will shoot afresh and make roots. In replanting such pieces it is advisable to surround them with a pinch of sand, so as to keep the soil from immediate contact with the injured parts, as the sand assists the healing over and prevents rot from damp. *J. S.*

THE CHRYSANTHEMUM SHOWS.

The glories of the Chrysanthemum season are upon us, and whether we look at the plants on the breezy heights of Finsbury Park, or those in smoke-begrimed Bethnal Green (Victoria Park), or on those by the muddy Thames in the Temple Gardens, we see plenty of evidences of the skill that is brought to bear on the cultivation of the Londoner's flower *par excellence*. That some kinds have done less well at some one or other of these places does not detract in the least degree from the cheerful effect afforded by these handsome and sometimes singularly formed flowers. The taste of the uninitiated in these matters is ever varying, if the cultivator and *connoisseur* remain true to their early loves and fancies. The former observer will see no beauty in anything that is not tasselled, odd in form, and brilliant in colouring. The Daimios, Cry Kangs, Harlequins, Red Dragons, and Tycoons put him into an ecstasy, whilst he would possibly show no interest at all when in presence of a regularly built flower of purer tints and finer proportions, such as meet with due appreciation from the more knowing ones. Each class demands gratification and enjoyment—a fact fully recognised by these caterers of the flower in our midst. No one class of flower meets with redundant attention, and only one with too little; we refer here to the pompon and Anemone class, the few that are grown being merely used to screen the long legs and unsightly sticks and pots of the taller plants. This is a class which deserves better treatment at the hands of our metropolitan growers; it would show town dwellers the possibilities of the smaller type of Chrysanthemum, in close quarters, and prove how well they are adapted for small gardens and forecourts, as well as for the window-box and balcony; and what they do not possess in grandeur of aspect—which, by-the-way, often means great longleggedness and gawkiness—is compensated for by great neatness and compactness in habit and very abundant bloom. Town cultivators should look them up.

The house in the Inner Temple Gardens is very gay, the showy colours being very nicely assorted, and the whole forming an even bank of bloom from 3 feet high in the front to more than 5 feet behind. Of older kinds in fine bloom are—Fair Maid of Guernsey, white; White Beverley, Golden Beverley, Golden Empress of India, Virgin Queen, Aurea Multiflora, Mrs. Dixon, Venus, both white and peach-coloured; Bronze Jardin des Plantes, Cassandra, a handsome incurved white flower, with the petals tipped with pink; Eve, a very pretty primrose; and Gloria Mundi, a fine yellow flower, which is much admired. Amongst the new introductions to this collection we noticed Chinaman, a singularly confused flower, tasselled, but in consequence of the petals incurving excessively but little is seen beyond the reverse of the petals, which is flesh colour, while the upper side is rosy-purple; Progrès Toulousain, is a fine dark crimson,

the form flat and showy; Bonamy Aimée, of a regular form, compact, purple, with white tips, petals incurved; Esmeralda, a reddish-chestnut, with gold centre, reflexed form, is a fine showy Japanese sort; Curiosity, a pretty lemon flower tipped with red-brown, is an attractive bloom of the confused Japanese type; Dr. Macary is of a delicate mauve colour, the base of the petals being white, and the form flattish. A rich dark chestnut bloom is seen in Souvenir de Françoise, incurved, and rather flat in form. Rêve de Printemps, a rosy-purple flower, prettily tasselled and flat, is a good thing. Other good sorts noticed here are Prometheus, a rich chestnut; Mr. Corbay, a crimson-bronze; Dr. Sharp, a fine deep pink; Progne, a medium sized compact crimson; Père Delaux, a showy crimson chestnut, flat in form; Cœur fidèle, a rich gold and brown; La Chamoise, a tasselled purplish-rose—a very handsome bloom; Princess of Teck, a pretty Anemone flowered pink; Fleur Parfait, a good purplish-rose; Diamond, an orange and crimson; Tendresse, a grand tasselled flesh and salmon coloured Japanese kind; Mr. Jay, a fine incurved orange, with the base of petals crimson; Sir Beauchamp Seymour, a fine red-bronze; and Orphée, crimson and red—a particularly striking bloom.

In the Middle Temple the display is quite as brilliant as in the Inner Temple, the effect being enhanced by reason of the whole of the bank of plants being seen at one glance, whereas in the latter there is a break that detracts from good effect. The plants are very healthy, but rather tall, perhaps owing to the gardener, Mr. Wright, being constrained to grow them under the wall of lofty buildings—a fault he hopes to be able to control or sensibly abate next season. Of course to be found here are many of the varieties to be seen in the other collection, the amount of bloom, size, and quality being about equal. Most noticeable were Faust, a fine quilled rosy-purple of moderate size; Arizona, also a moderate sized flower of good shape, incurved, and of a purple colour; White Globe, a fine incurved flower; Hero of Magdala, a handsome Japanese sort, crimson, the reflex of petals orange; Fleur parfait, Flambeaux, a flower having rich crimson petals, the centre ones being tipped with yellow; Père Delaux, Orphée, Cœur fidèle, and La Charmeuse, Eve, Progne being also in capital form. Dr. Sharp is very well done, as also are King of Crimsons and Mr. Corbay, Elaine, Hero of Stoke Newington, a pretty lilac incurved flower; Golden Queen of England, very large and fine in form and colour; also Catherine Tilford, an incurved gold-coloured bloom of moderate size; Themis, a pretty reflexed flesh-tinted bloom; Lady St. Clair is a pleasing, loosely formed incurved flower; Prince of Anemones, a very pretty lilac with a pink shade; and Striped Queen of England, a fine incurved bold white flower. Barbara, a rich orange, flat, and medium in size, is a flower very conspicuous by its colour; as is also Sanguinea, a crimson with some chestnut colour in it; and Rifleman, another incurved flower, with similar tints. Hereward, a pleasing flower of purple colour, the reflex of the petals being silvery; Mons. Chas. Hubert, a fine yellow; Nuit d'automne, an amaranth; Nuit d'hiver, a dark gold. Tendresse and The Daimio, among Chinese or Japanese kinds were very conspicuous by the novelty of form and the brilliancy of their colours.

Finsbury Park.—In the purer air of Finsbury Park the visitor expects to find the Chrysanthemums looking their best, and it must be said that the expectations formed are fully realised on inspection. The plants are dwarf and compact, and the colours bright; we should say, perhaps, that they are cleaner than is by any means possible in the heart of London. Without venturing to mention a full list of good things to be seen here, we find we have a rather abundant crop of names of really good flowers jotted down, from which the following have been selected:— Bras-rouge, crimson, with gold tips; To Kio, something like Flambeaux, but flatter, and having fewer petals; Laciniata, resembling a double Carnation in form, French-white and rose in tint; Venus, mauve, very full, and beautifully incurved; Mons. Patrolin, a rosy Japanese-lilac; Abbé Passaglia, a large bronzy incurved bloom; Plenipo, a very fine incurved lilac; Rob Roy, a confused tasselled Japanese kind, gold and brown-crimson; Aurea multiflora, a bright yellow, incurved flower, with fine even form; Golden Empress of Iodia, of the largest size, and very good in condition; St. Patrick, an immense incurved rosy-lilac tipped with gold, are particularly striking; King of Crimsons and Lord Clyde are similar in colour, but the former is reflexed in its petals while the latter are incurved, and both are of medium size. Comte de Morny, a deep rose, with reflexed petals, and Mrs. Heale, a white, with a bright golden mass of central petals; Glück, bright yellow and broad basal petals, are good kinds; the latter two belonging to the Anemone class. The Cossack, a bright tasselled crimson, dashed with gold, is very fine and distinct. Princess of Wales and Mrs. Parnell, two fine incurved white flowers, were in capital form; Mrs. Geo. Rundle, Henri Fleuri, a a beautiful tasselled flesh, with broad petals, were very fine, as was Madame Eugénie Porquie, a tasselled brown and gold flower; the Rev. J. Dix, a fine incurved crimson flower, with gold tips, and Thunberg, a tasselled gold from Japan, will conclude our notes of the Chrysanthemums so nicely done by Mr. Mardlin at these gardens.

Victoria Park.—This collection, the pride and glory of the East-enders, is, if anything, finer than ever, and next week, should the open weather continue, will be at their best. The weather has always to be taken into consideration when a forecast has to be made in connection with the Victoria Park show, this being the only place where a glass structure is not provided for their exhibition. In the Temple Gardens and at Finsbury Park the authorities provide substantial glass shelters for the plants, but Mr. McIntyre, who, as regards climate, has, perhaps, more to contend with than the growers of the collections named, has to do the best he can with an ordinary canvas shed. The cost of a skeleton show-house, the lights of which could be used at all other seasons in the propagating and furnishing department of the park, would not cost a great deal, but it would be a great boon to the public, and of great assistance to the Superintendent; and on these grounds we commend the subject to the First Commissioner as being well worthy of his consideration. A visit to the park at the present time we feel sure would convince Mr. Shaw-Lefevre of the necessity of such a structure. The Chrysanthemum is essentially a town plant, but there are some parts of London where one would not expect it to do much, and Bethnal Green is one of them. How, in the smoke-laden atmosphere of this place Mr. McIntyre manages to make such a display, is not quite clear, but there it is—a long bank of large, medium, and small flowers, show sorts, Japanese and pompons, 150 varieties, and about a thousand plants in all, with ample foliage down to the pots. New additions are made to the collection every year, the poorer sorts being regularly weeded out to make room for them so as to keep the number within reasonable limits, and the standard of excellence always a good one. That grand old variety, Dr. Sharpe, here, as at the other places, is to be seen in grand form—it seems to be universally good this year; James Salter also claims attention by reason of its fine size, and other notable sorts one could not help but admire a few days ago were Hermione, Novelty, a pretty incurved flower; Astrolabe, Hereward, Golden Hermione, Peter the Great, a new yellow; Sir Stafford Carey, Bronze Queen, Louise Salter, Gluck, and Prince of Anemones, and Mr. W. Shipman, new and lively in colour.

The Chrysanthemums at "Glencairn," Surbiton Hill.—At this place, the residence of T. H. Bryant, Esq., a gentleman whose name is well known and recognised among Chrysanthemum growers as one of the most successful cultivators of this popular favourite, preparations are being made for an exhibition of them in his own grounds, the proceeds of the show to be given to the funds of the local Cottage Hospital. It is to be wished that the laudable intention will meet with the general support of all lovers of the Chrysanthemum, and of the well wishers of the above-named useful institution. The exhibits will be staged in two large tents on the lawn, and are to be associated with other floral contributions that will add to the charm and attractiveness of the whole. There are here some capital specimens of well-known favourites among show varieties, the largest plants measuring fully 7 feet in diameter. These consist of Mrs. Rundle, Mrs. Dixon, Mr. Glenny, amongst incurved flowers—the pompon, James Forsyth, also being quite as large; the pretty Anemone-flowered Marguérite de Caux, of 5 feet diameter; Prince of Wales, Bijou de l'Horticulture, Mrs. Anstey, and Rosinante being about 1 foot less through them. Besides the above-named examples of cultural skill are a number of the choicest of the newer kinds of Japanese varieties. Fine blooms are the rule, and the various examples would be difficult to excel for size, variety of colouring, and grotesqueness of form. We noticed especially Criterion, a large amber; Etoile Toulousain, large and double, the drooping red petals on the outside only, while the middle ones are erect, making it a most singular flower, the reverse side of the petals only being seen; Lord Wolseley, a fine chamoise-purple; Mons. Lemoine, a rich red, tipped with gold; G. Gordon, a grand crimson not unlike Dahlia Juarezii; Album plenum, a faint sulphur tinged flower of a large size; Curiosity, a fine French-white; Magnum Bonum, a rosy-lilac the reverse of the petals being of a lighter hue; the very singular looking Comte de Germiny was of a very compact form and large, the colours, of nankeen and striped crimson showing well; Mons. Brunet was an immense flower of a pure flesh colour; Emeraude is a long recurved petaled flower of red-salmon tint, shaded yellow, the centre being white; Mdlle. Moulise, is a fine cream-white and rose, with pale primrose centre, and very large. These are merely a few of the good things to be seen here, many of which will be in perfection during the course of next week. *M.*

FLOWERS IN SEASON.

Mr. Ware sends us, together with some plants of which we shall take note later on, flowers of

Iris alata (scorpioides) with flowers about 4 inches across. The very long flower-tube is triangular and bears three spreading narrow sepals, each about 1 inch in length. These correspond to the "falls" of an ordinary Iris, only they do not fall but spread horizontally. The petals or standards of garden nomenclature are erect or ascending for half their length, afterwards spreading or recurved. The petal-like styles are erect, deeper violet, their broad summits incurved, each about 3 inches long by 1¼ inch in the broadest part, oblong ovate obtuse, narrowed at the base into a trough-like stalk. The colour of the petals is slaty-blue with a central golden stripe and a mottled arrangement of blue and white spots, but without any "beard." The species is remarkably handsome.

Nerine filifolia has, as its name implies, long linear leaves like those of the Sheep's Fescue, Festuca ovina, but longer. The flowers, which, as in all the Nerines, are borne in umbellate clusters, provided at the base with two spreading bracts about 1 inch long, are about 2 inches across, with six very narrow undulate rose-pink segments, recurved so as to expose the six upturned stamens with their small black anthers. The ovary is sub-globose, only slightly lobed, and the pedicels slightly hairy.

Nerine crispa has the same general habit with broader linear oblong leaves, and an umbel of pale pink flower, each about 1 inch across, and with narrower, less showy flower segments. The ovary is sub-globose and deeply globed, the pedicels glabrous.

Osmanthus aquifolium.—Mr. Noble sends us specimens of this hardy evergreen in flower. It is one of the very best shrubs for town gardens. Mr. Noble's specimens are further interesting as confirming the statement we made in our volume for 1877, February 24, p. 239, that two forms of leaves occasionally occur on the same shoot, and therefore that the distinction drawn between O. aquifolium and O. ilicifolius, and still adhered to in some nurseries, is a purely arbitrary one.

Cestrum nocturnum.—From Mr. W. O. Chalk comes a specimen of this rarely seen greenhouse shrub. It is a native of Mexico, and has lanceolate glabrous leaves, in the axils of which are produced long cymose racemes of tubular greenish flowers, each nearly an inch in length, and not remarkable for beauty, but having a delicate perfume, specially observable at night. The structure of the flower is interesting botanically, and we hope shortly to have an opportunity of figuring it, as on account of its perfume it is worthy a place in the greenhouse.

Florists' Flowers.

SEASONABLE NOTES: THE AURICULA.—As I write the weather is very mild for the season, which gives the plants which threw up flower trusses in the month of September a chance to form a new heart before the winter sets in. My experience with such plants is this—that they do not form such large trusses in the spring, nor are the pips so perfect in form. The plants require judicious watering now, and until the frosts set in. All such as have formed a sturdy crown in the centre of the plant, and have made no attempt to flower, should have just enough water to prevent the roots being injured. Those that have shown trusses ought now to be watered more freely to cause them to make some growth. It is not safe to leave the lights off at night after this time of the year, as the heavy dews and fogs wet the leaves, and they scarcely dry before sunset of the day following. We are planting out a number of alpines this year; they are well adapted for certain positions on the rockwork. There are sheltered spaces large enough to hold half-a-dozen plants or more of one variety, and I fancy they have a better effect that way than when the colours are mixed. The double dark alpine form is not worth growing either as a pot-plant or planted out, so we threw our stock away. The double yellow variety seems to be merely a form of the Primula Auricula in its wild state, but it makes a nice plant for the rock garden. All the alpines that have the flower-trusses supported on stiff stems do well planted out.

CARNATIONS AND PICOTEES.—Our potting-up of the layers was finished ten days ago, and a little attention is required to see that none of them lack water, and any decaying leaves are at once removed. The latest to be potted were the yellow ground Picotees and self Carnations, mostly of the Clove type. It may not be known very widely that there is much difference in the perfume of Carnations and Picotees, very few of them being Clove-scented; those that are we are careful to propagate, and when the flake or bizarre throws a self flower—as most of them will some time or other—we have then a Clove of a new colour. Mr. Dodwell's new purple-flake, Squire Whitbourn, is decidedly Clove-scented, and, as it is of the richest purple-flake we may soon expect a new purple Clove. Amongst new yellow-ground Picotees Janira (Nye), being sent out by Mr. Turner, is novel and distinct. Amongst perpetual flowering varieties we have at present in flower Mrs. Llewelyn, deep rose—a charming variety; and Juliette, not quite so large, but a beautiful rose colour—no collection should lack these two. Whipper In is a fancy flake, crimson and maroon, also very fine. We flower these all through the winter. There is also a batch of young plants now in 60's, but they will be potted on to flower in the spring.

DAHLIAS.—With us these are still in full beauty, and as the weather is more like August than November, one cannot say how long they will remain so. Frost threatened on one evening, about October 24, to kill them, but a change came about 10 P.M., when the glass had fallen to 30°. It will probably soon be the time to take them up, and in that case see that the roots when lifted are turned upside down, to drain all moisture out of the hollow stems. Let the roots be well dried before storing them away in a dry cool place, but out of the way of frost.

HOLLYHOCKS.—We were congratulating ourselves on entire immunity from the disease, but on going over the plants a few weeks ago it was found on one plant. If we had possessed another example of that variety the diseased plant would have been destroyed root and branch; as it was, we dug it up and cut every affected leaf off, potted the old stump, and isolated it completely from the others. It was well washed with soapy water well thickened with sulphur. Instructions as to the treatment of old and young plants were given at p. 430.

PANSIES.—Instructions were given at the same page how to treat out-of-door plants; but the best varieties ought to be grown in pots in cold frames. A 6-inch pot will do for a good-sized plant, and I fancy the plants look quite as attractive in these pots as they do in larger ones. As long as the weather continues mild the plants will grow freely. They should now be very strong plants, well established in large 60-sized pots. They should be potted this month into pots a size larger, to be repotted into their flowering pots two months later. I find the compost that we use for Hyacinths does well for Pansies; it contains quite a fourth part of rich cow-manure, with a good sprinkling of sand and leaf-mould. We admit no peat soil into the Pansy compost. The plants should be placed in a frame very near to the glass, the lights to be removed altogether in fine weather. It will be necessary to fumigate to destroy greenfly, which is troublesome; slugs, too, look out for their share of the flower-buds, which they sadly mar. The roots must be kept fairly moist all through the winter, except in time of frost.

PENTSTEMONS.—We find it is necessary to treat these very much the same as if they were shrubby Calceolarias. Any time during October the cuttings may be put in, either in pots or hand-glasses. If in pots they should be plunged in cocoa-nut fibre refuse. They strike equally well in the hand-glasses if they are pricked out in fine sandy soil. The glass lights need not be removed at all until the cuttings are rooted, and they must be looked over about once a week, to see that they do not want for water.

TULIPS.—It will now be time to plant out these, as the roots show signs of growing out from the base of the bulbs. At present the ground is in capital condition, being quite dry. Our process of planting and preparing the ground is very simple. Any rich piece of ground from which the crop has been cleared in September or October will do. If it is not rich we dig in a good dressing of rotten stable manure. On the top of this ground is spread out 2 or 3 inches of decayed turfy loam, well chopped up; if it is rather heavy loam some sea-sand is mixed with it. A hole is made with the fingers, some sand is put round the root, the loam pressed over it, leaving the crown 3 inches under-ground. A space of 9 inches is sufficient between the bulbs. In previous numbers I have described the old-fashioned method of planting with seven rows in a bed, arranging the different classes. We do not protect our beds in any way, but I find they succeed well in a sheltered border in front of a wall. There are but four rows in the bed, and we can reach the blooms nicely from either side. *J. Douglas*

LIST OF GARDEN ORCHIDS.

EPIDENDRUM.—*Continued from p. 574.*

189. E. (AULIZEUM) SCEPTRUM, Lindl., *Orch. Linden*, p. 8; *Fol. Orch.*, n. 111; *Walp. Ann.*, vi., p. 353; *Ill. Hort.*, xxviii., p. 96.—Venezuela, at 6500 feet. Introduced by Linden in 1843. Pseudobulbs a foot long; flowers very numerous; petals brilliant golden-yellow, spotted with purple; lip bright purple, white at the base. Hort. Kew.

190. E. (EUEPIDENDRUM — AMPHIGLOTTIDEÆ) SCHLIMII, Rchb. f., *Linnæa*, xxii., p. 838; *Walp. Ann.*, vi., p. 361; *Fol. Orch.*, n. 201; *Ill. Hort.*, xxviii., p. 96. *E. tenellum*, Lindl., *Fol. Orch.*, n. 138.—Venezuela, at 6500 feet. Introduced by Linden in 1848. Flowers pale red.

E. SCHLIMII, Lindl., not of Rchb. f. = socorrense.

191. E. (EUEPIDENDRUM—AMPHIGLOTTIDEÆ) SCHOMBURGKII, Lindl., *Bot. Reg.* 1838, Misc., p. 15, t. 53; *Gard. Chron.* 1843, p. 631; Paxt., *Mag. Bot.*, x., p. 121, with a coloured plate; Maund, *Botanist*, iv., t. 165, copied in Burnett's *Pl. Util.*, iii., t. 83a. *E. fulgens*, Brongn., *Voy. Duperrey*, t. 43.—Guiana. Discovered by Schomburgk; imported and cultivated by Messrs. Loddiges. A striking species, having vermilion-red flowers, clustered at the top of a slender scape, like E. cinnabarinum and E. radicans. In this the labellum is narrower and toothed rather than fringed.

192. E. SCRIPTUM, A. Rich. and Gal., *Ann. Sc. Nat.*, série 3, iii., p. 22; Lindl., *Fol. Orch.*, n. 264; *Ill. Hort.*, xxviii., p. 96.—Mexico. Introduced by Linden in 1837. Hort. Kew.

193. E. (EUEPIDENDRUM—SUBUMBELLATÆ) SCULPTUM, Rchb. f., *Bonplandia*, 1854, p. 89; *Walp. Ann.*, vi., p. 401.—Panama. Introduced by Mr. Keferstein, and cultivated by Mr. Lehmann.

194. E. (ENCYCLIUM—HYMENOCHILA) SELLIGERUM, Batem., *Bot. Reg.* 1838, Misc., p. 40; Lindl., *Fol. Orch.*, n. 26; *Walp. Ann.*, vi., p. 327.—Mexico and Guatemala. Introduced by Skinner, and cultivated by Mr. Bateman. Flowers dingy brownish-purple, with a white or rose-coloured lip; sweet-scented, like Tuberoses or Violets. Hort. Kew.

E. SECUNDUM = elongatum.

195. E. (AULIZEUM) SERIATUM, Lindl., *Fol. Orch.*, n. 183 (under *Amphiglottis*); Rchb. f., *Walp. Ann.*, vi., p. 347; *Refug. Bot.*, ii., t. 90, *Gard. Chron.*, 1871, p. 1323. *E. luteo-roseum*, A. Rich. and Gal., *Ann. Sc. Nat.*, série 3, iii., p. 19.—Mexico. Imported and cultivated by Mr. Bateman. A slender plant having yellowish-green sepals and petals, purple-brown near the tips, with a little white on the lip.

E. SINUOSUM, Lindl.; see tovarense.

196. E. (BARKERIA) SKINNERI, Batem., *Bot. Reg.*, t. 1881; *Bot. Mag.*, t. 3951; Warner, *Sel. Orch.*, ser. 1, t. 38; *Walp. Ann.*, vi., p. 382. *Barkeria Skinneri*, Paxt., *Mag. Bot.*, xv., p. 1, with a coloured plate; Pudyt, *Les Orch.*, t. 6. *E. Fuchsii*, Regel, *Schweiz. Zeitschr. Gartenb.*, 1851, p. 202.—Guatemala. Introduced by G. U. Skinner in 1835, and flowered by Mr. Bateman in 1836. A handsome species, having long racemes of medium size rich purple flowers, with a little yellow on the labellum.

197. E. (EUEPIDENDRUM—AMPHIGLOTTIDEÆ) SMARAGDINUM, Lindl., *Bot. Reg.* 1838, Misc., p. 32; *Fol. Orch.*, n. 208; *Walp. Ann.*, vi., p. 386.—Guiana and Brazil. Cultivated by Loddiges. Flowers small, bright green, of the same hue as the leaves.

198. E. (AULIZEUM) SOCORRENSE, Rchb. f., *Bonplandia*, 1854, p. 20; *Walp. Ann.*, vi., p. 396; *Ill. Hort.*, xxviii. *E. Schlimii*, Lindl., *Fol. Orch.*, n. 234.—New Grenada. Introduced by Linden. Stem said to branch like a shrub. Flowers red.

199. E. (EUEPIDENDRUM—SPATHACEÆ) SPATHACEUM, Lindl.; Hook., *Journ. Bot.*, iii., p. 85; *Fol. Orch.*, n. 166; *Walp. Ann.*, vi., p. 371; *Ill. Hort.*, xxviii., p. 96.—New Grenada to Peru. Introduced by Mr. J. Linden in 1847. Flowers white and pink, in dense masses, upwards of 18 inches long.

200. E. (BARKERIA) SPECTABILE, Rchb. f., *Walp. Ann.*, vi., p. 375. *Barkeria spectabilis*, Batem., *Bot. Reg.* 1842, Misc., p. 43; *Orch. Mex. and Guat.*, t. 33; *Bot. Mag.*, t. 4094; Paxt., *Mag. Bot.*, x., p. 169, with a coloured plate; *Fl. des Serres*, i., t. 24 (copied from Paxton's *Magazine*).—Mexico and Guatemala. Introduced by Skinner and Hartweg. Flowers very showy, 3 inches across, lilac-purple; lip paler, studded with blood-red dots.

E. SPECTABILE = oncidioides.

E. SPRUCEANUM = nocturnum.

E. SQUALIDUM = bicameratum.

201. E. (PSILANTHEMUM) STAMFORDIANUM, Batem., *Orch. Mex. and Guat.*, t. 11; Lindl., *Fol. Orch.*, n. 88; *Walp. Ann.*, vi., p. 415; *Bot. Mag.*, t. 4759; Lemaire, *Jard. Fleur.*, iii., t. 251 (var. pictum). *E. basilare*, Klotzsch; Otto and Dietr., *Allg. Gart. Zeit.* 1843, p. 193; Link, Kl. and Otto, *Ic. Pl. Rar. Hort. Berol.*, p. 111, t. 45. *E. cycnostalix*, Rchb. f., *Bot. Zeit.* 1852, p. 731.—Guatemala. Discovered by Skinner, and cultivated by Mr. Bateman. One of the finest of the genus, having large panicles proceeding from below the pseudobulbs of fragrant bright yellow and green flowers spotted with crimson; lip having white lateral lobes and a violet spot at the base.

202. E. (EUEPIDENDRUM — SUBUMBELLATÆ) STENOPETALUM, Hook., *Bot. Mag.*, t. 3410; Lindl., *Fol. Orch.*, n. 247. *E. lamellatum*, Westcott, *Bot. Reg.* 1843, Misc., p. 46. *Isochilus elegans*, Focke, *Tijdschr. Natuur. Wetensch.*, iv., p. 68.—Jamaica. Sent to the Glasgow Botanic Garden in 1835 by Mr. Macfadyen. A pretty species, having a cluster of small lilac-purple flowers between the two small leaves at the top of each stem. The lip, which is free in this species, has a darker purple blotch in the middle and a yellow and white base.

203. E. (AULIZEUM) STRAMINEUM, Lindl., *Fol. Orch.*, n. 100; *Walp. Ann.*, vi., p. 351; *Ill. Hort.*, xxix., p. 51.—New Grenada, at 8500 feet. Introduced by Mr. J. Linden. Flowers yellowish-green.

204. E. STROPHINX, Rchb. f., *Linnæa*, xli., p. 78.—Guatemala. Cultivated by Consul Schiller, of Hamburgh. Near E. nævosum.

205. E. (ENCYCLIUM — HOLOCHILA) SUBAQUILUM, Lindl., *Bot. Reg.* 1846, under t. 64; *Fol. Orch.*, n. 8.—Mexico or Guatemala. Cultivated by Mr. Warner. A small plant, having dull brown flowers with a whitish lip.

206. E. SYRINGOTHYRSIS, Rchb. f., *Bot. Mag.*, t. 6145; *Xenia Orch.*, iii., p. 22.—Bolivia. Discovered by Mr. Pearce, and introduced for Messrs. Veitch in 1866. A tall, handsome species, belonging to the same group as E. elongatum. Flowers dark purple, with a little orange and yellow on the lip and column, crowded in long racemes.

E. TENELLUM = Schlimii.

207. E. (ENCYCLIUM—HYMENOCHILA) TESSELLATUM, Batem., *Bot. Reg.* 1838, Misc., p. 7; Lindl., *Fol. Orch.*, n. 69; *Bot. Mag.*, t. 3638. *E. lividum*, Lindl., *Bot. Reg.* 1838, Misc., p. 51; *Fol. Orch.*, n. 11. *E. articulatum*, Klotzsch; Otto and Dietr., *Allg. Gart. Zeit.* 1838, p. 297.—Mexico to Venezuela. Introduced by Mr. Skinner, and cultivated by Mr. Bateman. Flowers green and brown, with transverse red marks inside.

208. E. (ENCYCLIUM) THROMBODES, Rchb. f., *Linnæa*, xli., p. 79.—Peru. Imported and cultivated by Messrs. Veitch. Near E. aromaticum. Sepals and petals yellow, marked with purple-brown; column yellowish, marked with purple; lip yellow, veined with purple.

209. E. (AULIZEUM) TIGRINUM, Lindl., *Orch. Lindeniana*, p. 9; *Fol. Orch.*, n. 116; *Walp. Ann.*, vi., p. 354.—Venezuela. Introduced by Mr. Linden. Flowers orange-yellow, spotted with red, with a white and purple lip. A plant in the way of E. variegatum, but having flowers four times as large.

210. E. (AULIZEUM) TIPULOIDEUM, Lindl., *Fol. Orch.*, n. 98; *Walp. Ann.*, vi., p. 350.—Venezuela, at 1000 feet. Introduced by Linden. A small grassy plant, having white and brown flowers.

(*To be continued.*)

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, NOVEMBER 7, 1883.

Months and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Nov.	In.	In.	°	°	°	°	°	°	°		In.
1	30.09	+0.33	51.5	45.5	6.0	48.1	+ 1.9	44.7	89	E.	0.00
2	29.94	+0.18	48.0	43.5	4.5	45.5	— 0.5	43.4	93	E.	0.00
3	29.89	+0.12	48.0	43.5	4.5	46.0	+ 0.2	42.7	92	W: WNW	0.02
4	29.52	—0.26	51.0	39.2	11.8	45.4	— 0.2	43.7	92	N.W.: S.W.	0.30
5	29.38	—0.41	50.0	38.0	12.0	44.3	— 1.1	39.3	81	S.W.	0.25
6	29.04	—0.78	55.5	42.0	13.5	47.7	+ 2.6	45.0	91	W:NW	0.18
7	29.42	—0.38	46.5	33.5	13.0	40.3	— 4.4	37.8	92	S.E.: S.S.W.	0.13
Mean	29.61	—0.17	50.1	40.9	9.3	45.3	— 0.2	42.4	90	Variable.	0.88

Nov. 1.—Fine day, few gleams of sunshine. Fine night, overcast.
— 2.—Fine, misty in morning, very dull. Fine night, overcast.
— 3.—Dull day, dark from 10 A.M. till 2 P.M. Slight rain during the evening.
— 4.—Faint gleams of sunshine before 9 A.M., rain from 10 A.M. till 6 P.M. Clear sky from 7 P.M.
— 5.—Fine bright day till 2.30 P.M., few dark clouds at 3 P.M. Rain from 7 P.M.
— 6.—Very dull, rain from early morning till 3 P.M. Fine night, cloudless.
— 7.—Dense fog from early morning till 6 P.M., raining at 8 P.M.

LONDON: *Atmospheric Pressure.*—During the week ending November 3 the reading of the barometer at the level of the sea increased from 30.20 inches at the beginning of the week to 30.25 inches by 9 A.M. on the 28th, decreased to 30.16 inches by midnight on the same day, increased to 30.45 inches by 9 A.M. on the 30th, decreased to 30.24 inches by midnight on October 31, increased to 30.27 inches by midnight on November 1, decreased to 30.04 inches by midnight on the 2d, and was 30.10 inches by the end of the week.

The mean reading for the week at the level of the sea was 30.24 inches, being 0.31 inch higher than last week, and 0.31 inch above the average of the week.

Temperature. — The highest temperature in the shade in the week was 60°, on October 28; the highest reached on November 2 and 3 was 48°. The mean of the seven high day temperatures was 52°.8.

The lowest temperature was 43°.5, on November 2 and 3; on October 29 the lowest temperature was 49°. The mean of the seven low night temperatures was 45°.8.

The greatest range of temperature in one day was 15°, on October 28; and the smallest was 4°.4, on October 31. The mean of the seven daily ranges was 7°.

The mean temperatures were—on October 28, 51°.5; on the 29th, 52°.1; on the 30th, 50°.1; on the 31st, 49°; on November 1, 48°.1; on the 2d, 45°.5; and on the 3d, 46°; and these were all above their averages (excepting November 2, when it was 0°.5 below) by 4°.8, 5°.5, 3°.6, 2°.6, 1°.9, and 0°.2 respectively.

The mean temperature was 48°.9, being 1°.9 below last week, and 2°.6 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 108°.5, on October 28. The mean of the seven readings was 71°.9.

The lowest reading of a thermometer with its bulb placed on short grass was 37°.9, on October 30. The mean of the seven readings was 40°.2.

Rain.—Rain fell on October 29 and on November 3 to the amount of 0.04 inch.

ENGLAND: *Temperature.*—During the week ending November 3 the highest temperature was 61° at Nottingham, and 60° at Truro, Blackheath, Sheffield, and Hull; the highest at Bolton was 55°.9, at Sunderland 56°, and at Bradford 56°.4. The general mean was 58°.4.

The lowest temperatures in the week were 35°.7 at Bolton, 35°.8 at Leicester, and 36°.1 at Bristol; the lowest at Plymouth was 48°.7, at Truro 47°, and at Brighton, 44°.3. The general mean was 40°.7.

The greatest ranges in the week were 23°.7 at Leicester, 21° at Sheffield, and 20°.9 at Bristol; the smallest ranges were 10°.4 at Plymouth, 13° at Truro, and 13°.7 at Brighton. The general mean was 17°.7.

The mean of the seven high day temperatures was highest at Truro, 57°, at Plymouth 56°.2, and at Nottingham and Leeds 53°.9; and was lowest at Sheffield and Bolton, 50°.9, and at Liverpool 51°.1. The general mean was 52°.8.

The mean of the seven low night temperatures was highest at Truro, 50°.7, at Plymouth 50°.4, and at Brighton 46°.9; and was lowest at Wolverhampton, 41°.4, at Bolton 41°.5, and at Hull 41°.6. The general mean was 44°.6.

The mean daily range of temperature was greatest at Hull, 12°.1, at Wolverhampton 10°.3, and at Nottingham 10°.2; and was least at Plymouth, 5°.8, at Brighton 6°.1, and at Truro 6°.3. The general mean was 8°.2.

The mean temperature was highest at Truro, 53°, at Plymouth 52°.5, and at Brighton 49°.2; and was lowest at Bolton, 45°.4, at Wolverhampton 45°.7, and at Sheffield 46°.3 The general mean was 47°.9.

Rain.—The largest falls were—0.57 inch at Plymouth, 0.48 inch at Truro, and 0.34 inch at Wolverhampton; the smallest falls were—0.01 inch at Leeds, 0.02 inch at Brighton and Liverpool. No rain fell at Sunderland. The general mean was 0.15 inch.

SCOTLAND: *Temperature.*—During the week ending November 3 the highest temperature was 62°.1, at Leith; at Greenock the highest in the week was 54°. The general mean was 57°.5.

The lowest temperature in the week was 33°, at Perth; at Greenock the lowest temperature was 41°.2. The general mean was 38°.1.

The mean temperature was highest at Glasgow, 49°.1; and lowest at Perth, 45°.7. The general mean was 47°.7.

Rain. — The largest fall was 1.25 inch at Greenock; and the smallest was 0.03 inch at Edinburgh. No rain fell at Aberdeen. The general mean fall was 0.27 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

ERIGERON MUCRONATUM. *X.* This is of Mexican origin. It was at first mistaken for the Australian Vittadenia triloba.

GLAZING: *A Subscriber.* The best plan is to bed the glass well in putty, but to put none on the top, as in the old and usual style of glazing.

NAMES OF FRUIT: *G. C. Apples:* 1, Gooseberry; 2, Pine Golden Pippin. *Pears:* 1, Catillac; 2, Huyshe's Bergamot; 4, Josephine de Malines. — *J. B. T.* 1, Pear, Beurré Rance; 2, Apple, Bess Pool.—*S. L.* 1, Barcelona Pearmain; 2, not recognised; 3, not known —very handsome; 4, Beauty of Kent; 5, Bedfordshire Foundling.—*N. S.* 1, Doyenné Boussoch; 2, Beurré Diel; 3, Beurré Hardy; *Apples:* 4, Bess Pool; 6, King of the Pippins. — *Bell & Son.* 1, not recognised; 2, Court Pendu Plât; 3, Kerry Pippin; 4, Cox's Orange Pippin; 5, Scarlet Nonpareil; 6, Braddick's Nonpareil; 7, Minchal Crab.—*M. J. P. Apples:* 1, Cox's Orange Pippin; 2 and 4, King of the Pippins; 3, London Pippin. *Pears:* 1, quite decayed; 2, Josephine de Malines.—*A. R.* 1, Sam's Crab; 2, Moorpark Pippin. — *Dr. Wallace, Colchester.* 2, King of the Pippins; 3, Golden Reinette; 5, Herefordshire Russet; 6, Forge; 7, Baxter's Pearmain; others not recognised. — *W. M.* Apple, Brabant Bellefleur. — *J. M., Lockinge. Pears:* 1, Beurré de Capiaumont; 2, Uvedale's St. Germain; 3, Louise Bonne of Jersey. *Apples:* 1, Yorkshire Beauty; 2, Gravenstein; 4, Mank's Codlin; 5, Mère de Ménage; 6 and 11, Downton; 7, Tower of Glamis; 8, Lamb Abbey Pearmain; 9, Gloria Mundi.—*A. S.* 1, Kirke's Schöne Rambour; 2, Rhode Island Greening; 3, Orange Pearmain; 4, Woodley's Favourite; 5, Tower of Glamis; 6, Hoary Morning; 7, Pear, Emille d'Heyst. —*George Wood.* 1, Alfriston; 2, Hanwell Souring; 3, Irish Giant; 4, Wormsley Grange Pippin; 5, King of the Pippins; 6, Blenheim Orange; 7, Duke of Devonshire; 8, Coe's Golden Drop.—*A small box* (containing five Apples wrapped separately in sheets of *Pall Mall Gazette*, and two of one sort in another paper) has been received without any letter. The varieties are:—1, Golden Noble; 2, Winter Hawthornden; 3, French Crab; 4, Hambledon Deux Ans; 6, London Pippin. We have received so many parcels of fruit to be named that we must ask those who send them to exercise a little patience. We cannot undertake to give the name the same week. The work of identifying Apples and Pears is one of some difficulty, and we cannot devote all our time to it, having other more urgent work to do.

NAMES OF PLANTS: *Amateur.* Adiantum gracillimum.—*A Subscriber.* Yes. Colchicum autumnale flore-pleno. — *D. M.* We think it is the old Tea, "Moiret."—*James Cypher.* Zygopetalum crinitum.—*James Shiel.* Drosera rotundifolia. — *N. Burgess.* Xanthium spinosum.—*R. E.* Panicum miliaceum.—*C. W. Dod.* Aster sikkimensis. A. lævigatus, and A. Amellus several forms.—*Mr. Cullingford.* Artemisia annua.—*Clifton.* 1, Asplenium Adiantum nigrum; 2, Pleopeltis Billardieri; 3, Pteris longifolia; 4, P. serrulata cristata; 5, Polystychium angulare proliferum; 6, Scolopendrium vulgare macrosorum; 7, Asplenium marinum. —*A. D.* Spiræa ariæfolia.—*N. B.* Rhus Cotinus (the Wig-plant).

STONE FOR ROCKWORK: *H. H., Bournemouth.* You cannot do better than make use of the various sorts of stone peculiar to the district. To mix with the limestone—of which we presume you can get plenty close at hand—you may, for the sake of variety, get some of either the white sandstone, or of the two or three other sorts of stone to be obtained from the quarries at Swanage, the cost of which should not be heavy if carried by sloop or barge.

SUGGESTION: *D. B. C.* The matter has often been considered. Under the present system greater value is given for the money, and much earlier information is possible than under the plan you advocate. Our experience of the plan is not favourable to its further extension; at the same time we are obliged for your suggestion, and shall be glad of others.

WINTER-FLOWERING STOVE AND GREENHOUSE PLANTS: *J. E.* The following plants will supply you with cut blooms from August to January, but the quantity will depend on your requirements, accommodation, and cultural skill:—*Stove:* Eucharis from August to January; Allamandas, Bougainvilleas, Clerodendrons, Dipladenias, Gardenias, Ixoras, Pancratiums, Rondeletias, and Stephanotis, from August to middle of October. Thence onwards to January, Begonia Knowsleyana, B. insignis, Urceolina aurea, Jasminum gracillimum, Ipomea Horsfalliæ, Plumbago rosea, Centropogon Lucianus, Eranthemums, Thyrsacanthus, Euphorbia jacquinæflora, Gesneras in variety, Poinsettias, Scutellarias, and Epiphyllums of the truncatum section. *Greenhouse:* Bouvardias in variety from August to January; Vallota purpurea, Agapanthus umbellatus, Lilium lancifolium, vars., and L. auratum, Tuberoses, Statice imbricata and S. profusa, Lapageria rosea and L. alba, from August to end of September. Thence Pelargoniums (zonal section), Epacris (winter varieties), Celosia pyramidalis, Globe Amaranthus, double Primulas, Jasminum grandiflorum, Nerines, or Guernsey Lilies, Salvias, Tree Carnations, Cyclamen persicum, Libonias, Sparmannia africana, Camellias and Chrysanthemums, with the aid of Roman Hyacinths, Paper-White and Roman Narcissus, and Schizostylis coccinea, onwards to January.

ZONAL PELARGONIUMS: *An Amateur.* You should have potted up the rooted cuttings in the middle of September, or earlier, to have got them established and well hardened before winter; and you should not have potted them when you did in damp soil, unless you could have given them a little heat to set the roots in motion. Pick all decaying leaves off the plants, and give them a little heat, with plenty of air when fine, and keep them on the dry side as regards watering. If you have no heat, shake the cuttings out of their present soil, and pot them in moderately dry sandy soil, using the smallest pots they can be put into.

CATALOGUES RECEIVED.

JAMES DICKSON & SONS, Newton Nurseries, Chester — Autumn Catalogue of General Nursery Stock.
WILLIAM MEADMORE, Romford, Essex—Roses.
ALEXIS DALLIÈRE, Faubourg de Bruxelles, Ghent — Stove and Greenhouse Plants.
ALEX. A. CAMPBELL, Cove Gardens, Gourock—Choice Hybrid Gladioli.
LITTLE & BALLANTYNE, Carlisle — Forest and ornamental Trees and Shrubs.
HOGG & ROBERTSON, 22, Mary Street, Dublin — Forest and Ornamental Trees, &c.

COMMUNICATIONS RECEIVED.—T. S. W.—W. O. C.—R. Pfau.—J. E. H.—A. W.—T. Hunter.—E. R.—J. S.—G. C. D—I. O. W.—D. T. F.—A. F. B.—A Constant Subscriber (see p. 596).—R. I. G.—H. E.—O. O.—W. Smythe.—Pomona.—H. T. S.—R. D.—E. V. B.—T. D. H.—C. T.—A. E.—E. A. S.—P. L.—T. R. B.—Porthgwidden.—W. B. T.—S. J. T.—J. D. F.—J. S. S.—J. F.—M. O.—J. J. F.—A. O. W.—T. J. S.—W. W.

Markets.

COVENT GARDEN, November 8.

A LARGE cargo of St. Michael Pines to hand, considerably affecting home fruit. Apple market quiet, with prices inclined to give way. Grapes dull. Kent Cobs maintain their rise. Trade generally dull. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 0– 3 0	Lemons, per case ..	15 0–25 0
Cobs, per 100 lb...	150 0– ..	Pears, French, doz.	1 6– 4 0
Figs, per dozen ..	1 0– ..	Pine-apples, English, per lb.	2 0– ..
Grapes, per lb. ..	1 0– 3 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 5 0	Lettuces, Cabbage, per dozen	1 0– ..
— Jerusalem, bush.	4 0– ..	— Cos, per dozen..	1 6– ..
Beans, French, lb...	1 0– ..	Mint, green, bunch..	0 6– ..
Beet, per doz. ..	1 0– ..	Mushrooms, p. baskt.	1 0– 2 0
Cabbages, per doz..	1 0– 2 0	Onions, per bunch ..	0 6– ..
Carrots, per bun. ..	0 4– 0 6	— Spring, per bun.	0 6– ..
Cauliflowers, English, dozen.. ..	2 0– 3 0	Parsley, per bunch..	0 4– ..
Celery, per bundle..	1 6– 2 6	Radishes, per doz. ..	1 6– ..
Cucumbers, each ..	0 4– 0 8	Salsafy, per bundle..	0 8– ..
Endive, English, per dozen	1 0– ..	Seakale, per punnet	2 6– ..
Garlic, per lb. ..	0 6– ..	Small salading, pun.	0 4– ..
Herbs, per bunch ..	0 2– 0 4	Spinach, per bushel	3 6– ..
Horse Radish, bund.	3 0– 4 0	Tomatos, per lb. ..	0 6– 0 9
		Turnips, new, bun.	0 4– ..
		Vegt. Marrows, each	0 2– 0 4

POTATOS.—Kent Kidneys, £4 to £4 10s. per ton; do., Regents, £3 10s. to £4 10s.; Champions, £3 10s. to £3 15s. per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	12 0–24 0	Ferns, in variety, per dozen ..	4 0–18 0
Arbor-vitæ (golden), per dozen ..	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each ..	2 0–10 0
Begonias, per doz.	6 0–12 0	Fuchsias, per dozen	4 0– 9 0
Bouvardias, doz.	12 0 18 0	Liliums, various, per dozen ..	12 0–30 0
Chrysanth., per doz.	6 0–18 0	Marguerite Daisy, per dozen ..	8 0–12 0
Coleus, doz.	2 0– 6 0	Myrtles, per doz.	6 0–12 0
Cyclamen, per dozen	12 0–18 0	Palms in variety, each..	2 6–21 0
Dracæna term. doz.	30 0 60 0	Pelargoniums, scarlet, per dozen	4 0– 9 0
— viridis, per doz.	12 0–24 0	Solanums, per dozen	8 0–15 0
Epiphyllum, per doz.	18 0 30 0		
Erica, various, doz.	9 0 18 0		
Euonymus, various, per dozen ..	9 0–18 0		
Evergreens, in var., per dozen ..	6 0–24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Marguerites, 12 bun.	4 0– 6 0
Arum Lilies, 12 blms.	4 0– 6 0	Mignonette, 12 bun.	2 0– 6 0
Azalea, white, 12 spr.	1 0– 2 0	Myosotis, or Forget-me-not, p. 12 bun.	2 0– 6 6
Bouvardias, per bun.	1 0– 1 6	Narcissus (Paper-white) ..	2 0– 4 0
Camellias, per doz.	2 0– 5 0	Pansies, 12 bunches	0 9– 1 0
Carnations, 12 blms.	1 0– 3 0	Pelargoniums, 12 spr.	1 0– 1 6
— 12 bunches ..	3 0– 6 0	— zonal, 12 sprays	0 3– 0 6
Chrysanth., 12 blms.	1 0– 4 0	Primula, double, bun.	1 0– ..
— 12 bunches ..	4 0– 9 0	— single, 12 bun.	6 0– 9 0
Cornflower, 12 bun.	1 6– 4 0	Roses (indoor), doz.	2 0– 6 0
Cyclamen, 12 blooms	0 3– 0 6	— coloured, doz.	3 0– 8 6
Epiphyllum, 12 blms.	1 0– 1 6	Stephanotis, 12 spr.	6 0– 8 0
Eucharis, per doz.	4 0– 6 0	Tropæolum, 12 bun.	1 0– 2 0
Gardenias, 12 blms.	4 0– 6 0	Tuberoses, per doz.	1 0– 2 0
Gladioli, 12 spikes	1 0– 3 0	Violets, 12 bunches	1 0– 1 6
Heliotropes, 12 sp.	0 6– 1 0	— French, per bun.	1 0– 1 6
Hyacinths (Roman), 12 sprays ..	2 0– 3 0	— Parme, per bun.	4 0– 5 0
Lapageria, white, 12 blooms ..	3 0– 6 0	Wallflower, 12 bun.	3 0– 4 0
— red, 12 blooms	1 0– 3 0	White Jasmine, bun.	0 6– 1 0
Lilac, white Fr., bun.	8 0–10 0		

SEEDS.

LONDON: *Nov. 7.*—The market for farm seeds is generally firm, with an upward tendency for certain varieties. More money is again asked for both Continental and American Clover seed: more liberal offerings of English may shortly be expected. Fine samples of Alsike and white are scarce and dearer. There is but little business passing in grass seeds. A fair sale is experienced for the new Kœnigsberg Tares just to hand. Blue Peas are firm at late rates. Hemp seed is scarce. No change in Canary. Feeding Linseed is steady. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday the improvement noticed on Friday was supported as regards foreign Wheats. English Wheat remained at the rates of this day week for white, but with a slow sale, and red sections were the turn lower. The flour market was dull, without change in prices. In English Barley all malting descriptions, excepting finest, were 1s. lower. Foreign grinding sorts, on the contrary, were firm at 1s. per quarter advance on the week. Maize still hardens in value. Flat corn advanced to 26s. 6d. ex ship, making 1s. rise for the week; round corn was 3d. to 6d. dearer, at 26s. 3d. to 27s. 6d. Beans and Peas were not quotably altered. Oats ruled firm.—On Wednesday the Wheat trade was firm, the full terms of Monday being upheld generally. Flour was dull and unaltered. Malting Barley met little inquiry, and grinding sorts were firm. Beans, Peas, and Maize were all firm.—Average prices of corn for the week ending Nov. 3:—Wheat, 40s. 3d.; Barley, 34s. 7d.; Oats, 19s. 7d. For the corresponding period last year:—Wheat, 40s. 11d.; Barley, 34s. 5d.; Oats, 20s. 2d.

HAY.

Tuesday's Whitechapel Market report states that supplies were large, and trade very dull. Clover, hay, and straw were all rather lower. Quotations:—Prime Clover, 100s. to 110s.; inferior, 60s. to 75s.; prime second cut, 90s. to 108s.; best meadow hay, 80s. to 88s.; inferior, 40s. to 65s.; and straw, 30s. to 30s. per load.—On Thursday there was a large supply. The trade was dull, and prices were unaltered—Cumberland Market quotations:—Superior meadow hay, 80s. to 90s.; inferior, 60s. to 72s.; superior Clover, 100s. to 114s.; inferior, 70s. to 86s.; and straw, 35s. to 40s. per load.

POTATOS.

The Borough and Spitalfields Markets reports state that fair supplies were on offer, but trade quiet. Magnum Bonums, 80s. to 100s.; Regents, 80s. to 100s.; Champions, 60s. to 80s.; Roses, 60s. to 70s. per ton.—The imports into London last week consisted of 9884 bags from Hamburgh, 33 Harlingen, 5194 Stettin, 32 Rotterdam, 500 cases Bordeaux, 130 tons Roscoff, 8 sacks and 400 bags from Bremen.

COALS.

The following are the prices current at market during the week:—East Wylam, 17s.; Walls End—Hetton, 19s.; Hetton Lyons, 17s.; Lambton, 18s. 6d.; Wear, 17s.; Tees, 19s.

Government Stock.—Consols closed on Monday at 101¼ to 101⅜ for delivery, and 101⅜ to 101½ for the account. Tuesday's figures were 101¼ to 101⅜ for delivery, and 101½ to 101⅝ for the account. Wednesday's final quotations were 101⅜ to 101½ for delivery, and 101 9/16 to 101⅝ for the account. Consols finished off on Thursday with an improvement of ¼ for delivery and ⅛ for the account.

SILVER MEDAL-1861. BRONZE MEDAL-1881.

To Her Most Gracious Majesty Queen Victoria. To His Royal Highness the Prince of Wales.

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COCOA-NUT FIBRE REFUSE

By CHUBB'S PATENT PROCESS,

As supplied to all the Royal Gardens and Principal Nurseries of Europe.

GUARANTEED ABSOLUTELY PURE. FREE FROM ANY FOREIGN INTERMIXTURE. Manufactured on the premises from the famous "Laguna" Cocoa-Nut Husks, and can only be obtained from us direct. This article is not to be confused with so-called Cocoa-Nut Fibre Refuse, sold by dealers and others at ridiculously low prices, and dear in the end. Amongst numerous Testimonials and extracts from scientific writers, to be seen at our works, we hold the following:—From Mr. CHARLES PENNY, Head Gardener to H.R.H. the Prince of Wales: "The Gardens, Sandringham, February 28, 1883.—I must say your Cocoa-Nut Fibre Refuse is far superior to any I have ever tried; in fact, it is simply perfection; and the use of your Fibre for so many purposes in Horticulture is a thorough boon. Make what use you like of this letter." Useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bulbs, Mushrooms, Bedding-out Plants, &c.

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An elegant Bordering to Flower Beds. Combines warmth and cleanliness with valuable antiseptic and deodorising properties.

MOISTENS IN HEAT. HOLDS HEAT IN COLD WEATHER.

Terms, strictly cash with order. Prices as follows:—Sacks, 1s. 6d. each; 10 sacks, 13s.; 15 sacks, 18s.; 20 sacks, 23s.; 30 sacks, 30s. (all sacks included). Truck-load, free on rail, £2. Limited quantities of SPECIAL QUALITY, Granulated, in sacks only, 2s. 6d. each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from the Manufacturers, **CHUBB, ROUND & CO.,**
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Horticultural Sundries Merchants,
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A perfect Non-conductor of Heat, keeping Wherever it is applied an even Temperature.

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"ORIGINAL"
STOCK-BREEDERS' MEDICINE CHESTS,
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Oil Paint No Longer Necessary.

HILL AND SMITH'S BLACK VARNISH,
for Preserving Ironwork, Wood, or Stone.
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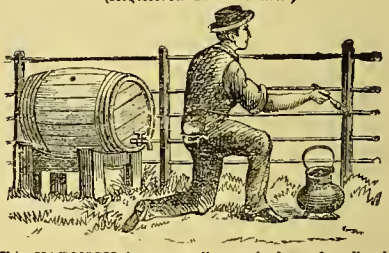

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Sold in Casks of about 30 gallons each, at 1s. 6d. per gallon at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

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The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."
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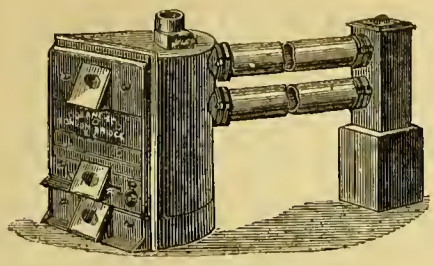

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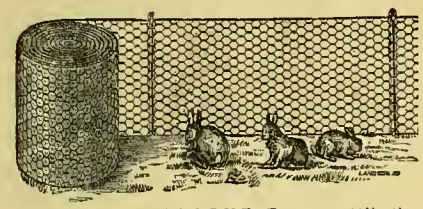

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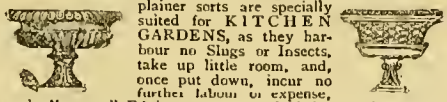

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100 Squares, good Glass, at the following prices, in Leeds:—

15 oz.		21 oz.	
13½ by 8	for 9*s.* 6*d.*	13½ by 8	for 12*s.* 6*d.*
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BELGIAN GLASS for GREENHOUSES, &c.

Can be obtained in all sizes and qualities of

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B. & Son have always a large stock in London of 20 in. by 12 in., 20 in. by 14 in., 20 in. by 16 in., 20 in. by 18 in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200-ft. and 300-ft. cases.

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21 oz. Foreign, of the following sizes, in boxes of 100 and 200 feet, 3ds and 4ths qualities always kept in stock:—

14×12	20×12	20×14	20×16	20×18
16×12	16×14	20×15	22×16	22×18
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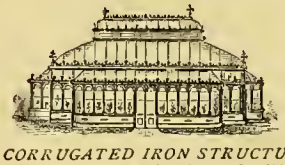

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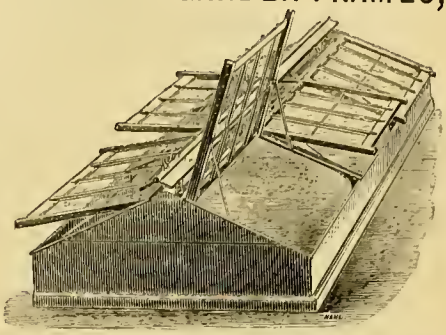

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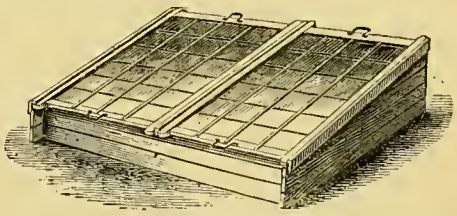

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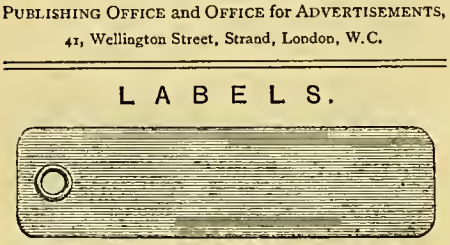

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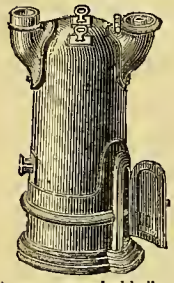

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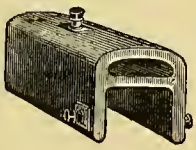

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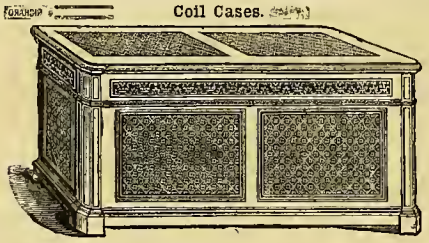

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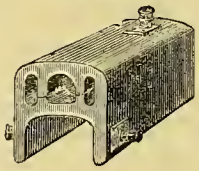

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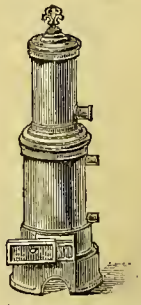

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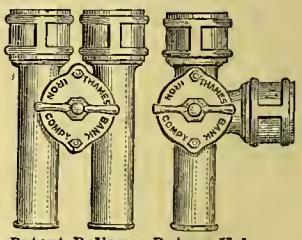

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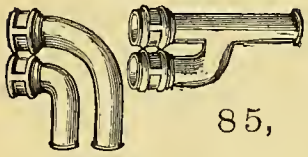

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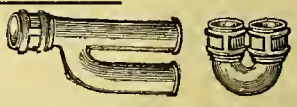

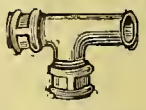

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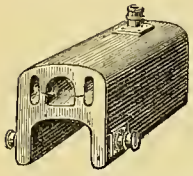

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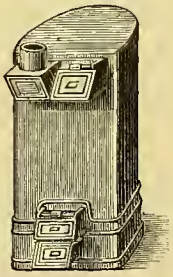

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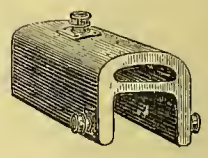

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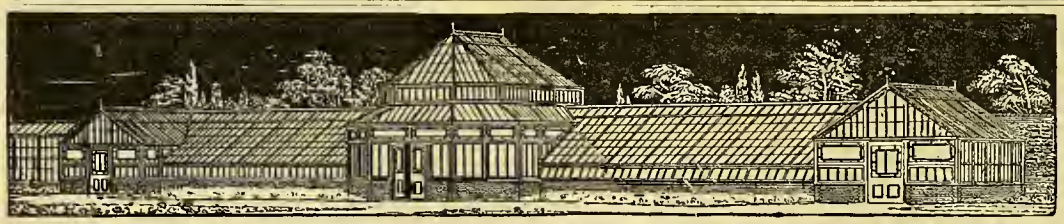

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THE

GARDENERS' CHRONICLE.

Established 1841.

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

SURPLUS STOCK.—Handsome and Choice Evergreen and Deciduous TREES for Avenues, Parks, Gardens, Streets, &c. Very good and cheap. LIST free by post.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Fruit Trees to Offer.
STANDARD APPLES and PEARS, also PURPLE and WEEPING BEECH. Price per 100 on application to
WILLIAM FLETCHER, Ottershaw Nursery, Chertsey, Surrey.

POTATOS.—Sutton's Reading Hero, White Elephant, Beauty of Hebron, and Ashleaf Kidney. A few Tons each of these popular sorts cheap for cash, to save storing. BRINKWORTH AND SONS, Reading.

Firms in the Nursery and Seed Trade wishing to publish their announcements in Ireland, will find THE IRISH FARM, FOREST, and GARDEN, an excellent medium. Specimen Copies, Scale of Charges, &c., on application to
Mr. THOS. MOORE, Sole Proprietor, 30, Lower Ormond Quay, Dublin.

SALES BY AUCTION.

Dutch Flower Roots, every Monday, Wednesday and SATURDAY.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely, a large consignment of first-class DOUBLE and SINGLE HYACINTHS, in all colours; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, Early ROMAN HYACINTHS, and other BULBS, just received from well known farms in Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale, and Catalogues had.

Tuesday Next.—(Sale No. 6522.)
CHOICE HOME GROWN LILIES, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY NEXT, November 20, at half-past 12 o'Clock precisely, a fine selection of Home-grown LILIES and other BULBS and PLANTS, by order of the New Plant and Bulb Company. Also an importation of LILIUM AURATUM from Japan; 3000 TUBEROSES from South Africa, DUTCH BULBS, Roman HYACINTHS and Paper NARCISSUS in quantity, and 1500 Crowns of LILY of the VALLEY.

On view morning of Sale, and Catalogues had.

Choice Home-grown Lilies.

MR. J. C. STEVENS is instructed by the New Plant and Bulb Company, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 20, at half-past 12 o'Clock precisely, a fine selection of home-grown LILIES and other BULBS, IRIS, and other PLANTS, including Liliums, Washingtonianum, Harrisii (the Bermuda Lily), Hansoni, Leichtlini, Coridion, concolor, excelsum, Sczovitzianum, (Colchicum), Parryi, Brownii, Dalmaticum, Catanei rubescens, and a new form of Lilium longiflorum, and other LILIES; also 100 bulbs of the new white Tigridia, MONTBRETTIA CROCOSMIÆFLORA (new), IRIS Robinsoniana, iberica, Amaryllis, Crinums, and other BULBS.

On view morning of Sale, and Catalogues had.

Wednesday Next.
PLANTS and BULBS from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, November 21, at half-past 12 o'Clock precisely, first-class Standard and Dwarf ROSES, in all the leading varieties from English Nurseries; a consignment of AUCUBA JAPONICA, in sixty-one fine varieties: RHODODENDRONS, with Flower-buds; AZALEA PONTICA and A. MOLLIS, strong plants with buds; HARDY CONIFERS, &c, from Holland; GREENHOUSE PLANTS, and an importation of choice named Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, SCILLAS, and other Dutch BULBS for present planting.

On view morning of Sale, and Catalogues had.

A Grand Importation of
CATTLEYA SPECIES (supposed New Species) collected and brought home by Mr. John Carder from a remote district beyond Popayan. The plants offered are of the same variety and from the same ground as those collected by the late Mr. J. H. Chesterton, and which were sold at Messrs. Stevens' Great Rooms on January 24, 1883. The above are in splendid condition, many of them with perfect leaves and fine masses. Mr. Carder's estimate of the plants tallies with that of Mr. Chesterton; he considers that it more nearly approaches C. Mendelii than it does C. Trianæ. This Cattleya is remarkable for the great number of snow-white forms which it produces, many of them appearing identical with the rare white C. Bluntii, while the coloured forms exhibit a breadth of petal and perfection of form which places them in the front rank among Cattleyas. The flowers measure 7 and 8 inches in diameter, and we believe they will prove most valuable winter-flowering varieties. The consignment is offered as received, the white and coloured forms mixed. See dried flowers. MASDEVALLIA CROSSII, exceedingly rare, and most difficult to import, bright orange-scarlet. See dried flowers. ODONTOGLOSSUM VEXILLARIUM, the dark-flowered autumn variety; O. PESCATOREI, O. CRISPUM (Alexandræ). PAPHINIA RUGOSA, very rare; BOLLEA SPECIES; HOULLETIA CHRYSANTHA and HOULLETIA SPECIES, supposed floribunda; and ODONTOGLOSSUM ROEZLII. All in the very best of condition. Which will be SOLD by AUCTION by

MR. J. C. STEVENS at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, November 22, at half-past 12 o'Clock precisely, by order of Messrs. Shuttleworth, Carder & Co.

On view morning of Sale, and Catalogues had.

Thursday Next.
Four Cases of ARAUCARIA EXCELSA.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, November 22.

On view morning of Sale, and Catalogues had.

Dutch Bulbs.—Great Unreserved Sales.
Every MONDAY, THURSDAY, and SATURDAY.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., every MONDAY, THURSDAY, and SATURDAY, at half-past 11 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, and other ROOTS from Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Important Sale of about 300 Choice Double Camellias and AZALEA INDICA, compact plants, 1 to 3 feet, beautifully set with bloom-buds; GREENHOUSE PLANTS in variety, 400 handsome Standard and other ROSES of the best sorts, selected FRUIT TREES, Hardy CONIFERÆ, SHRUBS, AMERICAN PLANTS, DUTCH BULBS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, November 20, at 12 o'Clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone, E.

Tuesday Next.
CATTLEYA SPECIES (supposed new species).

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Shuttleworth, Carder & Co., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, at half-past 12 o'Clock precisely, an importation of CATTLEYA SPECIES, collected by Mr. John Carder in a remote district beyond Popayan. The plants offered are of the same variety and from the same ground as those collected by the late Mr. J. H. Chesterton, and which were sold in January last. Mr. Carder's estimate of the plants tallies with that of Mr. Chesterton, and he considers that it more nearly approaches C. Mendelii than it does C. Trianæ. This Cattleya is remarkable for the number of snow-white forms which it produces, many of them appearing identical with the rare white Cattleya Bluntii, while the coloured forms exhibit a breadth of petal and perfection of form which places them in the front rank among Cattleyas. The flowers measure 7 and 8 inches in diameter, and it is believed they will prove most valuable winter flowering varieties. The consignment is offered as received, the white and coloured forms mixed. Also ODONTOGLOSSUM VEXILLARIUM, the dark-flowered autumn variety; O. ALEXANDRÆ and O. PESCATOREI, of the best types; and other ORCHIDS.

On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Wednesday Next.
400 CAMELLIAS and AZALEAS, FICUS, and other DECORATIVE PLANTS from Belgium; STOVE and GREENHOUSE PLANTS and FERNS in variety; a choice assortment of Standard and Dwarf ROSES, HYACINTHS, TULIPS, CROCUS, and other DUTCH BULBS; CARNATIONS, PICOTEES, and a variety of PLANTS and BULBS for the garden.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, at half-past 12 o'Clock precisely, without reserve.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Friday Next.
CATTLEYA SPECIES (fine plant in flower).

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to include in their SALE, at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, a splendid plant of CATTLEYA species in flower. It was imported as Mendelii, is very distinct, and one of the finest Mr. Sander has ever seen.

On view morning of Sale, and Catalogues had.

Friday Next.
LYCASTE SKINNERI.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, at half-past 12 o'Clock precisely, a splendid importation of LYCASTE SKINNERI, mostly in large masses; a very fine lot of ODONTOGLOSSUM ALEXANDRÆ, CYPRIPEDIUMS, CATTLEYAS, MASDEVALLIAS, and other ORCHIDS. Also a splendid new ODONTOGLOSSUM in flower.

On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E C.

Flowering Orchids.—Special Sale.

MESSRS. PROTHEROE AND MORRIS beg to announce that their next special SALE of FLOWERING ORCHIDS will take place on TUESDAY, November 27.

The Catalogue is in course of preparation, and gentlemen desirous of including plants are respectfully requested to furnish a list by Tuesday next.

Sunbury, Middlesex.
By Order of the Executors of the late Mr. R. A. Osborne.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, The Sunbury Nursery, Sunbury, on THURSDAY, December 6, the remainder of the unusually well grown NURSERY STOCK, including 10,000 Maiden Apples, 4500 Feathered and Maiden Pears, 3000 Maiden Plums and Damsons, 8000 Dwarf H.P. Roses, 1000 Standard Roses, 600 trained and Maiden Moor Park Apricots, 500 Limes, &c. Further particulars next week.

N.B. The OLD-ESTABLISHED NURSERY is FOR DISPOSAL on advantageous Terms. The Auctioneers will be pleased to furnish full particulars and lowest terms on application.

Ottershaw Park Nursery, Ottershaw, Chertsey.
UNRESERVED CLEARANCE SALE of well-grown NURSERY STOCK. Owing to this property being Sold, and the Lease having expired,

MESSRS. R. AND J. WATERER AND SON have been favoured with instructions from Mr. W. Fletcher to SELL by AUCTION, upon the Premises, on MONDAY, December 3, and following days, at 11 for 12 o'Clock precisely, on each day, the whole of the NURSERY STOCK, on the above Land, comprising 50,000 Standard and Pyramid Fruit Trees of the choicest sorts of Apples, Pears, and Plums; 300 Dwarf-trained Fruit Trees; 10,000 Common Privet; 15,000 Forest Trees, consisting of Horse Chestnut and Birch, 12 to 20 feet; Scarlet Oaks, 4 to 6 feet; Weymouth Pine, 8 to 12 feet; Purple Beech, 7 to 12 feet; Weeping Beech and Elm, 8 to 10 feet; Norway Maple, 8 to 14 feet; Hornbeam, 6 to 12 feet; Limes, 4 to 10 feet; Spanish Chestnuts, 1 to 3 feet; Elms, 2 to 3 feet; and a number of Ornamental Shrubs, Picea Nordmanniana, Aucubas, named Rhododendrons, Variegated and Green Hollies, &c.; a few choice Standard and Dwarf Rose Trees, and other stock.

May be viewed, and Catalogues obtained 7 days prior to the days of Sale, at the principal Hotels and Inns in the neighbourhood; of Messrs. FLETCHER AND SONS, Ottershaw Nurseries; and of the Auctioneers, Chertsey and Weybridge Station, Surrey.

To Gardeners and Florists.

FOR SALE, 1½ Acre of NURSERY GROUND, 4 miles from Covent Garden. Nice Cottage, 3 excellent Houses. Stock moderate. 54 years' lease.
Address, GARDEN, 2, Carrington Villas, Richmond.

Market Garden Ground.
Close to Beddington Railway Station and about 2 miles from Croydon.

TO BE LET, 16 Acres of LAND, well planted with Fruit Trees, &c.

Apply to BLAKE, HADDOCK AND CARPENTER, Estate Agents, &c., 21, High Street, Croydon, and 32, Nicholas Lane, E.C.

Pine-apple Nursery, Peckham Rye, E.C.

TO BE LET, on Lease, this well-known NURSERY, with extensive Grape and Orchard-houses, planted with the choicest Vines and trees; Hothouses and numerous Outbuildings, Cottage, Stabling, &c.

For terms apply to RUSHWORTH, ABBOTT AND STEVENS, 22, Savile Row, Regent's Street, W.

MESSRS. PEED & GREAVES,
AUCTIONEERS AND ESTATE AGENTS,
1, HOLLAND ROAD, BRIXTON, LONDON, S.W.

THE above Firm will be happy to Furnish Estimates or Terms for the SALE by PUBLIC AUCTION of all Classes of NURSERY and FLORIST STOCK, either at the Nurseries of Clients, or to be removed to the Sale Rooms, as above. Mr. W. G. PEED (son of Mr. John Peed, the well-known Exhibitor, Nurseryman, and Florist), by his practical knowledge of the Trade, the nomenclature of all classes of Plants and Trees, as also his intimate knowledge of the value of every variety of Nursery Stock, can guarantee a like competency and thoroughness of Sale only possessed by one well-known firm in the Trade, and Messrs. P. & G. will undertake any such Sales at lowest possible terms.

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

NOTICE.—WILLIAM SUTHERLAND, late of the Barbourne Nurseries, Worcester, and previously of Liverpool, begs to intimate that, having effected an engagement with Messrs. James Dickson & Sons, his present address (at which he hopes to hear from his various friends) is "Newton" Nurseries, Chester.

R. COLLYER, NURSERYMAN, Cart House Lane, Woking Station, Surrey, begs to offer the following good rooted and well grown plants:—
COMMON YEWS, 2 to 4 feet.
COMMON GREEN HOLLIES, 1½ to 3 feet.
GOLD GREEN HOLLIES, 1½ to 2½ feet.
Samples and price on application.

Cape Bulbs.

CAPE BULBS.

Orders for small Sample, Post Collections, or larger Shipments now received. Delivered January and February, 1884.
ED. HUTT, Sales Department, Botanic Gardens, Capetown.

To the Trade.

PALMS and FERNS from Stores.
PALMS—Latania borbonica (Livistona sinensis) and Corypha australis, 6s. per 100, 55s. per 1000.
FERNS—Blechnum corcovadense, Phlebodium aureum, Adiantum pubescens, and Pteris cretica albo-lineata, 8s. per 100; Cheilanthes elegans, and Gold Gymnogrammas, 12s p. 100. Ferns in about 8 or 10 varieties, from stores, 7s. per 100.
These are all good strong stuff.
Trade LIST free on application.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

FOR SALE, a quantity of Selected (Crittenden Cluster) DAMSON TREES, true, from Spawn; 10,000 best Naples, Black, Raby, and Scotch CURRANT TREES.
Apply, A. SEARS, Mr. Skinner, East Farleigh, Kent.

SEAKALE for SALE.—3000 Roots, very fine for forcing. Price 10s. per 100. Apply to JAMES TURNER, 37, George Street, Richmond, Surrey.

Fruiting Pines.

FOR SALE, 44 Black Jamaica PINES, fine, stout, healthy stuff, in fruiting pots, perfectly clean, and in first-rate condition. Apply to
JAMES DICKSON AND SONS, "Newton" Nurseries, Chester.

SPECIAL OFFER of PRIVET, &c.
50,000 EVERGREEN PRIVET, 2½ to 3½ feet, very bushy, 20s.; 3 to 4 feet, extra stout, 25s. per 1000.
50,000 PRIVET OVALIFOLIUM, very stout and bushy 1 to 1½ foot, 20s. per 1000; 9 to 15 inches, very fine, 15s. per 1000.
MANETTI STOCKS, very strong, 20s. and 25s. per 1000.
Terms cash.
B. R. DAVIS, Yeovil Nurseries, Yeovil.

Lily of the Valley.

E. KRUIJFF, Sassenheim, near Haarlem, Holland, has to offer, to the Trade only, strong selected Buds of CONVALLARIA MAJALIS for Forcing, at 2s. 6d. per 100, 22s. per 1000. Terms cash. Samples free on application.

COMMON LAURELS, 20,000 to offer, 1 to 1½ foot, 70s. per 1000; 1½ to 2 feet, 100s. per 1000; 2 to 2½ feet, 130s. per 1000. The whole are four years old, very bushy, and well rooted.
SPRUCE FIRS, 3 to 4 feet, 20s. per 100; 4 to 6 feet, 40s. per 100; 6 to 8 feet, 60s. per 100, extra transplanted, and bushy
MANETTI STOCKS, strong 1-yr., 20s. per 1000 for cash.
A large quantity of fine AVENUE and FOREST TREES in stock.
CATALOGUES of general Nursery Stock post-free.
R. TUCKER, Nurseryman, Faringdon, Berks.

SPECIAL TRADE OFFER.—200,000 Dwarf ROSES, on Manetti, fine, our own selection, 25s. per 100, £12 per 1000. 300,000 MANETTI STOCKS, fine, 30s. per 1000, £13 per 10,000. 10,000,000 ASPARAGUS, 2-yr. Connover's, 17s. 6d. per 1000; 3-yr. Connover's, 20s. per 1000; 2-yr. Giant, 15s. per 1000; 3-yr. Giant, 17s. 6d. per 1000, for Cash with all Orders, otherwise will not be attended to.
R. LOCKE, Royal Nurseries and Rose Farms, Redhill, Surrey

To the Trade.
SEED POTATOS.

H. AND F. SHARPE are prepared to make special offers of their fine selected stocks of SEED POTATOS, grown under their own superintendence expressly for seed purposes. Their LIST includes all the varieties worthy of cultivation, and the prices will be found very reasonable.
Seed Growing Establishment, Wisbech.

Until the Stock is Exhausted.

CHARLES NOBLE will supply the finest forcing clumps of crowns ever offered of:—
SPIRÆA PALMATA, at 15s., 20s., and 25s. per 100. [each.
LILIUM GIGANTEUM, nice bulbs, 3s. 6d., 2s. 6d., and 1s. 6d.
Orders with cash or reference should be sent at once.—Bagshot.

Hyacinths, Tulips, Narcissus, Lilies, &c.

BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland. Wholesale CATALOGUE now ready, and will be sent post-free on application.

KELWAY AND SON'S CATALOGUE of GLADIOLI, describing all the varieties worth growing, and at prices as low as those of any other house, will be forwarded on application.
Langport, Somerset.

CRANSTON'S Descriptive CATALOGUES of Fruit and FOREST TREES, SHRUBS, &c., are now ready, and may be had free on application.
CRANSTON'S NURSERY AND SEED COMPANY (Limited), King's Acre, Hereford.

Carriage Paid.

CAULIFLOWER, &c., PLANTS:—Autumn sown sturdy good plants, Early London, Asiatic, Cyprus, Erfurt, and Walcheren CAULIFLOWER; Bath, White, Green, Blood-red, and Brown Cos, Winter Passion and Swede's Head CABBAGE LETTUCE; Broad-leaved Batavian and Green Curled ENDIVE; Giant Rocca and Flat Tripoli ONION PLANTS; Early Rainham, Saint John's Day, Daniel's Defiance, and many other choicest varieties of CABBAGE PLANTS; Abergeldie and Melville's Variegated KALE; Aigburth BRUSSELS SPROUTS, and Purple Sprouting BROCCOLI, 1s. 6d. per 100. Good large plants only sent. Also the following varieties of Herbs, viz.:—Pot MARJORAM, Winter SAVORY, LEMON and Winter THYME, HYSSOP, BALM, LAVENDER, WITLOEF, BELLVILLE SORREL, TANSY, FENNEL, Broad-leaved SAGE, HOREHOUND, WORMWOOD, and FEVERFEW, 1s 3d. per dozen, 8s. per 100.
Post-office Order (with order) payable Godalming, to
EDWARD LEIGH, Dunsfold, Godalming.

SEAKALE.—A large Stock of fine strong Roots, for Forcing and Planting.
Also good 2-yr. old GIANT ASPARAGUS.
FRUIT TREES.—Fine healthy stock of horizontal and dwarf-trained Apples and Pears, and dwarf-trained Apricots, Cherries, Plums, Peaches and Nectarines.
Price on application.
D. S. THOMSON, The Nurseries, Wimbledon.

CLEMATIS COCCINEA.—A new, distinct, and very beautiful Climber, with small, bright orange-scarlet flowers, perfectly hardy, and one of the best climbing plants in cultivation.

LILIUM TENUIFOLIUM.—A brilliant scarlet Turk's-Cap variety. Very early; blooming out in the open ground in June, or will stand forcing well. Very suitable as Cut Blooms for Buttonholes or Bouquets. It is perfectly hardy.
For prices of above and all varieties of DUTCH, ENGLISH, and JAPANESE BULBS, see our Wholesale Bulb CATALOGUE, free on application.
WATKINS AND SIMPSON, Exeter Street, Strand, W.C.

Forest and Ornamental Trees and Shrubs.

THE LAWSON SEED AND NURSERY COMPANY (Limited), Edinburgh, have an immense Stock of the leading kinds of Seedling and Transplanted FOREST TREES and SHRUBS, &c.—all in healthy condition and prices moderate. Special offers on application.

SURPLUS STOCK.—Fine bearing PEACH TREES, in excellent condition, grown under glass, and well ripened.
W. WOODFIELD, Gardens, Ketton Hall, Stamford.

To the Trade.

NEW EARLY RHUBARB, KERSHAW'S PARAGON.
WILLIAM KERSHAW has pleasure in again offering this splendid new variety, in extra strong roots, such as gave general satisfaction to the many leading London and Provincial Houses, who obtained supplies from him last autumn. Price, 9s. per dozen, 65s. per 100.
Airedale Nursery, Bingley, Yorkshire.

Tea Roses—Tea Roses.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this year a splendid stock of Tea and other Roses in pots. Prices and full particulars on application to
The MANAGER, The Vineyard, Garston, Liverpool.

Special Culture of

FRUIT TREES and ROSES.—A large and select stock is now offered for sale. The Illustrated and Descriptive CATALOGUE of Fruits, post-free for threepence. The Descriptive CATALOGUE of Roses post-free.
THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

To Florists.—For Forcing this next Winter.

LILACS (Syringa) Charles X., Saugé, and ALBA VIRGINALIS.—Nice round plants cultivated in pots, plants from 1 foot 10 inches to 2 feet 10 inches, with six, ten, and fifteen branches, well set with flowers, price £6, £8, and £10 per 100.
STAPHYLEA COLCHICA.—Plants cultivated in pots, £6 per 100.
PRUNUS SINENSIS FLORE-PLENO.—Cultivated in pots, £6 per 100.
ROSES, Niphetos, Maréchal Niel, and other Teas, for Forcing.—Cultivated in pots, £4 per 100.
ROSES, Special Varieties, for Forcing.—Low-budded, fine plants, £20 to £24 per 1000.
SPIRÆA PALMATA.—Good clumps, £10 to £12 per 1000.
DEUTZIA GRACILIS.—Good young plants, six to twelve branches, £10 to £12 per 1000.
Direct Orders to
L. PAILLET, Nurseryman, Chateney (Seine), prés Paris, France.

JAMES SMITH AND SONS, Darley Dale Nurseries, near Matlock, begs to offer the following in nice plants:—
AZALEA PONTICA, 1 to 1½ foot, 20s. per 100, or 190s. per 1000; 1½ to 2 feet, 30s. per 100, or 280s. per 1000.
BERBERIS DARWINII, 1 to 1½ foot, 18s. per 100, or 160s. per 1000; 1½ to 2 feet, 25s. per 100, or 220s. per 1000.

LILIUM AURATUM.—Good, plump, sound bulbs, 4s., 6s., 9s., 12s., 18s., and 24s. per dozen; extra strong, 30s. and 42s. per dozen. All other good LILIES at equally low prices.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

HARDY ORCHIDS.—Twelve choice kinds, including six exotic, with full cultural instructions, 5s.
STANSFIELDS, Sale.

FRUIT TREES—FRUIT TREES
In all the Best Cropping Varieties.
APPLES, PEARS and CHERRIES, Dwarf-trained, good trees, 15s. and 18s. per dozen.
PEARS, Pyramid, 40s. and 50s. per 100; good fruiting trees, 75s. and 100s. per 100; Maidens, 30s. per 100.
APPLES, Pyramid, 40s., 50s., and 75s. per 100.
CHERRIES, Dwarf-trained Morello and May Duke, 15s. and 18s. per dozen.
CURRANTS, Red and Black, of sorts to name, 8s., 10s. and 12s. per 100.
RASPBERRIES, Fillbasket, 6s. per 100.
ROSES, Dwarf H.P.'s, our selection, 30s. per 100.
CONIFERS, bushy, for pots, window boxes, &c., 9 to 15 in., 25s. per 100.
POPLARS, Lombardy and Ontario, from 5 to 10 feet, 8s. to 35s. per 100; 12 to 16 feet, extra fine, for screens, grown in single lines, 15s. per dozen, 100s. per 100.
SHRUBS, Deciduous, 12s. and 15s. per 100, good plants.
HEATHS, Hardy, of sorts to name, 15s. per 100.
THORNS, Double and Single, of sorts, Standards and Pyramids, 50s. and 75s. per 100.
SPIRÆA PALMATA, fine forcing clumps, 10s., 15s. and 20s. per 100.
AUCUBAS, well coloured, for boxes, pots, &c., 9 to 12 in., 16s. per 100; 12 to 15 inches, 20s. per 100.
WM. CLIBRAN AND SON, Oldfield Nurseries, Altrincham.

RASPBERRY CANES for Sale.—Semper Fidelis, one of the best market sorts, and most abundant cropper, £3 per 1000.
T. B. CHAPMAN, Twickenham Road, Isleworth, Middlesex.

PLUM TREES for SALE.—Pond's Seedling, Victoria, Prune, Damson, &c. Several hundreds, well established, in bearing, and will move well, 4s. per tree.
T. B. CHAPMAN, Twickenham Road, Isleworth, Middlesex.

Old Established.

Forest Trees,
ORNAMENTAL TREES,
Fruit Trees,
EVERGREENS & COVER PLANTS,
Roses,
AND ALL OTHER TREES & PLANTS
SPLENDID QUALITY.
Pronounced by everyone "Unequalled."
NURSERIES 200 ACRES.
Write for Catalogues.
Reliable always. *Address in full—*
F. & A. Dickson & Sons
THE QUEEN'S SEEDSMEN,
Chester.

IMANTOPHYLLUMS.
Fresh Seeds, hybridised from the sorts with large flowers, per dozen, 5s.; per 100, 30s.; per 1000, £10.
Forwarded free by post to all parts of the world for cash.
ED. PYNAERT, Ghent, Belgium.

SEEDS of CLIVIA MINIATA, fertilised by C. Lindeni × C. robusta.
12 SEEDS, guaranteed .. 5 francs.
100 ,, ,, .. 40 francs.
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EXTRACT FROM *Gardeners' Chronicle:*—"Lilium Harrisii.—We have received a two-flowered stem of this Lily from Messrs. Watkins & Simpson, who introduced it into the London market, and which is the second flower-stem produced this season in the manner described by Mr. Clausen, at p. 53, by a second-sized bulb in the possession of Mr. Walker, of Whitton, near Hounslow. The flowers are very fine, and evidence seems to be accumulating that it is distinct from L. longiflorum, or at least a well-marked variety of that species. It does not appear to do well out-of-doors, preferring the shelter of a cool greenhouse; and it stands forcing well.

"*We understand that one of the most extensive growers of plants for market has given a large order for bulbs for forcing next spring.*"

Price of Bulbs of the above and many other Lilies on application to

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THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 17, 1883.

TREE PLANTING.

THE planting season has again come round, and those who purpose carrying out new work or alterations in their grounds, will be actively engaged in preparing for planting. If there is a people which can lay claim to being tree planters, it is the inhabitants of this country. An Englishman possessing the means of making himself a comfortable home, invariably looks out for trees to associate with it, and to give it the privacy he so much enjoys, and seldom fails to make their presence one of his first considerations. Let the place be large or small, to plant is looked on as a necessity, but, as might be expected, the result is far from being always satisfactory. If the place happens to be new, and of considerable size, or an old one where the additions or alterations are extensive, the advice of some one is taken who has an intimate acquaintance with tree life, and all that relates to the requirements of the various species in the matters of soil and climate, and with the form and habit of the immense number of varieties, so as to be able to select such as are best adapted to the thousand and one places they are wanted to fill. The mere absence of such knowledge as above indicated often leads to the erroneous supposition that any one and every one can manage such matters. Hence the endless failures continually being met with, not only in the simple planting of trees, but in all that relates to their selection and distribution in the ground to be occupied.

A healthy thriving tree, it may be argued, is a beautiful object in itself, independently of its suitability or non-suitability for the position it is growing in, or of its harmonising with the surroundings with which it is associated. Yet, if this be so, it does not follow that a single example or a group of the erect spiral growing Lombardy Poplar should be planted where an odd specimen or a like group of wide-spreading habited trees are needed to give the desired effect, or that any of the above should be admitted where no tree at all is required. Still this is only an illustration of what may be seen in so many places where an absence of knowing what should be done is coupled with a determination to do something, the natural result of which is failure in the effect it is intended to create — evergreens planted where deciduous kinds were required, or deciduous species introduced where evergreens would best answer.

The great addition which the last half century has made to our evergreen trees has induced many to plant them simply because they were new, without sufficient consideration as to what effect they would give when grown sufficiently to show their true character, or without evidence of their being suited to the localities where planted. The mischievous results that arise from such work having been attempted without the requisite knowledge of what species of trees to select and what to reject is now too obvious. Nothing could have more conclusively shown the mistakes made in planting than the way in which the big Californian tree the Wellingtonia, Sequoia gigantea, has been in-

discriminately used. There is no exaggeration in saying, that three-fourths of the sites wherein this tree has been planted were totally unsuitable, and would have been still more so had it turned out suited to the soil and climate, instead of being the biggest failure of the new trees that have been introduced in modern times. One of the most frequent mistakes made in planting by those who are not sufficiently accustomed to such work arises from an apparent inability to realise the size that the trees they plant will ultimately grow to. If this were confined to over-close planting the matter could in most cases be rectified by thinning; but the absence of forethought is quite as often apparent in the fact that trees are put too near walks, carriage-drives, or buildings, so as to encroach on them in a few years—long, in fact, before they have attained full growth—in a way that would lead to the supposition that the planters never considered the size they would grow to in after years. Nothing is more common than to see the effects of such thoughtless work, where trees placed in front of dwellings, before they have attained half their natural size, block the view from the windows so as to necessitate their destruction. Half a lifetime is thus wasted, and the work of growing others up to an effective size has to be begun anew.

Over-planting in near proximity to dwellings is so usual that its effects are frequently to be seen in places of all kinds, large and small. As a matter of course, the trees are planted whilst small, consequently offering no obstruction to distant views; but in after years, proportionate with the increase in size, the mistake becomes apparent. This often goes on until the more distant parts of the grounds are shut out, so as to demand a wholesale clearance. Mistakes in tree planting are not confined to position alone, but are frequently apparent in the selection of the kinds. The presence of a sufficient proportion of evergreens is essential with a view to secure in summer the contrast in colour which the darker green shade of their foliage affords to the paler hues of the deciduous sorts, and to relieve the still greater monotony existent in winter where deciduous trees alone exist. But to get the best results from this association the evergreens need to stand in groups, generally in the recesses, or least prominent positions, otherwise their dense deep colour often asserts its presence too forcibly in the winter when the deciduous kinds are bare and least conspicuous. Such matters as this may appear trivial at the time of planting, when the trees are small and do not show the effect that is apparent in after years. Yet it is only by forethought, when the work is first carried out, that the required future result can be had, a result so different from that attainable by the ordinary indiscriminate mixture of here an evergreen and there two or three deciduous kinds, repeated from end to end of the space planted. The trees that surround an English home or the woods that clothe the distant landscape, seldom fail to receive the encomiums of foreigners, but it must be confessed that in many cases the climate is more to be thanked than the planters.

Eucalyptus in Spain.—In a recent report from Malaga it is stated that the cultivation of the Eucalyptus has of late attracted considerable attention in the province of Malaga, which has been deprived of all but fruit trees, in order to supply the constant demand for charcoal caused by the extensive use of the fuel for cooking purposes. Large numbers of Eucalyptus in a healthy and flourishing state may now be seen along the line of railway from Malaga to Bobadilla, and in other places, and they are reported to have been effective, to some extent, in destroying fevers in the low districts, which were formerly uninhabitable. The Eucalyptus trees are also successfully used for avenues, and afford shelter from the sun on the roads near the city.

New Garden Plants.

SACCOLABIUM WITTEANUM, *n. sp.**

A curious plant. Inspector Witte, of the Botanic Garden, Leyden, sent me a fine sketch in colours, and the racemes and a leaf. The leaf is cuneate oblong-acute, with two teeth and numerous toothlets at the apex, dark green, with a reddish hue (2 feet 6 inches : 0.9 inches). The substance is rather strong, though not very thick. The rachis of the elongate raceme appears reddish, but it is green, with numerous dark purple lines. The flowers stand rather distant. Bracts linear-lanceolate, nearly equal to the stalked ovaries. Sepals and petals orange, with numerous reddish spots. Lip white, with some purple dashes, and a green apex to the spur. It is like certain antique flat bottles. The mouth of the spur is covered by the three teeth of the limb, which are approximate.

The general appearance may be compared to that of Sarcanthus densiflorus, Par., Rchb. f. The idea of transferring this well known plant to Sarcanthus from Saccolabium arose first with Rev. C. Parish, who proposed to take the callus as the character of Sarcanthus. This I assented to, having a plant, Sarcanthus armeniacus, which can only be discerned outside by the colour from Saccolabium densiflorum, but which has a remarkable septum in the spur. The original Cleisostoma of Blume, 1825, includes, indeed, what I call Cleisostoma, and which is like Saccolabium densiflorum, as is clearly proved by the figure in the *tabellen*. What I call a Cleisostoma, has a thin lamella, ascending, fixed only at its base. What I call a Sarcanthus has a sessile, generally pandurate callus. It would be amusing if somebody had suspected Mr. Parish or myself of overlooking the absence of the septum in Saccolabium densiflorum, Lindl.

The plant is dedicated with great pleasure to Mr. Witte, an excellent cultivator, who has a great knowledge of plants. *H. G. Rchb. f.*

This plant was sent to the Royal Botanic Gardens of Leyden last July by Mr. Toekamp Lammers, of Bandong (Java). *H. Witte.*

Dendrobium linearifolium, *Teysm. and Bind.*

Recently I had the good luck to see this neat species, hitherto only known by a poor representation and an unsatisfactory description. Mynheer Witte, of the Leyden Botanic Garden, has kindly forwarded me fine specimens, which indicate a very intelligent treatment. The general habit of growth is that of Dendrobium crumenatum, Sw. There was at the base of the slender stem an ovoid-fusiform bulb consisting of four to five joints, and covered over and over with longitudinal and transverse furrows. The very thin slender stem is shining like a Bamboo, and bears numerous upright or ascending branches looking like a plant of Dendrobium Cunninghami, with its linear bidentate leaves, which exceed 2 inches in length, and are 2 lines broad. Those I had from Mynheer Witte are all twisted, although they are represented straight in Miquel, *Choix*, pl. xxiii., the artist having, perhaps, been still too inexperienced to see things as they really are. The flowers are rather numerous, coming out singly from a small knobby packet of sheaths in the place of old leaves. The flower is quite in the way of that of Dendrobium crumenatum, Sw. The mentum is curved against the stalked ovary, and projects in a blunt well marked knob, which is nearly overlooked in Professor Miquel's representation. The upper sepal is small, oblong-acute. The petals are nearly rhombic, and very small too. The lip is cuneate dilatate, or blunt retuse or trilobed at the apex, then with rhrombic side-lobes and a retuse mid-lobe. There is a muriculate thick yellow area in front of the midle lobe. The universal colour of the flower is a good white. The lateral sepals have two purple-mauve fine lines from the knob to that part which is free on both sides. These lines are as conspicuous outside as inside. The commisural line between the two lateral sepals is green. The knob is green. The base of the columnar projection has a longitudinal keel, and is green. The side-laciniæ of the lip have fine radiating purple-mauve veins. The plant is stated to have been discovered by the late Mr. Teysman in Sumatra. *H. G. Rchb. f.*

This Denrobium was imported last September into the Botanic Garden by Mr. T. Ottolander, of Pasaroean, Java, who found it on the mountains of that country. *H. Witte.*

Crinum zeylanicum var. reductum, *Baker.*

This is a new form of Crinum which has just flowered at Kew, where it was received from Zanzibar from Sir John Kirk in 1881. Its special merit from a horticultural point of view consists in its dwarf compact habit and large showy flowers.

Copiously stoloniferous. Bulb 2 inches in diameter, with a neck 2 inches long. Leaves about a dozen in a rosette, ensiform, spreading horizontally, not ciliated on the edge, 1—1½ foot long, 18 to 21 lines broad, narrowed gradually from the middle to the apex. Peduncle lateral, green, terete, under a foot long; flowers four to an umbel, sessile; spathe-valves two, green, deltoid, 3 inches long. Perianth with a cernuous green tube 5—6 inches long, and a limb 3—3½ inches long; segments elliptic, acute, connivent, 1—1¼ inch broad, white, with a red central band just as in typical zeylanicum. Stamens declinate, nearly as long as the perianth. *J. G. Baker.*

BAMBOOS.

In a publication I was reading a short time since I met with the following passage:—"Bamboos are ever fresh and graceful. You must look at the force and harmony of the spray in Mr. Miles' picture of 'Pity and Love Akin,' just recently engraved. No other spray, whether Palm or Orchid, could have told half as much as that bit of common Bamboo in an epitome of all the grace and elegance possible in a grassy stem." This passage reminded me that I had promised, when able, to give you my experience in the matter of Bamboos. I am not going to enter upon the subject botanically, or to say whether the names applied by nurserymen to various reed-like plants are correct, but simply to say a few words on the ornamental aspect of Bamboos (so called), for Bamboos as a popular plant are even now unknown. A few weeks since I was walking through the well-kept garden and grounds of a lady with great taste and a real love of plants whose near relatives have taste and fine gardens and grounds, and in reply to my question about her cultivation of Bamboos I was shown a solitary specimen of the most miserable kind—three or four stems not 3 feet high, and when lately at Kew I saw the same wretched display of this fine tribe of plants.

In the year 1860 I was staying at Malvern for my health, and whilst there I purchased a very small plant of Bambusa falcata, then so called, but now named Thamnocalamus Falconeri. It was not a foot long, but I was assured it would make a reed-like growth of 6 feet or more. I have the plant now in the open ground—a very large plant. Some years the shoots have reached 15 feet in the summer and autumn. It is always graceful and green. I have now other plants of the same kind, and one immense plant flowered with me a few years since, and then died—the fate of numbers of large plants of this kind throughout Europe. If the garden is large it may be well to plant Thamnocalamus, but not otherwise, as it will not retain its foliage through a severe winter. The next plant I met with was Bambusa Metake, a small plant with two slight stems about 2 feet high; it was planted in a favourable situation in ordinary garden soil, but not near water. This plant is now quite a sight for beauty, size, and grace of form. It has now 180 upright reed-like stems, with leaves 14 feet high, the outer ones drooping down in the most graceful way. Of this Bamboo I have now many, planted in various situations, various soils, all flourishing. It is quite as hardy as the common Laurel, and when the outer canes are bent to the ground by snow they never break, but recover themselves again on the snow passing. It is evergreen, and only in the severest weather are the top leaves slightly browned. Whether the garden be small or large, no garden should be without Bambusa Metake. For peculiar and good effect there is no plant to equal it except my next purchase, Bambusa arundinacea, the true Bamboo. This was an equally small plant as the Metake when purchased. The plant has now forty-eight canes from 9 to 10

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* *Saccolabium Witteanum*, n. sp. — Caule arrecto; foliis cuneato oblongis subacutis (inæquali bidentatis): racemo multifloro laxifloro porrecto; bracteis lanceis ovaria pedicellata non æquantibus; sepalis ovatis apiculatis: tepalis minoribus; labello basi columnæ adnato; limbo minute tridentato dentibus conniventibus calcari maximo depresso fusiformi apice retuso emarginato, antrorsum ventricoso: columna humili. *H. G. Rchb. f.*

feet high, a dense mass of beautiful green, small-leaved foliage. Since the first purchase I have bought many others; all are thriving, and none are planted beside water. I have tried two plants in peat earth in a Rhododendron bed; the shoots each year are just 10 feet, but the foliage does not appear quite so thick as those planted in ordinary garden soil rather tending on clay.

Bambusa arundinacea [It seems probable that there is some error of nomenclature here. Ed.] is evergreen, quite as hardy as Metake, but quite distinct in appearance; and, if possible, more beautiful. I have growing also Bambusa aurea and Bambusa gracilis, but I must say I can perceive no difference between them and Bambusa arundinacea, or at least no difference, judging by the plants I purchased with those names. I have also purchased Bambusa nigra. It is quite hardy and evergreen, and the growth much like that of B. arundinacea. The stems are a very dark brown—almost black. This colouring gives it quite a distinct appearance from other Bamboos, but the foliage is not so thick and dense as in B. arundinacea.

Bambusa Simoni alba striata I obtained some years since. I understood it sent up shoots 15 feet in length, but until this year I have been much disappointed. It grew a compact mass of leaves and stems about 5 feet high, but there was no peculiar effect. This year it appears developing itself, and many canes are now sent up some 11 feet high. It is evergreen and perfectly hardy, and suffers not the slightest injury by frost, wind, or snow; but there is not at present, and I do not think there ever will be, that peculiar grace and beauty which Metake and arundinacea possess. I must now speak of two dwarf Bamboos—Bambusa Fortunei, the one variegated green and white, the other green and yellow. I have them growing in a kind of wild way encircled by Anemone japonica, red and white; the effect perfect, the whole encircled again by Box, never cut, never touched by knife or shears, the whole looking a picture of natural beauty and plant happiness.

On the whole, I prefer the yellow and green variegation. The colour just now of this Bamboo is wonderful—perfectly golden; the late rains evidently agree with it, for I have never before seen it so perfect in colour. Both these dwarf Bamboos grow well in almost any garden soil, but they must not be shaded; every garden should have them planted between herbaceous plants; their average growth is about 2 feet high—sometimes rather more.

Some years since I purchased a plant of an eminent nurseryman as a dwarf Bamboo; he had only one plant, which he divided for me, but I could not get the name. I have tried twice since to obtain its name, without success. It is a beautiful plant, grows well with me, evergreen, and quite hardy; about 3 feet high. I enclose a leaf, not unlike a large Metake.

As the result of some experience I would urge every one having moderate sized garden and grounds to plant Metake, arundinacea, and nigra Bamboos; the idea that they are only fit to grow by water is a great error, or that they require, to ensure perfect growth, to be near water. Bambusa Simoni alba striata may possibly be more fitted to plant by water, when its full growth would be quicker developed. *K., Devonshire, Nov.*

RAASAY.

Raasay, the seat of E. H. Wood, Esq., is situated in the island of Raasay, in the Skye district of Inverness-shire, about seventy miles north-west of the county town of Inverness, and lies between the Isle of Skye and Ross-shire, in the district of Applecross. This island is a belt of land extending due north and south, fourteen miles long, with an average of about three miles in breadth, and may be said to consist of two continuous hilly ridges, intermixed with fine verdant slopes. The east side of the southern district of this island is diversified with arable land and wood, formidable cliffs and huge rocks, interspersed with neat farm-steadings. On this side scenery of considerable beauty occurs, the regularity of the sandstone cliffs rising like towers above the deep blue sea. The grandeur of those long-extended walls of rock, varied by the enormous fractures that have at different times taken place, is most attractive to tourists. This division has a mean elevation of nearly 1000 feet, terminating in a single, curious, flat-topped eminence named Duncane, 1500 feet above the level of the sea. This forms a very conspicuous object at a distance. The north and west of this island have a most interesting aspect, but the chief antiquity of Raasay is Brochel Castle. It stands in a little bay, and was the stronghold of the Macleods in days long gone by. Its only access is up a steep incline, which is so steep that it can be climbed only with the aid of the hands; its strong natural position is so complete that it exhibits the very idea of security and defence before the invention of gunpowder. This ruin is also pointed out as one of the hiding-places of Prince Charlie. The last occupant of this curious old castle lived in the times of James VI., and was called Eoin Garbh (John the Athletic), on account of his strong and powerful appearance. I may here mention that the island of Rona, about five miles long and one mile broad—also Fladda, two miles long and one mile broad—belong to Mr. Wood.

The mansion-house of Raasay is a splendid modern edifice, built of the native white sandstone. In front of the mansion a clearance has been made of everything that would interrupt the prospect looking due south. The views are extremely grand. In the foreground there is an arm of the sea, and about five miles distant there may be seen some of the finest scenery in Skye, including some half-dozen mountains of great height, beautifully rounded and green to the summit. Behind these are the Coolins Hills, Scuer-na-gullian (Rock of the Young Men) being the highest peak of this wonderful formation. At the foot of these rugged mountains lies Loch Coruisk, a place well known to tourists. It is allowed that there is nothing in Britain to be compared with its surroundings for wildness and desolation. To the south of the mansion-house is a fine drive, which runs in a gentle curve for some hundred yards, then turns sharply to the left, and runs in a straight line due east. On each side there are Fuchsia hedges averaging about 5 feet high, and when these are in full bloom they have a very striking appearance, being so different from what is generally seen. From this avenue a walk strikes off to the left with a gentle curve to a very pretty church on an eminence. On each side of this walk, and 7 feet in, there is planted a line of Abies nobilis and A. Nordmanniana, alternately with a plant of double Gorse between. Round the church there are some very pretty specimens of Abies magnifica and cephalonica, with a number of the finer sorts of Rhododendrons and other flowering shrubs, and the whole backed up with Fuchsia hedges. It may not be out of place here to mention how these Fuchsia hedges are got up. The ground is prepared through the winter, and about March 1 a line is set, and a number of the strongest shoots are selected from the old plants and dibbled in along the line about 6 inches apart, and no other care is needed with the exception of keeping down the weeds. By the above treatment they very soon take root, and in two years these hedges are from 4 to 5 feet high. The variety used is Riccartoni, and it is interesting to know that it is all but rabbit-proof. Two of these hedges are in the kitchen garden, on either side of the centre walk, 50 yards long and 40 feet apart, 11 feet high and 7 feet through. To see these two hedges in full bloom, about the middle of August, is a treat of no ordinary kind. Outside again there are over 1800 yards of these hedges, averaging from 4 to 7 feet high, and they are planted along the side of the drives and walks. To the north-east of the mansion-house there are some very large single specimens of this Fuchsia; one I measured was over 13 feet in height and 56 feet in circumference. It has been the wonder of many how the Fuchsias have got to such a size without being cut back by frost; and the reason assigned is that, Raasay—lying in the extreme west of Scotland, the influence of the Gulf Stream is sensibly felt, hence the frost is never severe or of long duration.

The kitchen garden lies to the north of the mansion-house, and is over an acre and a half in extent, with a gentle slope to the south, and enclosed with a most substantial stone wall 12 feet in height. All bush and stone fruit does well here; Apples and Pears are uncertain. The glass erections are of considerable extent, and placed at the top of the garden. No. 1 vinery contained a very heavy crop, mostly Hamburghs; No. 2, Peach-house, fine crop, especially Royal George; No. 3, span-roofed greenhouse, contained a nice collection of plants, among which I noticed fine specimens of Clerodendrons, Acacias, Statices, Ericas, &c., with a fine Maréchal Niel Rose on the back wall; No. 4 vinery, containing Black Prince, West's St. Peter, and Barbarossa, bunches plentiful and large; No. 5, Nectarine-house, with excellent crop, especially of Pitmaston Orange; No. 6 stove contains a very nice collection of well-managed plants, such as Dracænas, Begonias, Caladiums, Cycas, Dæmonorops, Cocos, and several very fine plants of Adiantum Farleyense. These are mostly in a small state, as they are used for table decoration. In No. 7 Melon-house was a fine crop; the back wall covered with Clerodendron Balfourianum, planted out and flowering most profusely. No. 8 is a Cucumber-house, with an excellent crop; Pearson's Long-gun is well grown. In this house also there is a splendid plant of Stephanotis floribunda. No. 9 is a Melon-house in which the second crop was just setting, Castle Kennedy and Haddo House being the favourite varieties. The early Peach-house contained trees of Royal George, Noblesse, and Princess Beatrice; crop over August 9.

The plantations here extend to over 150 acres, and the walks and drives to over twenty miles in extent, and so arranged and carried over hill and dale that a most extended and varied view is had in all directions. One road, leading west to what is called the outlying home-farm, is five miles in length. Here land is being reclaimed under the superintendence of Mr. Stewart, the energetic factor, to the extent of 250 acres, to form this farm. The farm-steading, which is of very large extent, is erected wholly of corrugated iron. To the west of this is seen Portree, the capital of Skye, in which neighbourhood are some very interesting places, such as Prince Charlie's Cave, Storrt Rock (or, as it is called, the Old Man of Storr); and still further west is the curiously shaped mountain of Quiraing; also Needle Rock, a pinnacle 120 feet high, the features of which defy description. This is one of the places most frequented by tourists and sightseers, and away to the north-east of Portree, on the mainland, are the beautiful lochs of Maree and Gairloch.

Returning to Raasay, it may be stated that Mr. Wood has made vast improvements on his estates since they came into his possession. A large number of new houses have been built, old ones pulled down and rebuilt; and it is with pleasure I mention the following. Last autumn Mr. Wood reduced the rents to all his tenants, and also allowed them to consume all the Potatos on their holdings for food, promising them that they should be supplied with a fresh stock, free of expense, in the spring. It is quite refreshing to hear of such sympathy existing between landlord and tenants.

In conclusion, I have to thank Mr. Coysh, the head-gardener here, for the trouble and attention he paid in showing me everything; and I have to compliment him on the high state of cultivation in which I found everything under his charge. *John Downie.*

GLASNEVIN BOTANIC GARDENS.

Coming so soon after Mr. Douglas' account of some of the interesting things he saw at Glasnevin last autumn, it may be that the following notes, made during a visit to the same establishment, may smack of repetition, and lack that amount of interest which in accounts of this kind is naturally looked for, and yet it may be that, as the object of my visit was somewhat different from that of Mr. Douglas, and as many of the objects of interest noted by me were omitted by him in his account, I shall be able to supplement what he has said with a few notes of more or less interest.

Glasnevin is so full of good things and rare things—possesses so many striking features in its arrangement, that it would be difficult for me, although coming so soon after Mr. Douglas, to exhaust the subject; for even after spending two days in carefully looking through the collection under the guidance of Mr. Moore, I feel certain that there still remains much in the way of interesting plants at Glasnevin which I was compelled to pass over for want of time.

The history of Glasnevin Botanic Gardens is one of more than usual interest. It is really such a tale as one delights to tell of a successful and eminently useful career. The late Dr. Moore, by his untiring energy and sagacity, as well as by unusual skill as a gardener, turned Glasnevin from a small and unknown garden into what, one may safely say, is second only to Kew, and one of the most famed botanical gardens in Europe. An account of his career was given in the *Gardeners' Chronicle* soon after his death, and therefore need not be repeated here. It is sufficient in this place to point to what he did as something

that others working in the same field should strive to emulate. No greater monument could be erected to Dr. Moore than he himself erected before his death in the formation of a beautiful garden replete with a rich collection of plants, and grown as none but an accomplished gardener could grow them. The present Curator, Mr. Moore, the late Curator's son, has succeeded in maintaining the richness and healthfulness of the collection, and Glasnevin still remains as full of interest as it ever was.

Nature has, indeed, been lavish in her gifts to these gardens, for in addition to the picturesque surroundings the garden itself is situated on a beautifully undulating site, and is watered along one side by a small river, the Tolka, which winds in and out like Tennyson's "Brook":—

> "I steal by lawns and grassy plots,
> I steal by Hazel covers;
> I move the sweet Forget-me-nots
> That grow for happy lovers."

Many happy effects in the landscape are owing chiefly to the glimpse one gets now and again of this little river stealing silently along to join the Liffey. Close by, in the garden, is the famous Yew walk where Addison loved to wander alone, and perhaps where his famous essays in the *Tatler* were first thought out. Within a stone's-throw of this walk stands the house where Addison's great contemporary, Swift, lived.

Climatically, Glasnevin is favoured both by warmth and humidity to such an extent as to enable Mr. Moore to grow many things out-of-doors whose requirements in most gardens necessitate protection for at least a portion of the year.

The collections of trees and shrubs comprise many fine specimens and rare things, and especially may this be said of the Coniferæ, which here are particularly fine. Mr. Moore has recently added largely to his collections of both Conifers and other trees, and in the nursery are to be seen many hundreds of choice and rare nurslings which are intended for a recently acquired piece of land as soon as they are strong enough to be removed thither.

A gigantic tree of Pinus Pallasiana, with its huge arms stretching upward, and its roots nestling along the side of the river, is a striking object in the landscape. The health and vigour of the trees and shrubs in the vicinity of this river is no doubt greatly owing to its salutary waters. I noticed here a fine specimen of Photinia serrulata and a remarkably well-shaped bush of Rhus cotinus, which had assumed the most lovely autumn colours and stood out from the surrounding greenery with very fine effect. We have much to learn in this direction. The rich colours of many leaves in autumn may, if properly used, be made to have as beautiful an effect, perhaps even more beautiful, than the flowers of spring.

Taxodium sinense, Pinus nobilis, Quercus Ilex var. Cookii were especially fine. Hollies are well represented as also are the Yews. There is here a collection of the various forms of T. baccata, some of which are very handsome. The Irish Yews are simply grand; great black fellows, a perfect thicket below, with about a dozen leaders standing well up from the massive base. I never saw anything like them. A fine Wellingtonia opposite the Curator's residence owes its healthy appearance to liberal supplies of liquid manure—a hint to those whose Wellingtonias are thin and pale. My run through the arboretum was somewhat hurried, yet in the little I saw I was much impressed by the health and vigour of the trees and shrubs in these gardens.

Turning now to the borders one finds those plants for which Glasnevin is noted, namely, the bulbous and other plants which here are grown out-of-doors, but which in most gardens are grown under glass. Here, however, nothing is done in the way of protection beyond placing a mere handful of cocoa-nut fibre over the crowns of the bulbs, and the astonishing growth they make every summer proves that this little is sufficient. Even in the latter end of October many of the bulbs were in flower, while the leaves were as strong and stout as driving belts, and full of health. Deep planting in a well drained border is, Mr. Moore says, one of the principal causes of his success in the outdoor management of tender bulbous plants; another being the warmth from the wall against which the bases of the bulbs are nestled. If a bulbous plant fails to thrive under indoor treatment it is turned out into the border, and in almost every case proves a success. The species grown in this way are Crinum amabile (which has stood out for seven years), C. americanum, C. Careyanum, C. Moorei, C. latifolium, C. Powelli and its variety alba, and C. capense, Pancratium maritimum, Scilla maritima, Amaryllis Akermanni, Bravoa geminiflora, Ismene calathina, and the Sauromatums and Eucomis. In addition to these I noted Thalia dealbata, Dietes Huttoni and D. bicolor, Cypella Herbertii, Bomarea Jacquini, and Arisæma Hookeriana, the remains of whose flower-scape I saw, and which measured 3 feet in length. The Indian Lilac (Lagerströmia) has stood out against a wall for seven years, and has flowered freely every year, so that the drying-off treatment, said to be essential to the flowering of this handsome shrub, does not appear to be necessary here. Many Fuchsias, Abutilon vexillarium and Xerotes longifolia were also happy under out-of-door treatment. Crocosma aurea and Montbretia Pottsii are here perfect weeds. The difference between the temperature of Glasnevin and the neighbourhood of London cannot be so very wide as to account for these plants, which, to us, are subjects for greenhouse culture, thriving so well in the open border there. It would appear, therefore, that Glasnevin is ahead of us in testing the hardiness of plants. We are too apt to conclude that, because a plant is found growing under certain conditions in a natural state, that none but similar conditions would suit it under cultivation. The error of such a view is easily proved by the many plants we cultivate out-of-doors now, which, when first introduced, were thought incapable of growing under any conditions other than those of a greenhouse or stove. We know that many plants thrive equally, or almost equally, well when grown under warm and under cool treatment, and it is easy to imagine that in the great changes which the surface of the earth has undergone at different periods, and the accompanying changes in climatic conditions, many of the plants now found growing under certain conditions are the descendants of others that grew under very different ones. The readiness of many plants to conform to altered circumstances must be evident to all who have paid any attention to the subject, and although there is a limit to the adaptability of plants, we are in many cases ignorant of the whereabouts of the limiting line.

In herbaceous and alpine plants Glasnevin is exceptionally rich, and Mr. Moore makes the most of the more ornamental of them by planting them in large groups or "colonies" in different parts of the garden. A large bed filled with three groups, consisting of Lobelia cardinalis, the deep purple variety named Milleri, and Tupa Feuillei, was a beautiful picture in brilliant colours. Groups of this kind are suddenly sprung on one in different parts of the garden, and the effect of such is very fine. One of the most complete collections of Hellebores in existence is to be found in these gardens. The Himalayan Poppy (Meconopsis) grows like Cabbages here. An interesting feature is the collection of fodder plants, which are grown in lines and properly labelled; in the same way garden vegetables are grown. Mr. Moore says these collections greatly interest the visitors. Leaving the outdoor department we turn to the houses, where there is much of more than ordinary interest.

The Victoria Regia is splendidly grown, twenty-nine flowers having been borne by the plant this year, and some of the leaves measuring 7 feet in diameter. Equal portions of stiff loam and fresh cow-dung form the compost in which this plant is planted. Mr. Moore believes in plenty of air for the welfare of the Victoria, six ventilators in the side of the house being kept open night and day from the commencement of the flowering period.

In this house the Sarracenias, for which Glasnevin is famous, are grown. They are in splendid health, with long stout pitchers, and well coloured. S. flavamaxima, S. Pattersoni, S. rubra acuminata, and S. Williamsii were striking forms, while of the older sorts there were many very large specimens. The heat and moisture together, with the direct sunlight of this house, are the secret of growing Sarracenias well. In the winter of course they are kept cool. In addition to the collection of Masdevallias mentioned by Mr. Douglas, Glasnevin possesses a large number of Orchids, all well grown. There was a nice display of bloom even at this dull season, some of the most noticeable being Paphinia Sanderiana, with a fine spike; Catasetum Christyanum, with two strong spikes, bearing about fifty flowers; Cypripedium Parishii, a fine, healthy, well flowered piece; Cymbidium Lowii, and a healthy plant, 5 feet high, of Vanda Cathcartii, bearing a strong spike, as I was assured it does every year. It is grown in the Cattleya-house, where it is given abundance of water and full sunlight all the year round. Mr. Moore does not believe in the resting period for Orchids, but waters freely all the year through, and his Cattleyas are as healthy as ever I saw Cattleyas, with leaves on them like boards. The Glasnevin variety of Nepenthes distillatoria is worth going a long way to see. It bears pitchers quite a foot in length, green at the base, gradually becoming purple towards the apex, and veined with a deep purple both inside and out. The plant is about 10 feet in length, and bears dozens of pitchers. N. birsuta, known in some collections as N. zeylanica, is represented by a very fine specimen. Disa grandiflora was in its usual strength, and was just pushing up new growths. The surface soil had lately been removed, and was replaced by some good peat and sphagnum. To disturb this fine Orchid at the root is to run great risk of losing it, or at least considerably weakening it. D. megaceras, D. ferruginea, and D. Herschelli, a blue-flowered species, known also as Herschellia cœlestis, find a happy home here. The collection of Ferns is rich in rare species, and is in a healthy condition. The number of forms of Trichomanes radicans are especially fine here. Mr. Moore is alive to the advantages of cool treatment for filmy Ferns, growing the whole of his collection in an unheated house, where, in addition to the cool sorts, such as T. radicans and Todeas, are the tropical (so-called) Hymenophyllum crispum, caudiculatum, parvulum, flabellatum, javanicum, and many others. Neither are they at all coddled, for they get a good sousing overhead, with water from the hose-pipe every morning, and instead of turning brown, as filmy Ferns usually do when watered overhead, they grow like weeds.

In the Palm-house and several smaller structures some rare Palms are to be seen—Areca grandifolia and A. paniculata being, perhaps, unique plants. Calamus longipes is a beautiful species, whose stem and leaf-stalks are covered with long orange spines. C. Manni is a distinct and rare species from Western Africa, characterised by the rachis being prolonged beyond the blade, and covered with hook-like spines, similar to what is seen in the Wait-a-bit Palm. Cyphokentia Lindeni is represented by perhaps the finest plant in the country, having been long known in these gardens before it was introduced by M. Linden. Wallichia disticha, Pritchardia Martiana, Arenga javanica, Acanthorhiza Warscewiczii, and Plectocomia assamica are here in the shape of big healthy specimens. The large numbers of Palms, Tree Ferns, Dracænas, &c., are deserving of much better accommodation than is afforded them by the ugly structures in which they are huddled together at present. Such houses are totally unfit for many of the things which at present are compelled to stand in them. Glasnevin sorely wants and ought to have a large house of proper construction for the cultivation of large-growing plants; indeed, unless many of the rare things are to be sacrificed such accommodation is absolutely necessary.

The greenhouse plants, and particularly the Cape and Australian ones, are largely represented, and in most cases very well grown. In Proteads Glasnevin is perhaps richer than any European garden. Many beautiful Banksias, Dryandras, Hakeas, and Grevilleas are to be seen here, which speaks much for the skill and care expended on these by no means easily managed plants. A specimen of Witsenia corymbosa measuring 5 feet in diameter was a very fine sight indeed, and the bottlebrush-like flowers of the Beaufortias, Calliandras, and Metrosideros were hanging about like great fiery-haired caterpillars; and in this strain one might go on for a long time before all that is interesting at Glasnevin was mentioned. The Solandra grandiflora, covering a tall wall in a warm house and yielding hundreds of its trumpet-like flowers; Euphorbia punicea, whose large scarlet bracts are as ornamental as those of the Poinsettias; the Plumieras, which here flower yearly; Grevillea Manglesii, whose gracefully drooping branches and long feathery leaves and feathery white flowers are most charming to look upon; these and many such might be noted, but enough has been said to give readers an idea of the treasures of Glasnevin, and the excellent cultivation everywhere so evident in the health and size of the plants.

An excellent rule at Glasnevin is one which closes the houses to visitors at 5 o'clock, so as to enable the gardeners to water, syringe, and damp down the plants and houses before leaving-off time. The wisdom of this arrangement must be evident to all who have to do with the management of plants under glass. In public gardens where the houses are open to visitors for the whole of the afternoon there must always be great difficulty in preventing the cold air and dust that are carried in by a continuous stream of visitors passing through them from injuring the plants, and in tropical houses especially is this the case. An hour or even half an hour after the houses are closed would be an immense advantage to those who have the care of the plants. At Glasnevin they say it would be impossible to keep the collection healthy if such an arrangement did not exist. *W. W.*

Fig. 108.—Medinilla curtisii: flower-stalks coral-red, flowers ivory-white.

MEDINILLA CURTISII.

This, though not so striking a plant as the Medinilla magnifica, or M. amabilis, is nevertheless sufficiently remarkable to deserve a place in the stove. The plant from which our illustration was taken (fig. 108) was exhibited by Messrs. Veitch during the present autumn at one of the meetings of the Royal Horticultural Society, and as shown forms a low growing shrub with somewhat fleshy leaves. The numerous flowers are borne in terminal, and panicled pyramidal cymes, the main flower-stalks spreading at right angles, are jointed, and of a beautiful coral-red colour. Each flower is about half an inch across, and has an ivory-white cup-shaped calyx, scarcely at all divided at the margin, and surrounding a flat corolla of five roundish oblong petals of a creamy-white colour, which serves to throw up the central tuft of purplish stamens. We believe that the plant was introduced from Sumatra by Mr. Curtis, whose name it bears.

The Apple Show at Manchester was, we hear, a great success, over 6000 persons having visited the exhibition besides the members of the Botanical and Horticultural Society, admitted by season tickets.

ORCHIDS AT BURFORD LODGE.

Each succeeding year finds Sir Trevor Lawrence's grand collection in the same good condition, while the addition of new and rare things makes it of increased interest. The great thing of the present season has been the acquiring of the 235 guinea regal beauty Aërides Lawrenciæ; none who saw the plant in blooom considered it dear, for Lady Lawrence's Aërides certainly eclipses all in its class, from whatever point it may be viewed. It is needless to say that it is the great pet at Burford, and its sleek, contented look seems to promise that it will not be

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troublesome. Aërides Lawrenciæ is one of those puzzling plants which sometimes come to us now that the wildest spots on the earth's surface are hunted for Orchids. In growth and habit it is undoubtedly of the A. quinquevulnerum section, the shape of its flower is also very near to that of A. quinquevulnerum, but there the resemblance ends, for the purity of its waxy-white blossoms, the mauve-tipped petals, and extraordinarily long flower-spike is suggestive of a grand form of O. odoratum majus, but the disposition of the flowers on the spike and their great size renders it unlike that species. One thing is certain, and that is, that if ever a small importation of Lady Lawrence's Aërides arrives, the plants will not have to go begging.

Visitors to the collection at Burford Lodge are always struck with the beauty of many of the Orchids which they had perhaps frequently seen before, and not thought much of them, but which when seen in good well cultivated masses at Burford seem very handsome. Go there any day in the year and you will be able to find enough of such plants to form in themselves a sufficient recompense for the journey. Among those of this class now in bloom take, for example, the exceedingly beautiful plant of Angræcum pellucidum, with its dark green leaves and over twenty long drooping flower-spikes, furnished with their pretty fringed-lipped, transparent white flowers; to see such a plant is a pleasant event in any one's life. The masses of Maxillaria lepidota, each with forty or fifty yellowish blooms standing erect like short, narrow petaled Masdevallia chimæra at a distance; the great plant of Trichosma suavis, with its many flowers filling the whole house with a pleasant odour; the neat little Cattleya luteola; the specimen of the very old Cœlogyne Gardneriana sending out its long drooping spikes of snow-white flowers, or one of the many handsome plants of Epidendrum, of which there are several in bloom. These plainly say that there is plenty of beauty in most Orchids, and they only want good culture to bring it out.

Specially fine among old and generally liked plants at Burford are quantities of Calanthe Veitchii, of a very fine strain, having bright magenta-rose flowers, very different from those generally seen. Cypripedium Sedeni, with over thirty spikes, and which seems never to go out of bloom; Epidendrum vitellinum majus, with six spikes, all branched, and bearing from eighteen to twenty-four flowers on a spike; some very fine forms of Sophronitis grandiflora, and grand forms of Lælia pumila, with extraordinarily large blooms, when the size of the growth is considered.

Lælia anceps varieties are well grown at Burford, and there they are given plenty of sunlight and more heat than L. autumnalis; the profusion of their flower-spikes prove that they like the treatment. One fine specimen of the white L. anceps Hillii has twenty-two spikes; another of the variety, Barkerii, eighteen, and so on through a great number of fine specimens of selected varieties, the plants of the true Dawsoni not being large but well furnished with flower-spikes. The Cattleyas and Lælias are sound and clean, with every evidence of a good show of bloom, when the great masses of C. Trianæ send forth the blooms from the sheaths which they now so profusely bear. Imagine that splendid C. Trianæ alba, when its ten flower-spikes are up, and those other grand fellows which before long will be clothed with their grand and diverse coloured blooms. Until the Trianæs come the old plants will have to keep up the show. C. Dowiana aurea, C. Walkeriana (one of them a grand self-rose form), the many specimens of Lælia pumila, and C. Dormaniana, which is so pretty when a good variety is obtained, are quite sufficient to sustain the interest until then.

The Odontoglossum and Masdevallia houses are at their scantiest for bloom, although many flowers still appear among the dense setting of the rudely vigorous plants—Odontoglossum Alexandræ, O. Pescatorei, O. crispum flaveolum, O. Hallii, O. tripudians, Pilumna fragrans, P. nobilis, Masdevallia Veitchii, M. ignea, M. Fraseri (new), M. ludibunda, M. Maclura, M. velifera, and the many examples of the snow-white M. tovarense still being very showy. The Barkerias, which do well in a little cool lobby, are now very effective, and so are the different varieties of Pleiones.

In the East Indian-houses the plants are in fine order, even the Phalænopsis, which seem to puzzle so many growers, thrive well here, cleanliness and unremitting attention bringing success in every department; and in these and all other matters calculated to ensure the good condition of the plants Mr. Baxter seems to follow in the footsteps of his much respected predecessor.

Forcing themselves on our notice among a quantity of good things in bloom are Dendrobium endocharis (a white scented D. heterocarpum hybrid), D. Goldieanum, D. bigibbum superbum, D. formosum giganteum, Lælia furfuracea (true), Angræcum Chailluanum, A. pertusum, Cypripedium calurum, C. Spicerianum, C. insigne punctatum violaceum (a long way in advance of any other C. insigne), C. Dowianum, C. niveum, C. Haynaldianum, Cirrhopetalum Medusæ, Pescatorea Russeliana, the new yellow Oncidium bifrons, some fine varieties of O. Forbesii and O. prætextum, Cymbidium eburneum (fourteen spikes and two to three buds on a spike), and the beautiful little Pachystoma Thompsoni, with its showy flowers something resembling those of Lælia anceps. Burford Lodge also proves that Orchid growing need not extinguish either fruit or other plant growing on any place, for in every part of the garden, indoors or out, things are well done, and nothing is neglected for the Orchids.

ALPINE PLANTS.

The Silenes.—The genus Silene contains several interesting and essentially alpine species, which, cultivated in our rock-gardens, produce a very fine effect. Our alps furnish in themselves alone a considerable contingent, and others come to us from the Caucasus and other mountain ranges. So far as their culture is concerned, we may group the members of the genus Silene into three different divisions: the first comprises the species with stiff erect branching stems, the second includes plants of dwarf habit with creeping and moss-like branches; in the third the stems are slender, erect or prostrate, and little branched. In the first category are species which may be cultivated like ordinary alpine plants from the lower altitudes, and which only require a light but nourishing soil, but only three species of this section are worthy to figure in a collection of alpine plants.

Silene Valleria.—A plant 8 to 10 inches in height, erect, flowers solitary on the summit of the branches, large and fine; the petals are rose-coloured above, veined with red underneath, and their limb is bifid. This pretty species is rare, and is only met with in the high alps of the Valais, where it is becoming rare owing to the depredations of collectors.

S. Zawadskii is a very pretty little species from the Caucasus, the shining foliage of which, being of a rich green, produces a fine effect in the rock-garden. The flowers, of a pure white, are large, and disposed in terminal clusters to the number of five or six.

Silene Schafta, also from the Caucasus, is one of the best species to cultivate in our rockeries. The flowers, of a ruddy purplish colour, are numerous, and arranged in erect tufts. This species offers this great advantage, that it flowers late and enlivens the rockeries when all other plants are at rest. It flowers from August until November.

These three species are cultivated like those from the lower alpine regions, and require a light soil mixed with sand. They are easily reproduced by means of seed.

The series of moss-like Silenes suitable for cultivation on rockwork is much more numerous, and contains many extremely pretty and interesting species; but they are generally more difficult to acclimatise and to cultivate, and each demands special treatment.

S. acaulis, L., forms in our alpine regions large dense tufts, which constitute a veritable velvet carpet. They may be seen afar off, covering the rocks, which they render brilliant with their flowers. No other plant of our alps can be compared with this, because it is above all the one which produces the finest effect. The flowers are of a very bright rose colour, on short stalks, and cover the stem so completely that the foliage is scarcely visible, this being buried under the rose coloured carpet. These tufts, which often become very old, reach to very large dimensions. I have many times seen them measuring more than 18 inches in diameter. We possess one in the garden here which has been raised here, and the diameter of which is 15 inches. As it flowers here much less abundantly than in the mountains the effect it produces is less attractive, but its soft green foliage is of itself a rich decoration. The Geneva folk call this plant by the name of "Red Moss," on account of the tenuity of its foliage, and from the resemblance that the tufts bear to moss. When the traveller meets with these admirable tufts quite covered with flowers he feels an irresistible desire to carry some specimens away with him. This has always been the case, as it appears from an old manuscript of the celebrated botanist, Vaucher. It was Vaucher who induced the celebrated A. P. de Candolle to become a botanist, and in this manuscript the author relates the want of success experienced in the last century (in 1798) by cultivators of these plants. He points out the uselessness of pulling up the tufts of these charming alpine species, which are, he says, impossible to be grown in our plains, and whose beautiful appearance is not retained in cultivation. Vaucher was both wrong and right. He was wrong when he stated that the alpine plants could not be transplanted to our plains; he was right when he sought to prevent the reckless and unreasonable uprooting of the plant, and when he stated that certain among them, as is more particularly the case with Silene acaulis, lose in cultivation the brightness of their flowers. Truly in spite of all the efforts to obtain the same effect as in the Alps, in spite of all care and experience, we have never been able to induce this plant to produce the abundance of flowers that characterise it in the higher regions. And moreover the flowers do not expand all at the same time as is the case in the mountains, but the flowers appear one after another, or at best not more than eight or ten at the same time. Having studied this plant a great deal, I have come to the conclusion that it is better to raise it from seed than to transplant it. It resists better both the damp and the scorching heat of summer; care must also be taken to keep it at rest as long as possible by means of Fir branches, covered with snow as long as there is any, and so force it to remain quiet for a long time, and not uncovering it until warm rains, and brighter and more prolonged light, cause all vegetation to sprout. It should have a vertical or at least an oblique position, and in the latter case the niche in which it is grown must be carefully drained, so that the water may not remain in the tuft and cause it to rot. It prefers a soil composed of humus, mixed with a little peat and sand, calcareous if possible. I believe that by prolonging its winter rest as long as possible by artificial means, and by suddenly exposing it to the light when the days lengthen, at the end of March for example, we might succeed in causing it to open all its buds at once. The seedling plants succeed admirably when the seeds are sown in late autumn, and the young plants are not exposed to the air and moisture till March. They must be transplanted while they are still young. There is in cultivation a very pretty variety of S. acaulis with white flowers. I found specimens of it this year in the Jura Mountains.

S. æscapea, All., is very like the preceding species from which, however, it is distinguishable by its absolutely sessile flowers and by its ovoid capsule, very little larger than the calyx. It is cultivated in the same manner.

S. Pumilio, Sturm, is one of the most important and valuable species for cultivation. Its habit is the same as that of the preceding species, but its proportions are larger—above all those of the flower, which is particularly developed, and which is of great beauty. It is a native of the alps of Central Tyrol. This plant is rare, and difficult to obtain. It is found in the crevices of the rocks, down which it sends its long waving tap-shaped roots, and where it produces a very fine effect. Its cultivation is the same as that of S. acaulis, only it does not like a calcareous soil.

S. Elizabethæ is considered to be the most beautiful of all, the most sought after, but least easy to cultivate. It grows in the mountains of Central Austria, but has not been much cultivated till the last ten years. The flower is very large, of a bright colour, and borne on a trailing or reflected stalk. The leaves are broad, of a bright green, and resemble those of S. Zawadskii. This plant is cultivated like all the other purely rock plants, that is to say, it thrives in a vertical position, and demands little nourishment. I have a very beautiful specimen, covered with flowers, on a wall in an absolutely perpendicular position. It is difficult to cultivate in pots, because it easily rots. Care must be taken to drain it well, and to water it but little, especially in autumn and winter.

The third group of Silenes, that which contains the species with fine thin stems, closely crowded together, is met with among the rocks and pasturages of the Alps, but they are not really tap-rooted, and do not object to moisture. This third group contains a large number of species.

S. rupestris, L.—A charming little alpine species, the stalks of which are slender and graceful, closely packed, covered with a quantity of little white and rose coloured star-like flowers, which produce a beautiful effect. It prefers a light turfy soil, and grows very well from seeds.

S. alpestris, originally from Tyrol, is a plant remarkable for the abundance and beauty of its flowers, which are pure white, elegant and graceful. It forms close tufts 2 to 4 inches high, which flower from May to August, flowering again at the end of autumn. It likes a light, rich, humus soil, and a rather shady position.

S. quadrifida, L.—A charming lilttles pecies, with fine and close foliage, forming large tufts which are covered with white flowers. It likes a cool place, as it is met with generally in damp clefts of the calcareous rocks.

S. Saxifraga, L., belongs to the alps of Eastern Switzerland, and of the Tyrol. It bears a strong resemblance to S. alpestris, but differs by the brownish tint of the under-side of the petals, and by the tendency of these latter to roll back on themselves under the influence of the sun's ray; this species thereore is not beautfiul except when the sun is hidden, afnd during the night.

S. ciliata.—Originally from the Tyrol, the flower is two or three times larger than that of S. Saxifraga, is also coloured of a clear brown on the outer surface, and closes under the influence of the light of the sun. It is a very beautiful species, and well worth cultivation. It succeeds under the same conditions as the preceding.

All the species in this category are hardy, easily cultivated, very free blooming, and easily reproduced by means of seeds. *H. Correvon, Curator of the Botanic Garden, Geneva.*

FRENCH HORTICULTURE.

It is to Italy that the credit of having established the first botanic gardens is due, and to France belongs the honour of having established the first collections of living plants, and the first attempts at experimental culture. We devised before others did, and even now we have almost a monopoly of the art of training and moulding plants in accordance with our desires and fancies. It is in France that the greater part of the innumerable varieties of vegetables, fruit-trees, and ornamental plants have been obtained, and by judicious selection, and by the art of hybridisation almost at the will of those who have devoted themselves to such delicate researches. But before perfection could be attained it was necessary to procure the types, that is to say, species such as they are met with in the wild state. In this particular the use of collections and botanic gardens appears. To retrace their history at least to their origin is to trace that of horticulture itself: this history is not ancient, and embraces at most five centuries.

While Cosmo de Médicis established at Pisa, in 1543, the first botanic garden, and three years later Louis Auguillara inaugurated that of Padua, a young naturalist, Louis Belon, was completing his medical studies at Wurtemberg. Smitten with love for plants, and with the desire to see them living in their native localities, as well as to study those which furnish the drugs whose history he had read of in his books, Belon set out in 1546, and visited in succession all the south of Europe, Asia Minor, the islands of the Mediterranean, Egypt, Palestine, and Syria. This voyage, lasting three years, was very remarkable in those times.

Belon was the true founder of the study of plants and of their cultivation; it is to his inspiration alone that France owes the two first collections of living plants—that of René du Bellay, Bishop of Mans, and that of his brother, Jean du Bellay, Archbishop of Paris. Belon introduced successively into their gardens, which were justly celebrated in the sixteenth century, the evergreen Oaks, Cork trees, the Judas tree, Agnus Castus, the Sumacs, the Juniper of the East, black and white Mulberries, Viburnum Tinus, the Jujube tree, the Styrax, Diospyros Lotus, Rosa moschata, the Myrtle, &c.

Our traveller took care to visit the different botanic gardens, and he would probably have succeeded in establishing one at Paris, had he not been cruelly assassinated in the Bois de Boulogne, in the forty-eighth year of his age.

We know little of the progress of horticulture in the second half of the sixteenth century. Gaëtan Monti, at Bologna, and Michel Mercati, at Rome, undertook, about the year 1568, to establish schools of botany, but without obtaining any really valuable results. The garden at Leyden, on the contrary inaugurated in 1577, rapidly acquired a certain importance, thanks to the generous gift that Théodore Auger Chuyt made to it of his beautiful collections of rare plants.

At Leyden some years later—in 1599—was constructed the first greenhouse, for the protection of some plants introduced from the Cape of Good Hope, Geraniums, Mesembryanthemums, &c. It contained, according to Bœrhave, nearly 6000 plants, a number which would appear fabulous, if one did not take into account the fact that in those days distinctions were made between the slightest varieties, however insignificant. It was in 1597 that the first school of botany was opened in France, that of Montpellier, created by Richer de Belleval in compliance with the orders of Henry IV., in whom as the biographers tell us, the reading of the *Remonstrances* of Belon had inculcated the taste for collections of living plants. The garden of Montpellier especially contained European plants, but it was not rich in species from the Levant and the Indies. From the early years of the seventeenth century Jean Robin, gardener and herbalist to Henry III., had got together, either in his own private garden or in that of the Louvre, all the plants that he was able to collect. These collections thirty years later served as the foundation of the Jardin des Plantes. To him is due the honour of having published the first enumeration of the species cultivated in France; their number does not exceed 1300. At the same time, also at Paris, there lived an amateur botanist whose history is not revealed to us by any chronicler. No author makes the least mention of René Morin; I am glad to be the means of first revealing his existence to you, as I was able some years ago to rescue from similar oblivion the names of the two du Bellay.

The collections of this René Morin, of which I had the good fortune to find the catalogue published in 1623, were not numerous, and contained 400 plants; but the idea that had suggested their accumulation was very different from that which animated Jean Robin. The latter sought above all useful and rare plants without reference to their beauty or their use in the ornamentation of gardens—René Morin, it may easily be seen in looking over his catalogue, addressed himself to ornamental plants alone, and sought above all for the most beautiful varieties of each. We may therefore consider him as having been the first collector of plants from a purely horticultural point of view. This catalogue also appeared in 1623—the same year in which Jean Robin published his *Enchiridion*, which constitutes the second edition of his own catalogue. It may be asserted that even at that time a good number of foreign plants were already in cultivation, such as the Aloes, Datura, the large-fruited Strawberry, the Burnet-leaved Rose tree, the Persian-yellow, with single and double flowers, and Sempervirens, the American Mulberry; and lastly, the Acacia (Robinia Pseud-Acacia). Many of our garden varieties were already catalogued there, such as the double and proliferous Cherry, the double Daisy, many kinds of Hyacinths, Tulips, and Iris. The beginning of the seventeenth century seems to be the true starting point of our horticulture. The creation of the Jardin des Plantes was realised in 1626, but our great establishment of natural science was neither completed nor opened to the public till 1634, as Deleuze has proved. Six years later the first course of lectures was given. Guy de la Brosse, in his pamphlet *The Opening of the Royal Garden*, shows that the other European gardens were at that time very small in comparison to that of Paris.

Belgium and England were much later with their schools of botany; the marvellous gardens at Kew do not date further back than 1763.

To appreciate the rapid development of horticulture in Paris alone I venture to quote a few figures. In 1810 the number of horticultural establishments of all kinds only amounted to eighty-nine, there were 114 in 1820, 133 in 1840, 189 in 1850—a slow though appreciable progress. But see what happened during the next ten years, and especially the last twenty years. From 189 in 1850, as I just stated, the number of horticultural establishments rose suddenly to 304 in 1860, then to 343 in 1870, to attain the number of 415 in 1880, and it is to-day not less than 453. Paris, in fact, possesses thirty-six seedsmen, 119 florists, 298 nurserymen, and this number only includes those establishments which are devoted to the culture or to the sale of ornamental plants, and does not include the market gardeners or orchardists and the host of retail dealers and workmen, whose numbers cannot be exactly ascertained. *Abstract of an Address delivered by M. Lavallée as President of the Société Nationale d'Horticulture de France, Aug. 16.*

THE FERTILISATION OF THE RED CLOVER.

[The following remarks, relating to the fertilisation of red Clover in New Zealand, sent us by Mr. J. B. Armstrong, of the Christchurch Botanic Garden New Zealand, have much more than local interest. We regret that we can only find space for the substance of Mr. Armstrong's communication.]

It has been frequently asserted that the red Clover does not produce its seeds in this colony, but the facts are certainly otherwise. There are, it appears, four varieties of red Clover in New Zealand. The whole of these varieties produce seeds of good germinating quality, but there is a wide difference in their respective degrees of fertility. One variety is partially self-sterile and partially self-fertile, the larger flowers being probably visited by bees, moths, or other insects, whilst the paler and shorter flowers are probably self-fertile, the pollen being applied to the stigmas by the withering of the corolla, as appears also to be the case with the common Pea (Pisum sativum) and the Sweet Pea (Lathyrus odoratus), both of which, although possessing blossoms fully as conspicuous as those of the Trilolium, are admitted to be absolutely self-fertilising in New Zealand and probably in England also. Another variety is frequently termed the American variety, and, as before stated, it is dwarfer than the common or English one, has much paler flowers, which are also much shorter than in the other kinds, and it is most generally self-fertilising. Furthermore, plants the produce of those which have been grown in the colony for several generations are almost invariably self-fertilising.

From the above statements the author assumes that the varieties of red Clover found in New Zealand exhibit an ascending degree of self-fertility. Thus, in the cow Clover, a luxuriant variety, we have strongly developed self-sterility; in the common English variety there is a tendency to become self-fertile, which tendency increases with naturalisation; and the third, or so-called American variety, is usually, if not always, self-fertile. This change from self-sterility to partial or perfect self-fertility—which may, I think, be viewed in the light of a degradation—is accompanied by the shortening of the corolla, and a changing of the colour from a fine red to a wasby rose, and even to pure white in a few instances. The question now arises—Do the forms of red Clover present different phenomena (as to their fertilisation) in New Zealand to those seen in other countries? I am inclined to think that this question may be answered in the affirmative. Thus, in *Cross and Self-Fertilisation*, p. 361, Mr. Darwin, writing of red Clover, observes, first, that the red Clover does not fertilise itself in England; and, second, that the particular insect known as the humble bee is required to fertilise it. I cannot entertain a doubt, therefore, but that the red Clover in England is self-sterile, and that it is not visited by the hive-bee for the purpose of collecting nectar. But in New Zealand the facts are otherwise.

From his own observations Mr. Armstrong concludes that, whatever may be the case in England, there cannot be the slightest doubt but that the honey, bee is perfectly able to extract the honey from the red Clover blossoms in New Zealand, and also in America; but that the quantity of nectar is so small as not to be worth collecting when more generous kinds of plants are in flower. I am (he says) confirmed in this opinion by a remark of Mr. Meehan, an excellent American authority on fertilisation, who observed that humble-bees would not visit a field of red Clover when the white Clover (Trifolium repens) was in blossom, and yet the red Clover fields "bore seed as fully as most insect frequented fields would do." Mr. Darwin lays some stress on the tongue of the hive-bee being too short to reach the nectaries of certain flowers; but he appears to have been unacquainted with a fact well known to gardeners, that the hive-bee, when unable to enter a narrow corolla, is in the habit of tearing open the tube at the side, and so reaching the nectary. I have observed that this is the case more especially with the species of Lycium. A large plant of Lycium afrum, cultivated in the Christchurch Botanic Garden, every year bears many thousands of blossoms, which are crowded by bees during several weeks, and they may at any time during the flowering season be seen at work tearing open the corolla tubes to get at the abundant supply of nectar within; of course this is an illegitimate kind of pro-

ceeding, but the fertility of the plant is not in the least injured by it, for it seeds most abundantly. A similar instance occurs in the common Bean (Faba vulgaris). The hive-bee visits many flowers which are indisputably self-fertilising, such as the Sorrel (Rumex Acetosella), Cerastium vulgatum, Stellaria media, and many others, evidently obtaining much honey from them. Indeed, there is, I think, no doubt that the bee has a strong preference for flowers of quiet colour, well knowing that these contain more honey than those with gaudy hues, and pale-coloured flowers are usually self-fertilising. As Darwin has proved that cross-fertilisation generally—not invariably—results in a benefit to the plants, or rather to the progeny of the plants, so crossed, it appears that the functions of the hive bee in connection with fertilisation are more for the purpose of crossing (and consequently improving) the races of plants which, without the aid of these insects, would otherwise cross themseleves, and bring about that weakening of constitution which certainly results from in-and-in breeding, than for crossing self-sterile species. True, the Rev. G. Henslow has attempted to prove—in a very able article in the *Linnean Transactions* for 1879—that self-fertilisation is not injurious; and in support of this he brings forward the well known facts that British self-fertilising plants, introduced by man's agency into this colony and Australia, are more luxuriant and more fertile than in their native country. Now, it appears to me that the facts connected with the naturalisation of British plants in the colony tend rather to support Darwin's views as to the benefits derived from intercrossing, for it must not be forgotten that, in this and all other new countries, there is constantly going on an extensive importation of seeds from Europe and America, belonging to races which must be far removed in pedigree from those of the same species already in the country. As nearly all self-fertile plants are liable to be crossed either by the wind or by insect agency there is every reason to believe that the races of species already in the country are crossed with those newly imported, and in consequence show an increased vigour of growth and greater fertility of seed production. If this theory be the right one, we may, of course, expect that in course of time, as the farmers and seed merchants give up the importation of stocks of seeds from England and America, and consequently check the importation of weeds, there will be a diminution of fertility and a lessening of the luxuriance of growth which is such a marked feature in the naturalised plants of New Zealand. In confirmation of this view I have observed that the above-mentioned luxuriance of growth is most noteworthy in plants of short duration—in those, in fact, which have had time to produce several generations in the colony. On the other hand it cannot be disputed that after a time the naturalised plants show some diminution of luxuriance, though not a very marked one as yet.

In conclusion, I think that we may safely assume that the following facts in connection with the fertilisation of the red Clover in New Zealand are proved:—1. That the red Clover does produce its seeds in this colony. 2. That some varieties are much more fertile than others. 3. That there is every reason to believe that numerous individuals belonging to the species are self-fertile, and that they produce self-fertile progeny. 4. That all the varieties show a tendency to produce paler coloured flowers. 5. That the common hive-bee and its variety, the so-called hybrid Ligurian bee, frequently gather honey from the blossoms of the red Clover, thereby no doubt aiding cross-fertilisation. There is also reason to believe that the red Clover is becoming modified in its structure, so as to admit the visits of insects not known to visit it in England, and that such modification tends to render the plant self-fertilising, but at the same time enables it to be improved in constitutional vigour by occasional intercrossing.

ANTHURIUM FERRIERENSE.—Amongst the species grown chiefly for the beauty of their coloured spathe this plant may claim due attention, because likely, under good cultivation, to prove a decorative subject of some value. The whole plant seems of moderate dimensions, with heart-shaped leaves, and, like the numerous sorts that have been introduced to cultivation, of a firm leathery texture. The spathe, of a peculiar deep red colour, resembles in shape that of A. Andreanum, but is flat and spreading without any of the reticulated depressions characteristic of the latter. The spadix, too, is stouter, and of a pinkish-white colour. The plant, moreover, is a small one, having been sent by Messrs. Veitch & Sons this year to Kew, where it is now flowering in the stove.

FRUIT NOTES.

HALLINGBURY PIPPIN APPLE.—I should like to ask upon what authority the name of this excellent variety is always spelt "Hollandbury?" I have always been given to understand that it was a seedling raised by the late Mr. Spivey, for many years gardener to J. Archer Houblon, Esq., of Hallingbury Place (so spelt in all Essex Histories and Directories), near Bishop's Stortford, and who was also an experienced pomologist. Of course, if any one can prove that I am in error I am open to correction. *T. J. Saltmarsh, F.R.H.S., The Nurseries, Chelmsford.* [In a brief search through a few books on our shelf, we have been unable to find the name of Hallingbury applied to this Apple, and all the modern authorities call it Hollandbury. Leroy, in his *Dictionary of Pomology*, however, gives the names Hollingbury, as one of eight synonyms, and quotes as his authority for it Mr. John Turner's "Account of the Apples Exhibited in 1818," published in the *Transactions of the Horticultural Society of London*, 1819, p. 328. Mr. Turner, at the reference given, says of the Hollingbury:—"This is an Apple very well known in various parts of the country. It has lately received the name of Kirke's Scarlet Admirable, by which it is now known in the neighbourhood of London." Leroy gives Kirke's Scarlet Admirable as a synonym on the strength of the above statement, the other synonymous names quoted being Kirke's Schöner Rambour, Beau-Rouge, Bonne-Rouge, Hawberry Pippin, Horsley Pippin, and Howberry Pippin, the five last-named being originally published in the late Robert Thompson's *Catalogue of Fruits Cultivated in the Garden of the Horticultural Society of London*, 1842. Mr. Barron is inclined to think that Kirke's Scarlet Admirable is the oldest name. Can any of our readers give any definite information as to the origin of this variety? ED.]

LIVE'S IMPERIAL APPLE.—An Apple was formerly grown in Nottinghamshire under this name, but whether it is more than a local name I am unable to say, nor do I know anything of its origin. Twenty years ago about a dozen trees were in existence, then large trees and in full bearing; but some ten years later many of them were cut down for extension of shrubbery, &c., and probably all of the trees in question are now destroyed. Not being able to find the name in nursery catalogues, I was curious to discover some other name for it, and at the recent show at Chiswick I took some pains to find a dish of it. At length one was discovered, exhibited by Mr. Gilbert, of Burghley, without a name, and, if I remember rightly, with a request that the Fruit Committee would furnish one; this, however, was not then forthcoming. Close by was a second dish, also exhibited by Mr. Gilbert, and labelled "Seedling Apple—Cooper's Ambition," but so exactly similar in every respect as to leave scarcely a doubt of its being a seedling from the old sort, whatever may be its original name. It is an early Apple, very similar to Lord Suffield in shape, and, as far as my memory serves, not keeping much longer than that useful kind; the colour, however, is different. On the shady side of the tree it is pale yellow when ripe; but on the sunny side the yellow is deeper, sometimes ochreous, and beautifully splashed and striped with red, though not nearly so copiously as in the Emperor Alexander. There is also a peculiar smell and a greasy feeling about it, which, with the other characters, easily separate it from every other kind known to me. I should be glad to hear what is the origin of the name under which I have known it, whether that is its correct name, and where the variety originated; for although the number of useful early Apples is legion, this, I believe, will compare favourably with some that are better known. Perhaps Mr. Gilbert will let us know his experience respecting it, and it would be interesting if he could bring it specially under the notice of the Fruit Committee this season, if not too late, or on some future occasion. *R. A. Rolfe, Herbarium, Kew.*

CERTIFICATED APPLES.—In your report of the Chiswick Apple show in your number for October 20 it is stated that Bramley's Seedling and Grenadier received First-class Certificates. These two Apples have been in commerce for several years. If Apples in commerce are to receive certificates, where is certificating to begin and end? In your report of the Woolhope Club Apple show, Gipsy King is named as exhibited amongst the novelties. It is in the 1874 catalogue of a well-known nurseryman, not as a novelty. *Philomelos.* [There can be no possible objection to any variety of Apple being certificated if it is in commerce, provided that such Apple is not much known but is worthy of the award, the motive in giving the certificate always being to encourage the more extended cultivation of the variety so certificated. Neither of the Apples certificated at Chiswick were known to more than a comparatively few growers—men like our correspondent, with whom the Apple is a speciality. ED.]

PLANT PORTRAITS.

ANAGALLIS COLLINA VAR. ALBA, Regel, in *Gartenflora*, September, 1883, t. 1125.—A low growing bushy annual, with linear green leaves and small white five-parted flowers.

ANDROSACE FOLIOSA, *Garden*, Oct. 6.—A Himalayan species with oblong leaves, tapering to a long stalk; peduncles erect, bearing a terminal umbel of rosy-lilac flowers. Primulaceæ. Kumaon.

ANGRÆCUM SCOTTIANUM, Rchb. f.; Hook. f., in *Bot. Mag.*, November, t. 6723. See fig. in *Gard. Chron.*, vol. xiv., 1881, p. 136, f. 30.

ASTER DIPLOSTEPHOIDES, Benth.; Hook. f., in *Bot. Mag.*, t. 6718.—The handsomest Himalayan Composite, with oblong lanceolate hairy leaves, erect stems, solitary flower-heads 2½ inches across, with lilac rays and yellow disc. It grows on the Himalayas from Sikkim to Kashmir, and at elevations of from 8000 to 16,000 feet.

BEGONIA ROEZLII, *Garden*, August 25.

CAMELLIA M. HOVEY, *Garden*, Sept. 22.

CAMPYLOBOTRYS GHIESBREGHTII, fol. var., *Illustration Horticole*, t. 498.—A stove shrub with opposite lanceolate leaves, acute at both ends, disc green blotched with cream-coloured blotches.

CIENKOWSKYA KIRKII, Hook. f., *Illustration Horticole*, t. 495; see also *Bot. Mag.*, t. 5994; *Garden*, 1881, p. 504.

DENDROBIUM NOBILE VAR. NOBILIUS and var. WALLICHIANUM, *Garden*, Sept. 8.

DIOON SPINULOSUM, Dyer; *Garten Zeitung*. October.

ELÆOCARPUS CYANUS, *Garden*, Sept. 1.—A greenhouse shrub, with oblong, firm, serrulate leaves, and elongated clusters of bell-shaped white flowers with fringed petals. Tiliaceæ.

FRITILLARIA PALLIDIFLORA, Schrenk; Baker, in *Bot. Mag.*, t. 6725.—A Siberian species, with large greenish pendulous flowers loosely clustered about the ends of the branches.

GLYPHOSPERMA PALMERI, S. Watson; Hook. f., in *Bot. Mag.*, t. 6717.—A hardy Asphodel-like plant, with long, tufted, linear fistular leaves, and loose racemes of small, white, six-parted flowers. Native of Mexico. Hort. Kew.

HEDYSARUM MULTIJUGUM, Maximowicz, *Gartenflora*, t. 1122 (1883).—A leguminous shrub, native of the deserts of southern Mongolia, with slender pinnate foliage and elegant racemes of small flesh-coloured papilionaceous flowers.

JASMINUM FLORIDUM, Bunge; Hook. f., in *Bot. Mag.*, October, t. 6719.—A half-hardy shrub, with glabrous pinnate leaves and terminal clusters of long-stalked tubular salver-shaped yellow flowers. Native of Northern China.

KNIPHOFIA LEICHTLINII, Baker, in *Bot. Mag.*, t. 6716.—A species with the spotted stem of a Eucomis, and with a dense terminal spike of yellow tubular flowers tinged with red. Habit that of K. uvaria. Native of Abyssinia. Kew.

LÆLIA HARPOPHYLLA, *Garden*, August 11.

LATHYRUS DAVIDII, Hance; Regel, in *Gartenflora*, September, 1883, t. 1127.—A Japanese and Manchurian species, with glabrous broad leaflets, stalked racemes of buff-coloured papilionaceous flowers and long linear seed-pods.

LIATRIS PYCNOSTACHYA, *Revue Horticole*, July 16.—A noble herbaceous perennial, with closely set linear leaves and dense spikes of rosy-lilac Composite flowers.

LICUALA GRANDIS, Wendland; Hook. f., in *Bot. Mag.*, t. 6704.—This is the species first exhibited under the name of Pritchardia grandis by Mr. W. Bull, and which has flowered at Kew. It is a native of New Britain, with a bold crown of brilliantly green leaves, the rounded cup-shaped form of which, delicately folded in innumerable plaits and doubly cut round the edges, are characters quite unlike those of any other Palm known in cultivation.

Monnina obtusifolia, *Revue Horticole*, October 1.—A greenhouse shrub, with glabrous oblong leaves tapering to a very short stalk, and terminal racemes of small blue flowers, each with a yellow blotch. These are succeeded by small ovoid scarlet fruits. Introduced from the mountains of Ecuador by M. André.

Nymphæa odorata, Aiton, var. rosea, Pursh.; Hook. f., in *Bot. Mag.*, t. 6708.—The rose-coloured variety of the true North American N. odorata, but not the var. rosea of a former volume, t. 1652, which is now pronounced to be a form of N. odorata minor.

Oncidium concolor, Hook., *Illust. Horticole*, t. 487.—Flowers in racemes, each oblong, with lanceolate segments of a canary-yellow, and a very large broadly ovate lip of the same colour. Brazil.

Oxalis tuberosa, Molina; Regel, in *Gartenflora*, t. 1126, c—e. A perennial species, with a tuberous underground stem, villous, trifoliolate leaves, winged petioles, and yellow flowers.

Panax fruticosum var. Deleauanum, N. E. Brown, in *Illustr. Horticole*, t. 492.—A variety of P. fruticosum, shown by the Compagnie Continentale at Ghent this spring. It is a shrub with speckled purplish stem, and foliage deeply and variously divided, like Parsley.

Parrya nudicaulis, Regel, in *Gartenflora*, t. 1126, September, 1883.—This is the Arabis nudicaulis of Linnæus, and has a tuft of oblong entire leaves tapering at the base into a long stalk and an erect scape bearing an umbellate cluster of lilac rocket-like flowers. Mountains of Turkestan. A. Regel.

Pavonia Wioti, *Garden*, August 4.

Pellionia Daveauana, N. E. Brown; Regel, in *Gartenflora*, t. 1120.—An urticaceous plant, with much the aspect of a Begonia, and described by Mr. N. E. Brown in our columns, 1880, ii., p. 262.

Pescatorea Lehmanni, *Gartenflora*, t. 1123.

Phacelia campanularia, *Florist*, t. 595.—A lovely Californian annual, introduced by Mr. W. Thompson, of Ipswich. It is of rather loose habit, with long stalked roundish leaves, and racemes of broad funnel-shaped rich blue flowers, like those of Whitlavia grandiflora.

Pink Madame Ed. Pynaert, *Revue de l'Horticulture Belge*, July.—A variety derived from D. lignosus, according to Mr. Puls, and of the same stamp as the Souvenir de la Malmaison, but with flowers of a pale flesh colour.

Pothos celatocaulis, N. E. Br., *Illustration Horticole*, t. 496. See *Gardeners' Chronicle*, 1880, vol. i., p. 200.

Prunus Pissardi, *Bulletin d'Arboriculture*, July. —A purple-leaved Plum.

Rosa alpina, Linn.; Hook. f., in *Bot. Mag.*, t. 6724.—A charming Rose, native of the Alps, devoid of thorns, but with the foliage, young fruit and sepals studded with glandular hairs. The flowers are rose-red.

Rose Cramoisie Supérieur, *Journal des Roses*, August.

Rose Madame Azélie Imbert, *Journal des Roses*, July.

Salvia boliviana, Planchon; Hook. f., in *Bot. Mag.*, October, t. 6714.—A greenhouse undershrub, with bold cordate ovate acute crenate dentate hoary leaves and dense cylindrical clusters of scarlet tubular two-lipped flowers. Bolivian Andes.

Sisyrinchium grandiflorum, *Garden*, June 30.

Senecio concolor, DC.; Hook. f., in *Bot. Mag.*, t. 6713. September, 1883. See also N. E. Brown in *Gard. Chron.*, vol. xii., 183, p. 615, and vol. xx., p. 75.

Stenomesson Hartwegi, *Revue Horticole*. September.—A bulbous plant, reintroduced from the Andes of Ecuador by M. André, having umbels of tubular funnel-shape orange-red flowers preceding the leaves.

Tritonia (montbretia) Pottsi, Bentham; Baker, in *Bot. Mag.*, November, t. 6722.—The plant better known in gardens as Montbretia Pottsi: see *Gard. Chron.* 1877, vol. vii., p. 424; 1880, vol. ii., p. 525.

Veronica Traversii, *Revue de l'Horticulture Belge*, September.

Vriesia heliconoides, Lindl.; E. Morren, in *Illustr. Horticole*, t. 490.—A New Grenadan Bromeliad, with tufted oblong strap-shaped leaves. Spikes central, with spreading two-ranked bracts, each crimson at the base, green above.

Zygadenus muscitoxicum and Z. Nuttalli, *Gartenflora*, t. 1121.—Californian bulbous plants with long narrow inarching leaves a tall spike of small six-parted whitish flowers. Nat. ord. Melanthaceæ.

PARASITIC FUNGI.

The fungus shown in our illustrations, Peronospora parasitica, and to which we hope to refer at greater length in an early number of the *Gardeners' Chronicle*, invades Cabbages, Turnips, and other cruciferous

Fig. 109.—Peronospora parasitica, Corda: enlarged 400 diam.

As found by Mr. C. E. Broome in 1849.

plants, and causes their putrefaction. During the past summer we have noticed this fungus helping to make a combined attack on Turnips, in company with the fungus of Club-root, named Plasmodiophora brassicæ,

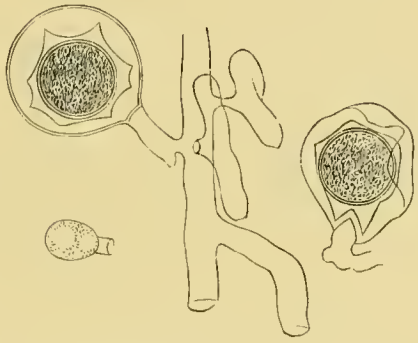

Fig. 110.—Peronospora parasitica, Corda: enlarged 400 diam.

De Bary, 1863.

Wor., a fungus we hope also to speedily illustrate in these pages.

Whilst looking over some half-rotten Turnips a week ago with a view to some new observations on

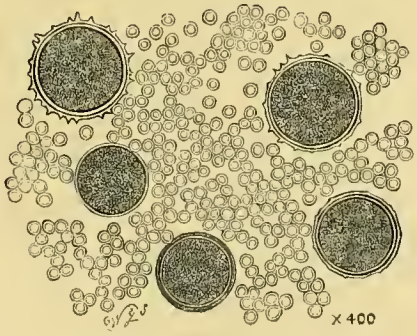

Fig. 111.—Peronospora parasitica, Corda, with Plasmodiophora spores: enlarged 400 diam.

the Club-root fungus, we were surprised to see, floating about with millions of the Plasmodiophora spores, numerous beautiful examples of the resting-spores of the Peronospora. The resting-spores were abundant, and any observer who wishes to see them, will probably have no difficulty in finding them, if he searches a little amongst the wet decaying tissues of half-rotten Turnips, such as are now to be seen lying about in the fields.

Mr. C. Edmund Broome, of Batheaslon, was the first to see the resting-spores here adverted to (also in decayed Turnip), in 1849. He sent the bodies to Dr. Montagne, and Fig. 109 is a reproduction of the original drawing Dr. Montagne made from them. The resting-spore is seen in the collapsed oogonium, or spore-case.

Fig. 110 represents two of the same bodies as illustrated, by De Bary in 1863, *Ann. des Sc. Nat.*, vol. xx.

Fig. 111 is an engraving of five of the abundant resting-spores seen by us in rotten Turnip (the smaller circles are the spores of the club-root fungus). It will be noticed that three of the examples are somewhat larger than the supposed average size, and that they have at length become spiney in the style of the resting-spores of Peronospora infestans. All the illustrations are to the same scale, viz., 400 diameters.

Whilst looking over some decayed Lotus corniculatus lately, which had been invaded by Peronospora trifoliorum, D. By., we found many resting-spores of the Peronospora in the decomposed spots where the fungus had been parasitic. This is the fourth instance of resting-spores being found by us in tissues made putrescent by the Peronosporeæ. Nematodes were in the same decayed spots with the resting-spores, and we hope speedily to illustrate them in the *Gardeners' Chronicle*. *W. G. Smith.*

HARDY PLANTS IN HIGH LATITUDES.

In his *Forest Lands of Finland*, recently noticed in our columns, Dr. Brown indicates the northern limits in that part of Europe of various trees and cultivated plants. In the Arctic Circle vegetation at its northern limits consists of the dwarf Birch, the Juniper, and the reindeer moss, on the sunny sides of the rocks and hills, with a sickly Fir tree here and there. In the most sheltered valleys closed in from the wind, the Blackthorn, Sweet Brier, and Aspen expand their leaves in the month of June, and at the same time the grass grows vigorously on the river banks. South of Utsjoki the Pine, Fir, and Mountain Ash, make their appearance, but at this place agriculture is scarcely found, and Potatos, Cabbages and Turnips are only found in the garden attached to the parsonage at Utsjoki. In travelling south, Rye, Hemp, Apple trees bearing blossoms without fruit, and Oats are met with successively; then Flax, Wheat, Peas, Hops, and Tobacco in warm spots. The Willow grows furthest north, after the trees already mentioned, then, travelling south, the Ash, Oak, and the Lime. Alders are met with, and Cherries ripen as far north as Flax, the boundary line of Flax and Hops. Berry-bearing bushes, such as the Blackberry and Cranberry, Whortleberry, Cloudberry, Strawberry, and Bramble, are scattered widely over the country, as they are here anywhere between Caithness and Cornwall. The northern limit of the satisfactory cultivation of Wheat is lat. 62°; Pulse, 64°; Oats, half a degree further north; Hemp, 65° 50′; Rye, from 67° to 68°; Barley, 69°. So Barley ripens nearer the North Pole than any other grain. The north limits of the trees are, in the case of the Oak, Ash, Hazel, Maple, and Elm, between 60° and 62°; the Lime and Mountain Ash, 62° and 64°; the Elder, 65°; the Aspen, 68°; and the Spruce, Pine, and Birch, 68° and 70°. The limits of the trees are about 2° further north on the west coast than in the interior of the country. The Pine (Scotch Fir), which is by far the most extensively diffused of the trees of Finland, and the most valuable for export, ship-building, house-building, fuel, and any purpose for which timber is required, grows in western districts up to 68° 30′, in eastern parts to 69° 30′, and forests of dwarf Pines intermixed with the Birch are common even in the regions of crippled vegetation as far north as 69° 55′. The Spruce is common in forests as far north as 69°, where the trees, however, are stunted. Dr. Blomqvist, Director of the School of Forestry at Evois, describes two varieties of the Spruce, "one of which has in the cone rhomboidal scales denticulated at the apex, and the other obovate scales entire at the apex." He considers the former as the principal form, and identical with the Norway Fir of Central Europe. The second, he says (var. medioxima, Nylander), should be considered rather as a variety forming a transition to the Picea obovata, Ledebour, of Russia. There

is a whole series of transitional forms in Finland, he says, between the two forms named, possessing no differences from a forestal or economical point of view.

The Siberian Larch was planted by Government in 1788 at 60° 20′, and trees were exhibited lately at Moscow 110 and 112 feet long by 10 and 11.5 inches in diameter. The timber is excellent. A few additions to the list of trees and shrubs will assist in making comparisons, and therefore we add the following, which are not indigenous in Finland. The northern limit of the Siberian Cembran Pine is 67°, the Weymouth, 61° to 63°; Balm of Gilead, 61° 53′; American Arbor-vitæ, Thuia occidentalis, 61° to 63°; Lilac, Siberian Pea-tree, Caragana arborescens, and the Tartarian Honeysuckle, 65°; the Willow-leaved Spiræa, the flowering Bramble, Barberry, Snowberry, and red-berried Elder, 63° 40′; the Tacamahac, Populus balsamifera, the Abele, and the perfoliate Honeysuckle, Lonicera caprifolium, 51° 30′; the Hazel, which is very common on the south and south-east coast, 61° 40′ to 61° 80′; and the Horse Chestnut, which is frequent in the same districts, 61°. There is a Walnut tree 15 feet high at 60° 8′, where the Hornbeam also grows. The Beech has attained the dimensions of a small tree at 60° 8′, and grows into a shrub a few feet tall in a hundred years at 60° 30′. The Bullace, common Plum, common Cherry, Bird Cherry grow as far north as 63° on the west coast; Gooseberries succeed very well in the same latitude, and black Currants at 67° 30′.

Notices of Books.

The Law of Compensation for Unexhausted Agricultural Improvements, *as Amended by the Agricultural Holdings Act of* 1883. By J. W. Willis Bund, M.A. (London: Butterworths, 7, Fleet Street. Dublin: Hodges, Figgis & Co., Grafton Street. Manchester: Meredith, Ray & Letter. Edinburgh: T. & T. Clark; Bell & Bradfute.)

The Agricultural Holdings (England) Act, 1883; *with Introduction, Notes, and Forms.* By Hugh W. Pearson. (London: Hamilton, Adams & Co. Malton: R. Bradley, *Gazette* Office.)

These works, of which the last-named is a pamphlet, the first an elaborate treatise, are attempts to explain the complicated points of the Agricultural Holdings Act of the present year. Unfortunately, but necessarily, perhaps, the new Act raises a series of points whose construction can only be decided by the Courts. The Act of 1875 was not only permissive, the recent Act being compulsory, but it differed in principle, the basis of compensation being the original outlay, limited in accordance with a scale of years within which the improvements were deemed to have become exhausted. The recent Act, on the contrary, is an attempt to pay by results, and the measure of compensation is the value of the improvement to the incoming tenant, without regard to the original outlay. The difficulties in store for land valuators are apparent. The application of this new principle, fair as it may be if it can only be equitably applied, involves the condition of the occupation on entry, a dozen or twenty years ago perhaps, the particular requirements of the incomer, and other abstruse points. Much has been said, for example, in the course of recent discussions, as to "the inherent capabilities of the soil." The natural productiveness of the soil is that for which rent is paid; the want of it is the cause of those waste lands which improvers shun. A tenant finding the cask full, taps it, or, in plain language, he hires good land, drains it, and crops it fast by the aid of light manures, raising the yield of the crops from 3 qr. to 5 qr., by developing, and at the same time reducing rather than increasing, the "inherent capabilities of the soil;" he will be paid for his drainage, but how much is due to him for other unexhausted improvements? Has he not already had his share of what he hired? These questions are worthy of the pen of Sir John Lawes himself, and we should proceed to quote his writings if space would allow. As already said, the difficulties in the application of the Act will be heard of in the law courts, and much as we would deprecate either litigation, evasion, or any other course but a loyal attempt to accept legislation which is admitted on all sides to be moderate, we can hardly anticipate smooth sailing at present, when the Farmers' Alliance has already protested in favour of the sitting tenant, and Sir James Caird himself has criticised the Act from the same point of view.

COLONIAL NOTES.

Calcutta Botanic Garden. — The following notes are extracted from Dr. King's annual report for 1882-83, viz.:—

The whole extent of the grounds has been raised in level, the necessary soil having been obtained from large sheets of ornamental water which have been cut out. These artificial lakes have been connected with each other by underground pipes, and a steam pump has been supplied, by which the water in the whole system can be kept at a high level by means of water pumped up from the river. Numerous wide roads have been made all through the garden, so that carriages may now be driven through every part of it. This is an improvement which is much appreciated, as the old restriction to driving acted to a great extent as a deterrent to visitors. Numerous foot-paths have also been made. The Bamboo and mat erections, which used to do duty as conservatories, have been replaced by three large, handsome, and efficient structures of iron, on which a thin thatch of grass is spread, and under shelter of which tropical plants thrive admirably (see *Gardeners' Chronicle*, p. 281, vol. xix.). The valuable collection of dried plants has been suitably housed in a handsome building designed by Mr. E. J. Martin, the Government architect, the interoal arrangements of which are to a considerable extent adapted from those of the new herbarium building at Kew. New propagating houses, tool and potting-sheds have been erected, and good dwelling-houses have been built for the members of the garden establishment, both European and native. A boundary wall and ditch have been partly built round the garden; and finally, attempts at landscape effects have been made in the gardens, and the collections have been increased by considerable accessions of plants, both indigenous and exotic.

Considerable attention was given to the cultivation of various economic plants. The Ceara rubber-tree, which thrives well, and has a quick growth, was propagated to a considerable extent, and the Zanzibar rubber plant (Landolphia) has, it is said, found a congenial home in Lower Bengal. There has also been a steady demand for Mahogany seedlings. Dr. King has been trying to obtain from Europe in large quantity the seed of the paper Mulberry (Broussonetia papyrifera), which grows wonderfully well, with the view of spreading its cultivation in India. He has also arranged for a supply from Japan of the food-plant known as the "Soy Bean," for experimental cultivation in this country, although he entertains serious doubts as to the success of the trial. A few plants of Cinnamon, which yields the Cassia bark of commerce, were received from Hong Kong, but they do not promise to thrive well.

The subject of the utilisation of various fibrous plants engaged much of the Superintendent's attention in the past year. A French mechanic was, with the consent of the Superintendent, sent out by Mons. A. Berthet, of Rouen, to erect in the garden his patent machine for cleaning Rheea and other fibres. It was driven by the garden-engine and tried on various fibre-yielding plants. It cleaned the Rheea and Agave fibres admirably, though it was not equally successful with Plantain and other fibres. The machine is, in Dr. King's words, "beautifully simple," and he has little doubt that, if the inventor were to give his mind to the subject, he would have no difficulty in contriving simple and cheap machines adapted to any native fibre suitable as a raw material for paper, cloth, or rope. Should such a machine be successfully constructed, it cannot fail to prove of the utmost value in a country which, like Bengal, abounds with fibrous plants.

The new building for the herbarium, which was completed during the year under report, is well adapted in every way for its purpose.

The Lloyd Botanical Garden, Darjeeling, continued to suffer severely from the depredations of cockchafer grubs. "This grub," Dr. King writes, "feeds on the fine rootlets by which plants absorb their nourishment from the soil, and only such plants escape as send their rootlets deeper into the soil than it cares to penetrate. The whole of the grass in the garden and all herbaceous plants succumbed rapidly to its ravages, as did many of the flowering shrubs, only the deeper rooting shrubs and trees being spared. Even the plants in the conservatories did not altogether escape, eggs of the insect having got in considerable numbers into the soil of the pots. This grub is not new to the district. It is often found in soil near the sites of old grazing stations in the forest, and it not unfrequently does damage to native crops in the neighbourhood of these. The cockchafer, of which it is the grub, appears thus to affect manure." By vigorous efforts Mr. Jaffrey, the Curator of the garden, succeeded in collecting and destroying some six millions of the grubs, and the plague has since shown signs of disappearing.

Saharunpur Botanic Garden.—Experimental sowings have been made with seventeen varieties of Potatos, among which was the Scotch Champion. The chief result appears to have been that by far the largest yield, 6 tons to the acre, was obtained from an inferior variety of tuber which was procured in the Saharanpur bazaar. The experiments made at Saharanpur confirm the results obtained on a much larger scale at the Cawnpore farm, and are chiefly valuable in showing that American cottons will thrive equally well in the different climate and soil of the former district. The coarse variety which was imported last year from the Garo Hills has not proved a success.

Messrs. Hennessey & Brown have been continuing their experiments with a machine for extracting the fibre of Rheea. It is satisfactory to find that the quality of the acclimatised vegetable seeds that are supplied from Saharanpur is improving, and that their cost is less than one-seventh of that of English seeds.

Among food plants it may be hoped that the Soy Bean may become a success. The existence of an inferior native congener in the lower ranges of the Himalayas encourages the expectation that the superior variety may be found to thrive in the same neighbourhood. It is one of the most highly nitrogenous forms of food known, and should prove a valuable addition to the food supply of the country.

Perhaps the most important class of recent introductions to the gardens are the various kinds of plant that are specially adapted for growing on salt or sandy soils; of these, the Atriplex nummularia has been distributed to Mr. Wilson, at Awa, and Mr. Impey, at Cawnpore, and in both places has been found to thrive admirably on soil of the worst kind. A large quantity of seed has been sent for from Australia, and it may be the means of covering the now nearly useless stretches of "usar" in the Doab and elsewhere, with a vegetation that will be of some use as a fodder for cattle, and of still more value in checking erosion, and gradually depositing a layer of humus over the barren salt. Besides this, the sand bush of South Africa, which flourishes in deserts, and can survive a prolonged drought, may be found of use for the same purposes.

Some very excellent cocoons reared at Saharanpur, and recently exhibited at Mussoorie show, if proof were necessary, the possibility of raising silk in the sub-Himalayan districts of these provinces. The chief obstacle at present is the want of fodder, and the gardens can hardly serve a more useful end than by the raising and distribution of large numbers of Mulberry trees, such as Morus multicaulis or M. indica. *From the Annual Report, ending March*, 1883.

Orchid Notes and Gleanings.

Work in the Houses.—The season up to the present time has been very favourable for ripening up the growths of Orchids, and also for bringing out the spikes and flowers of the autumn and early winter blooming kinds finer than usual. As fast as these go out of flower the plants should be thoroughly cleansed from all dirt and insects that may have got on them while their spikes were developing, and during the flowering period. Where white scale has got a footing on such plants as Cymbidium Mastersii, no better time will occur for giving them a thorough check than now, when the plants are passing out of flower, and before any young growth commences. Cymbidium Lowianum and C. eburneum may also now be safely treated to stronger doses of insecticides than at any other period of their growth. The first-named plant will soon be developing its spikes of flowers, and where these may have started, care must be taken not to damage them. All strong bulbed plants, such as Chysis, Epidendrum bicornutum, Schomburgkias and Cattleyas that have completed their growths, and which are infested with this scale, should all be gone over at this season, when the work is not so pressing as in the spring and summer months.

The autumn blooming Odontoglossum grande should be kept on the dry side at the roots after they pass out of flower, otherwise they will start to grow before the days begin to lengthen. All the species of this genus that require wintering in the Cattleya-house, such as O. citrosmum, O. hastilabium, and O. vexillarium, will not need to be kept so damp at the root during the dull days as the cool-house species. The only exception to this rule is O. Phalænopsis, which should now occupy a position close to the glass in the Cattleya-house, and be kept constantly damp. There are different degrees of dampness necessary to the health of all those mentioned above, but a little practice is necessary to thoroughly understand their treatment. The Cœlogynes will now be pushing out their flower-spikes, and a few of the earliest may be selected and put into a little higher temperature to bring them forward, and so extend the flowering season of this useful plant. Keep them regularly moist at the root, but be careful not to fill the young growths with water at this season of the year, as it often leads to the decaying of the incipient spike. It will be necessary to keep a close watch on the Dendrobiums at rest, as some of them, such as D. Wardianum, do not need a very long season of rest to induce them to flower, and as this species is also one of the easiest to excite into growth, any plants that may be found on the move had better allowed to remain long with the general collection be placed under warmer treatment at once, for if there would be a danger of losing the young breaks, which would weaken the plants considerably, as they would have to break back from the old bulbs. Imported plants of any species, just starting into growth at this time of year will need extra care in watering, and in the regulation of the moisture around them. *J. Roberts, Gunnersbury.*

Mr. Cypher's Collection. — At Mr. James Cypher's Queen's Road Nursery, Cheltenham, in bloom in the Orchid-houses, are some good plants of Dendrobium bigibbum superbum, D. Goldieanum, D. Dearei, D. formosum giganteum (with eight flowers in a truss), Cymbidium affine (allied to C. Mastersii), C. giganteum, Odontoglossum Alexandræ (some very pretty forms), O. bastilabium, O. maculatum superbum, and some fine forms of Oncidium varicosum Rogersii (grown cold), and highly coloured Calanthe Veitchii.

The Flower Garden.

Transplanting.—The most important work to be performed in this department at the present time is the planting of all kinds of deciduous trees and shrubs, and as the weather is now particularly favourable for transplanting, this work should be urged on with all possible speed, so as to accomplish it while the weather is mild, and so as to enable the trees to re-establish themselves before being checked by severe frosts. Where large trees are intended to be transplanted, it is always advantageous, and in respect to those kinds of trees difficult to remove, it is essentially necessary that they should have been properly prepared for the operation during the previous autumn. This preparation consists in digging a trench round the tree at such a distance from the stem as will leave intact a sufficient number of active roots to support the tree after its removal, until it becomes established in its new position. This is a somewhat difficult point to decide, so much depending upon the kind of tree, its condition in respect to health, and the nature of the soil in which it is growing. Experience and practice are the best teachers, but, as a rule, it may be safely said, that the greater the number of fibrous roots the lesser the ball of earth required to be removed. In addition to this trench, the tree should be partially or wholly undermined, so as to sever every tap-root growing in a perpendicular position. The trench may then be filled in again, and if some well decayed leaf-mould or thoroughly rotten manure be mixed with the soil, roots will be more freely emitted, and the success of the operation thereby rendered more certain. That which is of equal importance to the preparation of the tree is the preparation of the hole or site in which the tree is to be eventually placed. Not only should a hole of sufficient depth and diameter be dug out, but if the subsoil is not naturally porous or the position such as will allow the water to drain freely away from the roots, drains must be laid for the purpose, and over the drains a depth of 6 or 8 inches of rubble or rough stones must be placed, so as to most effectually prevent any stagnant water remaining about the roots. Unless these precautions be taken in the operation of planting large trees, especially where the soil is heavy and tenacious of moisture, it becomes so puddled and retentive of water that the future well doing of the tree is thereby rendered almost impossible; and as frequent deluges of water are often given to newly planted trees this evil is often a fruitful source of mischief. Over the rubble a course of fine gravel may be placed, so as to prevent the soil interfering with the drainage. A quantity of turf or fresh loam or other suitable compost should be added to the old soil. With such a preparation, made one or two years in advance, almost any kind or any sized tree may be moved with perfect safety, provided the mechanical appliance for lifting and transplanting it be convenient and efficient. It is always advisable when planting either trees or shrubs to have close at hand a quantity of fine soil to fill in the spaces between the roots; this should be thoroughly washed down, so as to render the operation more complete. Great care should also be taken to prevent the roots and stem from being buried too deeply, by allowing the soil to settle sufficiently beforehand, and by treading it sufficiently firm to prevent sinkage after planting, also by planting on a slight mound above the general level, and by keeping the stem well out of the ground. Before filling in the soil the roots should be spread out as straight and even as possible, and suitable stakes and ties should be immediately provided, so as to prevent injury from wind. In addition to these precautions, a good mulching of well decayed manure or leaf-mould should be spread over the surface, a little beyond the limit of the roots, and if dry weather prevail an occasional soaking with water should be given. When situated on the lawn, near the mansion it is sometimes necessary for appearance sake to dispense with mulching, and lay down turf, but it is well if possible to defer this till at least such time as the tree becomes established. Should very hot weather occur during the following summer, it will be found very beneficial if the tree can be partially or wholly shaded from the direct rays of the sun for a short period, and an occasional syringing overhead in the evening will be advantageous. *T. S. C.*

The Hardy Fruit Garden.

Take advantage of the fine weather to get on with the pruning and training of such fruit trees as have lost their foliage. At present these are Plums, Pears, Cherries, and Currants. In the case of the first three, if summer pruning has been attended to as advised, there will only be left the thinning-out of spurs where overcrowded, and the shortening back of those which project too far from the wall. Young growths should be trained to replace any branches bare of spurs. Extension shoots should be laid-in where required, cutting away the unripe extremities and shortening the others back to secure an evenly balanced tree, and to produce fruit-bearing spurs, and other branches for the formation of the tree. Morello Cherries produce their fruits in a manner similar to Peach trees, on the young growths of the previous season, therefore the pruning will consist in cutting away portions of the old bearing wood to be replaced with the young growth laid in during the summer, also having in view the keeping of the tree well supplied with young wood all over. Avoid overcrowding, the fruit will be much finer, and the wood more perfectly matured if laid in thinly. Trees that cover the whole surface allotted to them should have the extreme shoots cut away to those next below them. Where the trees were infested with aphis all the old nail-holes and crevices in the walls should be stopped, and all old shreds removed. Both the trees and walls should then be dressed with an insecticide either of tobacco-water or petroleum diluted with water. Trees with scale on them should have as much scraped off as possible, and then be dressed with sperm or rock oil; parts affected with American blight should also receive a similar application. Remove the fallen foliage from the base of the trees, and in the case of unhealthy trees, or of those in full bearing and requiring a stimulus, remove the surface-soil down to the roots, and renew with new loam mixed with wood ashes, charred refuse, and crushed bones. Remove with the hand at intervals of a few days the foliage that readily separates from Apricots and Peaches. Unnail the latter when divested of foliage, and tie the branches together to retard the buds as much as possible. Make the branches secure from being broken about by the wind. Fig trees should be unnailed, and have the branches tied together in readiness to be protected with mats, straw, Bracken, or Fir branches.

The wet weather has delayed planting on heavy soils to a great extent; if the operation cannot be performed this month it will be better to defer it till spring, but all trenching, draining, &c., for new plantations should be forwarded as much as possible. Root-pruning and lifting of large trees to produce fruitfulness should now be completed. Trenches should be dug around large trees intended to be removed another year at a distance of from 2 to 3 feet according to the size of the tree, and in filling up the trench introduce some well decayed manure and new soil to encourage the production of new and fibrous roots. Secure Raspberry canes to their supports, and give a heavy dressing of manure as a mulching; but leave the shortening of the tops of the shoots till later in the season. The quarters of red and white Currants may be pruned any time now, when the surface of the soil should be forked over slightly, and then be dressed with manure as a mulching, previously scattering lime over the surface of the soil, or, better still, mixing it with the manure, which will, to a great extent, destroy slugs, &c. Wood ashes and soot are capital manures for top-dressing fruit trees, and are better applied if incorporated with the mulching. Take cuttings of Currants, selecting strong shoots about 14 inches long, removing the eyes from the base to within 3 inches of the top. Plant in rows 1 foot apart and 6 inches in the row, inserting them about 6 inches in the soil. In wet weather prepare shreds of various widths and lengths, keeping them separate. *D. C. Powell, Powderham Castle, Devon.*

Grapes and Vineries.

The earliest house must now be closed, if not already done, and be started gently. If fermenting materials be used on the inside border enough heat will generally be furnished by that means for the first few weeks, but if not use fire-heat to keep the night temperature at 50°, with a rise of 10° by day. Do not give air if the temperature does not exceed 70° in the daytime, and syringe the Vines overhead with tepid water whenever the rods are dry. Turn over the fermenting materials every morning to liberate the ammonia, and add fresh as the heat declines. Water the border thoroughly with tepid water at 85°, and cover the outside border with fermenting material, and let it be well mixed together, so that the heat will not be too violent—say about 85°—then cover with shutters, and add fresh materials as the heat declines. The Vines in succession houses must be pruned as soon as the fruit is cut, so that they can have as long a rest as possible. The front and back ventilators must be left open night and day, only closing them when the frost is severe. After pruning dress the Vines with styptic, to prevent bleeding, and thoroughly wash all the glass and woodwork, and if the Vines are infested with mealy-bug wash and dress them as recommended in previous Calendars. After the Vines have been pruned, if the borders are dry, water them with clear cold water. Late Hamburghs that are still hanging on the Vines must be kept cool, and the atmosphere dry, giving air freely on the front and back ventilators in the middle of the day when the weather is bright, and reducing it early in the afternoon; but on dull days very little air will be required. Look over the bunches every few days for decayed berries. Muscats can now be kept at a night temperature of 45° to 50°, with a rise of 10° on bright days, with air on the back ventilators on all favourable occasions, but not much front air will be required, and that only for a few hours on the brightest days. Only use sufficient water at the roots to keep the berries plump and in good condition. Late varieties of Grapes can now be kept at a night temperature of 45°, with a rise on bright days. Give air on the front and back ventilators whenever the atmosphere is light and dry, but on dull or foggy days give very little air on the back ventilators, and a little fire-heat to dispel the damp. Look over the bunches for decayed berries every few days, and go over the house every week with a hair-brush to dislodge the spiders, or they will make their webs and disfigure the bunches. The present is a good time to start the first batch of pot Vines, placing them in a temperature of 50° at night, with a rise of 10° by day. If fermenting material is used to plunge them in see that the bottom-heat does not exceed 80° to 85°; and it is a good plan to stand them on large inverted flower-pots and place the heating material round them, and then they will not require to be disturbed when fresh material is added. Water them thoroughly with tepid water at 85°, and tie them in a horizontal position until they break, and syringe them whenever they are dry with tepid water, and keep a healthy growing atmosphere. *Joshua Atkins.*

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Nov. 19	Chrysanthemum and Fruit Show at Winchester (two days). Sales of Dutch Bulbs, at Stevens' and Protheroe & Morris' Rooms.
Tuesday,	Nov. 20	Chrysanthemum Show in Town Hall, Manchester. Chrysanthemum Show at Chesterfield (two days). Sale of Home-grown Lilies, at Stevens' Rooms. Sale of Imported Orchids, at Protheroe & Morris' Rooms. Sale of Camellias, Roses, Bulbs, &c., at the City Auction Rooms, Gracechurch Street.
Wednesday,	Nov. 21	Ealing Chrysanthemum Show. Birmingham Chrysanthemum Show (two days). Chrysanthemum Show at Clifton, Bristol (two days). Sales of Hardy Plants and Bulbs, at Stevens' and Protheroe & Morris' Rooms.
Thursday,	Nov. 22	Chrysanthemum Shows at Reading and Shrewsbury. Sale of Imported Orchids, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
Friday,	Nov. 23	Sale of Imported and Flowering Orchids, at Protheroe & Morris' Rooms.
Saturday,	Nov 24	Sale of Hardy Plants and Bulbs, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.

THE Institute of Agriculture has done good service by drawing attention, in a very practical manner, to the DISEASES AND INJURIES OF PLANTS caused by insects and by fungi respectively. Courses of lectures on these matters are in course of delivery by Miss ELEANOR ORMEROD and Mr. W. G. SMITH respectively, and though primarily addressed to an agricultural audience, they are necessarily to a large extent interesting to gardeners. Mr. SMITH'S lectures are intended to deal mainly with those diseases which result from the attacks of parasitic fungi. The life-history of some of these is very complex and intricate, and in very many cases only imperfectly known. Nevertheless, if any real progress is to be made towards the palliation of the evils inflicted by these plants, a knowledge of the course of life of the fungus, and of the effects it produces, is an essential preliminary; without such knowledge all is haphazard and unsatisfactory. A knowledge of the structure and vital phenomena of field and garden plants therefore forms, as Mr. SMITH well remarks, a sure stepping stone to vegetable pathology. It must be confessed, however, that just as surgery is often more precise and certain than the sister art of medicine, so it happens that much more is known of vegetable anatomy than of the nature of disease, and of the best means for its prevention or palliation. The nature of some plant diseases is pretty well known, but as regards treatment we are frequently entirely ignorant. The reason for this defect in our knowledge, Mr. SMITH asserts, is to be found in the circumstance that we have no special teachers of vegetable pathology, and that the few men who have made the subject more or less of a speciality have not the time or the opportunity to make extensive experiments and researches. Field crops under disease—and the same may be said of garden crops—are rarely or never examined by competent observers during growth. Specimens are, indeed, laid before botanists and entomologists, but often without any information as to the circumstances of the case. Indeed, the presence of the disease is too frequently entirely unnoticed till it has assumed such proportions that all possibility of tracing its progress from the beginning is lost.

Of late years great progress has been made in preventive medicine. The doctors, physiologists, and the much but thoughtlessly abused vivisectors, have effected much towards the acquisition of an exact knowledge of the diseases peculiar to animals, and of the circumstances favourable to the spread or to the extinction of disease. The average duration of human life has been considerably lengthened by their investigations, and it is fair to assume that when we have a correspondingly exact knowledge of the nature and course of plant diseases, and the conditions favourable to their diffusion or otherwise, we may become better enabled than we now are to cope with these diseases by rendering surrounding circumstances unfavourable to their extension. In the majority of cases it is futile to expect a cure—that must be left for quacks of all descriptions; but prevention is another matter. Just as people have been stirred up by the doctors and made to understand something of the conditions of health, so farmers and gardeners need to be informed as to the conditions which must be afforded if plants are to be kept free from disease. As every householder, adds Mr. SMITH, although he may be ignorant of the life history of Bacteria, at length has come to recognise that open drains may be fatal to health and life, so every cultivator must be brought to realise that imperfectly drained fields and rotting vegetable refuse mean disease and destruction of crop. No sane person would willingly remain in a place tainted with the contagion of dead and diseased animals, but he is apt to overlook the fact that it is equally unsafe to place sound plants, tubers, &c., among dead or diseased vegetable refuse. In one case, as in the other, certain individuals may perchance escape, but the general result is that the healthy organisms are at length destroyed by the dead and decayed ones.

Mr. SMITH'S lectures are illustrated by enlarged illustrations specially prepared for the purpose, and drawn to a uniform scale direct from Nature, so that they are no mere copies from other peoples' books, but the result of actual personal investigation. Mr. SMITH will indicate in what points his observations coincide with those of others, and wherein they differ. We hope to be able to give an abstract of such subjects in Mr. SMITH'S lectures as have not already been treated of in these pages. One thing we expect will come out clearly, and that is the absolute necessity for fostering original research. Competent observers and experimenters must live, like other people, and under proper regulation their services would be so valuable to the community that the "Endowment of Research" should form a charge as necessary to be provided for as the butcher's bill.

—— EUPHORBIA CANARIENSIS.—It is difficult at first sight to realise that the plant here represented (fig. 112) can be a near ally of the common Spurges of our fields and woods. Nevertheless, an examination of the flowers would at once show the real affinity of the plants. It affords an excellent illustration of the fact, well known to botanists, that what gardeners call habit, or general appearance, is very often extremely misleading. Most persons would probably consider this to be a Cactus of some sort—an illusion which would of course be instantly dispelled were the flowers visible. In doubtful cases a prick of a pin is sufficient to show the difference, for if it be a Euphorbia a milky juice at once exudes from the puncture, while if it be a Cactus the fluid is transparent. Those more concerned with picturesque effect than with botanical affinity will see much to admire in the quaint aspect of the plant, well shown in our illustration. When growing in its native locality the tall, stiff candelabra-like trees shoot up from amid the bare rocks of Teneriffe, fringing the edges of the precipices, and adding to the weird appearance of the scene. The effect produced may be, in considerable measure, judged of by a visit to the Succulent-house at Kew, one end of which is occupied with fine specimens of the present plant, and several of its near neighbours. The contrast it affords with arborescent vegetation and with the stiff, bold foliage of the Zamias is shown in our illustration, prepared from the photograph of a plant growing in the Botanic Garden of Cape Town, and for which we are indebted to the Director, Mr. McOWAN.

—— DENNY MEMORIAL. — We are requested to ask those who have not yet paid their promised subscriptions to this memorial, alluded to at p. 534, to do so without delay. The Treasurer is W. B. KELLOCK, Esq., Stamford Hill, N.

—— THE POTATO DISEASE. — Mr. GEORGE MURRAY, of the natural history department of the British Museum, is announced to deliver a lecture on the Potato Disease at the Parkes Museum of Hygiene, Margaret Street, Regent Street, on the 22d inst. at 8 P.M.

—— NICE INTERNATIONAL EXHIBITION.—We are informed that the date at which proposed entries in the horticultural section must be made has been extended to November 20. The Secretary is M. FELIX MARTIN, Nice, to whom all communications should be addressed.

—— COMPLETION OF THE "REFUGIUM BOTANICUM."—It will be remembered that this work was left in an unfinished state on the death of the late Mr. WILSON SAUNDERS. Three parts are now before us, which complete the five volumes. Two parts are entirely occupied with Orchids, including plates 97 to 144 inclusive, for which the text has been prepared by Professor REICHENBACH. The third part contains plates 337 to 360, devoted to a miscellaneous assemblage of plants described by Mr. BAKER, with cultural remarks by Mr. SAUNDERS. In order to make the record complete we shall enumerate the several plants in our list of Plant Portraits.

—— THE GENUS MACROZAMIA.—Mr. CHARLES MOORE, the Director of the Sydney Botanic Garden, kindly sends us some notes on the species of this genus, collected by himself in New South Wales. Several of the species have been illustrated in these columns at various times, so that Mr. MOORE'S remarks will be of special interest, and we hope to recur to them on some future occasion.

—— SALES OF NURSERY STOCK.—It may be accepted as a truism that whilst the numerous plant sales now advertised show the time of year, the season also necessitates the sales. We are having a time singularly favourable to planting, and in that respect alone there should be a good time for the vendors who find in auctions profitable methods of clearing off a large quantity of good saleable stock. Auction facilities and the exigencies of trade seem to have made these annual sales both popular and essential methods of disposal, the suspicion that once attached to them, and, perchance, also their assumed unfortunate pecuniary associations, no longer exist, and trade firms of the highest status and respectability now invoke the aid of the auctioneer without hesitancy or discredit. That these sales are so popular shows that, as a rule, they answer, but to be so successful it is evident that whilst the vendor is satisfied, the public, who are in the end the chief consumers of plants of all kinds, find them also to be of service. We may well wonder what becomes of the millions of plants, trees, and shrubs raised annually in this country, and even marvel that such vast quantities should find purchasers. Still they do, and in such pleasant result we see good evidences of the expansion of horticultural life and taste in the community. Just as now nurserymen and florists find good business through sales, so do we see in the large number of purchasers proof that the nation is not becoming poorer, for of all pleasures or luxuries incidental to wealth gardening is the first to suffer should trade depression come. Horticulture may be said to be an excellent trade barometer, it quickly indicates what are its fluctuations, but the present time at least is both peaceful and profitable, and whilst such is the case horticulture will grow and prosper also.

—— CUTTINGS OF ZONAL PELARGONIUMS.—Cuttings of these made from well ripened hard wood and allowed to remain out of the soil for two or three days before placing them in it, if put into well drained pots of a light sandy soil, used fairly moist, and pressed firmly about the cuttings, will make good plants by next spring. This practice may be commended to those who have little convenience in the way of glass structures, and it has been found that such cuttings root during the winter, or if they do not put forth roots they become "callused," and root freely in early spring. Cuttings put in much earlier make a soft, sappy growth, that is very liable to rot during winter in a cool-house. On a warm shelf, and covered with newspapers in severe weather, cuttings of zonal Pelargoniums may be preserved with much safety, and with comparatively little trouble.

—— PREMATURE FLOWERING.—Adverting again to this subject, of which we gave an explanation in a former issue, a correspondent kindly sends us a bunch of Lilac and Laburnum blossoms, gathered last week in the Clifton Gardens,

Fig. 112.—Euphorbia canariensis in the Botanic Garden, Cape Town. (see p. 628.)

Folkestone, within a gunshot of the sea, on the high cliff. Hundreds of trusses of flowers of each were there to be seen, many open, and many more to come out soon should the weather keep mild. Mignonette, Heliotrope, Pelargoniums, Violets, Lobelia, &c., are also in full bloom.

—— Gardeners' Societies. — The letter of "R. D." at p. 600 of our last issue, has brought us a communication from Mr. W. Swan, of Oakley, Fallowfield, the Honorary Secretary of a "Horticultural Mutual Improvement Society," which was established about a month ago, under the auspices of the Royal Botanical and Horticultural Society of Manchester, and of which Mr. Bruce Findlay is the President, and Mr. R. Tait, Treasurer. The meetings of the society are arranged to be held once a fortnight during the months of November, December, January, and February; and the minimum charge for membership is 2*s.* 6*d.* per annum. The first meeting was held on the 8th inst., in one of the rooms of the old Town Hall, King Street, when there was a large attendance of members, the subject of the lecture being "Poisonous and Medicinal Plants," and the lecturer Mr. Leo Grindon, who said that botanists had ascertained through the medium of living specimens in the country, and more particularly through

the medium of dry specimens brought from foreign countries, that there are no fewer than about 100,000 different flower-bearing plants. At a liberal estimate the number of plants which could be said to be of direct service to mankind would not amount to more than 10,000. There would be 500 different kinds of fruit trees, then all sorts of vegetables, trees supplying timber, and plants which give material for the manufacture of clothing—cotton, hemp, flax, and so on. The greater portion of the remainder of the plants were ornamental, but to his mind every bit as useful as the economic ones. As nearly as he could estimate there might be some 5000 plants which were more or less poisonous and hurtful, some of them very much and others only moderately so. The most important fact of all was that a large proportion of the deadly plants with which we are acquainted are admirable medicines in the hands of a clever physician who knows how to administer them in proper quantities and at proper times. We may, therefore, look upon poisonous plants and accept them as the good gifts of Providence, intended to be applied to certain purposes. Mr. BRUCE FINDLAY will read a paper on "A plant, what is it?" at next Thursday's meeting.

—— THE "COVENT GARDEN" LIFEBOAT.—On the 3d of the present month the new "Covent Garden" lifeboat was launched with great success in presence of the Mayor of Yarmouth and a large company of friends and supporters of the Lifeboat Institution, including Mr. T. A. DICKSON, Mr. H. R. BUCK, Mr. S. J. PALLANT, Mr. C. DENTON, and Mr. J. WEBBER, members of the Covent Garden committee, of which Mr. WEBBER was the Honorary Secretary, and who, in the name of the committee, handed over the new lifeboat into the keeping of the Yarmouth and Caister Branch of the National Lifeboat Institution, with the remark that he was sure the boat would be safe in their keeping, and would be launched whenever a signal of distress was observed. The Mayor, on behalf of the lifeboat committee, thanked the Covent Garden committee for their munificence. He assured them that the new boat would be perfectly safe in the hands of the Caister beachmen, than whom a braver set of men did not exist on the coast.

—— FUNGI ON FOREIGN GRAPE VINES IN AMERICA.—The following very interesting communication has been received from Dr. TAYLOR of the Department of Agriculture, Washington, dated October 28:—"This summer, and at this moment, 100 foreign Grape Vines of 100 varieties are, so to say, covered with the perithecia of an erysiphoid fungus of which I enclose specimens. I am fully aware that many of the American varieties and some of the species have the form Uncinula on them, but I am not aware that any one has ever found any form, subgenus, or species of this character on the foreign Grape Vines. You are, I suppose, aware that in North America the foreign Grape Vine is grown wholly under glass structures. The Oidium Tuckeri is quite common on the foreign Vine. Within twelve years our foreign Vines were affected alike. I have watched each year since 1871 but no perithecia were seen." On examination of the specimens we find the Uncinula, as far as we can see, to be identical with U. spiralis, BERK. and CURTIS, having the same long appendage, the tips of which are distinctly spiral tips and not merely hooked. This species was sent to us by Mr. CURTIS on leaves of Vitis Labrusca. As far as we are aware, like Dr. TAYLOR, no perithecium has ever been developed on European Vine, on which the Oidium is so common and destructive. Pycnidia have been found by AMICI, but no perithecia. It is, therefore, certainly curious that perithecia should have developed in America under glass, and still more so that it should be a specimen which occurs on the well known Vitis Labrusca. As that Uncinula is not known in Europe we cannot suppose that it arises from the historical Oidium Tuckeri. With the Vine leaves there was a leaf of some American Vitis thickly clothed with Capnodium elongatum, BERK. and DESM. It should be mentioned that I found on the same leaf with the Uncinula a single perithecium, in an imperfect state, of some Phyllactinia. *M. J. B.*

—— DIMORPHANTHUS MANDSHURICUS.—Year by year, in the pleasure-grounds at Kew, or elsewhere in the shrubberies, this noble-looking plant throws out its immense panicles of flowers, which seen against the broad handsomely bipinnate leaves in the fading autumn months is more suggestive of the robust and vigorous growth of summer. Although individually small, these flowers in the aggregate at some little distance resemble the snowy masses of such as Spiræa Lindleyana, or S. ariæfolia. The plant is perfectly hardy and deciduous, but retains its beautiful foliage till late in the season, and whether in flower or not, deserves a prominent place in the shrubbery; and were it not for its naked stems in winter, it would constitute a bold and telling specimen for the lawn. These stems, being straight and unbranched in the young state, present the singular appearance of stakes stuck in the ground. The plant is also known as Aralia chinensis, and together with some others forms a subgenus or section of the large and varied genus Aralia.

—— COPROSMA LUCIDA.—Outside of botanic gardens (with the exception of C. Baueriana and its variegated varieties) the members of this genus seem little if at all known. Several species have been introduced from New Zealand, and are so hardy that C. Baueriana and C. Cunninghamii will live, and even flower, under the protection of a wall. The flowers are small and insignificant, for which the leathery evergreen leaves are some compensation; but their chief value from a horticultural point of view lies in those sorts having variegated foliage, or, as in the present instance, having highly coloured and attractive berries. In the winter garden at Kew a large plant is conspicuous amidst the surrounding greenery by its clusters of small scarlet berries, which seem to weigh down the small twiggy shoots by their abundance. This it seems to do annually with a regularity that would make it worth the general cultivator's attention as a conservatory plant.

—— MR. WILLIAM FALCONER.—The American *Gardeners' Monthly* sympathises with the Cambridge (Mass.) Botanic Garden on its loss of Mr. WILLIAM FALCONER, its Curator, who is reported to have been engaged by Mr. CHARLES A. DANA as his gardener at Glen Cove. Many of our readers will remember Mr. FALCONER as a young man of great promise who was well known to horticulturists in London a few years ago, and whom they will wish all success in his new undertaking.

—— A NEW RACE OF WINTER FLOWERING CARNATIONS.—This remark may be correctly applied to a group of Tree Carnations exhibited by Messrs. HOOPER & CO., Centre Row, Covent Garden, at the meeting of the Floral Committee at South Kensington on the 13th inst. There were some three dozen plants of the following varieties:—Irma, bright purplish rose; Purity, white; Zouave, deep crimson; and Jean Sisley, sulphur, flaked crimson and rose. They are of the dwarf, free-branching type known as A. Allegatière, but in some respects dwarfer, and singularly free of bloom; and it would appear that they can be easily grown in pots, the bulk of the plants shown being from cuttings struck in the spring, and some of them—the larger and taller—being two years older. That such fine bushy, vigorous plants should have been produced in the space of eight or nine months speaks volumes in favour of their free growth; and they were full of bloom, and with numbers of successional buds showing themselves. This race will be found of much value for autumn and winter cultivation, and with them there will be no difficulty in having blooms of Carnations all the year round.

—— THE WEEK.—Now that the Apple Congress is over, and that the special Chrysanthemum shows absorb the interest in those flowers, it might be thought that the last meeting of the Royal Horticultural Society would have been, to say the least, flat. Nothing, indeed, can be imagined more dreary than the empty halls so recently devoted to the "Fisheries"—the broken lamps, the banks and lawns denuded of all turf, the indescribable medley of refuse packages. But this was to have been expected. What was not expected, perhaps, was the interesting display in the conservatory, although indeed long experience of the Tuesday meetings ought to have told us that these meetings never lack some interest.—We do not know if the single Chrysanthemums shown by Mr. CANNELL foreshadow, as he seems to think they will do, "a new departure"—a reversion to the old order, we should have thought; in any case, there is no doubt whatever that the luminousness and brilliancy of the flower is enhanced by allowing the yellow disc to be seen. Of course florists will not agree to this, nor will they or ought they to assent to the ragged, unsymmetrical ray florets; but if Messrs. CANNELL's forecast be true, improvements in these particulars will soon be forthcoming.—The new plants exhibited by Messrs. VEITCH & BULL were, as they always are, of interest to the few. It may be five or ten years before the great British public can be brought to see their charms. The great British public is a very incomprehensible body, and it is clearly not always an advantage to be beforehand with it. "New Plants," described by our forefathers or by ourselves years ago and forgotten, come before the present generation; a *furore* is made, and the services of those who have gone before are ignored, and their results appropriated by novices and brought out as new.—Hybrid Sarracenias are interesting no doubt, as all such productions are, but from a purely decorative point of view it is doubtful whether some of the crosses are any improvement on the originals. Still they are, or may be, the starting points of some new forms, and should be encouraged accordingly. It is another mysterious circumstance that the flowers of these plants should attract so little attention, and yet they are to the full as extraordinary and even more attractive than the pitchers. Some day they will come to the front as something quite new.—With regard to the Potato disease, it was pointed out at the Scientific Committee that the tubes emitted from the bud-spores (conidia) could not, or at least had never been seen to penetrate the thick, corky layer, by which the surface of the tuber is invested. What, then, becomes of M. JENSEN's theory? Again, as to the alleged "sclerotia," to which attention was called by Mr. A. S. WILSON, it now appears that these bodies are only masses of oxalate of lime, and so falls another theory. It is a subject for inquiry, however, whether the calcic oxalate may not in some way or another be connected with the fungus, for it is well known that crystals of this substance occur in some fungi.—The rediscovery of Narcissus viridiflorus by Mr. MAW is also a matter of considerable interest, and is alluded to elsewhere.—The Grapes shown by Mr. Allan were wonderful for size, but we do not think many would grow Colmar for flavour if they could get anything else.—Chrysanthemum shows are the order of the day, and they afford something to look at for the florist pure and simple, as well as for the lover of fancy flowers and morphological curiosities. The diverse utility of the Chrysanthemum, from July to January, is one of the special points in its favour.—At the dinner of one of the City companies, not unconnected with horticulture, the guests were insulted by being presented with calico Roses for their buttonholes. We have every wish to encourage honest industry, but when it comes to wearing calico Roses when fresh flowers may be had, it is time for the horticulturists to protest. Better nothing at all than such abominations.—The lectures on Plant Diseases are alluded to elsewhere as a step in the right direction.—Mr. FINDLAY may well think the successful Apple show, held under his management at Manchester, is a similar step in advance; and lastly, we are glad to chronicle the fact that the International Forestry Exhibition, in Edinburgh, is likely to be a great success.—The question whether this country ought or ought not to become a party to the Phylloxera Convention is well worthy of careful consideration by our nurserymen. In the meantime we do not deserve the castigation administered by the *Gardeners' Monthly*, who assumes that this country has entered the Convention. The *Gardeners' Monthly* ought to know that no one has been more outspoken as to the folly and futility of the Phylloxera laws than ourselves.

—— THE PARAGUAY FLORA.—M. MARC MICHELI has recently issued a monograph of the Leguminosæ of Paraguay, mainly founded on the collections of M. BALANSA. Twenty-four quarto lithographs illustrate the text.

—— PRESENTATION TO MR. JAMES BEVERIDGE.—The Langside Horticultural Association, together with a number of friends, entertained Mr. BEVERIDGE, who has acted as their President during the last year, to a complimentary supper on the evening of the 9th inst., in the Langside Academy, near Glasgow, on the occasion of his leaving the district to take charge of the gardens of ARCH.

Coates, Esq., Woodside, Paisley. After supper, to which over fifty gentlemen sat down, Mr. James Thomson, grandson of the poet Burns, in a most eulogistic speech, presented Mr. Beveridge with a purse of gold and an address on vellum, signed in the name of the numerous subscribers by Robert Todd, Chairman; W. Clark, Secretary (two of the originators of the Association, twelve years ago); and P. Sinclair, Treasurer. After a suitable reply, Mr. W. Hume, Union Bank, Glasgow, in a humorous and delightful manner, presented for Mrs. Beveridge's acceptance, a handsome album as a mark of esteem. Bailie Campbell, Helensburgh, in replying for the strangers, heartily thanked those present, as well as a number prevented by illness or otherwise from being present, for their good wishes. At the same time he impressed on the young men then present how almost invariably success was attained by the man who best learned "how to wait," and also how desirable it was that associations such as this, that combined the mutual education principle with the healthy stimulus of competition, should by every means be encouraged.

—— Gardeners' Royal Benevolent Institution.—We understand that at a meeting of the executive committee held on Thursday evening, it was decided to add twelve pensioners to the list, at the election to take place in January, two by right of having been subscribers for over fifteen years, and the remainder by the votes of the subscribers. The committee also decided to add the sum of £350 to the general reserve fund invested in Consols, and are in hopes of being able to add £500 to the Augmentation Fund, when the collection closes on the 30th inst. The sum of £1308 6*s.* 4*d.* has been paid in pensions during the year, showing an increase of £87 13*s.* over the amount paid last year.

—— Mr. Turner's Display of Chrysanthemums at Slough seems to be drawing a great number of visitors to that establishment, over 5000 persons having passed through the show-houses up to Wednesday night.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Nov. 12, issued by the Meteorological Office, London:—The weather has been finer in the northern and north-eastern parts of the kingdom than for some time past, but elsewhere cloudy skies and rather frequent falls of rain have prevailed. In Scotland snow and sleet fell on the 9th and 10th. The temperature has been below the mean in all districts, the deficit ranging from 4° in the east of Scotland, to 1° in the south and south-west of England, and south of Ireland. The maxima were generally recorded on the 6th, and varied from 49° in "Scotland, W.," and "Ireland, N.," to 56° in "Ireland, S.," and 57° in "England, S." The minima, which were registered on the 12th, were rather low in all places, and in the "Midland Counties" the thermometer fell to 22°, in "England, E.," to 23°, in "Scotland, W.," to 24°, and elsewhere to between 25° and 32°. The rainfall has been a little more than the mean in "Scotland, W.," and "England, S.W.," and about equal to it in "Ireland, S.," but less in all other districts. Bright sunshine shows an increase in duration in all places—especially in the north and north-east. The percentages of possible duration varied from 27° in "Ireland, N.," 28° in "England, S.W.," and 29° in the "Midland Counties," to 41° in "England, E.," and 62° in "Scotland, E." Depressions observed:—The barometric pressure has been highest and comparatively steady over the South of France, while in other parts of our area, owing to the passage eastwardly of several subsidiary disturbances across our islands, and some larger depressions farther to the northward, it has oscillated considerably. The wind, excepting at the close of the period, when it was very variable in direction, has been generally between S.W. and W., and light to moderate in force; on the evening of the 10th, however, it veered to the NW., or N., on our northern coasts, and in many places blew strongly.

—— Gardening Appointments.—Mr. John McKinnon, for four years General Foreman at Dalkeith, as Gardener to Mitchell Henry, Esq., M.P., Kylemore Castle, Galway.

A FEAST OF CYCLAMENS.

The most ornate description would fail to do justice to the splendid collection of Cyclamen persicum now in rare condition at Mr. H. B. Smith's new nursery at Hanwell, and of which a selection was exhibited at the meeting of the Floral Committee on Tuesday. His tenure of his old nursery at Ealing Dean having become somewhat uncertain, Mr. Smith has formed a new one at Hanwell, and here he has constructed a series of long, low, span-roofed houses, especially for Cyclamen culture. Nine of these houses, each 70 × 11, running east and west, and with a flat stage on either side, are filled with plants in the best possible condition. They can be counted by the thousand, from plants flowering for the first time, to huge corms, six, eight, and even ten years old. The specimens vary in size, but all agree in splendid development—some in 32's, some in 24's, and some in 48-pots. Seedlings raised from seed, some in August, 1882, are now flowering freely; there have been flowers since the beginning of October, and the floral continuity will be carried on in unbroken succession up to the end of April. Thus for seven months out of the twelve these charming Cyclamens can be had in bloom. The dimensions of, and the number of flowers on some of the plants, blooming for the first time are simply astonishing. Here are plants, not yet fifteen months from seed, not a few of the large flowering varieties in 32-pots, that may be expected, and really do, carry from 100 to 200 flowers each. What finely marked leaves, and how broad and leathery they are. Thousands of beautiful flowers of the grandiflora section could be gathered now? Some of the rich colours are deep and striking, and the flowers grandly formed. There is nothing like forcing applied to these plants; a little fire-heat is put on just to keep them comfortable at night, and by day plenty of air is given at the top of the houses. The season being so open and genial has doubtless greatly helped the development of the plants, at the same time it has been favourable to greenfly, and frequent fumigations have been necessary. Mr. Smith, unlike some raisers, prefers to sow seed in August, pretty well as soon as it is ripe. The seed is sown in shallow pans, and they germinate in a month or six weeks. At this time the seedling plants which have come from the seed sown last August are showing their second leaf, and now they are being pricked off into 48-pots, filled with a light sandy soil, twelve in a pot; here they will remain all the winter, and in spring they will be potted singly in small pots. No break is permitted in the growth of the plants, and their development is therefore gradual but unceasing up to the time they flower. It remains to be stated that the plants are growing in well-drained pots, in a soil composed of good unctuous yellow loam, leaf-mould, well decomposed manure, and sand.

NARCISSUS VIRIDIFLORUS.

The following letter from our excellent correspondent, Mr. G. Maw, will not excite much enthusiasm from those who are attracted by mere beauty of colour. Those, however, who are interested in botanical curiosities will rejoice that this very interesting plant has been rediscovered. It is one of the small community of plants producing green-coloured flowers. The question arises, How does the flower get fertilised? There is nothing showy to attract insects, but the perfume is stated to be agreeable. The very small rudimentary cup is also significant from this point of view. Those fond of speculation may exercise their wits in discussing whether this is a Narcissus in a rudimentary state, or whether it is a degenerate form gradually becoming extinct by reason of the superior advantages which coloured flowers offer to their possessors in the matter of producing a numerous progeny. In any case, it is very like the white-flowered N. elegans. Mr. Burbidge, in his *Monograph of Narcissus*, tells us "that this plant is not now in cultivation, though it was so in the time of Parkinson, who thus speaks of it:—'This strange Rush Daffodil (I call it strange, not onely because it differeth from all others of this kinde, but also because there are few in these parts that have had it, and fewer that do still enjoy it, in that it has perished with all that had it) hath but one leaf, very long, round, and greene, in all that ever I saw growing, which beareth no flower, while that leafe is fresh and to bee seene, but afterward the stalk riseth up, being like unto the former greene leafe, round, naked, and greene up to the toppe, where two or three flowers breake forth out of a small thin skinne, evvery one consisting of six small and narrow greene leaves, very sharpe pointed at the end, and, as it were, ending in a sharpe prick or thorne; in the middle whereof is a small round cup, or rather crowne, of the same colour with the leaves and stalke, which flower smelleth very sweete, somewhat like unto the other Rush Daffodils; this showeth not his flower untill October, and the frosts quickly following after their flowering cause them soone to perish.'" From this statement of Parkinson's we turn to that of Mr. Maw, who thus writes:—

"A long and careful search for this plant on the African coast has been fruitless, and the local botanists of Gibraltar discouraged the hope of its being again found in this neighbourhood, its reputed habitat having been brought under cultivation. To-day I had the pleasure of rediscovering it, but for obvious reasons I forbear to give particulars of the locality. I believe, however, that it is not so uncommon as is generally supposed; the green aspects of the plant closely resembling the other vegetation amongst which it grows renders it most difficult of detection. The figure in Burbidge and Baker's Monograph of the Narcissi fairly represents the plant, but it is incorrect in representing the leaves as contemporaneous with the flowers and fruit. I have collected more than a hundred specimens to-day, and in no one of these (some in flower and some in fruit) are there any leaves present. The Rush-like scape is about 1 foot in height, and in some examples there are several scapes to a bulb. *G. Maw, F.L.S., Gibraltar, Nov. 6.*"

AUTUMN FLOWERS.

Nature is indeed in a beneficent mood this autumn, and appears to be recompensing the children of men for any inconvenience experienced during the somewhat retarded spring, and the uncongenial weather which accompanied the advent of May. How much of flower yet remains to us; and here, during the first week in November, a most charming bouquet could be cut in the open air. Nasturtiums, Dahlias, and the pretty yellow Canary Creeper, in exposed positions, are still flowering freely; it simply needs sun and mild weather to continue them for days to come. It was interesting to note what well developed blooms of Dahlias could be seen on some of the plants—quite what one is accustomed to see at the end of September. On an elevated spot south of Harrow, Salvia coccinea and C. splendens are flowering finely; a bed of Phlox Drummondi was as good as we have seen it at any time during the summer, and the gardener said the plants had furnished better blooms during October than at any time previously. French Marigolds, Tagetes signata, Ageratums, and other plants of a decidedly tender character are singularly gay, despite the storms of rain and cold wind. Of hardy flowers there are many; Roses are yet furnishing blooms, and ordinary bedding plants, such as zonal Pelargoniums, Calceolarias, &c., though showing the effect of cold and wet, are yet busy throwing up flowers. Patches of Sweet Peas are making a marvellous second growth, but it is too cold and damp for them to bloom; could a few clumps of plants be lifted with balls of earth, placed in pots or boxes, and treated to a gentle warmth flowers could, perhaps, be had at a somewhat unusual period of the year. Chrysanthemums are now in all their glory in the open air, but plants that are exposed to the rain and wind have their flowers a little disfigured. Gardeners would do wisely (and especially those having but little glass accommodation) to make a plantation of pompon Chrysanthemums on a south border, protected somewhat from the north; and have a rough framework constructed so that some mats or other covering could be thrown over the plants during rough weather and at night. The value of such a patch for cutting purposes cannot be overestimated: and it will be found that with such a covering as that recommended the head of bloom could be preserved every year for a lengthened period. And in the kitchen garden, late Peas, and especially Ne Plus Ultra, following the lead of the Sweet Peas, have made a second growth, and are flowering, as if quite prepared to furnish another crop of Peas, if only fine genial weather will smile upon the effort. In woods and plantations, by roadsides and on large trees, the leaves are in not a few instances grandly coloured. Tints from flames of fire mingle with those of russet, orange, and gold, gilding the autumn with a glory gathered from the splendid sunsets seen last month. Truly it is an autumn full of flowers and wondrous beauty in decay.

Home Correspondence.

Fuchsias exoniensis and corallina.—I have no wish in writing these remarks to claim that I know more, or as much, respecting these varieties as two such undoubted and good authorities as Messrs. Lynch and Hemsley. Having grown them both when a young man, near about forty years since, I think I am correct in saying that exoniensis and corallina as grown in gardens then, were quite distinct varieties. The illustration given on p. 565 is, I have no hesitation in saying, the variety that was grown in gardens at that time as corallina. The difference between the two, so far as I am able to describe them after this lapse of time, is very fresh in my memory, Exoniensis was, I think, grown in gardens previous to corallina; the former was raised by Mr. Pince, a nurserymen at Exeter, in 1842, and was at that time the best dark Fuchsia in cultivation, it had a good habit of growth, was a free bloomer, the corolla had more blue or purple in it than any other kind then grown, and the sepals were slightly reflexed. Corallina, as I before remarked, was sent out after, and I remember at the time it was to have beaten all other dark kinds then in cultivatioo, exoniensis, the then type of a model, included. But it did not; it was voted by the fancy to be of bad habit, the corolla was nearly of the same colour as the sepals, and it did not reflex. Exoniensis was retained as a pot plant, corallina was turned out and planted against a wall, where, for a quarter of century it grew by the yard, and produced flowers *ad infinitum*. As a garden or decorative variety it would now be considered a good thing. From what has been written I arrive at this conclusion, that exoniensis is lost to cultivation, and the illustration given at p. 565 is that of the true corallina. *North Norfolk.*

—— I am so surprised to see what Mr. Lynch says on p. 604 about this Fuchsia (for which I never before heard any name except "corallina") that I send a note about it. I should have said that for the last thirty years at least it has been the commonest hardy Fuchsia in cultvation throughout the kingdom. When I commenced gardening thirty-four years ago at Eton it was certainly common enough in gardens both there and down the Thames Valley, towards London. At that time some very fine standards of it used to be planted out every summer by Mr. Frost in the garden at Dropmore, and I imitated these, and continued to grow the tree as a standard as long as I lived at Eton. It was then commonly called by gardeners Fuchsia Caroline. It is a conspicuous feature in the gardens along the coast of Carnarvonshire and Denbighshire, where it often grows for several years without being cut by frost, becoming 10 or 12 feet high. The largest I have noticed are in a garden at Aber, near Bangor, but it probably becomes still larger on the northern bank of the Menai Straits. It is one of only three Fuchsias which are quite hardy in my Cheshire garden, though strictly herbaceous in habit. The names of the other two are, I believe, Ricartoni and gracilis. Perhaps I may add without offence that the name corallina is generally mispronounced; the word is found in Latin poetry, and the "i" is short, so that the accent falls on the second syllable. On looking at my plants I found that the common form has opposite leaves in pairs, but whorls of three all along the stalk are common; some stalks have the leaves alternate. I find also some leaves in whorls of four. *C. Wolley Dod, Edge Hall, Malpas, Cheshire, Nov.* 10.

—— Fuchsia exoniensis, which is more generally known as F. corallina, is to be found plentifully in the gardens on the shores of Cardigan Bay, where it becomes a shrub 6 or 7 feet high; but on leaving the sea coast it assumes a herbaceous habit. I well remember in 1853 seeing a fine plant in the conservatory at Woodlands, near Dublin, trained up a pillar. This plant, from the strength of the stem, must have been eight or ten years old. It was annually pruned like a Vine, and I do not believe we possess a more useful plant for such situations. It varies much in foliage from opposite leaves to whorls of four or five leaves according to the richness of the soil, which also causes light or dark stems or leaves. In the Midland Counties it is perfectly hardy without any protection, at the same time a slight covering of asbes is useful. I think F. corallina is the older name, whoever gave it, and I may ask who named it F. exoniensis? [The raiser, Mr. Pince, we presume. Ed.] *Aberia.*

Malva moschata alba.—This is a fine thing for the herbaceous border or mixed plot of hardy plants in early summer. Seeing it advertised I purchased a packet of seed in the spring of 1882. These were duly sown in a little heat, when they soon germinated, and in due course, after hardening off, they were planted outside. The same summer they flowered a little, but not sufficient to make them noticeable. The roots stood the winter well (being, of course, quite hardy), the plants had formed strong stools, which grew away finely as the season advanced. Towards June, or thereabouts, before bedding things had made much show, these plants were just a mass of white flowers; those where the soil was rich were quite 3 feet high, and as much through, literally covered with bloom. They continued so for several months, so you can imagine that it is a very good showy thing for early summer flowering. *R. M.*

An Impostor.—During the last week or two several gardeners in this neighbourhood have been imposed upon by a man giving the name of Taylor, who, producing a character from an employer in Blackburn, one Mr. Jackson, J.P., has been seeking work. He was offered a good job by a friend of mine, but did not come to work at the appointed time—took good care to use the appointment and the name of those who assisted him; borrowed money from all he could get it from, and decamped. *Thomas Lloyd, Florist, &c., Stourport Worcestershire.*

Labourers' Cottages and Gardens in Ireland.—The kindly spirit actuating your leading article at p. 587 towards the artisan and working-classes, induces me to bring under your notice the satisfactory working, so far, of the Labourers' Cottage Act, passed last session, and entrusted for administration to the several Boards of Guardians. Cottages are to be built as required in each electoral division, and that district is to be responsible for the money borrowed for the purpose. Each cottage will have half an acre of ground, and the estimated general expense, fitted up besides with all sanitary requirements, is from £80 to £100. Though both farmers and landlords could claim for the appropriation of the land, in very many cases both are coming forward and offering land and sites free, and not only that, but both farmers and landlords, often differing in position, religion, and politics, are almost, without exception, unanimous in carrying out this Act. *W. J. Murphy, Clonmel.*

Seedling Amaryllis.—I send you some flowers of a seedling Amaryllis which have been flowering since July, and are now throwing up flower-stalks, each stalk bearing six blooms like those inclosed. They are strong growers, with beautiful striped leaves. Six of them have thrown the flower-stalk up from the centre of the bulb, between the centre leaves, which I have never seen before. I have four plants now showing in the same way. They are hybrids obtained by crossing Defiance with a seedling obtained from reticulata. The leaves are beautifully striped and evergreen, and the plants appear to be perpetual flowering—a characteristic so much wanted in the Amaryllis, as they are equally beautiful in the conservatory, the greenhouse, or the drawing-room, and last a long time in bloom if placed in a cold house. The bulbs require to be treated like the Eucharis amazonica. *Wm. Smythe, The Gardens, Basing Park, Alton, Hants.*

Xiphium tingitanum.—I have been successful in collecting bulbs of this plant in the neighbourhood of Tangiers. It is said to have pale blue flowers. It is exceedingly abundant in clayey fields surrounding the town. I have reason to believe that the plant figured under this name in the *Botanical Magazine* was Xiphium filifolium. *G. Maw, F.L.S.*

Plant-Houses as Tenant's Fixtures.—I wish to know if a span-roofed forcing-house erected on brick walls built a foot or more in the soil, and away from any building, would be a tenant's fixture or not. I am advised that the woodwork and glass would be removable at the end of a tenancy, but not the brick walls, and that the boiler and piping would also be removable. I should be greatly indebted for any trustworthy information on the subject. *Tenant.* [We shall be glad of an expession of opinion on this point from any one who has practical experience. Ed.]

Strawberries in November. — When at Perry Hall, near Birmingham, the other day, I was agreeably surprised to find a very fine crop of Vicomtesse Héricart de Thury Strawberries. The fruits were ripe and well coloured, as good indeed as many that are seen in the early spring months. Mr. George Mitcheson, the energetic gardener in charge, informed me that the plants were the same as he had forced early last season. As soon as they had done fruiting he planted them out, and as soon as he found them likely to flower well again he had them potted up, and the result is that at the present time he can supply the table with first-rate Strawberries. *O.*

Late Peas.—Favourable soils and situations are without doubt the two essential requisites if a satisfactory crop of late Peas is to be obtained, and without them, all efforts to get even a meagre crop are in vain. Of course some sorts are better adapted to this purpose than others, and individuals have their special favourites, in which case it becomes difficult to persuade them to make a trial of others. Perhaps the old but excellent Ne Plus Ultra is considered one of the best sorts for late sowing, but there are later introductions, however, which are worthy of a share of attention. One of these is Stratagem, a grand Pea, of robust constitution; and Telegraph, Telephone, although rather more susceptible to mildew, are by no means unreliable sorts for this purpose. Another excellent late Pea on account of its hardy constitution and continuous bearing properties, is Walker's Perpetual Bearer. Where Peas are in constant demand this variety cannot fail to give satisfaction, for, as its name implies, it is a constant bearer, and moreover is of good quality. *E. Morgan, The Butts, Harrow-on-the-Hill.*

Benthamia fragifera.—I send you a fruit of Benthamia fragifera, which grows in the open ground here, and is exceedingly handsome in the late autumn, as well as in the month of June when in flower. *T. Myles, Ryde, Isle of Wight.* [We only see this from the southern and western counties. Ed.]

Lilacs for Forcing.—The Lilac is very handsome, and very easily forced, if the plants are properly prepared. It can also be grown and flowered in the form of nice compact little bushes in 8-inch pots. To obtain plants like this I layer the top branches when the wood is well ripened. I tie down the branches to a large stake, then tongue all the most suitable young shoots and peg them in a nice rich light soil and cover them well up. I do this as soon after the leaves are off the bushes as possible, then by the following season they will be well rooted, and if carefully taken up with balls of earth and potted, they will flower early the next spring. The best sorts for forcing are Charles X., Siberian, and Persian. *Wm. Smythe, The Gardens, Basing Park, Alton, Hants, Nov.* 6.

Eucharis amazonica.—Those who expect their bulbs of this fine stove flowering plant to bloom three and four times a year, will, I fear, find their hopes disappointed. I have had the same pot of roots flower three and four times in a year, but I always thought and still believe it to be different bulbs in the same pot that did so. A few years ago I had a pot that bore forty spikes in August; the Christmas following it had two dozen more, and then in the spring after it had produced a similar number. Thinking that the plant would not flower again for some time I had the pot broken up and when this was done, when the roots and the soil lay on the potting bench, it seemed surprising that the pot could have held the roots and soil, so closely were the bulbs packed. Just now we have a pot bearing sixty-five heads of flowers: this pot we had a month or so during the summer outside behind a north wall. Few flowers are more popular than the Eucharis, and the question may be asked why a specimen of it is so little thought of by some as an exhibition plant. To time a good pot for this work that is not made up often requires considerable skill. I may here note that a plant of Eucharis that was exhibited in August last with thirty-six heads is now just pushing seven or eight heads; the decaying base of the late flower-stems can still be seen. For late flowering I have found that the Eucharis requires considerable attention: if kept too long in too cold a temperature at this time of year the flower-scapes are apt to come partially abortive—instead of having the five or six flowers, having two or three less than that number. Last spring when breaking up a few pots my attention was drawn to the fact of the roots being all near the surface of the pot, none being found lower than 6 inches or so from the surface. In making up a few fresh pots I had a couple of pans also filled which have done very well, still, though no doubt they will do very well in pans, the pots will be preferable, as the damp soil not permeated by the roots in the bottoms will help to keep the plants better in their growing season. *R. M.*

Apple Bias.—Mr. Ingram, at p. 602, makes the interesting remark that a fruit tree originated on a soil of a marked character receives a certain constitutional tendency in favour of that particular soil as a fact well known to pomologists. I fear that the knowledge of the fact, if it be one, is rather limited, and I have never before met with it or seen it propounded. None the less, there may be many who hold such a theory, for it can be but a theory, as I fail to note a good example, especially amongst Apples, that tends to convert it into fact. Take the famous Blenheim Pippin, for instance, raised at Woodstock on the oolite, than which there can be no more strongly marked kind of soil, and yet it does well everywhere, and is perhaps a more widely known and grown kind than any other Apple. But is that any proof that any one well-known kind of Apple will succeed better in the *locale* of its origin than in any other? Of course, exception must be made in favour of southern districts, where almost all kinds of Apples thrive better than in the North, not because of soil so much as of climate, which is far more favourable. It may be very much a question as to how far kinds raised from established sorts that thrive specially well in the South are suited for

culture in the North. On the other hand, it may be accepted that kinds thriving well in the North should always be made the parents of seedlings intended specially for northern growth, but these are matters wide of the question of soil. Were all our Apples propagated by cuttings, and the trees therefore on their own roots, soils might be expected to influence their growth to some appreciable extent, but the Crab is so thoroughly indigenous that it seems at home in all soils except wet clay, the which will kill almost any fruit. [The Crab is common enough on wet clay in Middlesex. Ed.] The Paradise stocks are such shallow rooters that soils may be expected to affect them only in an infinitesimal degree, because the surface soils, when long cultivated, acquire such considerable identity of character, let the subsoil be what it may, that surface-rooting plants thrive equally well. Without assuming that my conclusions are more correct than are Mr. Ingram's, I cannot but think facts are against his. *A. D.*

A Spring Show of Apples.—I am much interested to find that my suggestion as to the appropriation of a portion of the surplus cash arising from the recent Apple Congress at Chiswick to the giving of prizes for keeping Apples about March next should have called forth notes of approval from some eminent gardeners—although the idea is one so practical and common sense like that it is doubtful whether a single person would be found to offer objection. It cannot be too well understood that we have many good keeping Apples, but that, as a rule, they are far less showy or large than were the many beautiful fine Christmas ripening kinds seen so plentifully at Chiswick last month. The sorts then thought but of moderate pretensions would be in March next worth very much, and be of the greatest service to growers and to consumers. Even small kinds that at Chiswick were looked upon as refuse or superfluous become in March of great value, though still small and insignificant in appearance. Sturmer Pippin, Cockle Pippin, Sam Young, Keddleston Pippin, Lemon Pippin, and many others of like size and appearance prove most valuable aids to the dessert in the spring, and badly off indeed is the gardener who is without them. The suggestion that the kingdom for the purposes of such a show should be divided into districts is fair, and a division into south, midland, and north would suffice. Unlimited collections are undesirable, and are never fair. Even in March quality and size must go for something, and a dozen or score of really good sample dishes would be of more value than fifty that included many perhaps useless or imperfect kinds. Too many classes are undesirable because the object should be, not to give everybody prizes, but to obtain a good representation from all parts of the kingdom of keeping Apples. Specially useful would be information furnished by exhibitors as to their approved methods of storing to aid or ensure good keeping. Lastly, we should like to learn whether dwarfing stocks produce good keeping Apples, or whether the best keepers come from Crab stocks. I incline to the latter opinion, but it may not be correct. After all we are perchance beating the air, for the offering of such suggested prizes seems improbable. *D.*

Grain Pits, or Silos.—Throughout Hungary and the neighbouring countries to the south and east this method of keeping cereals has been known and practised from very early times. The unsettled state of the country compelled the farmers to adopt some secure way of hiding and preserving for considerable periods of time these fruits of the earth, and in an underground pit they were safe from marauders, thieves, and vermin. These pits, which were built of solid materials, and made watertight, were of sufficient size to hold considerable quantities of grain. The altered conditions of life in these countries, and the ease with which now a famished district can obtain succour from more plentiful quarters, and the general state of security in which the people in rural districts live, have made these grain pits of but little use. Still, it is not very many years since the writer was informed of a certain well-known landed proprietor, half-noble, half-farmer, who had held his corn crop for a rise in price during eleven years in one of these pits, but whose greed had defeated itself, for when the pit was at last opened the corn was found for 1½ foot round the sides to be completely mouldy and useless, and only the middle was of any value. This is a proof of the serviceableness of this method for keeping grain in good condition for a few years without detriment in any way, provided the site chosen is a dry one, and the grain is perfectly hard and dry. *M.*

Chrysanthemums at Worksop Manor.—At the present time there are flowering in the gardens of the above establishment a fine collection of this, the queen of autumn flowers. Calling there a few days ago I was greatly surprised to see the enormous size of some of the blooms, which looked more the size of show Dahlias, being so fine and perfect. Some 250 plants are grown of 115 varieties, varying in height from 18 inches to 8 feet. The bud-thinning principle is carried out for large blooms, from four to six buds being left on each plant with satisfactory results. Others are grown more in their natural style, which give a profusion of bloom for conservatory decoration. the whole collection indicating the great care and attention given them by the gardener (Mr. Sutton) and his staff. *J. Jefferson, Worksop, Nov.* 13.

Cupressus macrocarpa.—This tree succeeds very well at Cullen House, as, indeed, all the Cupressus do; but it is yet premature to say what it will be as a timber tree. It is very beautiful at 12 to 15 feet high, and there is not the sign of a withered branch on it even after enduring some of the severities of bygone winters. Of all others, however, of this class the Cupressus Lambertiana is decidedly the best for outstanding our maritime exposures. *C. Y. Michie, Cullen House, Banff, Nov.* 13.

A New Plant Label (fig. 113).—I send for your inspection a label which is the best I know of for herbaceous borders, and all cases where the label has to be fixed in the soil. It is simplicity itself, very neat, and durable. The galvanised iron peg can be made of any size, and, having the two small holes bored in it, any piece of wood can be fastened to it in a second with the aid of two tin-tacks. The price of the specimen sent is 7*s.* 6*d.* per 100; but if 10,000 were ordered they can be made for 3*s.* 9*d.* per 100, and when once made will practically last a lifetime, as when the wood has done its work or the name has to be changed the wood can be pulled off, and a new piece at once attached. By giving the wood

Fig. 113.—New Label for Plants.

three coats of good paint renewing will seldom be required. *W. M. Geddes, The Gardens, Thrumpton Hall, Derby.*

Chrysanthemums at Messrs. C. Lee & Son's Nursery at Ealing.—Every year the spirited manager at these nurseries presents to public view a fine lot of Chrysanthemums, but this season the display is one of the finest ever seen. There are about 250 plants mainly in 8-inch and 10-inch pots, grown to a single stem, and this branching out into several side shoots, each of which produces flowers of surprising quality. The cuttings from which these fine specimens are grown, all put in about the end of November, being struck in thumb-pots in which the cuttings are placed singly, they have such bottom-heat as can be obtained from an ordinary frame with a bed of stable manure; when rooted they are wintered in a cold frame, and are potted and grown on in spring in the usual way, giving the plants their final shift in June. The following are the leading varieties, and they may be taken as forming a very fine collection:—Japanese: James Salter, Elaine, very fine indeed, some of the flowers of amazing proportions; Fair Maid of Guernsey, Cloth of Gold, a very fine yellow, and quite distinct; Triomphe du Nord, La Charmeuse, deep purple, striking; Madame Candigeau, quite an incurved flower, large broad silvery-lilac petals; Soleil Levant, a large and very fine golden variety; Cry Kang, very fine; Fleur d'Hiver, Cossack, brilliant in colour; La Frisgiere, very fine, soft pink; Diamond, very fine; Album plenum, a variety that is very shy in producing cuttings; Striatum, Peter the Great, Félicité, and Madame Lemoine. The large size, rich colouring, and splendid shape of the foregoing were qualities particularly noticeable, and equally so is this true of the incurved varieties, the following being grandly developed:—Refulgens, rich mulberry, very fine; Lady Sale, Jardin des Plantes, and its bronze variety; Mrs. George Rundell, Mrs. Dixon, and George Glenny—all three with very large flowers; Empress of India, White Globe, Princess of Wales, very fine; Beethoven, Alfred Salter, White Venus, Abbé Passaglia, Golden Empress of India, Pink Venus, Queen of England, very fine; Mr. Brunlees, Barbara, Golden Queen of England, Gloria Mundi, Beauty, delicate pink, very fine; and John Salter. *Z.*

Gardenias.—In reference to the remarks on Gardenias at p. 603, permit me to say that I think the variety intermedia is too generally, and doubtless in many cases unconsciously, grown to ensure the almost constant succession of blooms that G. florida will produce under good treatment. I have lately had this forcibly brought to my mind. When visiting a neighbouring gardener I was much struck by the free-flowering appearance of his Gardenias, which were neither so healthy looking nor yet grown under by any means such favourable conditions as ours were, which at that time were flowerless, almost budless—at all events the buds were not developed. The same friend had earlier in the season remarked that our blooms were then much finer than his. On comparing portions of the two lots of plants more closely, I at once saw the cause. Ours were all G. intermedia, his were all G. florida. On enquiry I also ascertained that a few cuttings were incidentally brought here of a very fine Gardenia some three years since. As our then stock was more or less exhausted, and the young plants of the new-come cuttings were soon fine healthy stuff, we decided to clear out our old lot and have a fresh start. Since then our spring and early summer bloom has been much finer in size, but not so continuous. We at first thought it was the plants being young that was the cause of both, but now find we were mistaken. I enter into these particulars more fully in case there should be others of your readers who are in similar circumstances. In reference also to the note of exclamation in "A. E.'s" remarks on same page respecting Gardenias being placed out-of-doors, permit me also to say that when visiting Mr. Denning at Londesborough Lodge in the autumn of 1880, I noted that he had the sashes entirely taken off his span-roofed Gardenia-house, and the plants were the finest I ever saw, smothered with bloom-buds, and were the picture of health. The same able cultivator has, if I mistake not, been more than once referred to in your columns as a very successful grower of Gardenias. *H. J. C., Grimston.*

—— I would advise "A. E." to pinch out the young growths which push out around the buds; this will hasten the development of the blooms. But he must not expect to obtain such a succession of blossoms later on as he would otherwise do. *Bucks.*

What is the Ginger Mushroom?—A paragraph appeared in one of our local papers the other day announcing that "an inquest had been held at Worksop, Notts, before Dr. Housley, coroner for the district, on the body of a boy, aged twelve years, who it was shown had died from eating a poisonous Mushroom. Deceased picked a Mushroom from the side of a hedge and ate it for one of the common sort, whereas it proved to be one of the kind known locally as the 'Ginger Mushroom,' which is poisonous. The jury returned a verdict of 'Death from the effects of eating a poisonous Mushroom.'" I have inquired into the matter, and find the report perfectly true, but have been unable either to procure a specimen or ascertain the species. Can any one say what it is? *H. T. Soppell, Saltaire.* [We never till now heard of the Ginger Mushroom. Mushrooms from under hedges are often unsafe. The neighbourhood of trees seems unsuitable for the great majority of edible fungi. A true Mushroom, even from a plantation, is often unsafe. Open wind-swept pastures are the right places. Ed.]

Chou de Burghley.—I cannot speak in such high terms of Gilbert's Chou de Burghley as some of your correspondents have done. It is too coarse, does not heart well, and is not to be compared with ordinary Cabbage growing side by side and planted at the same time; in fact, common Cabbage and green curled Savoys are preferred to it. I have had no experience of it as yet as a Broccoli, but I do not think it will ever take a very forward place as a Cabbage. *A. Grant, Hadlow Castle.*

Boltonia.—In reference to Dr. Asa Gray's note on p. 603, I may say that I have never mentioned or possessed a plant named Boltonia latifolia. The species which came to me in three or four apparently distinct forms is B. latisquama. The plants sent range from the small white-rayed flower, more properly called, I believe, B. asteroides, to a flower twice the size, with long wavy rays of clear pink. What I received from our Cambridge Botanic Garden as B. glastifolia, which Dr. Asa Gray makes a synonym of asteroides,

is so entirely distinct both in flower and habit from any other Boltonia I have that I send a specimen for identification. It is 5 feet high, and makes flowering branches from the summit to the ground. After carefully studying Dr. Asa Gray's *Handbook of the Plants of the Northern States*, I am sure that these Daisy Composites present themselves in entirely different forms both as to colour and habit in English gardens and in American woods and prairies. I wish Dr. Gray could see some of the very abnormal forms under which we have the Asters be describes, and which answer neither to the description of the name they bear nor of any other in the book. *C. Wolley Dod, Edge Hall.* [We believe Dr. Gray came to the same conclusion on his last visit to this country, when he made a study of our collections, living and dried. ED.]

Sweet Scabious.—Late as it is in the season, Sweet Scabious are all aglow in the borders, which shows what useful things they are for blooming, and how valuable they would be if grown in pots, as in a warm greenhouse they continue to open their flowers more or less freely during the whole of the winter. The way they are generally raised is from seed sown in spring, but I find it is a good plan to make a selection of the best kinds, and to propagate by putting in cuttings, which strike freely, and may be kept in store pots in any ordinary pot or frame from which frost is excluded. Those who are so fortunate as to have plants now standing outdoors may turn them to good account by taking them up with nice balls and potting them, as by getting them under glass they will afford fine heads of bloom for cutting—a purpose for which they are well adapted, as they are bright looking and last long in water. To have them really good for winter work, the best way is to grow them all through the summer in pots, as then there is no check given at any time, and being well rooted they flower profusely, especially when kept well supplied with liquid manure. *J. S.*

The Tigridias have made a most dazzling display (there are two large beds of them) for weeks past, from the earliest hours until 3 or thereabouts in the afternoon. When the sun is overclouded, as in grey weather, their time is lengthened by some hours. I have been studying the Tigridias, and trying to comprehend how affairs stand between them and the bees. My observations, however, do not come to much; there is a great sameness about them, and the most I have discovered can be said in a very few words. When the sun shines the Tigridia is never without a hive-bee, or two or three, at work within the flower (humble-bees never, but very often flies are in with the bees), yet there is not a drop of honey in it—none that I can find, at least, after even the closest search, and none certainly to justify such waste of time in a person of proverbial business habits like the bee. I have spoilt dozens of flowers, tearing the petals from their roots, and only very rarely have succeeded in detecting the slightest possible sweetish taste. The bees, however, go to work with a will, trying to find something where there is next to nothing. They will search with the utmost care—by tongue and by antennæ—between the petals, and then get their heads round to the back of the flower to look; but with no result, for apparently there is nothing there. The flaunting red may attract the bees at first, but there is something else besides colour. In the centre of each flower, close round the base of the pointal, are arranged three little mirrors, circular in shape, and reflecting back the light. Into these the bees dive head foremost, when, instead of a pool of honey, as they believed it to be, they only find a hard polished surface; they go on boring with their heads for a while, and then fall to ransacking the empty hollows of the petals both in front and at the back. It is a good while before any bee is quite satisfied that nothing is to be got there. I have never seen a humble-bee about the Tigridias, nor a hive bee with full baskets. *E. V. B.*

Autumn Flowers.—It is a most unusual thing in November to see such a wealth of bloom as is to be found on plants in borders this year, where many are now quite gay, and some looking almost as well as at any time during the summer. This is the case with single Dahlias, which are showing their worth in an unmistakeable manner, as damp and foggy nights seem to have little effect on them, and the quantity of flowers they yield for cutting is something astonishing, besides which there is no end of variety in the colours they afford, and few things dress better in glasses, as they are light and elegant in outline and form. Not only are Dahlias in full beauty, but Chrysanthemums seem to vie with them, and it is very seldom they are to be met with in such perfection outdoors, the warmth, which has been quite spring-like, having just suited them, and there has been no wind or wet to damage the blossoms. A few Roses are still to be had, and the summer bedding plants are gay, especially Calceolarias and Tagetes, but what is more remarkable is that the Iresines, both Lindeni and Herbertii, are holding their foliage, which is rich and charming when the sun is upon it, as the tints are deeper and finer than ever. Violas, Daisies, Pansies, Forget-me-Nots, and other spring flowering things are fast peeping out, and Anemone coronaria will soon be in full bloom — the big Hellebore H. niger maximus is already so, and Sternbergia lutea will not lag long behind. *J. S.* [The few last frosty nights we fear, or rather we hope, have altered this state of affairs. ED.]

LIST OF GARDEN ORCHIDS.

EPIDENDRUM.—*Concluded from p. 606.*

211. E. (EUEPIDENDRUM) TORQUATUM, Lindl., *Benth. Pl. Hartw.*, p. 149; *Fol. Orch.*, n. 272; *Walp. Ann.*, vi., p. 408; *Ill. Hort.*, xxix., p. 51.—New Grenada to Peru, at 8000 to 10,500 feet. Introduced by Linden. Near E. scabrum, but having much larger, more coriaceous, yellowish flowers.

212. E. (EUEPIDENDRUM) TOVARENSE, Rchb. f., *Linnæa*, xxii., p. 838; *Walp. Ann.*, vi., p. 370; Lindl., *Fol. Orch.*, n., 160; Planchon, *Hort. Donat.*, p. 169. *E. sinuatum*, Lindl.; Regel, *Gartenflora*, ii., p. 324, t. 69?—Venezuela, New Grenada. Cultivated in the Petersburg Botanic Garden, and also at San Donato. Hort. Kew.

213. E. (ENCYCLIUM—HYMENOCHILA) TRACHYCHILUM, Lindl., *Fol. Orch.*, n., 57; *Walp. Ann.*, vi., p. 338. *E. altum*, Lindl., *Benth. Pl. Hartw.*, p. 92.—Mexico. Introduced by Hartweg for the Horticultural Society of London. Sepals and petal small, leathery, olive-green; lip deep yellow and brilliant green, studded with red warts.

214. E. TRICOLOR, Linden, *Cat.* 1868.—New Grenada. Introduced by Mr. J. Linden.
E. TRIDENS = nocturnum.

215. E. (EUEPIDENDRUM—SPATHACEÆ) TRINITATIS, Rchb. f., *Bot. Reg.* 1844, Misc., p. 86; *Walp. Ann.*, vi., p. 364.—Trinidad. Flowers small, in a long raceme, greenish-yellow, with a deep apricot-yellow lip.
E. TRIPTERUM = Linkianum.
E. TRIPUNCTATUM, Lindl. = Ghiesbreghtianum.

216. E. (ENCYCLIUM—HOLOCHILA) TRIPUNCTATUM, Lindl., *Bot. Reg.* 1841, p. 143; *Fol. Orch.*, n. 12; *Walp. Ann.*, vi., p. 323.—Mexico. Cultivated by Richard Harrison, of Aigburth. Long grassy leaves; scape two-flowered; flowers dull yellow-green with some yellow and purple on the labellum and column.
E. TRISTE = ochraceum.

217. E. (EUEPIDENDRUM—AMPHIGLOTTIS) TURIALVÆ, Rchb. f., *Gard. Chron.* 1871, p. 1678.—Costa Rica. Cultivated by Mr. W. W. Saunders.
E. UMBELLATUM = difforme.
E. UROSKINNERI, Hortul. = prismatocarpum.

218. E. VACCINIOIDES, Rchb. f., ex Linden, *Ill. Hort.*, xxix., p. 51.—Venezuela. Introduced by Mr. J. Linden in 1870.

219. E. (EUEPIDENDRUM—AMPHIGLOTTIDEÆ) VANDIFOLIUM, Lindl., *Journ. Hort. Soc. Lond.*, iv., p. 269; *Fol. Orch.*, n. 211; *Walp. Ann.*, vi., p. 387.—Mexico. Introduced and cultivated by Messrs. Loddiges about 1848. Nearly related to E. fuscatum, but having long, narrow, distichous leaves, recurved like those of some Vanda. Flowers sweet-scented, dull purple, freckled.

220. E. (ENCYCLIUM — HYMENOCHILA) VARICOSUM, Batem., *Bot. Reg.* 1838, *Misc.*, p. 30; Lindl., *Fol. Orch.*, n. 71; *Walp. Ann.*, vi., p. 341. *E. leiobulbon*, Hook., *Journ. Bot.*, iii., p. 308, t. 10. *E. quadratum*, Klotzsch; Otto and Dietr., *Allg. Gart. Zeit.* 1850, p. 402.—Mexico to Panama. Originally introduced from Guatemala by G. Ure Skinner, and cultivated by Mr. Bateman. Flowers small, dull coloured. Lindley included E. chiriquense and E. phymatoglossum, Rchb. f., in this species; but Reichenbach states that although closely allied they are easily distinguished from each other.

221. E. (AULIZEUM — HOLOCHILA) VARIEGATUM, Hook., *Bot. Mag.*, t. 3151; *Bot. Reg.* 1839, t. 11; *Fol. Orch.* n. 117; *Walp. Ann.*, vi., p. 353. *E. coriaceum*, Hook., *Bot. Mag.*, t. 3595. *E. pachysepalum*, Klotzsch; Otto and Dietr., *Allg. Gart. Zeit.* 1855, p. 274.—Venezuela to Brazil. Cultivated by Mr. R. Harrison, of Liverpool, in 1832. Flowers in an erect raceme, yellow, cream, or white, thickly dotted with purple. Hort. Kew.
E. VERRUCOSUM, Lindl. = nemorale.

222. E. (EUEPIDENDRUM) VESICATUM, Lindl., *Bot. Reg.* 1838, Misc., p. 50; *Fol. Orch.*, n. 236; *Walp. Ann.*, vi., p. 397.—Brazil. Imported and cultivated by Loddiges. Flowers greenish-white, with a half transparent blister on the neck of the ovary.

223. E. (ENCYCLIUM—HYMENOCHILA) VIRENS, Lindl., *Lindl. and Paxt. Fl. Gard.*, i., p. 152; Lindl., *Fol. Orch.*, n. 54; *Walp. Ann.*, vi., p. 336. *E. ochranthum*, A. Rich.; Ram. de Sagra, *Fl. Cub.*, t. 78. *E. Wageneri*, Klotzsch.; Otto and Dietr., *Allg. Gart. Zeit.* 1851, p. 250.—Guatemala to Venezuela, and in Cuba. Originally introduced into cultivation by G. U. Skinner. Flowers green, with a white and green labellum veined with crimson. Hort. Kew.
E. VIRESCENS = fuscatum.

224. E. (ENCYCLIUM — HYMENOCHILA) VIRGATUM, Lindl., in *Hook. Journ. Bot.*, iii., p. 83; *Fol. Orch.*, n. 38; *Walp. Ann.*, vi., p. 352.—Mexico. Discovered and introduced by Hartweg. Flowers small, dirty green, stained with brown, in long, loose, graceful panicles, having simple branches sometimes a foot long, with nearly twenty flowers on each. Scape sometimes 7 feet high.

225. E. VIRGATUM? PALLENS, Rchb. f., *Bonplandia*, 1856, p. 326.—Mexico. Imported and cultivated by Consul Schiller, of Hamburgh.

226. E. (ENCYCLIUM—HYMENOCHILA) VIRIDIFLORUM, Lindl., *Bot. Reg.* 1842, Misc., p. 30; *Fol. Orch.*, n. 49; *Walp. Ann.*, vi., p. 335. *Encyclia viridiflora*, Hook., *Bot. Mag.*, t. 2831.—Brazil. Introduced from the neighbourhood of Rio by W. Harrison, and cultivated by Mrs. Arnold Harrison, of Aigburth, near Liverpool. Flowers small, green, tinged with purple.
E. VIRIDIPURPUREUM = fuscatum.
E. VISCIDUM = ciliare.

227. E. (ENCYCLIUM — HOLOCHILA) VITELLINUM, Lindl., *Gen. and Sp. Orch. Pl.*, p. 97; *Fol. Orch.*, n. 4; *Walp. Ann.*, vi., p. 321; Lindl., *Sert. Orch.*, t. 45; *Bot. Reg.* 1840, t. 35; *Gard. Chron.* 1841, p. 151; *Bot. Mag.*, t. 4107; Paxt., *Mag. Bot.*, v., p. 49, with a coloured plate; *Fl. des Serres*, t. 1026; *Ill. Hort.*, t. 4; Otto and Dietr., *Allg. Gart. Zeit.* 1855, t. 7. β *majus*, *Fl. Mag.* 1866, t. 261; Jennings, *Orch.*, t. 31; Puydt, *Les Orch.*, t. 20 (copied from the *Floral Magazine*).—Mexico. First flowered by Mr. Barker, of Birmingham, in 1840. This, when well grown, is one of the finest species of the genus. The orange-red of its flowers render it a most striking object. It grows up to an altitude of at least 9000 feet above the sea. Hort. Kew.

228. E. (AULIZEUM — SCHISTOCHILA) VIVIPARUM, Lindl., *Bot. Reg.* 1841, Misc., p. 10; *Fol. Orch.*, n. 92; *Walp. Ann.*, vi., p. 348.—Guiana. Discovered by Mr. Schomburgk, who sent it to Messrs. Loddiges. Flowers small, white, clustered at the top of a spike 2 feet long.

229. E. (AULIZEUM—SCHISTOCHILA) VOLUTUM, Lindl., *Lindl. and Paxt. Fl. Gard.*, ii., p. 151, fig. 215; *Fol. Orch.*, n. 114; *Walp. Ann.*, vi., p. 354.—Central America. Skinner introduced this species, which has greenish-white flowers of no beauty.
E. WAGENERI = virens.

230. E. (ACROPLEURANTHIUM) WALLISH, Rchb. f., *Gard. Chron.*, n. s., iv., p. 66, and ix., p. 462.—New Grenada. Discovered and introduced by Mr. Wallis for Messrs. Veitch. Flowers nearly as large as those of E. atropurpureum; sepals and petals wholly yellow, or blotched with purple; lip with orange and dark purple on a white ground. Remarkable in having both lateral and terminal inflorescences.

231. E. (EUEPIDENDRUM—AMPHIGLOTTIDEÆ) XANTHINUM, Lindl., *Bot. Reg.* 1844, Misc., p. 18; *Fol. Orch.*, n. 229; *Walp. Ann.*, vi., p. 395. *E. ellipticum* var. *flavum*, Lindl., *Ann. Nat. Hist.*, iv., p. 382.—Brazil. Cultivated by Loddiges.

232. E. (EUEPIDENDRUM) XANTHOLEUCUM, Rchb. f. *Linnæa*, xxii., p. 839; Lindl., *Fol. Orch.*, n. 171 *Walp. Ann.*, vi., p. 373; *Ill. Hort.*, xxix., p. 51.—Venezuela. Introduced by Linden in 1870. Flowers yellowish with white lip.

233. E. (ENCYCLIUM—HYMENOCHILUM) XIPHERES, Rchb. f., *Fl. des Serres*, ix., p. 98; *Bonplandia*, 1854, p. 89; *Walp. Ann.*, vi., p. 334.—Peru. Imported and cultivated by Messrs. Booth, of Hamburg.

Reports of Societies.

Royal Horticultural: *Nov.* 13.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker, K.C.S.I., in the chair. Present: Messrs. Grote, Lynch, Boulger, Wilson, G. Murray, Pascoe, McLachlan, Loder, A. W. Bennett, Dr. Masters, and the Rev. G. Henslow, Secretary.

Mr. Jensen and the Potato Disease.—Communications from Mr. Jensen and Mr. Plowright, dealing with the proposed method of combating the disease by laying the haulms and earthing up, was read.

Insect Egg-cases.—Mr. Pascoe showed some beautiful membranous egg-cases, resembling the dry pods of the Bladder Senna, and containing the eggs of an insect presumed to be allied to Mantis. They were on the branches of a Rhamnus-like shrub, from Delagoa Bay, but there was not sufficient material to determine either the insect or the shrub.

Narcissus viridiflorus. — Dr. Masters showed flowers of this rare Narcissus, lately gathered in Southern Spain by Mr. G. Maw.

The *Sclerotia, so-called, of the Potato Disease.*—Mr. George Murray reported the results of the examination he had made of these bodies, to which Mr. A. S. Wilson had called attention some time since. As a result of the chemical examination of the bodies in question, Dr. Flight, of the British Museum, had determined them to be masses of oxalate of lime, and as having no necessary connection with the Potato fungus.

Convolvulus tricolor. — Mr. Boulger showed a flower produced on the terminal shoot of Convolvulus tricolor instead of a side shoot, as is customary.

Cephalotaxus Fortunei.—Sir Joseph Hooker, on

behalf of Rev. J. Goring, of Steyning, showed ripe fruits of Cephalotaxus Fortunei.

Ear-cockle of Wheat.—A communication was read from Mr. W. G. Smith, with illustrative drawings, showing that the lodicles of the flower, which had been supposed to be the parts involved in the formation of the gall, were not really affected—at least, in all cases., The gall was the result of a change in the pistil caused by the Tylenchus tritici.

Packing for Bulbs.—Rev. G. Henslow showed a quantity of the inner skin of the Coffee berry, which it appears is now largely used for packing "Dutch" bulbs.

Orchids in the Open Air.—Several orchids, including, in bloom, Lycaste Skinneri, were sent from "My Garden," by Mr. Smee, who has been making the experiment of growing certain orchids during the summer months in the open air, and with considerable success.

Anthurium Andreanum.—A specimen of this, with two spathes, was shown, the supplementary spathe being smaller than the primary one, and alternate with it. Such malformations are not uncommon in Aroids.

Floral Committee.—Present: G. F. Wilson, Esq., in the chair; Messrs. W. B. Kellock, James Hudson, H. Turner, J. Dominy, G. Duffield, H. Ballantyne, N. Ridley, J. Wills, W. Bealby, H. Bennett, J. Laing, and Rev. G. Henslow.—Chrysanthemums formed the staple of the florists' productions at this meeting, small in numbers though they were. New Japanese varieties were a strong feature, and some remarkably good things were shown among them. Full details of these will be found in another column. Next to these must be placed a remarkably fine group of Cyclamens from Mr. H. B. Smith's new nursery at Hanwell, and which are also more fully commented upon in another place. Of individual plants of special interest the pride of place must be given to a new Rhododendron from Sumatra, shown by Messrs. James Veitch & Sons, and named in honour of their traveller, Curtis. It is a perfect little gem, of a dwarf compact branching habit, resembling at first a plant of Daphne indica, but bearing trusses of three to four small bell-shaped bright crimson blossoms. The leaves are lanceolate, in tufts at the ends of the branches, and the buds protected by leafy green scales. The same firm also showed Zygopetalum Burkei, a new species from Guiana, and a pretty one to boot, the sepals and petals being broad, greenish-yellow, heavily barred with dark chocolate-brown, and the lip pure white, with a rosy-purple crest at the base. From H. J. Buchan, Esq., Wilton House, Southampton, came a curiosity in the shape of a twin-spathed specimen of Anthurium Andreanum. A well-grown, fresh, clean specimen of that well-known exotic Fern, Nephrolepis exaltata, came from Mr. S. Allen, Northenden Road, Sale, and received a vote of thanks. Mr. G. Goldsmith, gr., Hollanden, sent a nice batch of Iresine formosa, a golden-leaved sport from I. Lindeni, which has been well tried as a bedding plant for three seasons, and stood the ordeal in a satisfactory manner. A small specimen of Oncidium Weltoni came from the collection of A. H. Smee, Esq., The Grange, Wallingford; and from G. Neville Wyatt, Esq., Lake House, Chelteoham, came a healthy specimen, with two spikes of bloom, of Cymbidium affine. Mr. Willam Bull contributed a small batch of hybrid Sarracenias, two of which were selected for the award of certificates. S. Swaniana ×, a cross between S. variolaris and S. purpurea, and more erect in habit than the latter parent, though not so good in colour; and S. Wilsoniana ×, the parentage of which is S. Drummondii alba × S. purpurea, erect in habit, considerably taller than S. purpurea, and good in colour. Sarracenia Mitchelliana ×, a form with slender erect trumpet-shaped pitchers, said to be a cross between Drummondi and purpurea. Sarracenia Maddisoniana ×, a form like a green variety of purpurea, but with faint white spots indicative of its origin, which is said to be from S. variolaris and S. psittacina. Spathiphyllum Minahassæ, an Aroid like S. cannæfolium, but with much larger and broader leaves, and a large white spathe. Trichosme suavis, an Orchid with erect stems, lanceolate leaves, and racemes of small ivory-white flowers; the lateral lobes of the lip are erect, with violet stripes on a white ground, and the central lobe yellow, with longitudinal yellow crests. Sarracenia viridis, a green form of purpurea, and S. Tolliana ×, stated to be a hybrid between purpurea and flava, were also shown. A small, neat specimen of Celsia cretica, in a 48-pot, and bearing three spikes of its yellow blossoms, was exhibited by Mr. Hudson; and Mr. Allen, gr. to Lord Suffield, sent a good stand of blooms of Comte Brazza's white variety of Neapolitan Violet. Messrs. Cannell & Sons, amongst other subjects, sent cut blooms of a number of varieties of single Chrysanthemums, several of which bore a singular resemblance to Pyrethrums.

The awards made were:—

First-class Certificate.

To Messrs. John Laing & Co., for Chrysanthemum (Japanese) roseum superbum.

To Messrs. John Laing & Co., for Chrysanthemum (pompon) Mdlle. D'Arnaud.

To Messrs. James Veitch & Sons, for Chrysanthemum (Japanese) roseum superbum.

To Messrs. James Veitch & Sons, for Chrysanthemum (pompon) Mdlle. D'Arnaud.

To Messrs. James Veitch & Sons, for Chrysanthemum Comet.

To Messrs. James Veitch & Sons, for Chrysanthemum Salteri.

To Messrs. James Veitch & Sons, for Rhododendron Curtisii.

To Messrs. James Veitch & Sons, for Zygopetalum Burkei.

To Messrs. Jackson & Son, for Chrysanthemum (Japanese) Mons. H. Jacobi.

To Messrs. Jackson & Son, for Chrysanthemum (Japanese) Madame Le Croix.

To Mr. J. Ridout, for Chrysanthemum Bendigo.

To Mr. Geo. Stevens, for Chrysanthemum George Stevens.

To Mr. G. Goldsmith, for Iresine formosa.

To G. N. Wyatt, Esq., for Cymbidium affine.

To Mr. William Bull, for Trichosma suavis.

To Mr. William Bull, for Sarracenia Wilsoniana ×.

To Mr. William Bull, for Sarracenia Swaniana ×.

To Mr. Allan, for white Neapolitan Violet Comte Brazza.

Fruit Committee.—Present: John Lee, Esq., in the chair; Messrs. H. J. Veitch, H. Lyon, A. W. Sutton, J. Burnet, J. Smith, R. D. Blackmore, and Geo. Paul. The committee had before them a number of Apples, sent up from Chiswick for further consideration, and one of the results arrived at was the award of a First-class Certificate to Mr. Penny, for the Sandringham Apple, a large and very distinct variety, that came prominently under notice during the late Apple show. It is a heavy, conical-shaped fruit, green skinned, specked with innumerable small russety spots, and slightly coloured on the sunny side, and of first-rate culinary qualities. Another fine variety, also certificated, is Taylor's Kernel, which was exhibited by Mr. Parker, The Gardens, Moretons Grove, Hereford. It is a large handsome, culinary or dessert variety, highly coloured on the sunny side, and of high specific gravity. Mr. Allen, gr. to Lord Suffield, sent three large and remarkably well finished bunches of Gros Colmar Grapes, for which he received a Bronze Medal. Mr. Allen also sent some good examples of the Telegraph Cucumber. Mr. Horsefield, Heytesbury, showed under the name of Chatsworth Seedling three large bunches of a well shouldered, medium sized black Grape. Mr. G. R. Allis, gr., Old Warden Park, Biggleswade, showed a dish of Lady Downe's Grapes, and also a specially good one of Pearson's Golden Queen, long, neat, and particularly well finished bunches. Messrs. James Veitch & Sons contributed a collection of Capsicums, and Messrs. James Dickson & Sons, of Chester, a seedling scarlet-fleshed Melon named Master Charlie. Mr. B. S. Williams exhibited a bunch of a black Grape named Winter King, which was stated to have been obtained by grafting Gros Colmar on Raisin de Calabre, the latter (the stock) completely changing the character of the former in its fruit and foliage, the berries being oval instead of nearly round, and of a deep blue-black colour, and the flavour sweet and refreshing. The graft was put on two years ago, and produced six bunches, all alike, which give promise of keeping well for some time yet. We should be glad of confirmatory evidence of this very curious phenomenon.

Florists' Flowers.

New Chrysanthemums at South Kensington.—As might have been expected, new Chrysanthemums were somewhat prominently represented at the meeting of the Royal Horticultural Society on the 13th inst., and it was to be noted that novelties of the Japanese section were numerous, while those of the incurved, large-flowering and pompon sections were very sparingly represented. Messrs. J. Laing & Co., Stanstead Park Nursery, Forest Hill, sent a good group, consisting mainly of new Japanese varieties, with a few incurved and pompon types present also. First-class Certificates of Merit were awarded to the following, selected from this group:—Roseum superbum, bright rosy-pink in colour; narrow ribbon-like petals, large and full; very distinct and charming in colour, and an excellent addition to the Japanese section. Other fine types were Source d'Or, golden-cinnamon, quilled petals, ball-like flowers, fine and distinct; Mons. Boyer, the flowers in the way of James Salter, rosy-magenta with a pale reverse; L'Or du Rhin, pure gold, small, thick, thread-like petals, charming in colour, and very free—a capital decorative variety; Boule d'Argent, very deep, bright, orange-red, with a golden reverse to the petals, very showy; Mons. Moussilac, dull orange-red, golden-buff reverse, style of flower of James Salter, very distinct; Mons. Astorg, a large, pure white variety in the way of Elaine, with broad, flat petals; Flamme du Punch, golden centre, orange and cinnamon petals, sulphur reverse; Margot, a somewhat singularly flowered variety, the exterior petals lilac, enclosing dense centres of creamy white ribbon-like florets, forming a ball, but which hang down instead of being erect; and Mons. Brunet, a large-flowered delicate pink variety. A First-class Certificate of Merit was awarded to pompon Madame Durnaud, of the same small symmetrical form as Model of Perfection, but bright pale purple in colour, and very free.

Messrs. Veitch & Sons, Exotic Nursery, Chelsea, also exhibited a group of plants, including some new varieties raised by Mr. Alfred Salter. First-class Certificates of Merit were awarded to Salteri (Salter), a reflexed Japanese, very large full flowers, bright orange-red, the reverse deep gold; very fine, large and bold; Roseum superbum, described above; and Comet (Salter), pale reddish or orange-brown, the reverse of the petals pale gold, the exterior petals reflexed, centre florets incurved, distinct and very free. The following was also shown:—Duchess of Albany (Salter), a large variety with long thread-like petals, the centre white, the exterior delicate lilac. A First-class Certificate of Merit was also awarded to pompon Mons. Lidguet, deep purple in colour, very full and finely formed flowers, extra fine.

Some cut flowers shown by Mr. George Stevens, of Putney, represented seedling Japanese varieties obtained from seed sown in February, 1882. Foremost was George Stevens, without doubt the finest new Japanese Chrysanthemum shown on this occasion; a flat petalled reflexed variety in the way of Dr. Sharpe, with bright crimson florets, somewhat broad, the reverse gold and cream; very distinct, medium-sized, compact flowers. This was most deservedly awarded a First-class Certificate of Merit. W. Robinson, cinnamon and gold, large in size, half twisted and half quilled petals, very fine, was also included in this batch, and one or two unnamed seedlings of promise.

Messrs. T. Jackson & Son, nurserymen, Kingston, had stands of cut blooms of new Japanese varieties, and First-class Certificates of Merit were awarded to Mdlle. La Croix, pure white, large, slightly incurved and twisted white ribbon-like petals; very fine and distinct; and Mons. Henri Jacotot, pale orange-red, deepening to rich purple on the exterior petals, the centre petals gold; medium-sized, full and distinct; Mons. Astorg was in fine form, also Flamme du Punch, Rosea superba, and Mons. Romain, deep golden thread-like petals, very fine in colour, not unlike L'Or du Rhin; a pretty incurved variety, named Jeanne d'Arc, white, slightly tipped and striped with bright lilac, was also shown.

From Mr. Ridout, gr. to T. B. Hayward, Esq., came cut blooms of Bendigo, a fine pale golden sport from the creamy-white and pink Mrs. Heale, and which promises to make a very fine exhibition variety, accorded a First-class Certificate of Merit. There is, therefore, no lack of new Chrysanthemums, especially of the Japanese section.

Single Chrysanthemums.—Whether these will ever rival in popularity the single forms of the Dahlia remains to be seen; but Messrs. H. Cannell & Sons made some of them known to the public by producing a collection of twelve varieties in bunches at the meeting of the Royal Horticultural Society on Tuesday last. The most showy were Dr. Kellock, Ellen Terry, Mrs. Wills, Mrs. Santley, G. A. Sala, and Miss Lingard. They appear to lack the refinement and attractiveness of the single flowered Anemone varieties, but they may hit the public taste and be sought after. Possibly improvements may be looked for in the course of two or three years.

CHRYSANTHEMUM SHOWS.

Kingston and Surbiton.—The seventh annual show of this Society was held in the spacious Drill Hall at Kingston, on Thursday last, the available area being well occupied with the groups of plants in pots, and the tables for cut blooms, fruit, and table decorations. The different items shown, whether cut blooms or Chrysanthemums in pots, will bear comparison with any that have been exhibited this year at metropolitan shows. This remark will especially hold good of those that were put up in competition for the Challenge Vase of 25 guineas value, the freshness of the blooms and their good form and size being remarked by all. This prize was awarded to Mr. E. Molyneux, gr to W. H. Myers, Esq., Swanmore Park, Bishop's Waltham. The following

are the most noticeable blooms in the winning stand of forty-eight, equally divided between incurved and Japanese sorts:—Queen of England, Refulgence, Orange Perfection, Barbara, Le Grand, Mrs. Heale, Baron Beust, Beauty, and Mrs. Howe. Among the Japanese kinds may be mentioned, although it seems somewhat invidious to do so, Thunberg, Boule d'Or, Sarnia, Baron de Prailly, Comte de Germiny, Khedive, Japonaise, Margaret, Monarch, Dolores, Criterion, Père Delaux. The 2d prize in this class was awarded to Mr. G. Harding, gr. to T. D. Galpin, Esq., Bristol House, Putney; the 3d to Mr. Stenne. The prizes for the best collection of Chrysanthemums in pots were, 1st, Mr. Buss, gr. to A. S. Price, Esq., Parkside, Ewell. This lot was made up of tolerably dwarf, large-flowered specimens, in which those with yellow shades predominated. 2d, Mr. Orchard, gr. to J. Galsworthy, Esq., Combe Leigh, Kingston Hill, whose plants were in greater variety, but taller, and with bloom of less substance. The 3d prize went to Mr. D. Gibbons, gr. to Mrs. Becksford, Oxford House, and the 4th to Mr. R. Watson, gr. to J. McKostie, Esq., Eden House, Kingston. For six large-flowered trained specimens, distinct, Mr. G. King, gr., Wolseley Grange, Esher, who was 1st, had excellent Lady Harding, Miss Dixon, John Salter, Mrs. G. Rundle. For six trained pompons, distinct, 1st, Mr. J. Lyne, gr., The Belvedere, Wimbledon, with good plants, amongst them being Dick Turpin, Calliope, Lilac, and Gold Cedo Nulli. Cut blooms of incurved varieties.—Twenty-four were well exhibited by Mr. Molyneux, Mr. G. Harding, Mr. G. Woodgate, and Mr. Macpherson, who were respectively 1st, 2d, 3d, and 4th. For twenty-four Japanese varieties, 1st, Mr. Beckett, gr. to J. P. Currie, Esq., Sandown House, who had first-class blooms of Boule d'Or, Magnum Bonum, Thunberg, and Criterion; 2d, Mr. King, in whose stand were Red Gauntlet, Balmoreanum, Madame La Croix; 3d, Mr. C. Herrin, gr., Chalfont Park, Gerrard's Cross; 4th, Mr. Woodgate. In the class for reflexed kinds Mr. Molyneux was again a winner of the 1st prize, with twelve capital blooms in six varieties, very good being Gold Christine, King of Crimsons, Dr. Sharp, Mrs. Forsyth, and Cloth of Gold; 2d, Mr. Gibbon, gr. to Mrs. Beckford, Oxford House, Kingston; 3d, Mr. Child.

Fruit.—In the competition for the best six dishes, 1st, Mr. Bates, who had a good Smooth Cayenne Pine, fair Black Alicante Grapes, Muscat of Alexandria, Chaumontel, and Glou Morceau Pears, and Blenheim Orange Apples; 2d, Mr. Munroe, gr. Cambridge House; 3d, Mr. Beckett. In our next week's issue a more detailed account of this exhibition will be afforded our readers, when we shall have more space to mention the other excellent floral productions that were shown.

STOKE NEWINGTON.—The members of this Society held their annual show at the Assembly Rooms, Church Street, on Monday. In point of quantity the committee had to deplore a considerable falling off from previous years, and some slight departure from the high standard of quality for which Stoke Newington has long been famous. Perhaps a more active canvas among horticulturists generally, far and near, and the infusion of fresh talent in the still admirable management, may be of much future good. What will perhaps do still more, will be to touch their *amour propre*, as has been done at this show by an exhibitor hailing from so distant a place as Sheffield, for when their best prizes go to outsiders local efforts will probably begin to look up. The plants staged in the class for ten were nice, well grown stuff, and reflected considerable credit on their growers, although so marked were the diffences between the various groups that the judges were in difficulty as to whom the awards were due. Mr. Monk, gr. to H. Fowler, Esq., Forest House, Leytonstone, who was placed 1st, had Dr. Sharp, Prince of Wales, Venus, Golden George Glenny, Mrs. Rundle, The Cossack, Peter the Great, White Venus. Mr. George Glenny and Sœur Melanie in handsome moderately large examples, trained in that reasonable round form which well fits the plants for conservatory decoration. Mr. Payne, gr. to C. Paine, Esq., The Cedars, Stamford Hill, who came in 2d, had also some choice specimens in Rosinante, Prince of Wales, John Salter, and Cedo Nulli. In the competition with six plants the same exhibitors again took the prizes: the former gardener had Lord Derby, Elaine, Antonelli; and Mr. Payne, Purple King, not fully out, but still good in other points; Venus, and J. Salter. Mr. Gilby, gr. to B. Booth, Esq., Upper Clapton, who won in the competition for four plants, was fortunate in his Barbara, Lady Hardinge, Mrs. Rundle, and George Glenny; these were in good bloom, and not too stiffly trained. The standards of Mr. Payne and Mr. Gilby were very pretty plants with plenty of bloom, among which we noticed Cossack, Elaine, Prince of Wales, Empress of India, and Venus. Pompons were fairly represented, some handsome plants of Sœur Melanie, Prince Victor, a rich chestnut; Antonius, the pink Cedo Nulli, and lilac Cedo Nulli, being shown by Mr. Payne. Mr. Gilby had a pretty Marie Stuart, and white and lilac Cedo Nulli. The bright coloured Sunset, a reddish-chestnut, was present in Messrs. Payne's and Gilby's lots of standard pompons. Cut blooms were rather numerously shown as a whole. The first lot of twenty-four in the open class contained some good blooms, notably of Golden Empress of India, Princess of Wales, Princess of Teck, Prince Alfred, Barbara, Princess Beatrice, Cherub, and George Glenny. These were staged by Mr. J. Udale, gr., Shirecliffe Hall, Sheffield, whose blooms in this and another class were undoubtedly the best in the room. The blooms staged by Mr. Gilby, and which were awarded the Silver Cup in the local class for twenty-four imbricated flowers, consisted of fine sorts, among which were Mrs. Heale, John Salter, Bronze Jardin des Plantes, Isabella Bott, Rev. J. Dix, Venus, Princess Beatrice, Barbara, Hero of Stoke Newington, Mrs. Brunlees, Mr. Bunn, Cherub, White Beverley, Guernsey Nugget, Lady Hardinge, and Prince Alfred. Mr. Martin had also good St. Patrick, Mr. Bunn, John Salter, Cherub. The Japanese section was mainly made up of the newer flowers in this class—Flambeaux, and Flambeaux rose; Madame Mouline, Mr. Charles Huber, a crimson and orange, the reflex of petals being bright yellow; Gloire de Toulon, L'Incomparable, a beautiful narrow petalled orange; Thunberg, primrose, incurved; Mr. Castel, Bismarck, The Sultan, Comte de Germiny, Grand Turk, and Rubra Striata, a purplish-crimson, striped slightly with gold. These brilliant flowers were of great size, and most conspicuous by contrast of their bizarre tints with the more sober hues of the imbricated and small-flowered sections. The dais in the hall was admirably filled up with fine-foliaged plants, so that the "horrid void" was less noticeable than it would have been, some very creditable specimens of Seaforthia elegans, Pandanus and Ferns being there arranged. In front of these was placed, not for competition, a collection of fruit, by Mr. W. J. Smith, of 128, High Street, Stoke Newington, consisting of seasonable varieties of Apples and Pears, together with some apparently good foreign Pines, Pomegranates, Nuts, &c. The same enterprising gentleman also contributed a variety of bouquets tastefully contrived. Dividing the long table longitudinally on which the cut blooms of Chrysanthemums were displayed, were some small decorative dinner plants—too small, indeed, to serve as a suitable background or foil for the flowers.

BOROUGH OF LAMBETH.—The annual show of this amateurs' society extended from Monday to Wednesday evening. This modest attempt to bring before the inhabitants of South London the prettiest of autumn flowers, and one that is within their compass to attempt its cultivation, meets with well deserved success, the Lecture Hall in which the exhibition was held being much visited in the evening; and so numerous are the exhibits likely to become at no remote date that doubts are expressed as to the capability of the present hall to contain them. When it is considered how small is the area—1½ mile from the "Elephant and Castle"—the wonder is that so many good things could be found on what at first sight seems to be a most unpromising field for horticultural efforts. The gardens are generally small, and surrounded with tall buildings, so that it is not only the extra abundance of smoke and dust that the plants must fight with, but, in addition, they are deprived of much sunshine. As encouragement to the efforts of local enthusiasts we noticed a plated tea-pot, two silver cups, a massive inkstand, and two albums. Some excellent cut blooms of Japanese sorts were shown by Mr. Child, who was 1st, Mr. H. Ellis 2d, and Mr. C. H. Payne 3d. In the incurved class Mr. Child was again 1st, Mr. Ball 2d, and Mr. Ellis 3d; some of these incurved blooms were small, but very fair examples of amateur culture. Reflexed varieties were exhibited by, 1st, Mr. Payne; 2d, Mr. Williams; 3d, Mr. W. Addison. The sorts were well chosen, consisting of Chevalier Domage, Attraction, Ariadne, Golden Christine, Dr. Sharp, Pink Christine, Progne, Julie Lagravère, Mrs. Forsyth. The various sections of plants in pots were well bloomed in most instances, and, as a rule, were allowed to grow quite innocent of tying or wiring; and it must be said that these children of Nature compared favourably with those that unluckily had been tortured into pyramids, globes, and other shapes. Pompons were well shown by Mr. Clarke, Mr. Mills, and Mr. Howett, the blooms being fully open, and the foliage of the healthiest description. Some good kinds in cut blooms were exhibited by honorary members of the Society. Thus, for twelve incurved blooms, dissimilar, Mr. Richards was 1st, Mr. Fraser 2d, and Mr. Crisp 3d. In the competition for Japanese sorts Mr. Fraser was 1st; 2d, Mr. Richards; 3d, Mr. Crisp. This was a very good lot, containing some of the newest sorts of the section. The Anemone-flowered Chrysanthemums shown by these members were also good and well chosen.

PUTNEY AND DISTRICT.—The sixth annual meeting of this Society was held in the Assembly Rooms, Putney, on Tuesday, and, favoured as exhibitors have been by the very pleasant weather of the last week, the blooms exhibited showed to much advantage, and but few badly formed ones could be detected in the rather extensive collection that had been so assiduously brought together. The competition for the best collection brought an excellent show of twenties from several gentlemen's gardeners of the neighbourhood, the plants and collections being of a very even quality throughout, with finely developed blooms set off in all cases by stout healthy foliage. In this class the 1st, a Silver Cup, was won by Mr. A. Newell, gr. to Sir Edwin Saunders, Bart., Wimbledon Common, Mr. G. W. Knowles, gr. to G. M. Allender, Esq., Park Lane, being 2d; Messrs. Mahood & Son, Windsor Nurseries, Putney, 3d; and Mr. J. Carter, gr. to J. Parr, Esq., Heathside, Wimbledon, 4th. In the class for four large flowered varieties, distinct, Mr. Tyte, gr. to Mrs. Reid, Heathcroft, came in 1st; Mr. Bentley, gr. to Sir T. Gabriel, Bart., 2d; and Messrs. Tigwell & Son, Mortlake, 3d. In the single plant competition Messrs. Mahood & Son took the lead, with a capital specimen of the Golden George Glenny; 2d, C. W. Knowles, with Mrs. Dixon; 3d, Mr. J. Hopkins, gr. to S. Williams, Esq., The Laurels, with a good Baron Beust. Single plants, Japanese varieties, were exhibited in competition by Mr. Stacey, gr. to E. Nixey, Esq., who was 1st, with a nicely grown Dr. Masters, a fine crimson-bronze, every flower of which seemed perfection; 2d, Mr. J. Bentley, with Elaine; 3d, J. Pepper, Esq., St. John's Road. In the class for large flowered standard plants Mr. Stacey was again 1st, Mr. Tyte, 2d, and Messrs. Tigwell & Son 3d. The plants shown in the above sections were chiefly, if not quite all, of the older known kinds; even among the Japanese varieties, of which there are so many fine novelties, the old sorts predominated. Pompons were very prettily shown in dwarf healthy plants, tastefully trained by Mr. Tyte, who was 1st; and Mr. C. Bentley, gr. to T. C. Baring, Esq., The Cedars, who came in 2d; Messrs. Hopkins, Tyte, and Stacey were awarded prizes for single pompons in the order in which their names are given. The cut blooms of incurved sorts, shown in a class for twenty-four, were well contested, the several collections consisting of exceptionally good flowers. 1st, Mr. G. Harding, gr. to D. T. Galpin, Esq.: excellent in this lot were Prince Alfred, Mr. Bunn, Empress of India, Lady Hardinge, Novelty, Refulgens, as good as we have seen it this season; Princess Beatrice, Barbara, Nil Desperandum, White Venus, Princess of Teck, Queen of England, Mrs. Heale, Mrs. Dixon, Prince of Wales, Venus, Golden Perfection, Hero of Stoke Newington, Mrs. Rundle, Empress Eugènie, Jean d'Arc. 2d, Mr. Holmes, gr. to G. M. Storey, Esq., Nightingale Lane, who had most of the above-named sorts, and Mrs. Shipman, Barbara, Mons. Corbay, Cherub, Baron Beust; 3d, Mr. Hopkins, The Laurels, Richmond Road. In the next best class, that for twelve incurved large flowering variety, Messrs. Mahood—whose Mr. Bunn, Emily Dale, Cherub, J. Salter, Golden Empress, Empress Eugènie, Empress of India, were very choice examples—came in 1st; 2d, Mr. G. Harding; 3d, Mr. M. Sullivan, gr. to D. B. Chapman, Esq., Roehampton. Messrs. J. Bentley, Mr. Sullivan, and Mr. C. Woodham, gr. to P. Davies, Esq., Earlsfield, took the prizes for six incurved flowers in the sequence of their names. The handsome Anemone flowered section was well represented in Messrs. Mahood & Son's collection, with Fleur de Marie, Lady Margaret, Mr. Pethers, Geo. Sands, and Glück; 2d, Mr. Bentley; 3d, Mr. James Lee, gr. to G. R. Stevenson, Esq., Albemarle Lodge. In the competition for twelve Japanese varieties some very beautiful blooms were shown, probably as large as is often seen at metropolitan shows. 1st, Messrs. Mahood & Son, who had Agrément de la Nature, Mrs. Townshend, Balmoreanum, M. Marouch, Mrs. J. Mahood, Garnet (a grand crimson), Joseph Mahood, Mr. Burnet, Baron de Prailly, Meg Merrilies, M. Ardene, Triomphe de la Rue Châtelet; 2d, Mr. M. Sullivan, who had excellent flowers of Erecta superba, M. Delaux, Fulgore, Comte de Germiny; 3d, Mrs. Jas. Lee. For six Japanese varieties, 1st, Mr. J. Bentley, in whose lot were Mde. Moulise, Golden Dragon, Comte de Beauregard; 2d, Mr. M. Sullivan; 3d, Mr. G. Stevens, St. John's Nurseries. Cut blooms of pompons were nicely shown in trusses. The 1st prize went to Mr. J. Tyte, the 2d to Mr. D. Ansdell, gr. to G. Reid, Esq., Putney; and the 3d to Mr. J. Bentley. In the competition with twelve cut blooms, in which single-handed gardeners only could meet, Mr. E. Coombes, gr., Lawn Bank, Teddington, was 1st, with some capital Japanese sorts, such as Soleil Levant, Madame Andiguier, Comtesse Beauregard, Rosa Bonheur, Mr. J. Burnet, &c.; 2d, Mr. J. Carter; 3d, Mr. J. Hopkins. In the amateurs' classes for groups of twelve Chrysanthemums J. Pepper, Esq., was 1st; H. A. Rolt, Esq., 2d; and Miss Tippins 3d. Pompons were also shown by the same exhibitors, with the lady heading the list this time. A special prize was given by Mr. G. Stevens, St. John's Nursery, for twelve cut blooms—four incurved, four Japanese, and four Anemone-flowered—the 1st prize for which was taken by Messrs. Mahood & Son, the 2d by Mr. G. Hopkins, and the 3d by Mr. Bentley. Other special prizes were also given by H. Pitt, Esq., for groups of decorative plants, which brought forth some useful subjects, wherewith the corners of the saloon and the spaces between the flower groups were duly filled up, and without which a certain amount of baldness would have prevailed. Some excellent Alicante Grapes were shown by Mr. Holmes and S. Howard, Esq.; and capital Apples by Mr. Stevenson, Mr. Smith, and C. Maskell, Esq.; and smaller quantities, but far finer fruits, by Messrs. F. Bush, J. Smollet, and J. Bent. Good lots of seasonable kitchen garden productions were shown by Messrs. Tigwell & Son, 1st; Mr. D. Campbell 2d, and Mr. C. Knowles 3d.

TORQUAY.—The annual Chrysanthemum exhibition was held in the Bath Saloons, Torquay, on the 7th and 8th inst. The Chrysanthemum was not shown up to the usual standard, as far as the plants are concerned—the judges rightly passing over a collection very stiffly trained, and where an immense number of huge stakes were exposed, which really formed one of the principal features of the collection, to one of less formal training and more pleasing. The number of entries for plants appeared to be as large as usual. Competition for cut flowers showed a falling off. Some good flowers were shown on the stand of Mr. Dolly, gr. to Mrs. Wild, Newton Abbot, who took the lead in almost all the open classes and those confined to residents within ten miles of Torquay. The restricting exhibitors in the cut flower classes, which in a Chrysanthemum exhibition forms the principal feature, is a mistake, because the funds are diminished and the schedule prizes of course small. Fruit was shown well, the Earl of Kinnoul taking all the leading prizes for Grapes, and Jas. Searle, Esq., Crediton, for Apples and Pears. Pears were excellent indeed shown in this gentleman's collection, namely, Doyenné du Comice, Beurré Diel, Chaumontel, Beurré Bachelier, Easter Beurré, very fine and clean, finely coloured; Belle de Jersey, and Belissime d'Hiver. His Apples also were very good. The collection of three dozen varieties, exhibited by Messrs. Veitch & Son, were very fair specimens, clean and well grown, comprising the most popular varieties grown. The Rev. W. H. Gretton, Torquay, exhibited a very nice collection of two dozen varieties from his estate in Hereford. Vegetables were good, but not very numerously contested. The local nurserymen, through some misunderstanding, were only represented by Messrs. Burridge, of Paignton, who put up a very nice collection of mixed decorative plants.

EASTBOURNE.—The first exhibition held by this Society was most creditable to all concerned, comprising the usual kinds, except in a few instances. In the two popular classes of twenty-four, cut flowers, Mr. Ridout, of Reigate, carried all before him; in the twenty-four incurved, we noticed a very fine flower, a sport from Mrs. Heale, named Bendigo a very peculiar pleasing bronze-yellow, the whole build and shape nearly perfect, it was awarded a First-class Certificate. In the twenty-four Japanese Mr. Ridout was again 1st, with Chinaman, Beauté de Toulouse, Albert, very beautiful; Triomphe du Nord, Source d'Or, Elaine, all grand flowers indeed. For a new Society and a new beginner, Mr. Jupp, gr. to — Bolton, Esq., showed well, and bids fair to march well to the front another year. Perhaps the most unusual feature in the show was a collection of double Dahlias from the President, H. Wood, Esq., staged side by side with Chrysanthemums. It is very rare that Jack Frost permits these two genera to meet face to face. The competition groups were well done and very pretty but the large trade collection from Mr. Scott, of some hundreds of plants, stretched across from side to side of the New Floral Hall, in Downshire Park, was the largest we have ever seen and the best arranged; edged with Mignonette, Ferns and mosses, it gave a charm to the whole. These together with the usual and tasteful group of Cannell & Sons, of Swanley, comprising cut blooms of single and double Pelargoniums, Primulas, &c., constituted the attractive features of the show; both received the usual rewards. Mr. Davis, of Camberwell, showed a stand of cut flowers, not for competition, and was also awarded a First-class Certificate for Mary Major, a beautiful white Japanese variety. Fruit was very sparingly shown, but very good, particularly Black Muscat of Alexandria Grapes. Vegetables were more plentifully shown, and some of the collections very good.

BOROUGH OF HACKNEY.—The thirty-seventh annual show of this Society was held on Wednesday and Thursday, at the Westminster Royal Aquarium, resulting in what all observers were compelled to describe as the best show of these flowers held by any society in that place. The fine seasonable weather contributed largely to the production of first-class blooms; that was not more especially remarked than in the two sections of Japanese and incurved Chrysanthemums, these being the first to deteriorate in damp ungenial weather. The effect of the whole was greatly enhanced by several imposing groups of Palms and other large fine-foliaged plants, arranged in two points in the middle portion of the space set apart for show purposes — the florally decorated fountain at the end contributing prominently to the general good effect. The large groups placed in contact with this object, being backed up by the Palms, were seen to great advantage. The foremost of these, although not for competition, consisted of large well flowered examples sent by J. McAndrews, Esq., Belmont, Mill Hill (Mr. Lowry, gr.), the most pleasing flowers being L'Isle des Plaisirs, a beautiful orange and gold—very rich; Japan hybrid Snowball, Baron Beust, La Nymphe, a pale pink reflexed sort; Julie Lagravère, and other good old kinds. Right and left from these the competing groups were arranged with good effect, their imposing size and height, the latter property, although culturally a fault, standing them in good stead. The 1st prize, a Silver Cup, was awarded to Messrs. Mahood & Son, Putney; 2d, Mr. G. Stevens, Putney; 3d, Mr. N. Davis, 66, Warner Road, Camberwell. For six plants Mr. Cherry, gr. to Mrs. Gabriel, Norfolk House, Streatham, was 1st; Mr. R. Payne, Stamford Hill, 2d; and Mr. Archer, gr. to J. J. Griffiths, Highbury, 3d. For four standards Mr. Weller, Bexley, was 1st; Mr. R. Payne 2d, and Mr. G. Archer 3d. In the pompon section, which were exceedingly well done, Mr. G. Archer came in 1st; Mr. Cherry 2d, and Mr. R. Payne 3d. The prizes for foliage plants were awarded to Mr. Archer, 1st; Mr. Payne 2d, Mr. Stevens 3d. In the cut flower class, for twenty-four incurved blooms, distinct, Mr. E. Sanderson, St. Mary's Road, Harlesdon, took the leading honours, showing fine blooms of Empress of India, A. Salter, Emily Dale, Lady Hardinge, Empress Eugénie, Jardin des Plantes, John Salter, Princess of Teck, Duchess of Wellington, Princess of Wales, Abbé Passaglia, Golden Eagle, Mrs. Shipman, Mrs. Heale, Golden Empress, Venus, Nil Desperandum, Cherub, Guernsey Nugget, Barbara, Queen of England, Legrand, and White Venus; 2d, Mr. C. J. Salter, gr. to J. Southgate, Esq., Selborne, Streatham; 3d, Mr. J. Clark, gr. to Mrs. Joad, Patching House, Worthing. For eighteen incurved blooms the prizes were awarded as follows:—1st, Mr. E. Sanderson, with Mary Morgan and similar varieties, as shown by him in the larger class; 2d, Mr. J. Major, gr. to G. J. P. Kidstone, Esq., Nyn Park, Northam, Potter's Bar; 3d, Messrs. Saltmarsh, Chelmsford. For twelve incurved blooms the 1st went to Mr. Udale, from distant Shirecliffe Hall Gardens, Sheffield, who had capital blooms of Queen of England, Alf. Salter, Empress of India, Princess of Wales, Mrs. Heale, Isabella Bott, and other older favourite sorts; 2d., Mr. C. Herrin, Challont Park Gardens, Gerrard's Cross, who had the beautiful Lord Wolseley, in good form; 3d, Mr. Spreckley, gr., Worplesdon Place, Guildford. The winners for six incurved blooms were:—1st, Mr. Prickett, gr. to J. Gribble, Esq., Bohun Lodge Gardens, East Barnet, who had Prince Alfred, Golden Empress, Barbara, and others of much excellence; 2d, Mr. Sprickley; 3d, Messrs. Saltmarsh, Chelmsford. The prizes in the Anemone-flowered section—one that is usually a weak one in all shows, but which here was represented by some very fine examples—fell to Mr. Ed. Berry, Roebampton House, 1st, with Marguerite de Norway, Louise Bonamy, G. Sands, Marginatum, Glück, Prince of Anemones, Lady Marguèrite; 2d, E. C. Jukes, Esq., Hope House, Winchmore Hill, who had good King of Anemones, and Fleur de Marle; 3d, Messrs. Mahood & Son. Anemone pompons were but few, the prize-winners being, 1st, Mr. W. Butcher, Hadley, Barnet; 2d, Mr. Hillier, 139, Great Suffolk Street, Borough; 3d, W. Long, Esq., 50, Clifton Hill, St. John's Wood. For twenty-four Japanese blooms, distinct, 1st, Mr. Ridout, gr. to T. B. Haywood, Esq., Reigate, with splendid flowers of the following sorts:—L'Incomparable, The Daimio, Agrément de la Nature, Chinaman, Beauté de Toulouse, Fulgore, Comte de Germiny, Oracle, Nuit d'Hiver, Erectum superbum, Triomphe du Nord, Bouquet Fait, The Cossack, Peter the Great, Chang, Sarnia, Soleil Levant, Madame Andiguier, Fair Maid of Guernsey, Madame Rendatler. 2d, Messrs. Dixon & Co., Amhurst Nurseries, Hackney. In this lot were excellent blooms of Criterion, Madame Boucharlet, La Fée Ragouse, and Album plenum; 3d, Mr. C. Herrin. For twelve Japanese blooms, distinct, 1st, Mr. Maxted, gr. to the Marquis of Ely, Kearnsey Abbey, Devon, who had fine examples of Pére Delaux, Duchess of Connaught, Illustration, Ethel; 2d, Mr. W. Jupp, gr. to J. Boulton, Esq., Torfield, Eastbourne; 3d, Mr. E. Berry. Special prizes of £10, £3, and £1 were awarded for forty-eight blooms, twenty-four of which were to be of Japanese sorts, which had brought a beautiful lot of samples together. Messrs. Dixon & Co. were awarded the 1st prize with sorts identical with Mr. Ridout's lot, plus such sorts as Meg Merrilies, Madame Moulise, Baron Prailly, Parasol, Thunberg, &c.; 2d, Mr. C. Herrin; 3d, Messrs. Mahood & Son. The Silver Cup given by Messrs. Dixon & Co. for the best twelve Japanese blooms sent out in 1882 was adjudged to Mr. J. J. Hillier. For twelve blooms, four incurved and four Japanese sorts, inclusive, 1st, Mr. Herrin; 2d, Mr. Ridout; 3d, Mr. Berry. For six large Anemone-flowered sorts, 1st, Mr. Herrin; 2d, Mr. Ridout; 3d, Mr. Bellesworth, Barton Grange. For six Japan varieties, 1st, Messrs. Mahood & Son; 2d, Mr. Herrin; 3d, Mrs. Anderson, Waverley Abbey, Farnham. In the class for twelve pompons, three blooms of each, Mr. C. Martin, Kearnsey Abbey, was awarded the 1st prize. Good were Rosinante, Madame Marthe, Golden ditto, Mrs. Wheeler, St. Thaire, Model, Perfection, Mons. Hoste, Fanny Marabout; 2d, Mr. Butcher; 3d, Mr. E. Huntley, gr. to C. N. Peal, Fernhurst, Mattock Lane, Ealing. For twelve reflexed blooms, 1st, Messrs. Dixon & Co.; 2d, Messrs. Mahood & Son; 3d, Mr. W. Jupp. The special prize, given by W. Ireton, Esq., was awarded to the Empress of India in Mr. Dix's stand, this bloom being adjudged the finest in the show. Chinese Primulas were shown by several, Mr. Jukes and Mr. Gilbey being respectively 1st and 2d.

Fruits. — The exhibits of Grapes were especially fine. The 1st prize for the best dish of white Grapes was awarded to Mr. A. Smith, gr. to A. Sewell, Esq., Warren Hill, Loughton, for three bunches of Muscat of Alexandria; 2d, Mr. J. Austen, Ashton Court, for three bunches of the same sort; 3d, Mr. Herrin, ditto. For three bunches of black Grapes, 1st, Mr. Allan, gr. to Lord Suffield, Gunton Park, for very well finished Gros Colmar; 2d, Mr. S. Castle, manager, The Vineyard, West Lynn, Norfolk, for the same sort; 3d, Mr. Howe, gr. to H. Tate, Esq., Park Hill, Streatham, for Black Alicante. For the collections of Grapes of not less than twelve bunches some magnificent specimens were staged, the prizes given by the Royal Aquarium Company (£10, £3, and £1 10s.) bringing the best growers into the field. 1st, Mr. Roberts, Gunnersbury, with Alnwick Seedling, Muscat of Alexandria, Black Alicante, White Tokay, Gros Guillaume, Mrs. Pince, St. Peter's, and Black Hamburgh; 2d, Mr. J. Austin, who had very fine Alicante, Mrs. Pince, Black Muscat, Muscat of Alexandria; 3d, Mr. Findlay. The numerous entries of Apples and Pears made a show of these fruits of some magnitude, the individual lots being, in most cases, well grown, and the Apples especially high in colour. For dessert Apples, six dishes, 1st, Mr. Allis, Old Warden Park, Biggleswade. This lot consisted of Aromatic Russet, Court Pendu Plat, Sykehouse Russet, Court of Wick, Reinette Gris, and Cox's Orange Pippin; 2d, Mr. J. Austen, Ashton Court; 3d, Mr. G. Goldsmith, gr., Hollanden House, Tunbridge. For culinary Apples Mr. Haycock, Barham Court, was awarded 1st; Mr. Ross, Welford Park, 2d; Mr. Austen, 3d. In the competition for six dishes, dessert Pears, 1st, Mr. Haycock, with Doyenné du Comice, Conseiller de la Cour, Duchesse d'Angoulême, Beurré Diel, and Easter Beurré; 2d, Mr. Fowle, gr. to Sir H. Mildmay, Bart.; 3d, Mr. Goldsmith.

Vegetables.—The collections of vegetables left nothing to be desired, and contained everything in season. 1st, Mr. J. May, Northam House, Barnet; 2d, Mr. Austen; 3d, Mr. Haines, Coleshill House, Highworth. A great quantity of Potatos were exhibited by well known growers, and were quite a feature in the show, being mostly sorts remarkable for symmetrical outline and large size. 1st, Mr. R. Dean; 2d, Mr. Ross, Welford Park; 3d, Mr. Osman—for twelve dishes. The smaller competition, for the best six dishes, resulted in Mr. R. Dean being again 1st, Mr. Osman 2d, Mr. Prangwell, the Metropolitan School, Epsom, 3d. The prizes offered by Messrs. Webb & Son, Wordsley, Stourbridge, for the best collections of vegetables, enabled Mr. J. Austen to be 1st, his lot containing Select James' Onion, Snowball Turnip, Musselburgh Leek, Excelsior Tomato, Autumn Giant Cauliflower, White Star Potato, Sion House Kidney Beans, &c.; 2d Mr. May, 3d Mr. Findlay. Messrs. Hooper's prize for six varieties of vegetables was awarded to Mr. J. May. The above complete the list of awards in the open classes.

Amateur Classes. — For twelve incurved Crysanthemum blooms, distinct, 1st, Mr. Wildman, Oakland Grove Road, Clapham, with very good blooms of the usual varieties shown (this exhibitor was also fortunate in getting the 1st prize for six incurved blooms); 2d, Mr. F. Bingham, 22, Manor Road, Stoke Newington. In those classes designated "Borough," Messrs. Drain, Southgate Nurseries, were awarded 1st prize—a Silver Cup—for ten plants of Chrysanthemums in pots under 12 inches. This was a capitally bloomed exhibit, and included Japanese and incurved varieties; 2d Mr. Gilbey, 3d Mr. Payne. For four plants under same conditions, 1st, Messrs. Drain — other prizes were not awarded. In the competition for four standard pompons, 1st, Mr. Gilbey; 2d, Mr. R. Payne. For twenty-four incurved blooms, 1st, Mr. Gilbey; 2d, Mr. Martin; 3d, Mr. R. Payne. In the class for twelve incurved blooms, 1st, Mr. Langton, gr. to Drs. Monroe and Adams, Clapton; 2d, Mr. K. H. Nichols, gr. to W. T. Ogden, Esq., Verandah House, Clapton; 3d, Mr. R. Payne. Mr. Gilbey, Mr. Langdon, Mr. Nichol won respectively 1st, 2d, and 3d prize for six incurved blooms, the prizes for twelve Japanese blooms being taken by, 1st, Mr. Langdon; 2d, R. W. Right; 3d, Mr. W. Holmes. The Messrs. Sutton staged a very large collection of Potatos, remarkable for their enticing appearance, and fine quality of surface. It may be stated in conclusion that it is the intention of the Hackney Borough Chrysanthemum Society to assume the title of the "National" in lieu of its present one, and, as becomes a Society with so pretentious a name, to draw to itself many of the minor and ill-supported societies of the country.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, NOVEMBER 14, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Nov.	In.	In.	°	°	°	°	°		°		In.
8	29.55	−0.25	49.0	38.0	11.0	44.0	− 0.3	40.9	89	S.S.E. WNW	0.05
9	29.51	−0.29	53.2	40.0	13.2	46.4	+ 2.5	41.5	84	W.S.W	0.03
10	29.53	−0.27	44.5	36.9	7.6	41.0	− 2.5	33.1	74	WNW.	0.00
11	29.59	−0.20	46.0	36.4	9.6	40.6	− 2.6	36.5	86	W. S.W.	0.00
12	29.68	−0.11	43.1	30.5	12.6	35.6	− 6.3	32.3	85	WNW.	0.00
13	29.93	+0.14	44.5	30.0	14.5	37.7	− 5.0	33.2	84	N.W.	0.02
14	29.98	+0.21	42.5	30.0	12.5	37.2	− 5.3	31.3	80	W. NNW.	0.00
Mean	29.68	−0.11	46.1	34.5	11.6	40.5	− 2.8	35.5	83	WNW.	0.08

Nov. 8.—Dull morning, fine bright afternoon, rain in the evening. Fine at midnight.
— 9.—Fine day, shower of rain from 1.30 to 2 P.M. Fine night.
— 10.—Fine day, very slight shower at 9.30 A.M., and again at 9.45 A.M. Cloudless till 11 P.M., then overcast.
— 11.—Fine day and night.
— 12.—Fine, but very cold day, fog throughout. Fog at night.
— 13.—Fine cold day, fog. Fine night.
— 14.—Fine cold day, foggy. Fine night.

LONDON: *Atmospheric Pressure.*—During the week ending November 10 the reading of the barometer at the level of the sea decreased from 30.10 inches at the beginning of the week to 29.58 inches by 3 P.M. on the 4th, increased to 29.69 inches by 9 A.M. on the 5th, decreased to 28.97 inches by 9 A.M. on the 6th, increased to 29.76 inches by 3 P.M. on the 8th, decreased to 29.67 inches by 3 P.M. on the 9th, increased to 29.72 inches by midnight on the same day, decreased to 29.65 inches by 9 A.M. on the 10th, and was 29.77 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.60 inches, being 0.56 inch lower than last week, and 0.37 inch below the average of the week.

Temperature. — The highest temperature in the shade in the week was 55°.5, on November 6; the highest reached on the 10th was 44°.5. The mean of the seven high day temperatures was 49°.9.

The lowest temperature was 33°.5, on the 7th; on the 6th the lowest was 42°. The mean of the seven low night temperatures was 38°.2.

The greatest range of temperature in one day was 13°.5, on the 6th; and the smallest was 7°.6, on the 10th. The mean of the seven daily ranges was 11°.7.

The mean temperatures were—on November 4, 45°.4; on the 5th, 44°.3; on the 6th, 47°.7; on the 7th, 40°.3; on the 8th, 44°; on the 9th, 46°.4; and on the 10th, 41°; of these the 6th and 9th were above their averages by 2°.6 and 2°.5 respectively, the rest being below by 0°.2, 1°.1, 4°.4, 0°.3, and 2°.5 respectively.

The mean temperature was 44°.2, being 4°.7 below last week, and 0°.5 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the

sun was 94°.5, on the 5th. The mean of the seven readings was 78°.2.

The lowest reading of a minimum thermometer with its bulb on short grass was 29°, on the 7th. The mean of the seven readings was 31°.8.

Rain.—Rain fell on six days to the amount of 0.94 inch.

ENGLAND: *Temperature.*—During the week ending November 10 the highest temperatures were 58°.5 at Brighton, 58° at Leeds, and 57° at Truro; the highest at Bolton was 48°.6, and at Leicester, Wolverhampton, and Sheffield, 50°. The general mean was 53°.

The lowest temperatures in the week were 29°.5 at Wolverhampton, 30°.7 at Nottingham, and 31° at Hull; the lowest at Liverpool was 37°.3, at Brighton 36°, and at Preston 35°. The general mean was 32°.9.

The greatest ranges in the week were 25° at Truro, 24° at Leeds, and 23°.2 at Bristol; the smallest ranges were 15°.2 at Liverpool, 16°.5 at Leicester, and 16°.7 at Bolton. The general mean was 20°.2.

The mean of the seven high day temperatures was highest at Truro, 54°.7, at Plymouth 53°.9, and at Brighton 51°.3; and were lowest at Bolton, 46°.6, and at Sheffield and Preston 47°. The general mean was 49°.4.

The mean of the seven low night temperatures was highest at Liverpool, 40°.1, at Truro 39°.8, and at Preston 38°.6; and were lowest at Wolverhampton, 32°.9, at Hull 34°.7, and at Nottingham 35°.1. The general mean was 37°.3.

The mean daily ranges of temperature were greatest at Plymouth, 15°.9, at Truro 14°.9, and at Wolverhampton 14°.6; and were least at Preston, 8°.4, at Liverpool 8°.6, and at Sheffield 9°.2. The general mean was 12°.1.

The mean temperature was highest at Truro, 46°.7, at Plymouth 45°.4, and at Brighton 44°.3; and was lowest at Wolverhampton, 39°.6, at Bolton 40°.8, and at Nottingham 41°.2 The general mean was 42°.8.

Rain.—The largest falls were—2.69 inches at Bolton, 1.61 inch at Preston, and 1.58 inch at Wolverhampton; the smallest falls were—0.80 inch at Hull, 0.85 inch at Leeds, and 0.94 inch at Blackheath. The general mean fall was 1.28 inch. Rain fell on every day in the week at Truro, Bristol, Leicester, Sheffield, and Leeds, and on five or six days at other stations.

SCOTLAND: *Temperature.*—During the week ending November 10 the highest temperature was 59°.5, at Glasgow; at Leith the highest in the week was 49°.2 The general mean was 53°.

The lowest temperature in the week was 25°, at Perth; at Leith the lowest temperature was 32°.4. The general mean was 29°.4.

The mean temperature was highest at Glasgow, 46°.5; and lowest at Perth, 39°.8. The general mean was 41°.7.

Rain. — The largest fall was 1.64 inch at Paisley; and the smallest was 0.21 inch at Aberdeen. The general mean fall was 0.78 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

BOTANICAL PERIODICALS: *Botanicus.* There are a number published in Germany and Belgium. Write to Messrs. Williams & Norgate, Henrietta Street, Covent Garden.

CLIMATE OF COSTA RICA: Mr. R. Pfau, Riverside, Chiswick Mall, W., has had a lithographic plate prepared, showing the fluctuations of temperature, &c., for the month of August at Costa Rica and at Chiswick respectively, a copy of which may be had from him on application. It should be stated that the table only gives a record of the meteorological phenomena of one month in one year.

HEREFORD FRUIT SHOW: *Erratum.* The 2d prize for twenty-four varieties of kitchen Apples was won by Lady Emily Foley (Mr. Ward gr.), Mr. Watkins being 3d, and not 2d, as stated in our report at p. 572.

MOCK GINGER: *R. M. L.* We do not know any plant which bears this name.

NAMES OF FRUIT: *J. S. S.* 1, Emperor Alexander; 2, Fearn's Pippin; 3, Wadhurst Pippin; 4, Hollandbury.—*P. S., a Constant Reader.* 4, Farleigh Pippin; 5, Fearn's Pippin; 6, Scarlet Nonpareil; 8, Cornish Gilliflower: others not recognised.—*W. B. Trevelyan.* So much bruised that they cannot be distinguished.—*T. R. B.* 2, Rhode Island Greening: others too small to define names.—*J. F., York.* If it is not a poor sample of Passe Colmar we do not know what it is.—*J. H. F.* 1, Beurré Diel; 2, Beurré Rance; 3, Dumelow's Seedling; 4, Beachamwell.—*Porthgwidden. Apple:* Mabbott's Pearmain; *Pear:* Catillac.—*M. O.* 1, Cellini; 2, Beurré de Capiaumount; 4, Beurré Diel 5, Yorkshire Beauty; 6, Josephine de Malines; 7, Passe Colmar.—*J. J. Foster. Apple:* Rymer. *Pears:* 1, Maréchal de la Cour; 2, Beurré Bachelier? 3, not recognised; 4, Doyenné du Comice.

NAME OF FUNGUS: *H., Liverpool.* Agaricus squarrosus; a common fungus on stumps of all sorts.

NAMES OF PLANTS: *G. B. L.* We cannot undertake to name garden varieties of Chrysanthemums, there are too many of them, and there is too much of a muchness about many of them.—*R. Hopkins.* Senecio pulcher.—*J. Stewart & Sons.* We only recognise the pink-berried plant, Melia Azedarach. The others are mere scraps.—*C. W. Dod.* Boltonia latisquama and B. glastifolia (not B. asteroides) are right. B. glastifolia from Cambridge is an Aster, probably A. salignus.

NEPENTHES AT HOLLOWAY: *Erratum.* At p. 597, for "Nepenthes hybrida" read "N. Hibbertii."

ONION, JAMES' KEEPING: *Ognon.* This variety was raised and put into commerce early in the present century by Mr. James, a market gardener, then carrying on his occupation in Lambeth Marsh.

PEAR DR. TROUSSEAU: *R. M. L.* A December Pear of very good quality—juicy, sugary, and having a fine aroma.

RED DUST ON BOARD: *H., Liverpool.* The yellow dust on the board from the shed near the greenhouse is composed of millions of fungus spores. They agree in size and colour with the spores of the fungus of "dry-rot" (Merulius lacrymans). If you examine the roof you will probably see some interesting patches of it, like pieces of paper covered with yellowish treacle. *W. G. S.*

SUNFLOWER SEEDS: *J. Wilson.* The seeds ripen freely enough in this country, and are valued as food for poultry and pheasants, but whether it would pay you to grow them as a marketable commodity we do not know, having no experience to offer you on the subject.

COMMUNICATIONS RECEIVED.—F. G. H.—Z B.—Bell & Son.—W. Ingram.—B. B.—H. W.—E. B.—R. B. (many thanks)—C. M. O.—I. O. W.—J. S.—J. B. (we cannot undertake to advise you in such a matter.)—B. S.—C. W. C.—J. D.—W. P. R.—J. van V., Brussels (we will try, and report.)—E. P., Ghent (many thanks.)—Ed. A., Paris.—Dr. Clifford Allbutt.—W. B.—C. Y. M.—T. Archer.—Hind.—H Correvon, Geneva.—R. Pfau.—T. and R. Annam.—Leo Grindon.—C. M.

Markets.

COVENT GARDEN, November 15.

BEST Apples somewhat improved. No other alteration this week. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 0– 4 0	Lemons, per case ..	15 0–25 0
Cobs, per 100 lb.	150 0– ..	Pears, French, doz.	1 6– 4 0
Figs, per dozen ..	1 0– ..	Pine-apples, English, per lb.	2 0– ..
Grapes, per lb. ..	1 0– 3 0		

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	3 0– 5 0	Lettuces, Cabbage, per dozen	1 0– ..
— Jerusalem bush.	4 0– ..	— Cos, per dozen..	1 6– ..
Beans, French, lb. ..	1 0– ..	Mint, green, bunch..	0 6– ..
Beet, per doz. ..	1 0– ..	Mushrooms, p. baskt.	1 0– 2 0
Cabbages, per doz..	1 0– 2 0	Onions, per bushel..	3 6– ..
Carrots, per bun. ..	0 4– 0 6	— Spring, per bun.	0 6– ..
Cauliflowers, English, dozen.. ..	2 0– 3 0	Parsley, per bunch..	0 4– ..
Celery, per bundle..	1 6– 2 6	Radishes, per doz. ..	1 6– ..
Cucumbers, each ..	0 4– 0 8	Salsafy, per bundle..	0 8– ..
Endive, English, per dozen	1 0– ..	Seakale, per punnet	2 6– ..
Garlic, per lb. ..	0 6– ..	Small salading, pun.	0 4– ..
Herbs, per bunch ..	0 2– 0 4	Spinach, per bushel	3 6– ..
Horse Radish, bund.	3 0– 4 0	Tomatos, per lb ..	0 6– 0 9
		Turnips, new, bun.	0 4– ..
		Vegt. Marrows, each	0 2– 0 4

POTATOS.—Kent Kidneys, £4 to £4 10s. per ton; do., Regents, £3 10s. to £4 10s.; Champions, £3 10s. to £3 15s. per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	12 0–24 0	Ferns, in var., doz.	4 0–18 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Ficus elastica, each	1 6– 7 0
— (common), dozen	6 0–12 0	Foliage Plants, various, each	2 0–10 0
Begonias, per doz. ..	6 0–12 0	Fuchsias, per dozen	4 0– 9 0
Bouvardias, doz. ..	12 0 18 0	Heaths, various, doz.	9 0 30 0
Chrysanth., per doz.	6 0–18 0	Liliums, various, per dozen	12 0–30 0
Coleus, doz.. ..	2 0– 6 0	Marguerite Daisy, per dozen	8 0–12 0
Cyclamen, per dozen	9 0–18 0	Myrtles, per doz. ..	6 0–12 0
Dracæna term. doz.	30 0 60 0	Palms in variety, each..	2 6–21 0
— viridis, per doz.	12 0–24 0	Pelargoniums, scarlet, per dozen ..	4 0 9 0
Epiphyllum, per doz.	18 0 30 0	Poinsettia, per doz.	18 0 24 0
Erica, various, doz.	9 0 18 0	Solanums, per dozen	8 0 15 0
Euonymus, various, per dozen	9 0 18 0		
Evergreens, in var., per dozen	6 0–24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Lily-of-Valley, spray	1 0– 1 6
Arum Lilies, 12 blms.	4 0– 8 0	Marguerites, 12 bun.	4 0– 6 0
Azalea, white, 12 spr	1 0– 2 0	Mignonette, 12 bun.	2 0– 6 0
Bouvardias, per bun.	1 0– 1 6	Narcissus (Paper-white)	2 0– 4 0
Camellias, per doz...	2 0– 5 0	Pelargoniums, 12 spr.	1 0– 1 6
Carnations, 12 blms.	1 0– 3 0	— zonal, 12 sprays	0 3– 0 6
Chrysanth., 12 blms.	1 0– 4 0	Poinsettia, 12 blooms	6 0–12 0
— 12 bunches ..	4 0– 9 0	Primula, double, bun.	1 0– 1 6
Cyclamen, 12 blooms	0 3– 0 6	— single, 12 bun ..	6 0– 9 0
Epiphyllum, 12 blms.	0 6– 1 6	Roses (indoor), doz.	2 0– 6 0
Eucharis, per doz. ..	4 0– 6 0	— coloured, doz. ..	3 0– 8 6
Gardenias, 12 blms..	4 0– 6 0	Stephanotis, 12 spr.	6 0– 8 0
Gladioli, 12 spikes..	1 0– 3 0	Tropæolum, 12 bun.	1 0– 2 0
Heliotropes, 12 sp. ..	0 6– 1 0	Tuberoses, per doz..	1 0– 2 0
Hyacinths (Roman), 12 sprays	1 6– 2 6	Violets, 12 bunches..	1 0– 1 6
Lapageria, white, 12 blooms	3 0– 6 0	— French, per bun.	1 0– 1 6
— red, 12 blooms..	1 0– 3 0	— Parme, per bun.	4 0– 5 0
Lilac, white Fr., bun.	8 0–10 0	Wallflower, 12 bun..	3 0– 4 0
		White Jasmine, bun.	0 6– 1 0

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SUTTONS' IMPROVED EARLY CHAMPION,

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ORCHIDS.

	s. d.
12 choice free flowering sorts for	21 0
12 " " extra size	30 0
12 " " very choice selected ..	42 0
100 in 50 sorts for	200 0
100 in 100 sorts for	400 0

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STOVE AND GREENHOUSE PLANTS,

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12 fine young healthy plants, distinct, 6s. to 12s.

100 in 100 varieties, forming an unequalled collection, 42s.; same rate for 50 plants.

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CAMELLIAS, guaranteed English growth; these will not drop their buds; 12 strong healthy plants from our well-known collection, 21s. and 42s.

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HARDY HERBACEOUS PLANTS, the most showy sorts (too numerous to mention here—see Catalogues for List), 3*s*. per dozen, 21*s*. per 100.
CARNATIONS and PICOTEES, good exhibition sorts, 6*s*. per dozen plants. Fine Clove and Border Self varieties, 4*s*. per dozen—all from layers.
LILIES, candidum, Orange, and Tiger Lilies, 3*s*. per dozen. Many other sorts in Catalogue.
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ADIANTUM CUNEATUM, 75*s*., 100*s*., and 150*s*. per 100.
AZALEA INDICA, in variety, finely budded, £5, £6, and £7 10*s*. per 100.
CAMELLIAS, well budded, 175*s*. and 200*s*. per 100.
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and Sold by them and all Nurserymen and Seedsmen.

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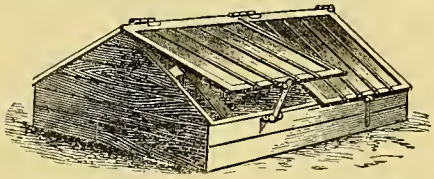

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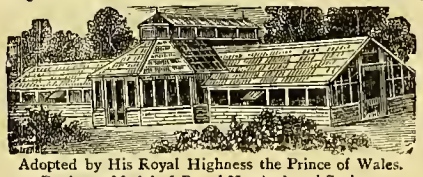

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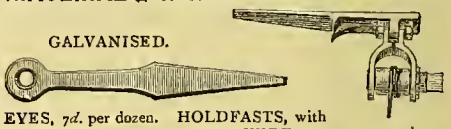

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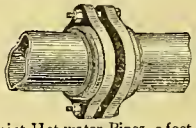

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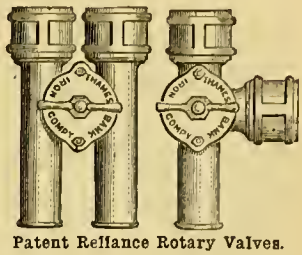

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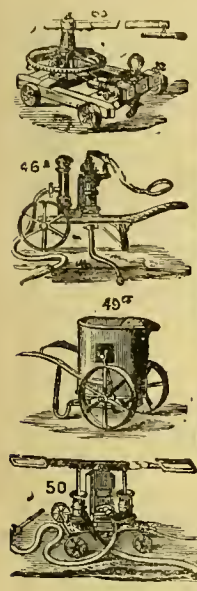

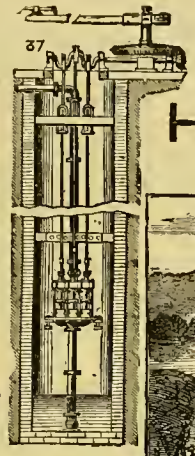

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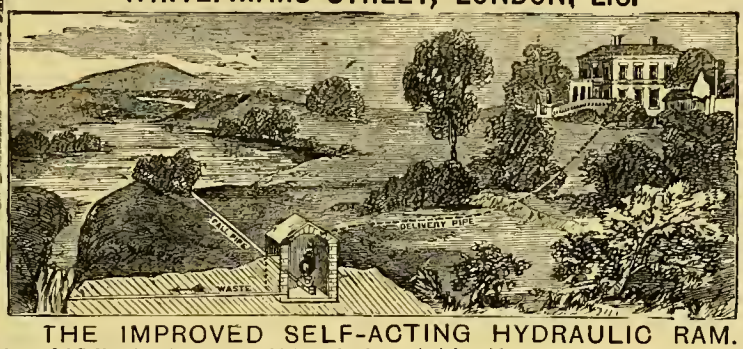

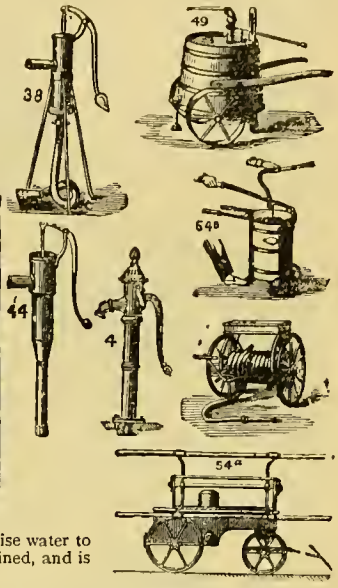

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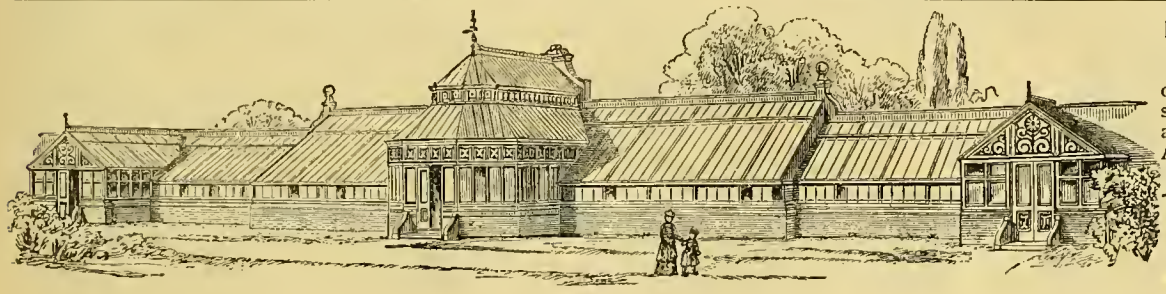

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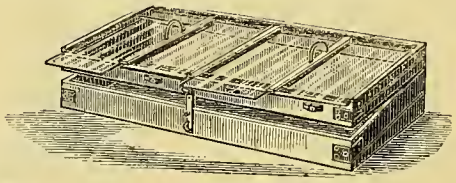

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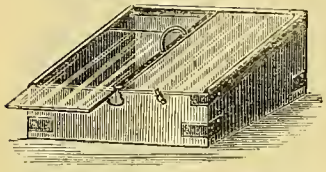

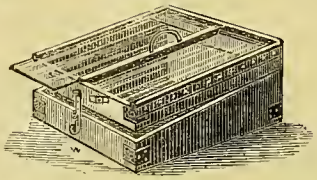

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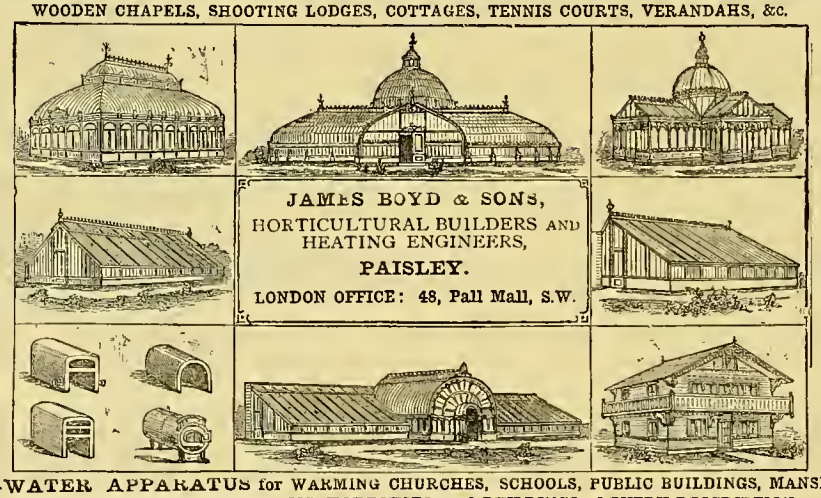

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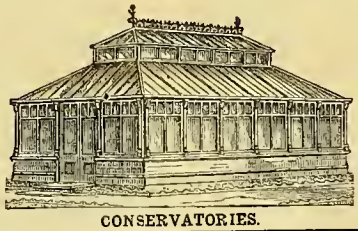

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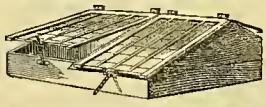

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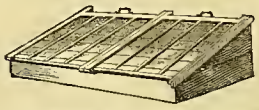

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TO NURSERYMEN, MARKET GROWERS, &c.—Wanted, a situation under Glass. Age 22; six years' good character from present and previous employers.—JAMES SHORT, Clark Bros. & Co., Nurserymen, Carlisle.

TO GARDENERS.—Wanted a situation for a Youth (age 15) in a Gentleman's Garden. Would be willing to pay a Premium to experienced Head Gardener.—E. MENDHAM, Enderby Hall, Leicester.

TO THE SEED TRADE.—Wanted, by a youth (age 17), a situation. Three years' experience in a provincial town; good character.—C. H. THOMAS, 30, Hudson Road, Southsea.

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Wholesale Seed Trade.

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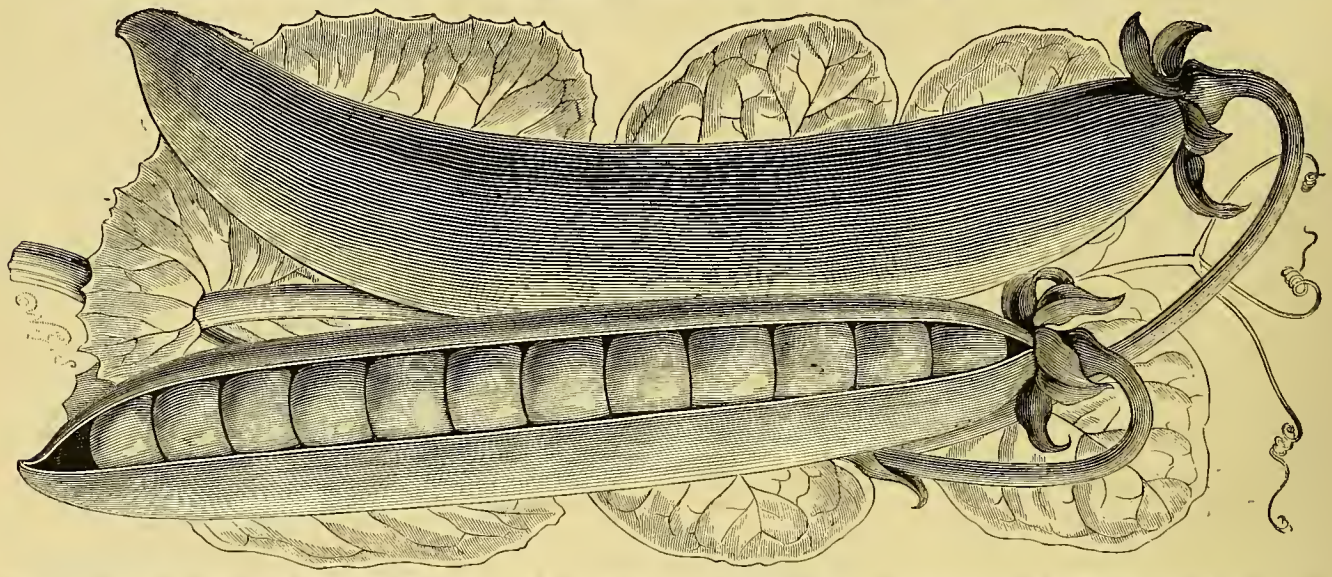

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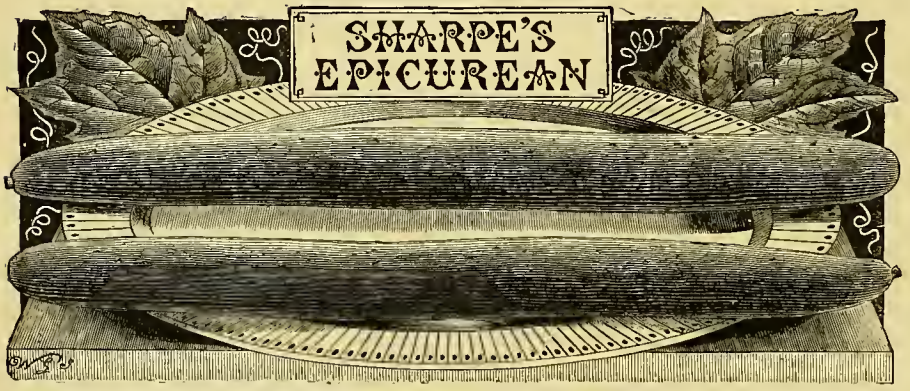

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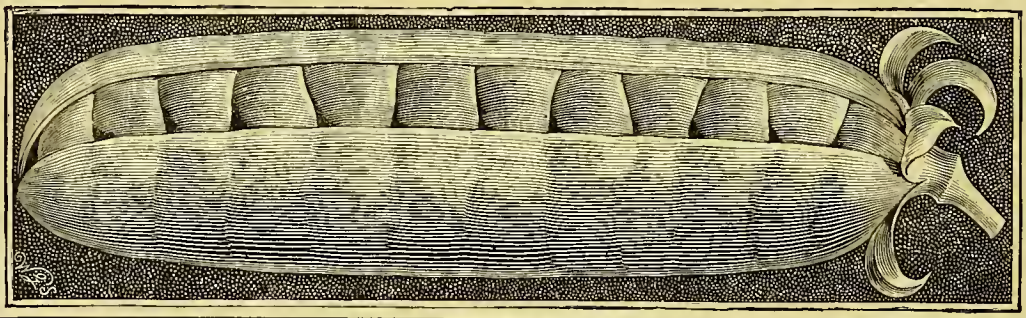

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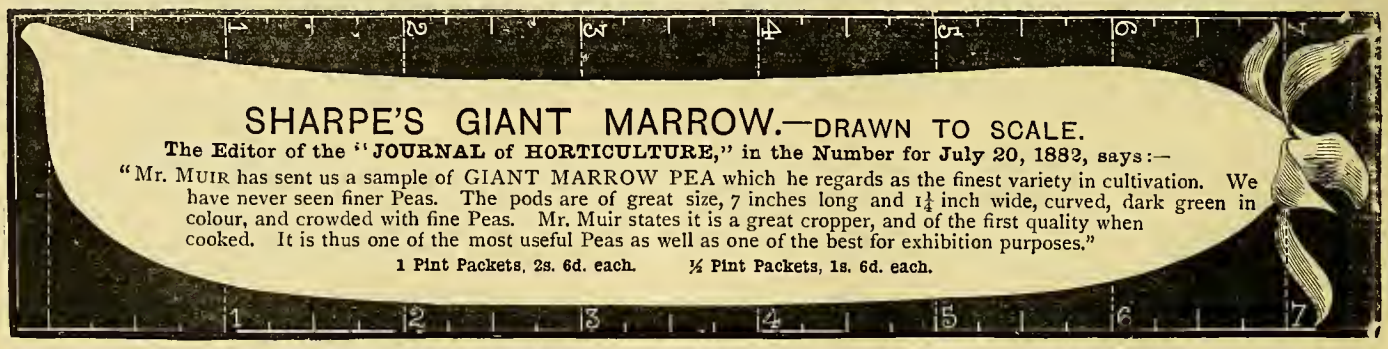

SHARPE'S GIANT MARROW.—DRAWN TO SCALE.

The Editor of the "JOURNAL of HORTICULTURE," in the Number for July 20, 1882, says:—

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Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

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NOTICE to SUBSCRIBERS and OTHERS.

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

NOTICE.—NATIONAL CHRYSANTHEMUM SOCIETY (late Borough of Hackney and original Stoke Newington).—1884.
The ANNUAL EXHIBITION will be held at the Royal Aquarium, Westminster, on WEDNESDAY and THURSDAY, November 12 and 13, 1884.
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Terms and references on application.

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

JOHN LAING AND CO.'S CHRYSANTHEMUM EXHIBITION is now open to view at Stanstead Park. The Collection comprises all the latest interesting Japanese varieties. Lists gratis on application. See reports of the Royal Horticultural Society's meeting on the 13th inst.
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DUTCH BULBS.—Great Unreserved Sales.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY, THURSDAY, and SATURDAY NEXT, at half-past 11 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, GLADIOLUS, and other ROOTS from Holland.

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The Chase Nursery, Frog Hall, opposite Mr. Bramley's Nestbole Farm, Enfield Road, about 2 miles from Oakleigh Park, or New Barnet Station.

In Liquidation.—*Re* Appleby.—Without reserve.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, by order of the Trustee, on the Premises as above, on TUESDAY NEXT, November 27, at 12 o'Clock precisely, the whole of the NURSERY STOCK, including 3000 Standard and Dwarf Roses, 10,000 Manetti Stocks, Fruit Trees, Evergreens, &c.; Greenhouse Plants in variety; Span-roof GREENHOUSE, FRAMES, PITS, and other effects.

May be viewed. Catalogues on the Premises; of Messrs. ANDREWS AND MASON, Accountants, 7, Ironmonger Lane, E.C.; J. WEBB, Esq., Solicitor, 159, Euston Road, N.W.; and of the Auctioneers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

Tuesday Next.—350 Lots.

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MESSRS. PROTHEROE AND MORRIS beg to announce that their next special SALE of ORCHIDS in Flower and in Bud will take place on TUESDAY NEXT, at their Central Auction Rooms, 67 and 68, Cheapside, E.C., commencing at half-past 12 o'Clock precisely.

The plants will be on view from 11 o'Clock until the time of Sale, and will comprise many special and beautiful varieties from some of the best collections.

Catalogues are now ready, and may be had at the Rooms, or 8, New Broad Street, E.C.

Wednesday Next.

7000 LILIUM AURATUM, fine Bulbs.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, at half-past 12 o'Clock precisely, 7000 very fine bulbs of LILIUM AURATUM, just received from Japan; 1000 Double TUBE-ROSES; also IMANTOPHYLLUM MINIATUM SPLENDENS, received direct from the Cape; 1000 LILIUM HARRISII, 500 HELLEBORUS NIGER, a fine assortment of hardy English-grown LILIES, MILLA BIFLORA, and other PLANTS and BULBS too numerous to mention.

On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Friday Next.

CYPRIPEDIUM LÆVIGATUM, var.
AERIDES QUINQUEVULNERUM, var.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, at half-past 12 o'Clock precisely, by order of Mr. Pfau, a magnificent importation of the above. Both have been collected in a new locality very distant from the old one, and according to the description of the collectors have proved to be very beautiful new varieties, which will be described in the Catalogue. They have just arrived in very best condition, and splendid specimens. At the same time will be offered a few fine lots of the most rare ODONTOGLOSSUM KRAMERI, and EPIDENDRUM PSEUD-EPIDENDRUM, which have arrived by last steamer in the finest health. Also the following rare ORCHIDS:—Trichopilia crispa, Odontoglossum nebulosum, lævigatum and Reichenbachianum; Cypripedium candatum and longiflorum, Pescatorei cerioa (true), and others.

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Friday Next.

ODONTOGLOSSUM ALEXANDRÆ.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to include in their SALE on FRIDAY NEXT a very fine lot of ODONTOGLOSSUM ALEXANDRÆ of the finest type.

On view morning of sale, and Catalogues had.

Saturday Next.

ROSES, BULBS, CAMELLIAS, and AZALEAS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on SATURDAY NEXT, at half-past 11 o'Clock precisely, 500 CAMELLIAS, AZALEAS, FICUS, and other plants from Belgium; 500 Standard and Dwarf ROSES, of the finest sorts; HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other DUTCH BULBS.

On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Sunbury, Middlesex.

Ten minutes' walk from the Station.

By Order of the Executors of the late Mr. R. A. Osborne.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Osborne's Nursery, Sunbury, on THURSDAY, December 6, at 12 o'Clock precisely, the Fourth and Final Portion of the exceptionally well grown NURSERY STOCK, comprising a variety of Ornamental and Deciduous Trees, 20,000 Fruit Trees, including 600 Moor Park Apricots, trained and Maidens; 10,000 Maiden Apples, 3000 Plums and Damsons, 4500 Pears, 8000 Dwarf H.P. Roses, 900 Standard H.P. Roses, small Evergreens in large quantities, and 50 bushels of Peas.

The Auctioneers beg to draw special attention to the large quantity of FRUIT TREES, for which the late firm of Messrs. Osborne were so justly celebrated, the whole being for Sale, without the least reserve.

May be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

N.B. The valuable FREEHOLD NURSERY, with the Glass Erections, is FOR SALE on advantageous Terms. Particulars of the Auctioneers.

Ottershaw Park Nursery, Ottershaw, Chertsey.

UNRESERVED CLEARANCE SALE of well-grown NURSERY STOCK. Owing to this property being Sold, and the Lease having expired,

MESSRS. R. AND J. WATERER AND SON have been favoured with instructions from Mr. W. Fletcher to SELL by AUCTION, upon the Premises, on MONDAY, December 3, and following days, at 11 for 12 o'Clock precisely, on each day, the whole of the NURSERY STOCK, on the above Land, comprising 50,000 Standard and Pyramid Fruit Trees of the choicest sorts of Apples, Pears, and Plums; 300 Dwarf-trained Fruit Trees; 10,000 Common Privet; 15,000 Forest Trees, consisting of Horse Chestout and Birch, 12 to 20 feet; Scarlet Oaks, 4 to 6 feet; Weymouth Pine, 8 to 12 feet; Purple Beech, 7 to 12 feet; Weeping Beech and Elm, 8 to 10 feet; Norway Maple, 8 to 14 feet; Hornbeam, 6 to 12 feet; Limes, 4 to 10 feet; Spanish Chestnuts, 1 to 3 feet; Elms, 2 to 3 feet; and a number of Ornamental Shrubs, Picea Nordmanniana, Aucubas, named Rhododendrons, Variegated and Green Hollies, &c.; a few choice Standard and Dwarf Rose Trees, and other stock.

May be viewed, and Catalogues obtained 7 days prior to the days of Sale, at the principal Hotels and Inns in the neighbourhood; of Messrs. FLETCHER AND SONS, Ottershaw Nurseries; and of the Auctioneers, Chertsey and Weybridge Station, Surrey.

Dutch Flower Roots, every Monday, Wednesday and SATURDAY.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY, at half-past 12 o'Clock precisely, a large consignment of first-class DOUBLE and SINGLE HYACINTHS, in all colours; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, Early ROMAN HYACINTHS, and other BULBS, just received from well known farms in Holland, in lots to suit the Trade and Private Buyers.

On view mornings of Sale, and Catalogues had.

Monday Next.—(Sale No. 6527.)

BULBS from Holland. ROSES from France.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY NEXT, November 26, at half-past 12 o'Clock precisely, a consignment of first-class Standard and Dwarf ROSES, all finest named sorts from one of the most renowned nurseries in France, also an importation of choice named Double and Single HYACINTHS, of all colours, for Glasses, Pots, and Borders; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, IRIS, ANEMONES, RANUNCULI, and other BULBS, just arrived from well-known farms in Holland, in lots to suit all buyers.

On view morning of Sale, and Catalogues had.

Tuesday Next.—(Sale No. 6528.)

HOME-GROWN LILIES; L. AURATUM from Japan.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY NEXT, November 27, at half-past 12 o'Clock precisely, a choice and extensive selection of ENGLISH-GROWN LILIES, including many of the finest sorts in cultivation; 500 plants of DIONÆA MUSCIPULA, hardy and Greenhouse BULBS in variety, choice named CARNATIONS and PICOTEES, &c.; also an importation of LILIUM AURATUM from Japan, in fine condition; Consignment of PLANTS and BULBS from Germany, 500 IMANTOPHYLLUM MINIATUM SPLENDENS, from South Africa; a small Collection of SEEDS and PLANTS from New Zealand, and about 200 lots of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other DUTCH BULBS.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6529.)

HARDY PLANTS and BULBS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, November 28, at half-past 12 o'Clock precisely, First-class Standard and Dwarf ROSES from well-known English Nurseries, hardy Herbaceous BORDER PLANTS, Ornamental GREENHOUSE PLANTS, and a consignment of choice named Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, SCILLAS, GLADIOLI, LILIUMS, and other BULBS from Holland.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6530.)

VALUABLE IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, by order of Mr. F. Sander, on THURSDAY NEXT, November 29, at half-past 12 o'Clock precisely, a very grand lot of ODONTOGLOSSUM MADRENSE, rare MASDEVALLIAS, LYCASTE SKINNERI, CATTLEYAS, &c.; also a most lovely ODONTOGLOSSUM in flower.

On view morning of Sale, and Catalogues had.

Thursday, December 6.

CYPRIPEDIUM LÆVIGATUM, new variety.
AERIDES QUINQUEVULNERUM, variety.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, December 6, at half-past 12 o'Clock precisely, by order of Mr. R. Pfau, a magnificent importation in splendid specimens of CYPRIPEDIUM LÆVIGATUM, new variety, and AERIDES QUINQUEVULNERUM, variety with orange-yellow lip. Both have been collected in a new locality, and have just arrived in very best condition. At the same Sale will be offered a few lots of good strong plants of the rare ODONTOGLOSSUM KRAMERI, also the following:—TRICHOPILIA LEPIDA and CRISPA, ODONTOGLOSSUM REICHENHEIMII, LÆVE, EGERTONIANUM; CYPRIPEDIUM CAUDATUM, PESCATOREI, CERINA; TRICHOCENTRUM PFAUII, SOBRALIA FENZLIANA, and others.

On view morning of Sale, and Catalogues had.

Immense Importation of Lilium auratum and other BULBS FROM JAPAN.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., early in DECEMBER, a consignment of 313 cases from Japan, comprising some gigantic bulbs of LILIUM AURATUM, L. KRAMERI, L. SPECIOSUM, ROSEUM and ALBUM, L. LONGIFLORUM, and L. THUNBERGIANUM.

On view morning of Sale, and Catalogues had.

500 Camellias from America.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., EARLY in DECEMBER, by order of Messrs. Hovey & Co., of Boston, U.S.A., about 500 plants of the three Seedling CAMELLIAS—C. M. Hovey, C. H. Hovey, and Mrs. Anna Maria Hovey; also a few other PLANTS and BULBS.

On view morning of Sale, and Catalogues had.

Stove and Greenhouse Plants.

MR. J. C. STEVENS is instructed to offer for SALE by PRIVATE CONTRACT, a quantity of STOVE and GREENHOUSE PLANTS, comprising about 240 plants, the majority in tubs and pots, consisting of Camellias, Azaleas, Dracænas, Palms, Araucarias, Tree Ferns, &c., suitable for large Hotels, Halls, &c.

For Cards to view the above, which are at Birmingham, apply to Mr. J. C. STEVENS, 38, King Street, Covent Garden, London, W.C.

LAND.—WANTED to PURCHASE, or LEASE, 4 to 6 acres or more of good Land, suitable for a Nursery or Market Garden, facing a main road, and near a Railway Station, not more than 12 miles from Covent Garden. If with good house preferred.
Send particulars to R. OWEN, Mill End, Henley-on-Thames.

TO BE SOLD, a thorough good NURSERY and FLORIST BUSINESS, in a grand position, with good connection, in one of the most fashionable suburbs of London, close to a leading Railway Station. The Glasshouses, Ornamental Shop and Conservatory, on the main road, with Stock, &c., to be SOLD in ONE LOT, with immediate possession. Family reasons sole cause of selling. Rent nominal.
X. Y. Z., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

FOR SALE, a FREEHOLD PLOT of LAND, with five Greenhouses well Heated with Hot Water; Rosery, Vinery, two Flower-houses. In a rapidly rising neighbourhood surrounded by villas, 15 miles from London, three minutes from Junction, on London and North-Western Railway. Price, with Stock, £550, or could be taken at valuation. Illness cause of leaving. Apply,
H. PETTY, Watford, Herts.

Pine-apple Nursery, Peckham Rye, E.C.

TO BE LET, on Lease, this well-known NURSERY, with extensive Grape and Orchard-houses, planted with the choicest Vines and trees; Hothouses and numerous Outbuildings, Cottage, Stabling, &c.
For terms apply to RUSHWORTH, ABBOTT AND STEVENS, 22, Savile Row, Regent's Street, W.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

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

NOTICE.—WILLIAM SUTHERLAND, late of the Barbourne Nurseries, Worcester, and previously of Liverpool, begs to intimate that, having effected an engagement with Messrs. James Dickson & Sons, his present address (at which he hopes to hear from his various friends) is "Newton" Nurseries, Chester.

TO BE SOLD, a large quantity of very good RASPBERRY CANES.—Apply to
H. T. BENNETT, Easebourne, Midhurst, Sussex.

LILIUM AURATUM — new GREENHOUSE BULBOUS PLANTS of great beauty, &c.—Please send for "Special LIST," just published.
FRED. HORSMAN AND CO., Colchester.

LARCH FIR, extra strong transplanted, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet. Extra strong transplanted SCOTCH FIR, 2 to 3 feet. Samples and prices on application to
J. SLATER AND SONS, The Nurseries, Malton, Yorks.

NEW CHRYSANTHEMUM, "G. STEVENS."
First-class Certificate Royal Horticultural Society, South Kensington, November 13, 1883. A charming reflexed variety, compact blooms, flat florets, crimson-chocolate, slightly incurved in centre, showing the gold under-surface; quite distinct from any other variety. A limited quantity to send out in March next, at 1s. each, post-free 1s. 3d. Cash with order. See report in *Journal of Horticulture* of November 15. Orders now being booked, which will be sent out in strict rotation.
Chrysanthemum CATALOGUES on application.
G. STEVENS, F.R.H.S., St. John's Nursery, Putney, S.W.

TO THE TRADE
CHRISTMAS ROSES, extra fine stuff, well set with flower-buds, 42s. per 100.
HYACINTHS, White Roman, 11s. per 100.
NARCISS, Paper-white, 7s. per 100.
,, Pheasant's-eye, 14s. per 1000.
CROCUS, Yellow, 7s. per 1000.
SNOWDROPS, 16s. per 1000.
SCILLA SIBIRICA, 3s. 6d. per 100.
GLADIOLUS BRENCHLEYENSIS, 25s. per 1000.
SANDER AND CO., Seed Growers, St. Albans.

T. LAXTON will be happy to quote Prices of Dwarfs, chiefly Maidens, of several of the best Standard and New Sorts of Fruits, including:—
APPLES—Lord Suffield, Mr. Gladstone, Peasgood's Nonsuch, Keswick, Warner's King, Wellington, &c.
PEARS—Louise Bonne, Williams' Jargonelle, Souvenir du Congrès, Clapp's Favourite, Frederick Clapp, &c.
PLUMS—Victoria, Rivers' Prolific, Orleans, &c.
CHERRIES—Morello and May Duke.
T. LAXTON, Seed Grower, Bedford.

BOUVARDIAS. — Fine, bushy, healthy plants, of A. Neuner, Dazzler, and others, 40s. per 100.
Tree CARNATIONS, best free blooming kinds, 40s. per 100.
Mrs. SINKINS, best white CLOVE CARNATION, for forcing, 30s. per 100.
W. JACKSON, Blakedown, near Kidderminster.

RASPBERRY CANES for Sale.—Semper Fidelis, one of the best market sorts, and most abundant cropper. £3 per 1000.
T. B. CHAPMAN, Twickenham Road, Isleworth, Middlesex.

PLUM TREES for SALE.—Pond's Seedling, Victoria, Prune, Damson, &c. Several hundreds, well established, in bearing, and will move well, 4s. per tree
T. B. CHAPMAN, Twickenham Road, Isleworth, Middlesex.

Forest and Ornamental Trees and Shrubs.

THE LAWSON SEED AND NURSERY COMPANY (Limited), Edinburgh, have an immense Stock of the leading kinds of Seedling and Transplanted FOREST TREES and SHRUBS, &c.—all in healthy condition and prices moderate. Special offers on application.

SEAKALE.—A large Stock of fine strong Roots, for Forcing and Planting.
Also good 2-yr. old GIANT ASPARAGUS.
FRUIT TREES.—Fine healthy stock of horizontal and dwarf-trained Apples and Pears, and dwarf-trained Apricots, Cherries, Plums, Peaches and Nectarines.
Price on application.
D. S. THOMSON, The Nurseries, Wimbledon.

Carriage Paid.

CAULIFLOWER, &c., PLANTS:—Autumn sown sturdy good plants, Early London, Asiatic, Cyprus, Erfurt, and Walcheren CAULIFLOWER; Bath, White, Green, Blood-red, and Brown Cos, Winter Passion and Swede's Head CABBAGE LETTUCE; Broad-leaved Batavian and Green Curled ENDIVE; Giant Rocca and Flat Tripoli ONION PLANTS; Early Rainham, Saint John's Day, Daniel's Defiance, and many other choicest varieties of CABBAGE PLANTS; Abergeldie and Melville's Variegated KALE; Aigburth BRUSSELS SPROUTS, and Purple Sprouting BROCCOLI, 1s. 6d. per 100. Good large plants only sent. Also the following varieties of Herbs, viz.:—Pot MARJORAM, Winter SAVORY, LEMON and Winter THYME, HYSSOP, BALM, LAVENDER, WITLOEF, BELLVILLE SORREL, TANSY, FENNEL, Broad-leaved SAGE, HOREHOUND, WORMWOOD, and FEVERFEW, 1s. 3d. per dozen, 8s. per 100.
Post-office Order (with order) payable Godalming, to
EDWARD LEIGH, Dunsfold, Godalming.

CRANSTON'S Descriptive CATALOGUES of Fruit and FOREST TREES, SHRUBS, &c., are now ready, and may be had free on application.
CRANSTON'S NURSERY AND SEED COMPANY (Limited), King's Acre, Hereford.

KELWAY AND SON'S CATALOGUE of GLADIOLI, describing all the varieties worth growing, and at prices as low as those of any other house, will be forwarded on application.
Langport, Somerset.

Hyacinths, Tulips, Narcissus, Lilies, &c.

BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland.
Wholesale CATALOGUE now ready, and will be sent post-free on application.

Lily of the Valley.

E. KRUIJFF, Sassenheim, near Haarlem, Holland, has to offer, to the Trade only, strong selected Buds of CONVALLARIA MAJALIS for Forcing, at 2s. 6d. per 100, 22s. per 1000. Terms cash. Samples free on application.

READING HERO.—A few Tons of this famous POTATO for Sale. Price £8 per ton, or 9s. per cwt., on rail, bags included. Cash with order.
J. J. CLARK, Goldstone Farm, West Brighton, Sussex.

FRUIT TREES (74 acres).—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, &c., as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety. VINES, excellent canes, 3s. 6d. to 10s. 6d. ORCHARD HOUSE TREES in pots, from 5s. FIGS, from 3s. 6d. Descriptive LIST, containing a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also information as to Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., free by post.
RICHARD SMITH AND CO., Worcester.

To the Trade.

HOME GROWN VEGETABLE and FIELD SEEDS.
H. AND F. SHARPE are prepared to make special offers of all the varieties of VEGETABLE and AGRICULTUAL SEEDS they have grown this season from choice selected stocks. The quality of the seeds is excellent, and the prices are very low.
Seed Growing Establishment, Wisbech.

FRUIT TREES—FRUIT TREES
In all the Best Cropping Varieties.
APPLES, PEARS and CHERRIES, Dwarf-trained, good trees, 15s. and 18s. per dozen.
PEARS, Pyramid, 40s. and 50s. per 100; good fruiting trees, 75s. and 100s. per 100; Maidens, 30s. per 100.
APPLES, Pyramid, 40s., 50s., and 75s. per 100.
CHERRIES, Dwarf-trained Morello and May Duke, 15s. and 18s. per dozen.
CURRANTS, Red and Black, of sorts to name, 8s., 10s. and 12s. per 100.
RASPBERRIES, Fillbasket, 6s. per 100.
ROSES, Dwarf H.P.'s, our selection, 30s. per 100.
CONIFERS, bushy, for pots, window boxes, &c., 9 to 15 in., 25s. per 100.
POPLARS, Lombardy and Ontario, from 5 to 10 feet, 8s. to 35s. per 100; 12 to 16 feet, extra fine, for screens, grown in single lines, 15s. per dozen, 100s. per 100.
SHRUBS, Deciduous, 12s. and 15s. per 100, good plants.
HEATHS, Hardy, of sorts to name, 15s. per 100.
THORNS, Double and Single, of sorts, Standards and Pyramids, 50s. and 75s. per 100.
SPIRÆA PALMATA, fine forcing clumps, 10s., 15s. and 20s. per 100.
AUCUBAS, well coloured, for boxes, pots, &c., 9 to 12 in., 16s. per 100; 12 to 15 inches, 20s. per 100.
WM. CLIBRAN AND SON, Oldfield Nurseries, Altrincham.

LILIUM AURATUM.—Good, plump, sound bulbs, 4s., 6s., 9s., 12s., 18s., and 24s. per dozen; extra strong, 30s. and 42s. per dozen. All other good LILIES at equally low prices.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

STRAWBERRIES.—Capital planting roots, 4s. per 100 (free by parcels post, 4s. 6d.); plants in pots for forcing, 16s. per 100 Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Order at Once.

THE BEST LONG-PODDED WINTER BEAN for Exhibition or Table.
LAXTON'S JOHN HARRISON, which has long, well-filled pods, is hardy, and very prolific. First-class Certificate from the Royal Horticultural Society. Price 2s. 6d. per sealed pint.
THOMAS LAXTON, Seed Grower, Bedford, and all Seedsmen.

Orchids a Speciality.

The stock at the Clapton Nursery is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent.

HUGH LOW & CO.

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

CLAPTON NURSERY, LONDON, E.

TO THE TRADE.

I have pleasure in stating that my Trade offer of SINGLE DAHLIA and other CHOICE FLOWER SEEDS is in course of preparation, and will be posted in the course of a few days to all my Trade Customers. It may also be had by any of the Trade not already upon my Register.

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

EARLY PEAS for MARKETING.

SUTTON & SONS

CAN SUPPLY

SUTTONS' IMPROVED EARLY CHAMPION,

SUTTONS' RINGLEADER,

EARLY SUNRISE, INVICTA, | FIRST AND BEST, DANIEL O'ROURKE.

For Present Sowing. For Earliest Crops.

Lowest price per bushel and quarter on application.

THE QUEEN'S SEEDSMEN,
READING.

THE RUIN OF NURSERYMEN

May be understood when circumstances lead to such Prices as the following:—

STANDARD RHODODENDRONS worth 5, 4, 3, and 2 guineas, are being sold at 21s., 15s., 10s. 6d. and 5s.
BUSH RHODODENDRONS, 7, 6, 5, 4, 3 and 2 guineas, sold at from 7s. 6d. to 1s.
ANDROMEDA FLORIBUNDA, and other kinds, 3s. 6d. to 1s.
SPIRÆA PALMATA, fine forcing clumps.
SPIRÆA JAPONICA, fine forcing clumps.
The largest stock in Europe.
HODGIN'S and other HOLLIES, perfect specimens, 7, 6, 5, 4, 3 and 2 feet, from 15s., 10s. 6d., to 1s.
AVENUE TREES, perfect specimens, 12 to 15 feet, at 5s., 3s. 6d. and 2s. 6d.
COLLECTION of SHRUBS and TREES for general planting, 25s. to 75s. per 100.
Extra large FRUITING TREES of APPLES, PEARS, CHERRIES, &c., from 3s. 6d. to 1s.
Other Trees, Shrubs, &c., not enumerated in this Advertisement, will be supplied on the same liberal terms.
CHARLES NOBLE, Bagshot.

TO THE TRADE.

Dwarf-trained FRUIT TREES and ROSES, of fine quality, grown on fresh land at Bush Hill.
APRICOTS, 36s. per dozen.
CHERRIES, in variety, except May Duke and Morello, 21s. and 24s. per dozen. [100.
PEACHES and NECTARINES, £12 10s. per
PEACHES, Dwarf Maiden, £3 15s. per 100.
PLUMS, £7 10s., £8 15s., and £10 per 100.
PLUMS, Dwarf Maiden, £2 10s. per 100.
ROSES, Standard and Half-standard, £3 10s. to £4 per 100.

HUGH LOW & CO.,

CLAPTON NURSERY, LONDON, E.

Cape Bulbs.

CAPE BULBS.

Orders for small Sample, Post Collections, or larger Shipments now received. Delivered January and February, 1884.
ED. HUTT, Sales Department, Botanic Gardens, Capetown.

CREEPERS for WALLS, TRELLISES, &c., in great variety. See Descriptive LIST. Most of these plants, being in pots, may be moved now.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Sharpe's Seeds.

CHARLES SHARPE AND CO., SEED GROWERS and SEED MERCHANTS, Sleaford, will be glad to forward, Post-free on application, Special Wholesale quotations of their own selected stocks of Garden and Agricultural Seeds. Sleaford.—October, 1883.

DWARF ROSES, splendidly rooted, the best sorts, 6s. per dozen, from ground; fifty for 21s.
TEA ROSES, in pots, 15s. per dozen, fifty for 50s.
FINE CLIMBING PLANTS, Hardy, for Walls, Trellises, Arbours, Rockeries, &c., in twelve varieties, 6s. and 9s.
FINE HARDY HEATHS and other Dwarf American Plants, in variety, 4s. and 6s. per dozen.
PRETTY DWARF SHRUBS of various kinds, for Pots, Boxes, Winter Bedding, &c., in variety, 4s. or 6s. per doz.
PRETTY TABLE PLANTS, in variety, for immediate use, 6s., 9s., and 12s per dozen.
BEAUTIFUL FERNS, twelve sorts, 4s. 6d., 6s., or 9s.
For all classes of Plants, Bulbs, Seeds, Fruit and other Trees, Shrubs, or Garden Sundries, see our Catalogues.
Many acres of ground and many thousand feet of glass are stocked with the best of everything in the respective classes.
Visitors invited.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

HOLLY for HEDGES.—12 to 15 inches, 25s.; 15 to 18 inches, 35s.; 18 to 24 inches, 50s. per 100. Forest LIST, containing heights and prices of well-grown transplanted Quick, Ash, Larch, Spruce, Pines, Oaks, Cover Plants, &c., free.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Mitchell's Gooseberry.

WM. MITCHELL now offers to the Trade Cuttings of this extraordinary variety of Gooseberry, which is the largest and greatest cropper known. To all Growers, Salesmen, and Buyers attending Covent Garden Market this fine variety is too well known to need description.
Cuttings, £5 per 1000.
WM. BROADLANDS, Enfield Highway, N.

CATALOGUE of FERNS, illustrated and descriptive, with Cultural Notes. Three stamps.
CATALOGUE of ALPINE PLANTS, illustrated and descriptive. Free on application.
LIST of HARDY ORCHIDS, with full cultural instructions. Free on application.
The following expression of opinion is from one of the highest authorities in the land on the subject of Ferns:—"* * * I have gone very carefully through your list, and, without complimenting you, it is by far the best nurseryman's list of British Ferns out."
F. W. AND H. STANSFIELD, Nurserymen, Sale, near Manchester.

Kent, The Garden of England.

300,000 FRUIT TREES in 600 varieties.
GEORGE BUNYARD AND CO. beg to intimate that their stock was never finer, and intending purchasers are invited to come, and see for themselves. The New Illustrated Descriptive CATALOGUE of Fruits for 3 stamps. Reference LIST free.
The Kent Roses do Live.
Extra well-rooted stuff, very good, very cheap.
Descriptive Rose CATALOGUE Free.
The Old Nurseries, Maidstone.—Established 1796.

HERBACEOUS, ALPINE, and ROCK PLANTS.

Collections of 100 choice varieties		..	30s.
,,	50 ,, ,,	..	17s. 6d.
,,	25 ,, ,,	..	10s. 6d.

Packing free and extra plants sent to compensate for carriage.
R. H. VERTEGANS, Chad Valley Nurseries, Edgbaston Birmingham.

Outdoor Flowers in Spring.

DAISIES, Red, White, Rose, &c.; POLYANTHUS, Single PRIMSOSES in variety of colours, WALLFLOWERS, CANTERBURY BELLS, 9d. per dozen, 4s. and 5s. per 100. PANSIES and VIOLAS (colours separate), ARABIS, ALYSSUM, SILENE COMPACTA, AUBRIETIAS, MYOSOTIS, 1s. 6d. per dozen, 8s. per 100. Or 500 assorted Spring-flowering Plants for 17s. 6d.; 1000 for 31s. 6d.
TULIPS, various colours, 5s. per 100. CROCUS, 1s. 6d. and 2s. per 100 SNOWDROPS, 2s. 6d. per 100. Border HYACINTHS, 18s. per 100. NARCISSUS, of sorts, 5s. and 7s. 6d. per 100. Or 500 assorted Spring-flowering Bulbs for 12s.; 1000 for 21s.
HEPATICAS, Blue and Red, Double PRIMROSES, White, Lilac, or Sulphur, 3s. 6d. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

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CUPRESSUS LAWSONIANA, 3, 4 and 5 feet high.

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To the Trade.

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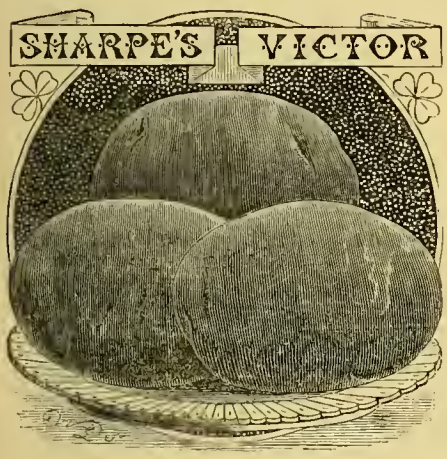

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WILLIAM FLETCHER has many thousands to offer. Fifteen to thirty branches on each plant. Price on application.
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A large quantity of fine AVENUE and FOREST TREES in stock.
CATALOGUES of general Nursery Stock post-free.
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PICEA CONCOLOR, the most ornamental of the species, superior in habit and colour to lasiocarpa; 12 to 18 inches, 24s. per dozen.
Price LIST of Conifers on application.
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To the Trade.

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PALMS—Latania borbonica (Livistoca sinensis) and Corypha australis, 6s. per 100, 55s per 1000.
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These are all good strong stuff.
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We were the introducers of this distinct and floriferous variety of L. eximium last year.

EXTRACT FROM *Gardeners' Chronicle*:—"Lilium Harrisii.—We have received a two flowered stem of this Lily from Messrs. Watkins & Simpson, who introduced it into the London market, and which is the second flower-stem produced this season in the manner described by Mr. Clausen, at p. 53. by a second-sized bulb in the possession of Mr. Walker, of Whitton, near Hounslow. The flowers are very fine, and evidence seems to be accumulating that it is distinct from L. longiflorum, or at least a well-marked variety of that species. It does not appear to do well out-of-doors, preferring the shelter of a cool greenhouse; and it stands forcing well.

"*We understand that one of the most extensive growers of plants for market has given a large order for bulbs for forcing next spring.*"

Price of Bulbs of the above and many other Lilies on application to

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ROSES IN POTS,

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

These World-famed ROSES cannot fail to give the greatest satisfaction.

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CATALOGUE, of fifty pages, containing full information as to colour, height, situation, time of flowering, &c., free on application.

A CAPITAL COLLECTION for Rocks, Stumps, and Borders, from 25*s.* per 100, or 4*s.* per dozen.

Most of the plants being in pots may be despatched at any time, or by Parcels Post when fit.

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FRUIT TREES,

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FOREST TREES,

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Suitable for STOVE and GREENHOUSE Cultivation, for OUTDOOR FERNERIES, and other purposes, in immense number and variety. SPECIAL LISTS, issued at intervals during the year, giving extremely low quotations, may be had FREE on application.

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LILIUM HARRISII
(the Bermuda Easter Lily),

one of the most valuable introductions of late years, a long trumpet-flowered white Lily, beautifully reflexed, bearing frequently from 6 to 10, and has been photographed with over 30 flowers on one spike. Forces in pots with great facility, and is so full of vitality that several and continued growths frequently spring from one bulb. It is quite distinct from L. longiflorum.

Bulbs, 2s. each, 18s. per dozen, 120s. per 100.

Delivered free. Special terms to Trade growers in quantity.

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GENUINE SEEDS.

JAMES VEITCH & SONS,
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IMPATIENS SULTANI.

First-class Certificate, Royal Horticultural Society, 1883,
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First-class Certificate by the Royal Botanic Society, 1883.

This most distinct and beautiful profuse flowering plant is of compact neat habit of growth, and almost a perpetual bloomer; the plants are perfectly covered with brilliant rosy-scarlet flowers, and continue in full beauty during several successive months—decorative alike for the Stove, Conservatory and Greenhouse, or for summer bedding.

Per packet, 1s. 6d. and 2s. 6d.

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The best Seedling White Kidney Potato of 1884.
Awarded this season Two First-class Certificates by the Highest Authorities, viz., by the
Royal Horticultural Society;
and by the
Committee of International Potato Exhibition;
and was also
Awarded the 1st Prize as the best Seedling White Kidney Potato of the year, in competition with 22 other new varieties.
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The above Testimonials are only a few from the large number we have received.

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Magnificent variety. Flowers large, double, pure white, deliciously scented. The finest of all Double White Violets. Splendid for bouquets. Awarded a First-class Certificate by the Royal Horticultural Society on November 13.

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(BROCKHURST VARIETY).

See "Gardeners' Chronicle," Nov. 10, page 591.

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PICEA PINSAPO, 6 to 8 feet.
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have much pleasure in now offering, for the first time, good healthy young trees of this valuable, late-keeping Apple, which for beauty and general good qualities they have every confidence in stating is unsurpassed. The tree is upright in habit, very vigorous and healthy in growth, never failing to produce, even in the most unfavourable seasons, abundant crops of large and very handsome fruit. Colour deep red all over; flesh white, very firm, crisp and juicy. It will keep in good condition till June, and is excellent for either dessert or culinary purposes.

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KING'S ACRE, near HEREFORD.
Trade Price on application.

THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 24, 1883.

TREE PLANTING.

THE PREPARATION OF THE SOIL.

PERHAPS the most fatal and disastrous mistake made by novices in planting, consists in their neglect or mismanagement of the soil. Many seem to think that if a tree merely has its roots thrust into the earth, and its head stood upright into the air, grow it will and must; and, doubtless, in a sense it will—that is, it may live and grow an inch a year, less or more. But such stunted existence is not worthy of the name of growth. Men plant trees for profit or for pleasure, and to realise either from them, it may be broadly affirmed that they must grow them almost to their utmost capacity—that may mean 3 inches or 3 feet in a season, with infinite gradations between these two extremes.

In planting for pleasure it is especially necessary that trees should grow freely. The growth not only preserves them in health, but wreathes them with beauty. It is also the surest, strongest antidote to disease; just as a well balanced circulation of the blood is man's best security against disease, so a healthy growth is the plant or tree's surest defence against insectivorous hosts, fungoid pests, "vegetable villains," and all other diseases. Hence the immense importance of making due preparation for strong and vigorous growth.

Climate and soil are the chief factors in fostering growth. The former we can influence but little, the latter we can mould as we will. What little we can do to ameliorate climate ought to be done. By choosing sheltered places for our trees, we may start them with a vantage of from five to ten degrees. Such matters may make all the difference between a thin and stunted and a vigorous and healthy growth. By thorough drainage another difference of from three to five degrees may be secured, to the gain of our trees, and drainage improves the soil even more potentially than the climate so that wherever stagnant water is found within 2 feet of the surface thorough drainage ought to precede planting trees. No trees, unless they be Alders, Willows, or Poplars, will grow freely or thrive long with their roots in stagnant water; hence all water that cannot pass freely through the subsoil or natural strata should be let off through underground drains. The deeper, too, drains can be made in plantations the better. Two, three, and four, or even more feet deep will not prove excessive. Deep drainage is needful for several reasons. The roots of many trees run deeply, and hence the importance of giving them a good deep dryish tilth to run in; they have also a sort of natural affinity for drains, and if these are found within easy reach the roots enter and block them. Hence, deep drains or open ditches are the best for woods and plantations. The former are out of reach, and the latter let off the water and can be kept clear from the surface. Open ditches are, however, quite out of character in pleasure grounds, and thus the planter on wet soils is thrown back on deep drains.

The fewer drains also the better, if they can be made effective. Hardly any operation on the

land needs for its proper carrying out so much special knowledge as drainage. By studying the natural form of the surface, the inclination of the strata, the natural fall of the lawns, the presence or absence of springs, land may be tappped and laid dry more effectually by a single drain than by a dozen, a score, a hundred of the ordinary sort.

After drainage the moving, mixing, and enriching the soil should follow. The tree planter plants for one or more generations, while the farmer and gardener sow or plant but for one crop as a rule. And yet the latter never fail to prepare and enrich the soil, while the former too often sticks in his trees with little or no preparation. Were not this slovenly practice so common few or none would believe in its existence. It seems so unreasonable, as well as proves so unprofitable, for experience has never failed to prove to a demonstration that no things pay for good soil so promptly and so liberally as do trees and shrubs of all sorts. The land to be planted should, therefore, be trenched up to a depth of at least 2 feet where practicable. Neither should this trenching be a simple inversion, as it too often is. The whole of the surface, rough and ready, should be buried in the hollow of the trench. But beyond that the trenching up and incorporation of the different soils found, in top and bottom trenches, should go on simultaneously. It is this mixing that does the most good. Very often it imparts, as it were, new elements of fertility. Neither soil apart may be worth much, but growing force and power spring from the mixture.

In special cases, too, where rapid results are desired a coat of manure completely changes the character of many soils. It is also most useful in giving the trees a vigorous start at first. This is of immense importance to the future welfare and rapid growth of the trees, for it almost seems that vigour reproduces itself in tree life, if not all through to the end, at least for many years.

Burnt earth, marl, or clay form the most stimulating dressings for most soils devoted to the growth of trees, and these are often found on the spot or close by; and brushwood, for burning them, can also generally be had in plenty. No better or cheaper dressings can be found.

So important, however, is the thorough admixture and amelioration of the mass of earth, that in all cases, when and where possible, one root crop, such as Potatos, should be taken off the newly prepared soil before the trees are planted. Time will not be lost but gained by waiting one year, and very often the first root crop will pay most of the expenses of preparing the ground for the trees. But apart from that, the soil will be so improved by a season's cultivation that the trees will grow with a vigour and attain a size wholly unknown to those that are either planted on unprepared soils, or on those so recently prepared as to be raw and harsh to the roots. Sweet, mellow, rich, dry, deep root-runs are the grand secrets of fine timber, either for pleasure or profit.

VEGETATION OF THE ISTHMUS OF PANAMA.—The following description of the vegetation of the Isthmus of Panama is given in a recent report from that country. The isthmus is covered with thick vegetation, the wonderful verdure grows pell-mell, the variety and luxuriance are marvellous. Great trees overshadow an interminable and impenetrable jungle of lesser growth, made up of an endless number of nameless plants and Vines, all pushing, struggling, clambering towards the light. The flora is perfectly gorgeous and bewildering in beauty and variety. The solar rays cannot penetrate such layers of thick foliage, and the soil always remains saturated. Emanations and effluvia which arise from the surface being debarred of the sun (which extracts dampness and destroys decayed vegetable and organic matter) are the main cause of the various kinds of fevers in the country, such as yellow, typhus, malignant, remittent, and intermittent. The only specific used by medical men is quinine; the natives use a bitter Tamarisk (?), of which they make a febrifuge. There were 130 lb. of quinine used last year on the Isthmus.

GLAZING.

To cheap glass, consequent on the removal of the duty so long imposed on this article, may be directly traced all the innovations and improvements that in recent times have been made in the construction of horticultural buildings. The immense demand that has sprung up for all kinds of garden structures, from the homely hot-bed frame to the elaborate conservatory, has had the natural effect in sharpening the inventive faculties of those engaged in designing and constructing horticultural buildings. Nor have inventors by any means confined their attentions to external appearance, as everything connected with garden structures has come in for its share of innovations — some simple and useful, others complicated and devoid of merit, except in the eyes of those with whom they have originated. At a time when the importance of ventilation from a sanitary point of view is generally admitted, it was only a short step to see the need of it to plant life, consequently provision for the admission and egress of the essential element, air, has been a favourable field for the designers of horticultural erections wherein to exercise their ingenuity. Side lights and shutters in the side walls, on either the hinged or sliding principle, worked as they now are with gearing by which all the lights or shutters on the side of a long house can be opened by the movement of a single lever, regulating the whole so as to admit air, little or much, as necessary, is an important saving of labour in an operation that has to be so often repeated. The same applies to the roof openings, which in houses constructed as of old were principally made by means of cumbrous sliding lights, in most cases worked singly, with the accompanying breakage of cords and the inconvenience of not being able to open them in rainy weather without letting in the wet. But some of the new contrivances for ridge ventilation have the disadvantage of not being sufficiently tight when closed, thereby letting out the heat to an extent that is a serious drawback. A clear gain has been effected by the substitution of timber much less cumbrous than was used when the requirements of plant life were less understood; the lighter woodwork now employed is equally as strong as the old heavy timber was where the structure is strengthened, as it should be, by braces or tie-rods introduced with judgment.

The material that has effected the advance in horticultural buildings—the glass—has in itself been more improved than anything else with these structures. The old small squares, 6 or 8 inches square, with their many and dirty laps, have a sorry appearance as compared with the large light-giving panes of the present day; for, whilst the last-named admit all the light possible, the former might have been purposely devised to keep it out. In the method of fixing the glass—the glazing—there have been many innovations, most of them with a view to dispense with the use of putty, substituting metal strips, screws, india-rubber slips, and even applications of the oldest of old window material, lead; yet there are few, if any of them, that do not possess more objections than the putty they supplant, either by being expensive, the difficulty of repairing breakage, or letting in wind and wet, and consequently letting out the heat—which last is a most serious objection, entailing, as it does, continuous waste of fuel—the most costly item connected with gardening under glass. But although it is doubtful if any system of glazing will permanently supersede putty still its continued use in the ordinary way at top as well as for bedding the glass can only be attributed to the difficulty there is in unlearning. Old usages die hard, and are often long before being laid aside, even after something else has been proved better. It is now many years since the system was first practised of confining the use of putty to bedding the glass, employing paint alone above; by which means and the use of small sprigs to each sheet of glass, however large, all the advantages of top putty are secured without any of its defects.

It is scarcely necessary to recapitulate the objections to top putty, as there are few who have had to do with garden structures of any description that have not noticed the way in which it cracks and leaves the wood, letting in the wet, with the still further objection of making the painting on the outside so much more difficult, as well as tending to diminish light by the way the paint usually is laid on to overlap the putty. In outside painting it takes double the time where top putty is used to that which is required where putty has been confined to bedding the glass alone. There is one class of individuals engaged in gardening under glass who, almost to a man, now confine the use of putty to bedding the glass—the London market growers, who with their acres upon acres of houses and pits use paint alone above. The nature of their occupation, the bulk of their business confied to glass cultivation, naturally keep them alive to anything fresh; as new methods of glazing have appeared they have been tried by some or other of the market growers, and hitherto have as quickly been discarded. Their first object is to make their houses as tight as possible so as to keep in the heat and shut out the cold—terms that are synonymous. To effect this no method of glazing yet devised finds favour with the market men, equal to large squares well bedded-in and sprigged down, the laps as close and tight as it is possible to make them. Such glazing, well painted, they find tends to keep the firing account down, and conduces to the wellbeing of the crops they grow by the maximum of light thus secured.
T. Baines.

SEAKALE.

THERE are few garden esculents more in favour than Seakale, which may be forced in a variety of ways, the one giving least trouble being that of taking up the roots and forwarding them in heat, which may be done with safety and the Kale got in very early, as they contain enough sap and organisable matter to live and produce fine heads if packed in only a small body of soil. To start fairly with them the plants should be dug up carefully, so as to preserve as great a portion of the large fleshy root part as possible, but any straggling side pieces may be broken off and saved as thongs for planting again, about which I shall have something to say later on. With the roots trimmed or reduced in the way referred to, they may be packed closely in large deep flower-pots or boxes, in doing which the interstices should be well filled with light fine rich soil, and when finished the whole should be heavily watered, so as to settle the mould in its place and render it wet enough for the young rootlets, when they form, to feed on. The pots or boxes can then be stood in any warm house or place where there is a temperature of from 60° to 70°, in which the Kale will soon start, and in a few weeks it will be ready for cutting.

To blanch it properly it must be kept both dark and air-tight, or nearly so, and the readiest way of effecting these ends is to turn another pot over the one containing the plants, stopping the hole and the space between the rims with moss or clay, and the box, if one be used, with a close fitting lid. Dark arches in stoves or vacant spaces under stages come in admirably for forcing Seakale, and even stokeholes over boilers may be made good use of for the same purpose, the only drawback being that the heat is rather dry, to obviate which it is a good plan to pack the pot round with moss or old mats kept wetted, which saves wetting the roots. Later on there is no better situation than a Mushroom-house for the forcing of Seakale, as there, with a temperature of 55° to 60°, it comes on slowly and pushes with great strength, so that the heads grow very large if the crowns are fully developed.

To have a constant succession for cutting it is necessary to take up and put in a few roots weekly, or more often, according to the demand, but in no case should the heads be allowed to stand to get long, as when they are in that state they lose their succulence, and become hard and tough. Those who are not in any hurry for Seakale, and like to have it unusually fine may obtain it so by forcing it where it stands; but to do this, and get extra large heads, the rows should be planted wide apart, and the beds arranged for the purpose. That these may not be an eyesore when the manure is applied and the work of forcing going on, it is well to have them in an out-of-the-way place, but readily accessible to get the dung to them. The plants should be in rows 5 feet apart, by having which space for the leaves to spread they grow very strong. Before forcing commences the proper mode of procedure is to dig out a trench between each row, and then to spread the soil over the plant, so as to cover the crowns to a depth of 6 inches, when all will be in readiness for the manure and leaves, mixed together for affording the heat. To keep this constant and steady it is necessary to have the fermenting material at least 2 feet thick, which will then gradually warm the earth under and induce the Seakale to start. As soon as it breaks through

the crust of the soil it is fit to cut, and will be found, if so treated, not only large, but well blanched, and mild and delicious in flavour. When the Kale is cut, sufficient loose manure should be left to partly fill the trenches, and after frost is over the soil may be levelled back, to give the heads of the plants light and air to make their young shoots. These should be thinned out to about three to each crown, as only fine heads can be got by giving them plenty of room.

There is yet another way of forcing Seakale, which is, perhaps, the oldest, and that is by means of pots, which may be had for the purpose, with lids on the tops. By putting these over the plants, and fermenting material around and over them, the warmth of the latter is quickly driven through into the interior space, the air of which is kept at regular temperature, which soon brings the heads on ready for cutting. This mode of forcing, like that just adverted to, only does for late work, as during the winter, when there is severe weather, and often heavy falls of snow or rain, it is almost impossible, even with unremitting attention, to keep the dung and leaves heating. In the months of August and April it may be managed, and after that the best plan for obtaining a late supply is to simply cover a bed with clean long stable litter laid on a foot or so thick, which excludes all light, and blanches the Kale beautifully, without entailing much trouble or labour. By starting in the manner first touched on, and following through with one or the other, and finishing up with the latter, Seakale may be had from Christmas to June—that is, provided there is stock enough for lasting so long.

The way to increase plantations or to start others is to first trench and manure the ground heavily where it is intended to plant, and if the land is at all stiff a good dressing of leaf-mould and sharp sand should be added, the latter of which may, if handy, be got from the seashore, as Seakale, being a marine plant, is fond of some salt. Seaweed may therefore be made use of with great advantage in preparing the beds, as it is both stimulating and lasting, rotting and parting with its saline matter slowly. To make good strong plants quick, the root-thongs cut up into about 3-inch lengths are the best, and these pieces may be dibbled in in rows 2 feet apart and 18 inches asunder, which will afford them plenty of room to grow and spread and make fine strong plants in a season.

These may also sometimes be got from seed in the same time, but it requires exceptionally good soil and attentive cultivation to do this, and the seed must be sown early, that the plants may have a long summer to grow. The mode of procedure in preparing for sowing is to draw drills at distance above specified for planting the thongs, when the seed may either be scattered thinly along or dropped in patches a foot apart, and when up the plants should be thinned out so as to leave them standing singly that space between. The next thing is to ply the hoe to keep down weeds, and to prevent others growing it is a good plan to give a sprinkling of salt, and if to this a little soot be added the growth of the plants will be accelerated, and their health and strength much improved. *J. Sheppard.*

HANDCROSS PARK.

Halfway, or thereabouts, from London to Brighton, in the vicinity of Crawley, is the estate of J. Warren, Esq. For a long distance the high road bounds the property on one side, and along this line has been planted a row of Wellingtonias, like so many sentries. They have been planted several years, and form a striking feature, but still not one that is likely to induce a repetition of the experiment, at least under those conditions. The house, the stately tower from whose summit a glorious view is obtained over the Weald as far as the "Downs" on both sides—the garden—all is new. But the heath and the forest adjacent are not new. Not even the oldest inhabitant's oldest ancestor could tell the origin of that Surrey heath. A geologist might guess at it, but we must allow him a very wide margin.

On this heath and amid its encirling woods Mr. Warren is carrying out an interesting experiment. All the Conifers at all likely to be hardy, on high ground as well as on low, on dry soil and on moist, exposed or sheltered, interesting for structural or economic reasons, are being gathered together. The soil conditions are widely different from those conducted on such a large scale at Pampesford by Mr. Parker Hamond. At Handcross Park the experiment has been begun too recently to afford any crucial results; but even now it is evident that some of the Pines will thrive well. P. insignis, with its lovely shade of green, is quite at home, and so is the less known P. Bolanderi, the colour of which is equally beautiful, and which seems to be more hardy than insignis, which, as many know to their cost, is tender. What P. Bolanderi is—we mean as to its botanical status—we shall soon have an opportunity of determining, for its hardihood is inducing planters to make use of it. Pinus monticola is one of the Pines which thrive here as well as the commoner and hardier austriaca and pyrenaica, and the less known Jeffreyi. P. macrocarpa looks strange and weird in a young stage; as a middle-aged tree it has a handsome appearance, but those who succeed us, and see the tree in its old age, will probably wonder what beauty their forefathers found in such a tree. P. macrocarpa, we learn from Mr. Geo. Paul, is one of the very few Pines that do well on the London clay. The biggest plant we have

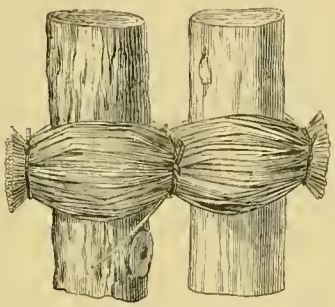

Fig. 114.—Straw tie for trees.

yet met with of that odd-looking Picea Maximowiczii is to be seen here. Usually it has a very miserable starved appearance, but at Handcross it seems to have found the conditions suitable for it. Retinosporas, Thuias, and Libocedrus all do well at Crawley, and it is not surprising that they should, for they are nursed up when young, and are planted out when the time comes with judgment and due precautions, so that great interest will attach to the progress of the plantations.

The garden is but recently made, but whether in the flower garden or in the houses, forethought, skill, and method are apparent. Herbaceous plants and choice deciduous shrubs are pressed into the service, and a small but well furnished rockery promises to be

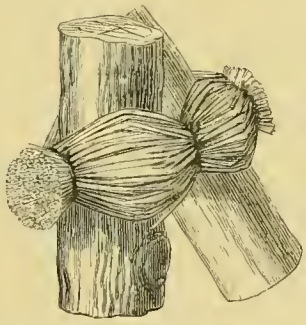

Fig. 115.—Straw tie for trees.

an interesting feature. The big bushes of Crotons are a magnificent sight. These are the heroes of many a well-fought contest, and as you see them at home, symmetrical in form and perfect as to colouring, it would seem as if they could not be beaten. In going round the kitchen garden, well stocked with the choicest fruit trees beautifully grown, our attention was directed—as indeed elsewhere—to the very serviceable manner in which the trees were tied to their stakes. Mr. Rann has been good enough to send us a specimen of the tie he uses, which is made of straw, and is so managed that while the tree is held firmly it is not constricted, and the tie is readily shifted, as seen in our illustrations (figs. 114, 115). The ties are made of various sizes, and are so simple that a garden labourer can readily make them. For neatness and efficiency we know of none better.

To convert and adapt a wild heath as perfectly as has been done in so short a space of time is a proof of what may be done by energy and skill, associated, as in this case, by the intelligent sympathy of the proprietor.

OPEN SPACES IN TOWNS.—II.

Gateshead.—This smoky manufacturing and coal shipping town is not of any great extent, and, except in the older parts lying near the Tyne, the rural districts are readily reached; but as buildings gradually creep outwards into these rural parts so will the people living in the more confined areas find a difficulty in reaching health-giving localities for play and recreation.

At present the Saltwell Park, bought from Mr. Wills, a wealthy glass manufacturer, is the only one the townspeople possess. It consists of about 50 acres of hilly, high-lying, park-like land laid out in large sloping lawns, shady clumps and walks. During the last year 4 acres of water have been added to the attractions of the place, the banks of which are treated in a natural method, but are rather too much seen from all points of view—a fault in a piece of water of so small an extent. Either islands or projecting points of land round which the water could vanish should be made, or more timber trees should be employed near the margin in places: these are improvements that can be recommended. The depth of the water is made not more than 3 feet, thus rendering bathing or skating fatalities almost impossible. The park contains the castellated house of the former proprietor, which, as it is not wanted for any public purpose, is let by the town Corporation for habitation: this, together with a small private garden, some stabling and outbuildings—the latter enclosed within a wall—reduce the space available to the public by at least 2 acres. An irregular piece of ground surrounded by a low retaining wall, levelled from the hill-side, is approached from the adjacent ground by means of steps, and is furnished with asphalted paths, beds of flowers and shrubs, making a very pleasant promenade, from which the older half of the park is overlooked. Near this, but on the other side of the mansion above-mentioned, is a showy flower garden, in which there were growing the usual bedding plants used in the North, together with single Dahlias and Gladioli in beautiful bloom, and separating the public garden from that pertaining to the mansion was a hedge of mixed Sweet Peas, in such capital bloom as is seldom seen in the more favoured South. From near the middle of the park a dene, or ravine, with a tiny stream of water running through it, divides the older from the more recently laid-out part, where the lake above described is situated. The dene being a sheltered spot has much larger timber scattered up and down, and lining the sides of the main approach to the mansion, which runs on one side of it, than is to be found elsewhere. The stream is anything but a desirable feature in this dell, for, except after a storm of rain, when a torrent of dirty water from off the streets and highways gushes down, there is but the merest dribble, and which terminates in a dirty pool at the end of the ravine.

Outside, further westward, the park is again open and breezy. Here new plantations are springing which will in time add materially to the shelter found hereabouts, and which will mask the objectionable roofs of buildings adjacent. These buildings being built on the slope, lower than the park, have the odd appearance of springing out of the soil. The upper parts of the park in this section have broad paths, a band-stand, a temperance refreshment place, besides a considerable amount of flower-decked shrubbery border. Here, as elsewhere in this district, the Golden Elder plays an important part in the shrubberies. The former proprietor was partial to flowering trees, so we find great numbers of Pyrus malus baccata, Thorns, Lilacs, Sorbus aucuparia, S. ariæfolia, Pavias. Weeping Elms abound in the older parts, but evergreens are seldom met with, although formerly they were abundant, as is evident from the butts and stumps in the shrubberies. The hard frosts of some winters ago killed many outright, and so injured the rest that they have since died. The place is in fair order as regards the turf and the walks, although the former would be much benefited by some rich and enduring top-dressing, say strong loam and farmyard manure. The shrubberies require rearranging and planting anew with flowering and evergreen plants, especially herbaceous hardy ones among the flowering section.

The view from the highest parts over the western portion of the county of Durham is very fine, and comprises almost the identical objects and landscape features seen from the Newcastle side of the Tyne.

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The distance from the Gateshead station to the park is about 1½ mile.

Sunderland Town Park.—The large and busy coaling and manufacturing town of Sunderland is now provided with a very pleasant park-like garden in a most delightful situation, in the middle of the town, on the left bank of the river Wear. The site, which is high and commanding, as is that of a great part of the town, was formerly a worked-out stone quarry of about 17 acres, acquired by the Corporation for £2000, and which was enlarged by the addition of 10 acres obtained from the North-Eastern Railway Company at a cost of £10,000. There is here a free library, an art gallery and museum, brought together in a fine stone building of handsome aspect, 200 feet in length, on the garden front of which a noble conservatory is attached. These buildings are situated on a low balustraded terrace commanding a view of the garden in front. The conservatory, which is rather less in length than the museum building, to which it forms the garden vestibule, contains some moderately large Tree Ferns, such as Cyatheas, Alsophilas, together with Yuccas, Ficus, Phœnix, Seaforthias, and various warm and intermediate-house plants in beds. Flowering plants stand on the side borders, and creepers adorn the roof and walls. The house is of a good height and length, but is rather narrow for planted-out Tree Ferns and Palms, which will eventually intrude too much on the paths. The terrace in front of this conservatory is a gravelled one, with a low balustraded wall, plenty of seats, and very capacious area. In front of this, and close to the terrace wall, is a most irregularly designed pond with islets, which from the absence of vegetation in the water, and of turf, has a singular appearance. The banks are faced, and covered on the upper parts with a broad irregular margin of apparently sea-worn rock, closely cemented, so that no crevice or joint is visible, and which is utterly bare, reminding one of nothing so much as a seaside pool on a rocky shore minus the seaweeds. When we saw it there was not much water in it, and it was desolate looking in the extreme, the only relief afforded to the eye being the greenery of the small trees and bushes on the islets.

The grounds have been much better dealt with, these being quite pleasingly laid out. The *débris* of the old quarries has been disposed of in enormous mounds of easy lines, grassed over in some places, and carrying shrubberies and groups of trees in others. Through and around these the walks meander, and afford the saunterer much variety of view, and—what is also much needed and appreciated—shelter from the winds in this breezy place. The turf, which is in good order, is enlivened here and there with parterres of flowers and solitary beds, as are also most of the shrubbery borders, every effort being made to make the garden attractive to the townspeople.

About the middle of the grounds a railway cuts them into two parts, connected by a bridge; but as the cutting is of considerable depth, and is masked very well on either side with trees and shrubberies, it is no particular detriment to the enjoyment of the gardens. Parallel to this railway is another balustraded terrace, from which the observer looks towards the museum buildings and the intervening ground. The idea of having terraces to face each other is a curious one, and should be followed with caution; but when, as here, they are not much seen from each other, and the view seen from each is dissimilar, it is perhaps permissible. There is an unfortunate crooked walk laid out, with turf on either hand, at the foot of the last-mentioned terrace, whose curves are rather meaningless. It would be much improved by placing dwarf-growing shrubs, or groups of half-trees at prominent parts of the line, so as to suggest reasons for the divergence from the straight line.

Over the railway the grounds are dealt with in rather a less decorative way. Curving paths of easy gradients and good width lead the visitor gradually upward till the enormous mass of natural rock is reached that forms the termination of the park on the side directly opposite to that at which the museum stands. This rock is about 50 feet high, and several hundred yards round. On the top is a fine bronze statue of General Havelock, some Sebastopol cannon, and a large flag-staff. From the esplanade here a beautiful view can be obtained of the park and immediate locality, and the German Ocean about two miles off. The face of this rock looking parkwards is covered with Ivy and other strong-growing creepers, the upper part sloping down to the level of the roadway.

Throughout the trees and other vegetation have a healthy, thriving look, which is doubtless owing to the proximity of Sunderland to the ocean, the health-giving breezes from which make vigorous growth possible; whereas in Newcastle, whose open spaces formed the subject of a previous article, and which is some considerable distance from the sea, the conditions of healthy growth are not equally good.

The park is encircled by an ornamental iron railing, with numerous entrances in it, some of these being profusely adorned with flowers in season. Distant about two miles from the railway station is the fine bathing beach, Roker, which is quickly reached by tram-car. These fine sands, of about three-quarters of a mile in length, are much frequented during the summer months by young and old, being an admirable addition to the health resorts of the town.

It seems to be the more inland lying districts of the town which most stand in need of recreation grounds. Here, amongst hillocks of mine and colliery and factory refuse, among pools of putrid water and filthy rills, one can see the youth and children of the labouring poor disporting in all degrees of dirt and raggedness. It is evident to all that playgrounds are sorely needed in these parts of Sunderland, so that the people could assemble in healthier parts than is possible now. It would not be desirable to plant trees, as these would probably perish from the poisonous gases in the air hereabouts, and from the general unwholesomeness of the soil; but turf would grow, and most probably the Elder-bush; so that playgrounds could be obtainable on which bowls, quoits, cricket, and other games might be played. The appearance of the farm crops but a short distance from the town proves that thus much could be done should private enterprise or the public feeling lead that way.

The population of Sunderland numbered 110,500 souls at the last census.

FERRIBY BROOK NURSERY.

Messrs. Whittaker & Whitehead's charming nursery for herbaceous plants is about 4 miles from Derby, and a place well known to our best herbaceous authorities, and Mr. Whittaker is well esteemed by such hardy plant giants as Mr. Wolley Dod and Mr. Ellacombe, and a few weeks ago might have been added the name of the late Mr. Harpur-Crewe, who looked upon Mr. Whittaker and spoke of him as a dear botanical friend.

This nursery is perhaps not so well known away from the locality as it ought to be. Mr. Whittaker (whose house bears the date 1857) is an authority, and one who is ever ready to talk on his favourite subject, and, moreover, knows what he is talking about, and any plant lover may pass an hour or two with extreme pleasure here. At the recommendation of Mr. Wolley Dod, I paid this nursery a visit in the spring, and so interesting was this visit to me that I went a second time in the summer, and cannot resist pointing out a few of the many things that delighted me. First and foremost a Papaver nudicaule, of a rich orange-red, richer in colour than any variety that has hitherto been raised; there is also the true Papaver alpinum, so rare now to find without a cross with P. nudicaule. Lilium Michauxii is here a grand plant, 9 feet high, and smothered in bloom. There are three large Thalictrums, all of a lemon colour, and each beautiful. These are lucidum, glaucum, and a third, unnamed, which was sent to Mr. Whittaker from the Liverpool Botanic Gardens. In Campanulas are a number of dwarf forms of carpatica and turbinata; carpatica alba and turbinata pallida are very fine, and so are C. Hostii, C. altidifolia, C. ericifolia alba-plena, and C. celtidifolia. A fine plant of Pentstemon humilis had gone out of flower. In Veronicas there are good plants of Grievei, Guthrieana, the rare crispa, &c.

The lovely Prunellas, pyrenaica (or grandiflora) and Webbiana, are remarkably good. Tropæolum polyphyllum had been a mass of flower. The Eryngiums are very effective, especially aquifolium plenum and amethystinum, so are Geraniums Wallichii and lancastriense, and Geums dubium and miniatum.

Other interesting plants, too numerous to name, cover a large area of the nursery, but the following list may be especially alluded to:—Rudbeckia salicifolia, Hedysarum boreale, Scutellaria alpina (very fine), Cathcartia villosa (beautiful), Aquilegias, nice hybrids of chrysantha, canadense, and the glandulosa of gardens; Epilobium rosmarinifolium and sericeum, Dracocephalum speciosum, Alströmeria lutea, Craspedia Richardii, Picrorhiza carnea (rose), from Northern India, Polemonium Richardsoni, Pentstemon Scoulerii, Borago laxiflora (large), Cheiranthus longifolius (very good), Kniphofia caulescens (grand), Astersericeus, Armeria cephalotes, Cassia marilandica, Pancratium illyricum (blooming well out-of-doors), Sidalcea malvæflora and S. candida, Achillea mongolica (good), Callimeris incisa (like an Erodium, and very good), Lysimachia clethroides (fine), Anthericum Renarnari (very pretty), Genista tinctoria plena (effective), Spiræa aruncus (glorious), and S. Ulmaria plena, Cimifuga racemosa (very good), Potentilla Tonguei and P. Smoultii (both pretty), Dianthus superbus var. Nivenii, Saxifraga hirculus major and S. aquatica, Epilobium obcordatum (rare), Anemone rivularis, &c.

These are only a few of the more conspicuous of this fine collection of plants that were seen in flower at the time of my visit. In spring I saw large beds of Narcissi that were well worth seeing, containing a number of conspicuous kinds, such as Emperor, Empress, Moschatus, one or two Leedsii seedlings, &c.; two large beds of Anemone pulsatilla, Iris reticulata; Primulas cashmiriana, rosea, japonica, Munroi, capitata, &c. These were well worth a journey to see; and taking the nursery in all its branches, I feel convinced that the readers of the *Gardeners' Chronicle* will welcome this notice, and I hope some will visit the nursery of really good herbaceous plants, for if they do so they will not be disappointed. *E. J. Lowe.*

TOMATOS IN THE OPEN GROUND AT READING.

The subject of an extended cultivation of the Tomato having of late engaged the public attention, and it appearing to be desirable that the Tomato should be much more plentifully and cheaply supplied to English homes, it occurred to Messrs. Sutton & Sons, of Reading, to carry out an extensive trial of Tomatos, so as to test, in as far as it could be done in a single but carefully conducted trial, the merits of the varieties in commerce. For this purpose as many as sixty-three reputed varieties were obtained, and the seeds sown on February 15 and 16 last: the young plants were carefully grown on, and they were planted-out in the middle of May. A somewhat favourable spot was selected for the trial—a warm sunny corner on the left hand immediately on entering the Portland Nurseries from the London Road—fully open to all the genial influences of the south and south-west, but sheltered on the north-west, north and east. The soil is of a fairly light and free character, it was deeply dug previously to receive the plants, and they were planted-out in twenty-six rows, there being fifty-two plants in a row, and four to six of each variety. These rows were 3 feet apart, and the plants the same distance apart in the lines. They were all grown to a single stem, and the best fruit was at the bottom of the stems, and mainly on the sunny side. An inspection of the crops made about the middle of September enabled a pretty good estimate to be formed of the value and quality of certain sorts; all had fruited well, almost without exception, and at the time of our visit the crops were in a very favourable stage of development.

During the time the plants were under cultivation they were carefully attended to as to tying, stopping, clearing the ground when necessary, &c.; and in the course of culture many hints were derived by those having the management of the plants. Experience proved, as it usually does, an excellent teacher; and one lesson learned from the trial is, reasoning from analogy, that there must be many spots in this country eminently suited for the growth of the Tomato in the open air, and that with the necessary care and attention good and remunerative crops may be had. The popular taste has gone out towards the Tomato of late, and they who set themselves to work to provide something like an adequate supply can scarcely fail to receive a proper reward for their pains.

The results of the Reading trial, as far as they affect the successful culture of the plants, may be summed up as follows:—Tomatos should be grown on poor soil; if on rich soil they go away so much to foliage, and the fruit crop is comparatively small. One important principle is to begin right; and from the very first the plants should never receive anything like a check.

The seed need not be sown before the middle of February, and sown thinly and in great heat, for the sooner the plants are up the better. They should be somewhat hardened off while in the seed pots or pans before being pricked off into store pans or boxes. When they are about an inch high six or so should be put into a 4½-inch pot, placing the leaves close down on to the soil, and then placed into a heat of 60° or 70°, and kept very moist; a brisk dung frame is a good place in which to place the plants at this stage, provided shading can be employed if necessary. As soon as the plants have made four leaves they should be potted singly into 2½-inch pots, and, as before recommended, with the leaves close down on to the soil; then again placed in a temperature of 60° to 70°, and advantage gradually taken of sunshine in spring to shut up the house close with sun on them; if it be necessary, to give air by day. As soon as the pots are filled with roots the plants should be placed in a frame where the heat is turned off by day, and by the beginning of April they should be shifted into 42-sized pots, using a little heavier soil; then stood close together in a moderately warm frame, shaded from too much sunshine, and occasionally sprinkled overhead. As the plants become established some will be found to grow stronger than others, and the foremost plants should be placed by themselves and have a cooler treatment, but still giving a little warmth as required. The first week in May the foremost plants should be stood on an ash bottom in a cold frame, a foot apart, shaded carefully from the sun, and never allowed to want water, exposed to genial showers, and protected from winds, but lights should be placed on the frame at night. The best position for this cold frame is under a hedge facing the sun, and if the night promises to be cold a mat should be laid over the frame to supply the necessary protection. When what is termed the "Blackthorn winter" is over, and genial growing showers fall, then the plants should be put out in ground that has been deeply dug or trenched three months previously, and thrown up loosely for thorough aëration, and, it is scarcely necessary to add, in a warm and sheltered spot.

The after-culture of the plants is not less important. It must be borne in mind that, in the case of Tomatos grown in the open ground, the first crop of flowers should be encouraged to bear fruit, for these will form the foundation of the main crop, especially so as the season is a short one, and always uncertain. As soon as flowers appear, all shoots and leaves that cover them should be removed, and when the fruit are set more leaves and side shoots will need to be cut away. If extra large fruit are wanted, say for exhibition purposes, the thinning-out of the fruit adds materially to its early ripening and symmetrical development. The plants should be kept closely tied up to 3 feet or 4 feet stakes, which should be put into the ground directly after planting, and when they reach the top of the stake then the top of the plants should be removed, and so much of the shoots as to leave little more than the main stem, a few leaves, and the fruit, thereby divesting the plants of all surplus growth and laterals. Three feet stakes will be found high enough generally.

Mulching at the roots must on no account be attempted, as this only adds to growth, which is not required. If the plants are fed too much the fruit are apt to crack, which is a misfortune, as it interferes with their sale. In planting out the plants should be placed as near the surface of the soil as possible; and it is found that frequent surface hoeings, carefully done of course, add much to root action. Under such a system of culture as that laid down Tomatos may be had in the open air from about the second week in August until the middle of October, provided the weather is at all favourable. The earliest fruit at Reading was gathered on August 12. Should the weather prove treacherous in early autumn the stems of the plants can be cut off and the partly ripened fruit finished off by hanging them up in some suitable place where the fruit can colour and become fit for table. A comparison of the leading varieties grown in this important trial gave the following results:—

Earliest of All (Sutton) was undoubtedly the earliest of the many varieties in this large collection; it is a selection made by Messrs. Sutton & Sons, producing perfectly round medium-sized fruit of a brilliant red colour, uniform in size, and of excellent flavour. This is a very prolific bearer, and fully a week in ripening before any other variety. Reading Perfection came next; it is a new variety of great merit, of the colour of Acme, large and fine in appearance; a variety that ripens its fruit rapidly, finishes quickly, and crops freely. Criterion, an excellent Tomato, was from seven to ten days later than Earliest of All; the fruit is of a longish-oval shape, bearing smooth and corrugated specimens both, the greater part of the fruit smooth. Some object to the colour of this, and there are those who say that the flavour is disagreeable unless the fruit is fully ripe. Conqueror is a good and prolific Tomato; the fruit appears to vary in size; some are deep in colour and some pale, and mostly much corrugated. Acme must be put down as a very fine variety, remarkable for its depth of colour, in shape like Hathaway's Excelsior, fairly free, and of fine flavour; a really good Tomato. The Dwarf Broad-leaved is an American variety, very broad in the leaves, and bearing large corrugated fruit, but not good enough to be included in a choice collection. The Dwarf Striped Japanese was represented by large corrugated fruit striped orange and crimson, and may be written off as no good. Dedham Favourite is in the way of Acme, one of the pale red forms, fine shape and good colour, appearing to be a selection from Acme; a good exhibition variety, and a free bearer. Common or Large Red, as grown here, is a wonderfully free variety, but very coarse. This variety is largely grown in India, where there is a great consumption of Tomatos, The Early Dwarf Red is a very distinct free-bearing variety, small in size and deep red, but with a remarkable absence of seed; very good flavour. Earley's Defiance, as seen at Reading, was simply the ordinary Large Red, and it is just possible it was in the first instance a selection from the latter. A variety named Windsor Prolific was also not distinguishable from the Large Red.

Three very handsome types were particularly noticeable, viz, Hathaway's Excelsior, Livingstone's Perfection, and Livingstone's Favourite. These are all of American origin, and show the care taken by our Transatlantic brethren in selecting handsome types. The former was represented by a very fine stock. Livingstone's Favourite is a very fine variety for exhibition purposes, and is one of the very best for culture under glass: it is also very showy on the table; Livingstone's Perfection is rather earlier, a trifle richer in colour, and of very handsome appearance indeed. There is no waste about either of these, as they are so smooth and rounded. Trophy was to be seen here in good form, large, handsome, and slightly corrugated. The Early Red, smooth, crisp-leaved, a designation which applies both to the fruit and habit of growth of this variety, is like Trophy, but different in the foliage and very prolific. Glamorgan is the name of a Tomato raised at Margam Park, and sent for trial by Messrs. Stuart & Co., of Nice, and represents a large, rough, much corrugated fruit; but this variety as shown by Mr. Muir during the past summer was perfectly smooth. Tomato de Laye has a very singular upright growth, of which there was plenty, but no appearance of fruit. It is evidently not adapted for outdoor culture. Key's Prolific is a very prolific Tomato, but coarse in appearance, type of Large Red, and is probably a selection from it, of good constitution and so profuse in bearing that one can "cut and come again:" an admirable variety for out-door culture. Little Gem (Benary), is a good deal like Early Dwarf Red, but varies in character, and looks as if it were a selection of a smooth early variety from the ordinary Large Red. A variety named Macrophyllum, sent by Dammann & Co. of Naples, has the fruit borne in large clusters, and has a close resemblance to Nisbet's Victoria; the fruit is oval in shape, a free bearer, and decidedly ornamental. Nisbet's Victoria may be taken as an improvement on the Pea-shaped Tomato, but the fruit is more oval shaped than that of Macrophyllum: both are deep orange-red in colour. An American variety named Mammoth Cluster came from Messrs. Thorburn & Co.; it bears very large fruit, deeply corrugated, but the fruit is not borne in particularly large clusters. Orangefield Dwarf appeared to be a mixed sample, and a selection from the Large Red, its undoubted true form was represented by fine deeply-coloured fruit, slightly corrugated. President Garfield was represented by a rather strong growing variety, the plants bearing one or two enormous fruits each, coarse and ugly, and it cannot be classed as a desirable variety. Powell's Early is a very free old variety in the way of Key's Prolific, but too much corrugated. Thorburn's Paragon appears to be an orange-red type of Hathaway's Excelsior, very handsome, but not a particularly free bearer. Queen of Tomatos, sent out by Messrs. Dickson, Brown & Tait, appears to be true Pear-shaped, but a fine selected type of it. Royal Cluster is a variety that fruits in long large clusters, the fruit small, round, and orange-red in colour, and wonderfully prolific, good habit; the Rose-fruited Giant is very large and ugly, the fruit deeply corrugated. The Large Red of Italy is a coarse type of this form. Stamfordian, as seen here, was a very mixed lot; the best was a Large Red Tomato, pretty handsome, and best described as a smooth type of the Large Red; Turk's Turban (Benary) is a medium-sized variety representing a miniature Turban Gourd, but with a cluster of orange-coloured points issuing from the centre, more curious than desirable; Trentham Fill-basket appears to be the same as Stamfordian, but rather more ribbed; Alpha, an American variety, appeared to be a smooth selection from Powell's Early; Mayflower seemed to be a poor form of Hathaway's Excelsior.

Yellow Tomatos were few, and indeed they do not appear to be greatly thought of for edible purposes, and probably are grown more for ornament than use. There does undoubtedly exist a prejudice in favour of red Tomatos. At Reading yellow Tomatos were represented by the Early Yellow, a smaller and deeper coloured type of the Large Yellow, but certainly earlier; Green Gage, to all appearance a fine selection from the Large Yellow, and the handsomest of the yellow-fruited forms; Golden Trophy, large yellow, a shy bearer; the ordinary Large Yellow, here in good form, as selected by Messrs. Sutton & Sons; and White Apple, pale whitish-yellow, poor in colour, not a good bearer, shape of Green Gage, and appearing as if selected from it.

The Cherry and Currant fruited types are certainly free bearers, and they have an ornamental value which will always make them favourites with some people. There are the yellow and red of the former and the red and yellow Currant-fruited varieties also.

The following are undoubtedly among the best varieties for outdoor culture:—Earliest of All (Sutton), Conqueror, Criterion, and Powell's Early. For culture indoors:—Acme, Livingstone's Perfection and Favourite, and Thorburn's Paragon; and for ornamental purposes, as producing their fruit in long and showy clusters, the Royal Cluster, the Pear-shaped, and, if needed, the red and yellow Cherry and Currant varieties. *R. D.*

EPIPHYLLUM TRUNCATUM.

Among stove plants, few, if any, are equal in beauty and usefulness to Epiphyllums, for not only are they exceedingly showy, but they are very valuable for all kinds of decorative purposes, and come in at a season when other choice flowers are scarce. To render them of the greatest service it is necessary to have them in different forms, which is a very easy matter, as they lend themselves readily to many kinds of training, and may be had as low dense bushes, or as pyramids or standards, according to the way they are propagated or worked on stocks that will suit them. If desired as bushes it is necessary to strike them from cuttings, and to grow them on their own roots, when, instead of getting to any height, they spread and arch over, covering the sides of the pots, and when in flower they are grand for furnishing brackets or to suspend in baskets, in either of which positions they show off their natural habit and lovely blossoms to the greatest advantage. To have them in the pyramid shape or as standards they must be grafted on either the Cereus speciosissimus or the Pereskia, the latter being the best, as plants of it are readily obtainable; or they may be propagated and grown quickly for working.

The neatest sizes of Epiphyllums for table decoration—a purpose for which they are specially suited—are those of a foot or so high, with proportionate heads, and the way to get these is to select nice young clean-stemmed plants of Pereskia and to cut them back to that height, after which all that is requisite in the grafting is just to make a slit in the top extending about an inch down so as to slip in the scion. This needs but little preparation, and may be quickly prepared by just shaving off a portion of the lower end on each side, so as to make it wedge-shaped, when it should be inserted in the slit and secured there by either sticking a pin through or binding parts up

together by the use of a piece of matting and moss, the latter being the better plan, as the moss, if wetted occasionally by syringing or sprinkling, keeps the scion plump and prevents it from flagging. The only difference in starting to work up stands, instead of those just referred to, is in having the stems of the stocks longer, as the grafting has to be carried out in the same manner.

If pyramids are desired the Pereskia stems must be furnished from base to summit—a process which, though not so easy as the cleft or crown grafting, is very simple, as, instead of splitting the stock, a cut downwards has to be made in the side. This should not extend far in beyond the bark at first start, but gradually deepen till it reaches a third or so of the way through the stem, and is carried about an inch long. After preparing the graft as already described, it it should be inserted and bound in firmly in the way advised for the standards. To furnish the stem of the Pereskia properly, it is necessary to have the grafts on opposite sides, and not farther apart than 9 inches, finishing off with the last on the top, at the height it is decided the plants are to be. The best season to work Epiphyllums is during February and March, although they succeed at almost any time, and may be done now with the certainty that, if the work is properly carried out, and the plants cared for, every scion will grow. The most suitable place for them to stand, after the grafting has been done, is in a stove, where they can have a brisk moist heat, and if so favoured it will not be long before a union is effected; but as the hold the grafts take is not very strong they will require support to prevent displacement or being knocked out.

Ties made of matting or string soon rot, and to be safe and more permanent it is better to use wire, to prevent which cutting a slip of soft leather should be put between it and the bark. Not only are ties unenduring, but stakes of wood are the same, and should never be depended on, for if they give way, as they are almost sure to do, from the great weight of the head—their breakage involves the loss of valuable plants, as the stems of Pereskias will not stand up alone. Iron rods with branched feet running out triangularly, and then turned, so as to go down the insides of the pots, form the best stays, and if painted with two or three coats are inconspicuous, and will last without rusting for years. To encourage a free growth of the plants both a brisk heat and moist atmosphere are required, and it is as well to afford slight shade during very bright weather; but after the young shoots are formed shade must be entirely dispensed with, or they will not become properly hardened and ripened, on which their free-flowering in a great measure depends. Although fond of a high temperature while growing, Epiphyllums may afterwards be stood in a moderately cool house, and it is a good plan to so treat a portion of the stock, as by so doing the blooming season may be greatly prolonged, and a succession kept up.

As soon as the beauty of the plants is over they should be examined to see if any branches are misplaced or crowding each other, and if so they ought to be removed by snapping them out at the joints, and the same if the plants are too large, as they may be reduced, after which they soon break again. The time to repot is immediately after flowering, but as Epiphyllums require only a little soil, it is never necessary for them to have much root room at any period, and if carefully watered they will keep healthy in the same pots for years. The season when they require most moisture is when they are growing and blooming, after which they should be kept rather on the dry side, as they are of a soft sappy nature, and any excess of water only makes them more succulent, and renders them less inclined for free bloom. The kind of soil Epiphyllums do best in is a sharp fibry loam, the sand being important to keep it open and porous. To insure free drainage plenty of crocks should be used, and it is a good plan to add to the loam a little charcoal, finely broken, or to have a sprinkling of crushed bones in its stead.

As to sorts, all the Epiphyllums are brilliant and beautiful, and every variety is worth growing, but the most distinct are E. violaceum, E. roseum, E. tricolor, and E. rubro-violaceum, which make a grand show. In mild dry heat, which is highly favourable to a prolongation of the durability of the blossoms, plants often bear seed, and it is always advisable to save these and sow, and so raise others, as it is only in that way that new sorts are obtained. To get the seed to germinate it should be sown in fine soil and slightly covered, when if kept close in moist heat with a sheet of glass over the pan or pot, it will soon be up and be ready for pricking off to grow on again till large enough for potting singly in the smallest of pots. Unlike most other plants, Epiphyllums are not liable to insects, and it is very rarely that any are to be found on them, hence they are among the best of all stove subjects for amateurs and others to grow. *J. S.*

THE SARRACENIA GRUB.

IN the month of June last we received from an esteemed correspondent in the West of England specimens of a caterpillar which had done much damage to some Sarracenias recently imported from Wilmington, U.S.A. The insects had bored into the solid roots of the plants, and had formed galleries in them, or had otherwise eaten out large spaces, forming cavities within the roots, as shown in the subjoined woodcut (fig. 116), which represents a portion of one of the roots cut open, showing the large excavations made by the insect, as well as an oval aperture made through the outer skin of the root. The caterpillar itself is represented on the right hand side of the cut, of the natural size. It is cylindrical, with the usual number

FIG. 116.—THE SARRACENIA MOTH.

of six thoracic legs, and eight ventral and two anal prolegs or claspers. It is rather unusually coloured, the head being transverse and bright fulvous red, with the mouth darker chestnut; the first segment following the head is fulvous, with a dark blackish patch (broadest in front on each side), outside of which each side of the segment is white, with a black dot; the second segment is flesh-coloured, with three small white transverse spots down the middle, and three darker wrinkles on each side of the centre, with a black dot on the middle wrinkle, then a narrow pale-coloured space, the outer lateral part being dirty flesh-coloured, with three black dots; the third segment is dark liver-coloured, with a small pale whitish patch in the middle in front and one on each side in continuation of the lateral ones of the preceding segment; between these and the central frontal patch are several minute black dots. The four following segments are fleshy liver-coloured, the anterior portion of each having four dorsal and several lateral black shining tubercles of small size; the remaining segments are fleshy liver-coloured, with a narrow central line down the back and one on each side less distinct, each segment with four dorsal black tubercles, those on the twelfth segment being larger and black, the thirteenth segment is shorter, with only two larger and black patches (each with a black tubercle) near the hind margin, and the fourteenth segment is black, short and transverse.

We did not succeed in rearing the perfect insect from the caterpillars sent to us, but Mr. Edward Parfitt, the well known entomologist, of Exeter, was more fortunate, and has favoured us with the sight of the very beautiful moth which he reared from one of the larvæ placed in his hands by our correspondent, from which the accompanying figure was drawn. The moth proves to be the Gortyna appassionata of Harvey (in *Canadian Entomologist*, viii., p. 155, 1876), Mr. Kirby of the British Museum having compared our drawing with a specimen in the British Museum, which formed part of Mr. Grote's collection of North American Noctuidæ lately purchased for the national establishment. The moth is here represented of the natural size; it is of a fine brick-red colour, the fore-wings beautifully variegated with paler markings, the middle portion being of a pale yellow colour. Near the base of each fore-wing is a pale yellow patch formed of five little spots. At the distance of one-third from the base of the wing is a pale narrow transverse streak followed by three white spots, each with a minute reddish dot in the middle; beyond the middle of the wing, toward the fore margin, is a large oval white space divided by fine chestnut lines into small areas, beyond which is a yellow dentated curved streak, edged on each side with chestnut. The outer portion of the fore-wing is chestnut brick-red, with a lead coloured gloss. The hind wings are uniformly paler brick-red.

In its habits of boring in the larva state into the solid roots and stems of plants this species agrees with our English Gortyna flavago, one of the prettiest of our English Noctuidæ, the larvæ of which feed in the stems of the Burdock and Foxglove. *I. O. Westwood.*

FOREST CONSERVATION IN AMERICA.

A WRITER in the *Nation*, treating the subject on which he speaks as one having authority, points out that the Government has no more concern in holding or managing forest property than it has in working its unoccupied Wheat fields, except so far as forests, from their peculiar location, are essential to the preservation of the important rivers of the country. Hence, while the forests in certain of the States may be exterminated without seriously affecting the nation as a nation, but only certain individuals, the forests which guard the flow of great rivers cannot be destroyed without imperilling the lives and property of persons living perhaps thousands of miles from the forest upon which their safety depends. On this principle the writer from whom we quote recommends the United States Government to set aside as a forest preserve some 8000 square miles of mountain territory absolutely unfit for agriculture or grazing. The district in question was visited by an exploring party, whose route is thus described:—

"They followed the western shore of Flathead Lake, up the eastern fork of the river of that name, and then, after innumerable difficulties and the loss of many animals, crossed the mountains by the old Marias Pass, one of the highest and most difficult gateways in the whole continental divide—a journey only once previously accomplished, so far as is known, by white men. . . The explorers were well repaid. They found four distinct ranges of mountains, separated by high lateral valleys—not one range, as is shown upon existing maps; they found glaciers, of recent origin and of no great extent, to be sure, but important witnesses of an increasing precipitation of moisture in this northern region; they found a noble forest, covering valleys and mountain sides, in which trees of the Pacific coast mingle with those of the dry interior region of the continent and with others of the Northern Atlantic woods; they found a flora remarkable in the great number of Californian forms which it contains, and scenery so appallingly grand that the continent cannot show its equal. . . The explorers, standing upon the high peak which surmounts the pass, looked to the westward down the great gorge of the Flathead, breaking through the highest interior range; within this gorge Yosemites might be lost. At their feet were spread three mighty amphitheatres, swept clean of *débris* by recent glacial action; in any of these the population of an empire might find room to watch the manœuvres of two contending armies. West and north a panorama of lofty peaks, covered with eternal snows, and streaked with bright glacier-fed cataracts, was spread before them. The melting snow upon which they stood trickled to the east into two little lakes, heads of one of the most important sources of the great Missouri, and to the west forming a little cascade, which later reaches the Pacific down the channel of the Columbia. A little to the north of their point of observation flowed from these same mountains the young Saskatchewan."

RENANTHERA LOWI.

Our illustration (fig. 117), taken from a photograph kindly furnished us by Mr. Bergmann, the Director of Baron Rothschild's garden at Ferrières, shows the wonderful plant of Renanthera Lowi, grown by him and exhibited this spring at one of the meetings of the Central Horticultural Society of France. At the time the photograph was taken there were eleven flower-stalks, each over 3 yards in length, and bearing in the aggregate 280 flowers. In the original description of the plant by Dr. Lindley in our columns (1847, p. 239) it is stated that Mr. Low found the plant growing on trees in Borneo with 200 horizontally spreading branches, with pendulous flower-stalks, 10—12 feet in length, the individual flowers supported on mossy stalks, and each about 3 inches across, lemon-yellow in colour, and blotched with cinnamon. Renanthera Lowi is one of those species which bear dimorphic flowers—the difference in form not, as is generally the case, being connected with sexual differences in the flower, inasmuch as it is stated that the two flowers have been fertilised each by the other (*Gard. Chron.* 1867, p. 292).

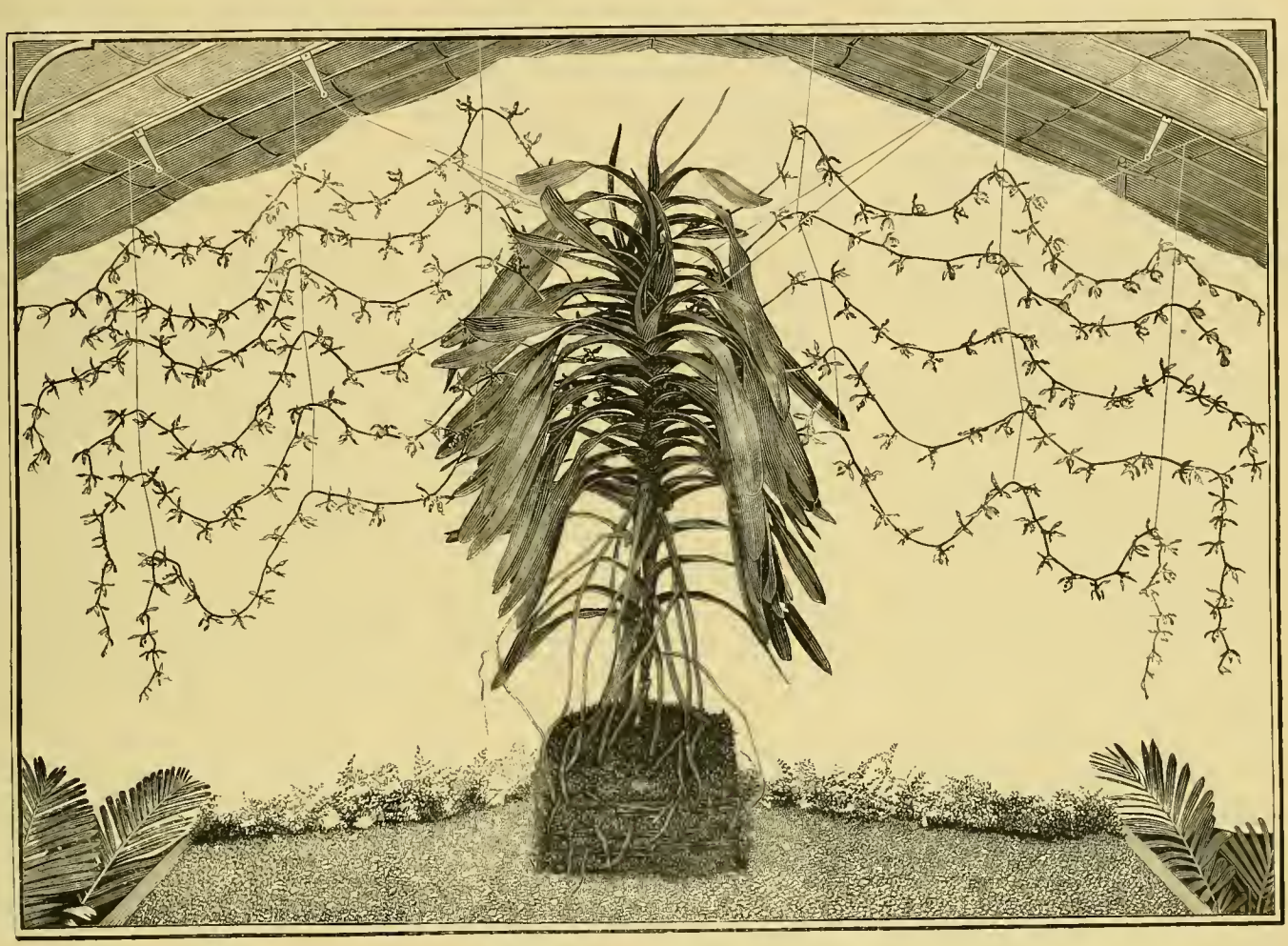

Fig. 117.—RENANTHERA LOWI: FLOWERS LEMON-YELLOW WITH CINNAMON BLOTCHES.

Notices of Books.

The Woods, Forests, and Estates of Perthshire, *with Sketches of the Principal Families in the County.* By Thomas Hunter. (Perth: Henderson, Robertson & Hunter.)

Most beautiful are trees!—"sylvan scenery never palls"—and they are profitable too, in Perthshire at any rate. Mr. Hunter says, in the introduction to his scattered papers, which are now published, as we ventured to hope they would be, in the form of a useful and attractive volume, that the tree thinnings of an acre of land, worth, say, from 5*s.* to 10*s.* per acre, but planted with a mixture of Larch, Beech, Pine, Hazel, Birch, and Oak, will repay the expenses of planting, rent, and management, during the first ten or fifteen years, together with compound interest at 5 per cent. The profits of future falls will be as follows:—In thirteen years, or at twenty-three years' growth, £24 10*s.* per acre; in the next thirteen years (thirty-six years' growth), £39 per acre; and after that a triennial profit of £12 per acre, or £4 per annum, until the final felling of the Oak, as timber of the first class, worth from £200 to £250 per acre. We have known land in Kent planted with Chestnut for hop-poles, which paid a great deal more than in the case brought forward by Mr. Hunter, but its value to rent was four or five times more than the 5*s.* or 10*s.* per acre he mentions. So he may be right, and we all know that the forestry of Perthshire is unsurpassed—Mr. Hunter's book, in fact, is the more valuable from its abundant information on the arboriculture of a county whose woods and forests, as he remarks, possess "exceptional interest."

There is no doubt that the ancient forests of Scotland had fallen into decay, and that Dr. Johnson's strictures on the scarcity of timber were not without foundation. It was useless to think of agricultural or other improvements till after the death of Rob Roy and the cattle lifters, but as soon as circumstances permitted, half a century or more after Cromwell's improved farming, and Sylva Evelyn's planting in the South, the spirit of improvement spread northwards.

In 1812, Scotland's woods, coppices, and plantations reached 913,695 acres. A vast quantity of planting had been accomplished in the eighteenth century, and a slight reaction appears to have then set in, or perhaps the demands for railways and other purposes thinned the woods, for in 1872 the area had been reduced to 734,490 acres. The woods of Perthshire must have been largely utilised, for their area diminished from 203,880 acres in 1812, to 83,525 in 1872. The next return was made in 1880, when the results of the recent progress of arboriculture, which must be manifest to all who know the country, had raised the area of its plantations, young and old, to 94,563 acres. Mr. Hunter does not perhaps overestimate their value at £35 per acre, and as ornamental timber is planted and maintained for love and not for money, the commercial value of the timber of the enlarged plantations of Perthshire does not at all adequately represent the growth of wealth in that county.

Mr. Hunter enlarges with natural pride on the Perth Nurseries, laid out in 1766, and recognised as the immediate source and seed-bed of a great deal of the fine timber now growing in the surrounding country. He then takes his readers to Blair Athole and Dunkeld, and to the Ladywell Nursery, where the Duke's wood manager, Mr. M'Gregor, showed him the management of seed and seedlings on a great estate. The story of the Larches is again repeated, and an excellent illustration is given of the "parent Larches" on the lawn at Dunkeld, figured in our columns, 1876, vol. v., p. 209. Glen Tilt is visited and illustrated, with the Pass of Killiecrankie, and then follows a very interesting sketch of the Athole family from early in the fourteenth century to the present time.

It may be remembered that so far as our space permitted, we gave a similar sketch in an account of Blair Athole in these columns. Mr. Hunter has adopted the same plan, and to his history of the woods he has added that of the estates and families connected with them, with many interesting details of the trees and their surroundings. The accounts of Menteith, Taymouth, Blair Drummond, the residence of the well-known improver, Lord Kaims; of Drummond Castle and Scone, seem to us particularly interesting from the introduction of characteristic history. The Scottish aristocracy, and,

in fact, the nation generally, have left to posterity a very affluent personal history, both in the past and in the more recent times. At p. 428 we read of a certain Alexander Stewart, Lord Badenoch, commonly called the "Wolf of Badenoch." His stronghold is described, his career—a very active one—is briefly sketched, and his repentance, death, and burial in Dunkeld Cathedral are alluded to; and on the next page we read of a much more cultivated Stewart, descended from "the Wolf," as good a sold e-, but less lawless, known to all as the author of *Sketches of the Characters, Manners, and Present State of the Highlanders, with Details of the Military Services of the Highland Regiments.* The heredity of genius in Scotland is beyond all doubt. National and family history never stagnate, and the renown of an enchanted land lives in the very air, and appertains to the soil itself. By including the record of departed worth in his account of the estates of Perthshire, Mr. Hunter has given to his own county, and indeed to England, a book of exceeding interest.

Foresters and country gentlemen will find the numerous measurements of timber trees specially and permanently interesting, as affording evidence of rapidity of growth and profit. In these days of diminished values for the chief products of agriculture, it is a matter of no small importance to ascertain the average crop of timber which each kind of tree is capable of producing in a given time, and the typical soils for each. There is excellent tree gossip in every chapter, relating to memorial trees, large and fast-growing trees, handsome or historical trees, curious trees, and trees of profit. We should like to quote the measurements of the largest Walnut in Scotland, p. 194; of the best Holly in Great Britain, p. 495; of the Dunkeld Larches, the Fortingall Yew, and, above all, of the Oak at Scone, which has made as much timber within a given time as any tree we have seen. But we can only speak in general terms of this very genuine book, which, we have no doubt, will be widely read.

Orchid Notes and Gleanings.

HINTS ON THE CULTURE OF SOME RARE CENTRAL AMERICAN ORCHIDS: *Odontoglossum Krameri.*—I have several times received complaints as to the difficulty of cultivating this plant. I think, therefore, it may be useful to communicate the observations which I have made on the *modus vivendi* of this lovely and very rare species in its native habitat, and which will, perhaps, be of all the more practical value as I cultivated on my own estate in Costa Rica a number of these plants and saved them from destruction. In fact, the very restricted and only locality in which they were to be found was "burnt up" for agricultural improvements, and, except those which I transplanted, O. Krameri must be considered as extinct. I have already made the readers of the *Gardeners' Chronicle* acquainted with the climate of Costa Rica, and therefore I need only say that this species grows on the slopes towards the Pacific Ocean. This means that in summer, during its growth, one cannot give it too much water, and the air of the house should be kept as moist as possible; but, on the contrary, in the winter it wants plenty of ventilation—as much as can safely be given at that perilous season. O. Krameri belongs to that small category of Odontoglots which require heat, and the coolest portion of the Cattleya-house will suit it the best. As to light it is very particular: at Costa Rica, in transplanting them, I lost several, which I placed either too much in the light or in the shade. Here it is the task of the skilful cultivator to find the degree of light which it requires in this latitude. When I discovered this plant I noticed that it affected particularly a horizontal position (I understand the direction of the axis of most of the bulbs), thus preferring to grow on the stems of the trees, and very seldom on their branches. Afterwards, when transplanting them, near to my house, I made several experiments. Some I placed more in the light than others, the greater part I fixed on the trunks and a few on the horizontal branches of trees. I selected branches covered with moss, and also some with naked and smooth bark. In a little time I began to find a marked difference in the growth of my plants. To the mossy or naked stem they showed themselves quite indifferent, such is the humidity of the air in a tropical forest in the rainy season. But it was quite otherwise as to their position. The plants I had fixed to branches in a vertical position (*i.e.*, with the bulbs being more or less vertical) made a poor growth, and many died after a few months. The plants attached horizontally to the trunk of the trees, on the contrary, made very fine growths, with the exception of a few placed too much in the light or in the dark. We must conclude, therefore, that the horizontal position of this plant is an essential condition of its living; but as it requires a great deal of moisture, it would be imprudent to imitate Nature by attaching the plant simply to a block of wood with a little moss. I have overcome this difficulty by placing it on a piece of firm peat, which I bound with wire to a block. I have done so in the case of a recently received specimen, and it seems to like these conditions. Another fact it is important to know in order to obtain a fine inflorescence. Their flowering begins in November, with the end of the rainy season. Some flowers open during the rains, but those fade and rot the same day. The general flowering really takes place with the first fine days, and the flowers, which open untouched by any drop of water, invite our admiration by their delicate shades of colours, especially of the labellum, varying in its different varieties from almost a pure white to the dark violet of the Vanda cœrulea. We must, therefore, in cultivating Odontoglossum Krameri stop the watering and syringing as soon as the inflorescence begins to form itself, dosing it only when dry, and taking care that the water does not touch the flower growth. If growers conform to the singular habits of this plant success cannot fail.

Odontoglossum Œrstedti.—This plant is simply the alpine form of O. Krameri, the flowers are smaller, pure white with a golden blotch round the crest of the lip, but its form is quite the same as that of O. Krameri. The small, hard, always shrivelled pseudobulbs, and the narrow leathery leaves indicate the hard struggle for life which this lovely plant has to undergo in its native habitat at an elevation of 8000—10,000 feet on the highest slopes and crests of the Cordillera, where it is exposed all the year round to frequent tempests and to a very low temperature in the night. This species grows on the Pacific side, where there is a dry season, but in this high region dense fogs occur daily which keep in a constant state of moisture the moss, &c., which cover thickly all the trees (which are very dwarf at this altitude), and between which our gem is comfortably nested, in such a manner as to be almost invisible to the eye. From this we conclude that our plant requires all the year round sufficient humidity, principally at the roots; and this, connected with plenty of ventilation and light, will constitute the most important factors of its cultivation. As to position, the O. Œrstedti is not so exacting as its cousin Krameri, and grows as well horizontally as vertically.

Epidendrum Pseudepidendram.—The culture of this remarkable plant will not offer any difficulty; but as it is almost as rare in its native habitat as in European collections, a short notice of it will not be amiss. It belongs to the bulbless section Euepidendrum, bearing a few distichous dark reddish-green leaves on the top of its slender stems. It varies very much in height according to circumstances, some plants growing up to 3 or 4 feet, while others do not reach 1 foot, and flower quite as well as the taller ones. The flowers are of the largest known between Epidendrums, measuring 3 inches across, but their most striking merit consists in their quite exceptional colours. The sepals and petals are very narrow, deep green, the lip large and broad, brilliant vermilion; the column green on the lower, and pink on the upper half. It wants the same treatment as Epidendrum Stamfordianum, *i.e.*, the Cattleya-house, good shade, plenty of watering, moisture, and ventilation in summer, but comparative dryness in winter. It flowers in mid-winter.

Epidendrum ionocentrum, Rchb. f. (*Gard. Chron.*, p. 8).—I discovered this species last year in a locality very difficult to get at. As it is rare in its native habitat, new, and not known in Europe, some remarks as to its horticultural value may be useful. The plant is quite the same as E. prismatocarpum, only the green of the bulbs and leaves is somewhat darker. The flowers grow from fifteen to thirty on each spike, and are very much like those of the prismatocarpum, but considerably larger in all those parts; the sepals and petals are orange-yellow without brown spots, the lip of a beautiful light purple—all the more expressive by a narrow but sharp margin of orange. In short, the E. ionocentrum surpasses by far the old prismatocarpum in all directions—profusion in flowering, dimension, and brightness of colour of the flowers. Its culture in summer is the same as that of E. prismatocarpum, but somewhat colder, and as it grows in the Cordillera very near the line of continuous rain, it requires also in winter periodical waterings. In its home it flowers in May and June with the first heavy rains. *Richard Pfau, Chiswick.*

CŒLOGYNE BARBATA.—This distinct but not handsome variety is now in flower in Mr. Peacock's collection. Early last year C. barbata was the subject of considerable controversy in the *Garden*, but it is of little value, in my opinion, and hardly to be compared with the inconspicuous C. fuliginosa, to which it has a considerable affinity. It differs from the majority of its congeners in that the flowers are produced from the matured bulb (the general rule being flowers preceding growth), borne five to eight on a long spike; the sepals and petals are a dirty white, the column enfolded by the lobes and with a dull brown labellum with a character peculiar to itself—*i.e.*, the spikes are fully a year developing, and retain their freshness for a considerable time when the flowers have expanded. The plant has been grown in the intermediate-house, and is of a coarse impartial constitution, requiring no special treatment *W. H. Gostling.*

Plants and their Culture.

FERNERIES.—Any contemplated construction of rockwork, whether in the way of entirely new work or of additions and alterations, may be well performed at this season of the year. Now that there is not such a pressure of inside work calling for immediate attention, more time can be conveniently devoted to it than if left a month or two before being carried out. Many an odd corner or end of a house, and bare walls too, may be easily clothed with Ferns and other suitable subjects; selections being made with due regard to the temperature of the structure. There are, however, several useful plants which are very accommodating to various temperatures that may be advantageously employed in unison with Ferns. Ficus repens is a notable example, Panicum variegatum also, and the forms of Selaginella Kraussiana (denticulata) are likewise most valuable for carpeting bare patches of soil. The stock of such things as these should therefore be increased according to the probable demand. The variegated species of Begonia of the B. Rex type do remarkably well planted out, requiring but little soil if a moist position can be given them where the roots can thread their way in any nook and corner within easy reach. We have had these Begonias retain their foliage throughout the winter in a fernery that did not register more than 40° in severe weather.

It is somewhat difficult to give a selection of Ferns that will suit every case, there are, however, several that are indispensable—the Nephrolepis, for instance, in any position where their long pendulous fronds can be displayed to advantage. Of Adiantums, the hardiest and most useful are A. Capillus-Veneris, A. pedatum, A. cuneatum, and A. formosum. The first named will readily cling to and quickly establish itself on any damp surface. We have it in fine condition covering the greater part of the back wall of a small lean-to house. Large quantities are cut from this stock without any appreciable diminution. A. formosum will make grand fronds if a fair amount of soil can be allowed it. We have seen it thriving well just elevated above a pool of water from which, no doubt, it drew part of its nourishment. For a wall or other position that is deemed to be of too dry a nature for most Ferns, the Davallias of the scandent growing section will thrive well if a small quantity of peat and moss can be fixed so that the rhizomes can cling to the same. In a moist cool niche where the majority of Ferns even will suffer from an excess of moisture, the filmy section should be tried and with every prospect of success. If an end of a house built of brick exists, and is an eyesore from being bare, there would be a capital place to have a glass case on purpose for the better cultivation of Todeas, Trichomanes, and the Hymenophyllums. Sufficient width should be allowed for securing projecting ledges of rock or sandstone on which to plant them. The temperature should also be about the average of an ordinary greenhouse for most of the species of Filmy Ferns.

In the construction of new work in a fernery, pockets or receptacles for soil are under some systems of building so arranged that it is almost impossible to renovate

the soil at any future time when found to be necessary. The smallness of the aperture in some instances where room is allowed for a large quantity of soil behind it causes much trouble in removing the soil when exhausted. The earth in such positions also becomes soddened and sour sooner than that which is exposed to the influence of the atmosphere of the fernery. We prefer to have the greater part of the soil of easy access, even if a little sacrifice has to be made in the appearance from a constructor's point of view. The healthy growth of the Ferns being the great *desideratum*, such growth will soon hide many blemishes in construction. Where any amount of cement has been used, a considerable time should be allowed to elapse before planting is resorted to; in the meantime the work should be well saturated with water to draw away as much as possible the noxious ingredients of this material. I have seen failures occur where this precaution had not been taken: this should be avoided for the better satisfaction of all concerned. Good sound peat abounding in fibre should be the chief component in preparing the soil for the Ferns. In large masses of soil some pieces of sandstone may be mixed to keep it from becoming so close as it might otherwise do. If the peat is a bit soft and spongy, and likely to quickly decompose, some fibrous loam should be added, sand also, as a matter of course, in either case. Where only a small quantity of soil can be placed, thereby giving cause for closer attention in watering, some good moss should be secured to retain more moisture for the plants in case of need.

Stoves.—Fine-foliaged Plants.—Give close attention to the cleanliness of the stock of these, which for the next few months will render good service in making the stove attractive. Black thrips will soon disfigure the foliage of Crotons, and cause the plants to be an eyesore for some time to come. A kind of thrip almost peculiar to Dracænas, if not kept in check, will quickly make havoc amongst the lower leaves of these plants, turning the places attacked to a greyish colour. Fumigation will check the pests and effectually rid the plants if repeated three times in quick succession with strong doses. This is not always advisable, therefore, unless the colony is strong, we prefer to syringe large specimens over the trough, as advised in previous Calendars. The careful use of the sponge with a proved insecticide will be preferable in the case of small stock of decorative size. By this means other insects will be also cleared off at the same time. With extra heat in the pipes to keep up the usual temperature, the propagating pit may be turned to good account without extra special firing for the purpose. Some clean bright tops of Crotons can easily be struck at this season of the year, discarding the old stools if the stock is not short, and the space limited. Tall, leggy Dracænas may also be cut up as with Vine eyes, and the tap-roots the same. A start will thus be had in extra good time to make the most of next season. A sharp watch must be kept amongst the Nepenthes, also with regard to an attack of thrips, see also that these plants are abundantly supplied with water at all times, and that the warmest end of the stove be given them. *James Hudson, Gunnersbury House Gardens, Nov.* 20.

The Kitchen Garden.

The time has now come to take up the entire crop of Seakale: begin at one end of the plantation, and take out an opening as if for trenching, and with steel forks turn the ground over to the depth of the subsoil. By this plan every plant will be taken up, and must be carefully removed to an open shed, or the root-room, trimming off the straggling roots to form sets for next year. The thongs, or sets, are usually made about 6 inches long, and buried in ashes or spent tan in layers, till about the last week in March, when they will on examination be found starting into growth and ready for planting. The useable roots of this year, after being divested of these superfluous roots, should be bedded-in quite thick, and covered over with litter, so that they may be conveniently got at periodically for forcing. Be careful in trenching not to bring quantities of subsoil to the surface, but rather break it up and leave it in the bottom of the trench; but in digging and trenching at this time of the year the surface ought to be left rough, for the frosts of winter to pulverise and sweeten it. This is the best month of all the year to drain the land, therefore if any part of the garden is wet let it be seen to at once, and put the drains down deep enough to be beyond subsequent cultivation. The autumn self-protecting Broccoli is now beginning to turn in. Take up the forwardest and lay them in by the heels, or in some other way protect them in case of severe weather. Some little care is requisite at this time of the year to cut the vegetables which are most likely to suffer from frost. Thus early Coleworts and the first batch of Savoys will oftentimes be ruined for keeping after severe frosts, while Kales, Brussels Sprouts, &c., will come through unscathed; therefore, in the meantime, keep to those which are most likely to be injured. The Red Cabbage for pickling will now be found in fine condition for use. Gather Spinach with rather a niggardly hand, remembering that these beds have to keep us going for an almost daily supply during five months; and bear in mind that Jerusalem Artichokes do not keep well if dug up and brought indoors. In case of severe weather it is well to dig up a part of the Horse Radish bed, proceeding in the same way as we have described for Seakale, and taking care to get up every morsel of root, or else one is constantly annoyed with its cropping up during next summer. When dug up the roots ought to be put away and left for a wet day to sort them over—the small for replanting and the large for use, storing away in damp sand in the root-room: they will keep good for six months. If required clear away all stalks of Cabbage, Broccoli, &c., which have been cut, and wheel them to the dung-hill to rot, and never be tempted to dig green vegetable leaves or stalks into the ground: it reproduces insect life, and is anything but a satisfactory manure in the garden. At this time of the year it is a good plan to have a "burn heap" in some out-of-the-way corner to burn up sundry things which will not soon decay in the vegetable heap. It may be kept burning for weeks, and even turf and soil will burn and be a valuable dressing for stiff land.

Forcing.—If roots of Seakale and Asparagus are being forced in pits with hot water pipes, well and good, but if they are growing in frames on fermenting materials great care is requisite at first to see that they do not suffer from a too violent heat. Should such be likely to take place, remove the linings, and if that is not enough a few pots of cold water will reduce the temperature, but that ought to be done only as a last resource. Make new Mushroom beds periodically, never allowing more than a month to elapse before making a new bed, and be careful, especially at this time of the year, to see that the manure of which the bed is formed is not too wet; take a handful and squeeze it firmly, and if moisture oozes from it, it is too wet, and will develope heat sufficient to kill the spawn; be careful not to let the bed sink below 80° before the spawn is put in. It is indispensably necessary also that there should be an open shed in which to prepare the manure for the beds. The Tomato cuttings which were struck some time ago will be better if potted singly and grown on ready for starting later on. If another sowing of French Beans is made just now, Williams' Matchless will be found an excellent kind for the purpose. Once a week sow Mustard and Cress, and, as we pointed out last spring, it will be better not to cover with soil, but a light slate; it will come nice and clean in this way, and will be free from grit in the salad-bowl—a most important thing.

Be prepared with mats or shutters to cover a certain breadth of Parsley should severe weather come upon us unexpectedly, and keep a diligent eye for slugs in the frames planted with Cauliflower and Lettuce, and keep them as hardy as possible by giving plenty of air and no water—not even allowing the lights to be off in showery weather. *J. Rust, Eridge Castle.*

Cucumbers.

Add some more soil to the hillocks of late plantings as soon as the roots push through the surface of the mound, and complete, if not already done, the landing-up of the first autumn planting, and then lay on a mulching of horse-droppings, which will not only prove beneficial to the plants by maintaining the roots in a more equable condition, but will also act as a stimulant by its substance being washed to the roots at each successive watering. These should be copious, and more or less frequent, according to the special circumstances of each individual plant or house, and at a temperature of from 75° to 80°. By this time it may reasonably be assumed that the beds, boxes, and pots in which the plants are growing are well filled with hungry roots; and where this is the case, the drainage good, and the plants are making growth freely, there need not be any fear of over-watering, providing they have a bottom-heat of from 75° to 80°. Let the day temperature range from 70° to 75°, running up 5° or 10° with sun; and should there be any difficulty in keeping up a night temperature of from 60° to 65° in severe weather, cover the house or pits in which Cucumbers are growing with mats or other protecting material, by which means the necessary temperature may be maintained without over-heating the pipes. Let the usual tying and thinning of the shoots be attended to when necessary, and see that all superfluous fruits are removed forthwith as soon as the required number for sustaining the supply have set. Maintain a sweet growing atmosphere in the house, and allow no opaque matter on the glass to prevent the light from passing through it. *H. W. Ward, Longford Castle, Wilts.*

Peaches and Nectarines.

By this time, if the directions already given have been carried out, the early house will have been thoroughly cleaned, the trees trained, and everything made ready for a start, and the house may now be closed, keeping the temperature at night from 40° to 45°, with a rise by day to 50° or 55°, according to the outdoor temperature; with sun-heat it may be allowed to run up to 60° or 65°. Where fermenting material (composed of leaves and stable manure) can be used, I have no doubt it is a great advantage, giving off a nice humid heat, and dispensing with fire-heat for some little time, unless we get very severe weather. It will require turning over occasionally, to keep it sweet, on alternate mornings, or every morning if necessary, adding a little fresh material as the heat declines. I do not use it here, as our houses are not adapted for it, and having plenty of hot-water pipes in the house they only require just warming to keep up the desired temperature. Syringe the trees, and damp the paths, borders, and every available surface with tepid water twice daily, about 9 A.M. and 2 P.M., except on very dull days, when the morning syringing will be sufficient. Give air on all favourable occasions—in fact, a chink may be left on the top ventilators day and night, or if the ventilators in front are near the hot-water pipes it may be left on the front instead of the back. Do not, by any means, over excite them at starting; a gentle start is much the best, and old trees that have been forced early for some years are much more easily excited than young ones. If the lights have been off this autumn no water will be required at the roots for the present; the heavy autumnal rains we have had will have very efficiently watered them and soaked them down to the drainage. If the roots are allowed to grow outside they must be protected with a good covering of dry litter or leaves, but I find for early forcing they are best confined to inside borders; but in such case I should always have the sashes movable in order to be able to take them off in the autumn. The second house may be finally pruned, cleansed, and trained when convenient, or when the weather is unfavourable for outdoor work; the same remark applies to any lifting or root-pruning not yet finished in succession or late houses. *J. Wallis, Keele Gardens, Nov.* 20.

Improved Method of Spraying Trees for Protection against Insects (abstract of a paper read by Mr. C. V. Riley, in Section J., A.A.A.S., Minneapolis meeting).—The paper gave a summary of results obtained from experiments made during the past two years at the United States Department of Agriculture. An ordinary barrel is used as a reservoir, in which is inserted a force-pump with automatic stirrer. A long rubber hose extends from the pump, and is attached to the spraying apparatus. The nozzle has been called the cyclone or eddy nozzle; its action carries out new principles of spraying. It is a shallow, circular, metal chamber, with two flat sides, in the centre of one of which is a small circular outlet. The fluid is forced into this chamber tangentially, producing rapid rotation, and a spray which is easily regulated from a mist scarcely visible to a strong shower. This nozzle is adjusted to the end of a Bamboo rod (of varying length, according to requirement), through which the rubber hose has been passed; or several nozzles may be attached, in different positions, to the sides of a stiff metal tube, sufficiently slender to be handled by the operator, and thrust among the branches of the tree. By these means, trees from 20 to 30 feet high can be rapidly sprayed without the use of a ladder. The substances used are either London purple, ½ lb., and flour, 1 lb., in from 40 to 50 gal. of water; or Paris green, 1 lb., to the same amount of flour and water; or petroleum emulsions, made as Professor Riley indicated at the last meeting of the Association. "*Science*," *Sept.* 14, 1883, vol. ii.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 26	Sales of Dutch Bulbs, at Stevens' and Protheroe & Morris' Rooms.
TUESDAY,	Nov. 27	Chrysanthemum Show in St. George's Hall, Liverpool Special Sale of Flowering Orchids, at Protheroe & Morris' Rooms. Sale of Lilies, and other Bulbs, at Stevens' Rooms. Sale of Stock, at the Chace Nursery, Southgate, by Protheroe & Morris.
WEDNESDAY,	Nov. 28	Sales of Hardy Plants and Bulbs, at Stevens' Rooms. Sale of Lilium auratum Bulbs, at Protheroe & Morris' Rooms.
THURSDAY,	Nov. 29	Sale of Imported Orchids, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
FRIDAY,	Nov. 30	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	Dec. 1	Sale of Hardy Plants and Bulbs, at Stevens' Rooms. Sale of Camellias, Azaleas, Roses, &c, at Protheroe & Morris' Rooms

AMONG forgotten or forsaken industries in this country is that of gathering TRUFFLES. Truffle hunters and their dogs are alike extinct. In the last century, GILBERT WHITE, of Selborne, living among Beech woods, received a call in the month of August from a Truffle hunter, who showed him several large Truffles found that day. He gave some interesting information to the effect that Truffles were not to be found in deep woods, but in narrow hedgerows and the skirts of coppices. In a thick Beech wood the mass of roots so entirely occupies the ground, that nothing can grow. Sometimes, said the man, the Truffles lie 2 feet under ground, sometimes at the surface, and those that lie deep, he affirmed, were more easily found by the dogs than the others, the shallow-lying ones having little or no smell. The price he asked for his Truffles was half a crown a pound; they were in season in different situations nine months in the year, and were least abundant in wet winters and springs.

English Truffles are now as much out of date as English wine, and for the same reason—the foreign growth is better, and is more easily obtained, as somewhat recent experiments in this country prove. Like the Vine, they were found only in a few districts, requiring not only a warm situation, but a soil containing a considerable percentage of lime—2 or 3 per cent.; limestone soils therefore suited the Truffle best. It is a parasitical plant living on the roots of trees. It is in fact a tuberaceous Mushroom, which affects trees through the necessities of its growth, requiring, as it does, a large amount of phosphoric acid and of potash, which are supplied in the decay of the leaves annually shed from the trees. In England it is found among the Beech woods of the chalk formation in Surrey, Sussex, Hants, and a few other disticts, and thus it was erroneously supposed to affect Beech trees only; but in France it is found on several limestone formations, and in connection with several sorts of trees, especially the Chestnut, Pine, and Oak. M. CHATIN, a learned authority on the Truffle and on agriculture, has published an exhaustive work on these vegetables from their germination to their appearance in a Perigord pie! Their growth, as a marketable crop, is exceedingly slow, and although the Truffle harvest of France, reaped chiefly in a few districts of the South (though the Truffle is found in fifty departments), yields 3,500,000 lb. in weight, the growers receiving for it £400,000, and the retailers £1,000,000; still the crop is of Nature's planting and production, and it has not yet become a subject of cultivation. A good dog, or still better a sow, getting only a chestnut or acorn by way of wages for each find, will enable the hunter of the vegetable to bag 10 or 12 lb. in one day in a good district, and these are worth £2 on the spot, and £4 or £5 in New York, London, Paris, or St. Petersburg. M. CHATIN enlarges both on the dogs and pig, of Perigord. They are indispensable, and the latter are the most useful, being trained not merely to find the Truffle but to uproot it and turn it out with their strong snouts, or lay it bare as their previous education may direct them. Dogs are chiefly used in Provence, and their obedience and acuteness are equal to that of the pigs, and their noses are almost as good, but they lack the faculty for uprooting the game. Each animal will scent the Truffle from a considerable distance, lead the hunter to it, and stand to it, staunch as a pointer to a bird or hare, till the order is given to advance and take possession.

It is thought in France that Truffle growing might be extended like fruit growing in England. Some say that ten times as many Truffles might be grown. The difficulties, however, seem great. M. CHATIN has not found the spores of this Mushroom very manageable. The black Truffle of Perigord ripens in October and remains in season through the winter. In the early spring it decomposes and the germs are set free and become mixed with the soil, ready for reproduction, after the manner of Cryptogams of this class. White filaments are formed which accumulate into a mass, and from this mycelium the Truffles grow, but, says M. CHATIN, the tubers are incubated from this filamentous body only after a lapse of several years. The saying, "No trees no Truffles," indicates the position of their growth, and the experience of the Hampshire Truffle hunter, that he found them on the borders of copses and hedgerows rather than in deep woods, indicates with accuracy some of the conditions of their growth. They require a light, dry soil, full of vegetable matter, and manured by the fall of leaves, but they are crowded out, like other vegetation, when the wood grows dense. Truffles accordingly are not found in young woods less than from six to ten years old, and the woods usually become too dense for them at thirty or forty years old. M. CHATIN recommends the culture of the crop, and feels certain it would pay. He would plough the ground between the rows of young trees in a newly formed plantation, and plant the "tubers" in rows 2 yards apart, growing grain on the same ground for three or four years. In about six or eight years he would expect an abundant Truffle harvest. Assisted by the pigs he would go on reaping a crop from year to year, till it might be necessary to begin upon the trees, thinning the timber for the sake of the Truffles! We shall hope with M. CHATIN that the supply of Truffles may be increased tenfold, though undoubtedly the difficulties of cultivation are greater than in the case of Mushrooms, for reasons which are obvious.

—— SVAGRUS BOTRYOPHORA.—This Palm, sometimes called Cocos botryophora, and sometimes C. plumosa, is one of the most beautiful of all Palms. It is a native of the Amazon region, but grows also on the Coast of Brazil. Its graceful trunk, which attains a height of 50—60 feet, is marked with rings at more or less regular intervals; the leaf-stalks are destitute of spines, but have a fibrous wrap at the base. The leaves themselves form a crown at the top of the stem, each being about 9—10 feet long, spreading elegantly, curved, and dividing into numerous linear acuminate quite glabrous pinnæ. The trunk furnishes timber, the leaves are used as thatch, but the fruits are tasteless. It is not a common Palm in cultivation, few establishments being large enough for its requirements. Our illustration (fig. 118) is taken from a specimen growing in the Botanic Garden, Cape Town, and was obligingly sent to us by the Director, Mr. M'OWAN.

—— THE WEEK.—The death of Sir WILLIAM SIEMENS removes from us a striking exemplar of a type that if Great Britain is to prosper she must endeavour to multiply—we mean men thoroughly versed in abstract scientific principles, but capable of applying them to practical ends. Sir WILLIAM was the first in this country to apply the electric light as an agent in forcing, and the first to produce Strawberries ripened under its influence. His other experiments were recorded in these pages at the time, and it is to be hoped that a successor may arise to carry them on with method and persistency.—A new edition of CURTIS' *Farm Insects* has been issued by Mr. VAN VOORST. Great part of the work appeared in the early numbers of this journal, and it still constitutes the basis upon which subsequent writers have founded their work.—As mentioned elsewhere the new Potato is new in name only, though we are not aware whether it has been introduced into cultivation before. Mr. BAKER has in hand a monograph of the tuber-forming species of Solanum, which will shortly be read before the Linnean Society.—The Hellebore question still excites attention: the flowers sent to us by Mr. BROCKBANK were white, with a light shade of rose almost as figured in REICHENBACH'S *Flora Germaniæ*. It is, however, not worth while disputing about the colours of flowers, still less about that of particular individual specimens: there is no doubt that Mrs. DUFFIELD reproduced what she saw with her usual accuracy. The question really is, What is the colour of an average specimen of Helleborus altifolius? We may return to the subject on a future occasion, when we hope to publish an illustration of the plant.—While speaking of the colour of flowers we may mention that Mr. MAW, who was accompanied by a son of the Rev. C. WOLLEY DOD, has found Narcissus viridiflorus in considerable quantities; no doubt it is often overlooked among the grass. It needs the light to fall in a particular direction to enable the observer to see the flowers.—The St. Petersburg International Exhibition and Botanical Congress is announced to take place in the coming spring.—The specimens of Cephalotaxus fruits (properly seeds, but so like fruits that the term may pass) shown from the garden of the Rev. J. GORING revive an old question, unsettled for want of material, as to the number and points of distinction between the so-called species of this genus. We shall have more to say about it on a future occasion.—The first volume of the new *Encyclopædia Americana*—a work destined to supplement the *Encyclopædia Britannica*, and with special reference to American requirements—has just been published. The botanical articles are contributed by Professor MEEHAN and Dr. ROTHROCK.—The election to the vacant Professorship of Botany in the University of Oxford will take place early in the coming year. We do not see at present any provision made for the Chair of Rural Economy, also vacant; but we trust that arrangements will be made to fill a chair which in the present day is one of paramount importance. Formerly the Sibthorpian Professorship was held with that of Botany, but hitherto it can hardly be said that the results have been commensurate with the importance of the subject.—Constant complaints reach us as to the vexatious restrictions to horticultural commerce, especially as regards importations to Germany. We have spared no pains in this matter, publicly and privately. It is for those immediately concerned now to take action. The question is—Is it worth while for Great Britain to enter the Berne Convention, or is it not?

—— MISS ELEANOR ORMEROD'S course of ten lectures on farm insects will be delivered before the pupils of the Institute of Agriculture in the lecture-room of the Natural History Museum, South Kensington, from December 3 to December 8 inclusive, at 11.15 A.M.

—— THE NATIONAL ROSE SOCIETY.—A special meeting of this Society will be held at the rooms of the Horticultural Club, 13, Henrietta Street, Covent Garden, on Wednesday next, at 3 P.M., to decide what exhibitions shall be held in the coming year.

—— LUCOMBE, PINCE & CO.—The old established business of LUCOMBE, PINCE & CO., of Exeter, so long carried on by Dr. WOODMAN, has been purchased by Mr. SAMUEL ELIOTT, lately manager of the business, who intends to carry it on under the old style and title.

—— A YELLOW PETUNIA.—Those who are in the habit of raising Petunias from seed have not failed to detect from time to time the appearance of lemon and yellow tints. Especially has this been noted in the Continental race of large flowered Petunias. Under the most undesirable name of Petunia grandiflora superbissima intus aurea, a German raiser is introducing a yellow giant Petunia; the flowers, which are concave, "showed deep yellow veined and spotted cups," resembling a Salpiglossis. The margin of the flower is broadly yellow, and somewhat fimbriated. Whether it will prove to be a valuable novelty or not remains to be seen; but English growers have some reason to

FIG. 118.—SYAGRUS BOTRYOPHORA IN THE CAPE TOWN BOTANIC GARDEN. (SEE P. 660.)

be a little chary of praise of so-called Continental novelties.

—— MESSRS. J. LAING AND CO.'S NURSERY.—The display of Chrysanthemums here has been good, and is still deserving of inspection by any one desirous of adding some deserving novelties to an existing collection. Mr. LAING's selection from the many French ones sent over includes most of the brilliant coloured kinds it has been customary to see in winning stands at the biggest metropolitan shows. Although not finding such enormous blooms as at these, we have here plants in such a condition, and carrying such medium-sized blooms, as would more than gratify the wishes of the unambitious grower, be he amateur growing his plants, or professional gardener. Without giving an uninteresting array of outlandish names of most varied nationality, and which are to be

found in the pages of the catalogues of the trade growers, we will merely draw attention to two or three Japanese varieties, which as yet have not been seen at any show of this year. The sorts are of French origin, which will be a tolerably safe assurance that here will be found something brilliant in colouring, if still resembling better known kinds in general outline. Mons. Deville is a tasselled, thread-like petalled bloom, of a rich brown-crimson; Mons. Astorg, a white and crimson velvet, a very pretty late-flowering, crimson reflexed sort—not hailing from Gallic shores. A pretty Begonia of a rosy-pink hue was seen profusely decked with blooms, and having neat small foliage; it is named Fanny Girron, and is of Continental origin. Begonia Bruanti, a free blooming white kind, the flowers being small, general aspect like B. multiflora, but with more attenuated growth, was finely in bloom. These two varieties, which are not tuberous, should prove welcome plants for autumn and winter use.

—— THE SLOUGH AURICULAS.—Perhaps no better illustration is to be found than in Mr. TURNER'S nursery of the great value of a special society, when it is carried on solely for the purpose of promoting the more extended cultivation of some favourite, or, it may be, some neglected flower. When the cultivation of the Auricula by amateurs had but a few years ago fallen to a low ebb a few frames would have held the winter stock that Mr. TURNER thought it prudent to keep, whereas the winter quarters of the Slough plants now is a substantial span-roofed structure, which holds no less than 5000 plants, large and small—the show sorts on one side, the alpines on the other, and both the picture of health, quietly entering into that period of rest which precedes the glorious bloom in spring. This and more is due in a marked degree to the good work carried on by the National Auricula Society, since the establishment of which the number of growers has been very largely augmented if the prizes it offers have been taken by a comparative few.

—— MR. BRUCE FINDLEY has, we are sorry to hear, been so unfortunate as to meet with a serious accident. On Monday week he fell down in the road near to his house at Old Trafford, and has been confined to his bed since. On Thursday we heard that his health was improving, and good hopes are entertained that he will soon be able to attend to business again.

—— THE PROFESSOR OF BOTANY AT OXFORD.—The Sherardian Professorship of Botany is vacant, and an election to the office will be held in the course of Hilary Term. The duty of the Professor is to lecture and give instruction in botany. He will also have charge and supervision of the botanical garden, and of the botanical collections belonging to the University; and it will be part of his duty to make such garden and collections accessible to and available for the instruction of students attending the lectures. A Fellowship in Magdalen College is now attached to the Professorship. The Professor will be entitled to the emoluments derived from the benefaction of W. SHERARD, Doctor of Civil Law, and assigned to the Professorship, and also to the emoluments appropriated to the Professorship by the statutes of Magdalen College. The combined emoluments of the office from these sources will be £500 a year. The Professor will be subject to the statutes of the University in regard to the Professorship, and to the statutes of Magdalen College in regard to the Fellowship. The Professor will also receive £200 a year out of the common University fund, provided that he conform to the particular regulations to which the Professors enumerated in Schedule C (see *Commissioners' Statutes*, p. 452) are subject. A residence is provided for the Professor in the garden, rent-free. Candidates are requested to send to the Registrar of the University their application, and also any documents which they may wish to submit to the electors, on or before Saturday, January 26, 1884.

—— COCHINEAL CULTURE IN TENERIFFE.—The diminution in the cultivation of cochineal in Teneriffe is thus alluded to in a recent report from that island. The prices at which it is now selling will not cover the cost of its production, and according to the opinion of those experienced in such matters not more than half the crop of former years may for the future be expected. The cultivation of the Sugar-cane and the production of sugar and rum is now considered a settled matter. Tobacco also is progressing by slow degrees, and the quality is gradually improving. The best way to increase the culture of this article, it is stated, is to buy it in its green state from the growers, so that the small producers who cannot afford to wait the time required for its preparation may thus have an opportunity of converting it into cash as soon as they cut the leaf, for which purpose a drying-house is being constructed.

—— GINGER FUNGUS.—If for Ginger we substitute Pepper we have the Swedish Pepperling, the Lactarius piperatus, which is certainly poisonous occasionally, though it is largely consumed in Russia, pickled in salt and vinegar. There is, however, another fungus which may possibly be intended, which though sold in the markets in some parts of Germany under the name of Halimasch is generally avoided in this country. Dr. BADHAM says of it:—"This is a nauseous, disagreeable fungus however cooked; few would make a second attempt or get dangerously far in a first dish. When eaten raw it has a disagreeable effect on the throat, which alone would dissuade further attempts at utilising it, and the ringless form with decurrent gills, called by FRIES A. ectypus, and well figured in MORGAN'S *Mycologic Flora of the Miami Valley, Ohio*, under the name of A. monadelphus, has precisely the same effect, which made BADHAM consider it a mere variety. Without an opportunity of inspecting specimens, it is of course doubtful what the exact species may be which proved fatal. *M. J. B.*

—— FRUITS AT THE ROYAL AQUARIUM.—The necessarily compressed report of the recent show at the Royal Aquarium prevented that full reference to the fine collections of Grapes, Apples, and Pears then brought together, and it is but fair that full acknowledgment should be made to the executive of the exhibition for the excellent opportunity thus given for the gathering together of such samples. Both with fruits and with vegetables ample evidence was afforded that if a truly national competition in these things could be organised in association with Chrysanthemums in November that a truly grand display would result. Grapes were marvellously good for the time of the year, and Mr. ROBERTS' fifteen bunches in six kinds would have won almost anywhere. Mr. AUSTIN had but six kinds in his twelve bunches, but all first-rate samples. It was to be deplored that such a great difference should have existed in the value of the prizes, as the drop from £10 to £3 is out of all proportion to the respective quality of the exhibits, and it is to be hoped that the shortcomings of the Borough of Hackney's management will not be repeated by the executive of the "National" society. A better, handsomer, or more richly coloured lot of dessert Apples than was staged at this show has seldom been seen, and it is unfortunate that the judging in the class provoked so much adverse comment; but without doubt in the 1st prize award a mistake was made. The kitchen kinds were grand samples, and Mr. HAYCOCK'S six dishes would have won in any competition, whilst his six dishes of Pears resembled those splendid samples which, coming from Jersey, used to provoke so much dissatisfaction from some at South Kensington whilst they extorted so much admiration from on-lookers. The general collections of vegetables were all good—better could hardly have been found—and the Potatos were excellent. Remembering that the prizes throughout were few, and not large in amount, it must be admitted that no finer display of fruits and vegetables could have been obained at less cost.

—— GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—The Shropshire gardeners and lovers of horticulture are taking steps to establish a mutual improvement society in Shrewsbury, if possible under the auspices of the Shropshire Horticultural Society; but if that cannot be arranged, as an independent society, similar to the one mentioned last week on p. 628. They see that it will not do to be left behind in the race of improvement, and to remain uninformed on the modern teachings of science so far as these bear on the practical work of their profession. They will be glad of any hints from those who know anything of the organisation of such a society.

—— CARNATION MISS JOLIFFE.—The raiser and introducer of this fine and useful variety (if distinct entities) deserve the gratitude of all lovers of winter flowering plants. We have just seen at Mr. H. B. SMITH'S nursery at Ealing Dean a large number of plants of great size, from two to four and five years old, mainly in 7-inch pots, the plants 12 to 18 inches in height, crowded with healthy flowering wood, and blooming freely—in fact, it is a variety that may be said to flower all the year round. The plants appear to renew themselves, and so in course of time make good bushy specimens; and being an excellent grower there is always an abundance of flowering wood. The colour of the flowers being a warm pink, they give a colour acceptable at this season of the year; they are of medium size, compact, and full, and most useful in bouquets and various ways.

—— THUNBERGIA GRANDIFLORA.—All the species of this genus are easy of cultivation in a stove, and the greater number are so moderate in their respective requirements as to house-room that a low span-roofed structure affords sufficient length of rafter for the proper development of their climbing stems, as it is only then we can calculate upon a fair amount of bloom. The species under notice, now flowering in the stove at Kew, appears inclined to bloom in a comparatively small state, as flowers are produced in axillary and terminal clusters on stems ranging from 2 feet upwards. Although recently received from Madras it is an old introduction, having originally been brought from the East Indies in 1820. The roughly toothed or angled leaves resemble those of T. coccinea, while the pale lavender flowers with darker lines on the lower lip refer more directly to T. laurifolia, a taller sort, with stronger and more woody stems. It was figured long ago in the *Botanical Magazine*, 2366.

—— SWEET PEA ADONIS.—This is a charming and distinct new variety, included among Messrs. CARTER & CO.'S floral novelties for 1884. It is a self-coloured flower, of a bright rosy-carmine, or deep pink hue; very pleasing indeed, and forming an excellent contrast to the Invincible Scarlet, pure white, and other self-coloured flowers. When a visit was made to the St. Osyth Seed Farm during the summer this fine Pea was seen to the best advantage, and it may be considered as one of the most interesting and valuable floral introductions of the year.

—— OSMANTHUS FRAGRANS.—Although by no means remarkable for the beauty of its flowers, it possesses, nevertheless, an attraction for all lovers of conservatory or greenhouse plants in the delicious fragrance that pervades the whole house in which it is flowered. Indeed, so strong is the perfume, and so insignificant the clusters of white flowers, that one unacquainted with the plant would have some difficulty in detecting from whence the odour came. Forming as it does a low evergreen bush with leathery serrate leaves, it is at all times admissible as an occupant of a cool-house; and even if house-room could not be granted in summer-time, it could be stood out-of-doors along with other hard-wooded subjects. Perhaps it is more widely known under the name of Olea fragrans; and its congener, O. ilicifolius, with the related species of Phillyrea, are well known hardy, or nearly hardy, shrubbery border plants. It is figured in the *Botanical Magazine*, and flowers during the autumn months.

—— STENOTAPHRUM OR REINECKEA VARIEGATA.—Under this name, Mr. H. B. SMITH has, during the past summer, grown in large quantities a very attractive variegated plant, of close grass-like growth, the foliage charmingly variegated with creamy yellow and pale green—a hardy herbaceous plant, introduced from Japan in 1862. It is evergreen, of a tufted growth, and appears to strike very freely from cuttings. It commands a ready sale in the market, and Mr. SMITH has this season propagated it largely for this purpose. It is an excellent plant for baskets, and promises to be most useful for bedding purposes. At this season of the year, and grown in a little heat, it has a charming appearance, and therefore can be made of great service for house decoration.

—— THE NEW POTATO.—Referring to the Potato mentioned under the name of Solanum Ohrondii, at p. 596, Mr. BAKER has pointed out to us that the species is, in all probability, identical with the Solanum Commersoni of POIRET. This plant formed the subject of comment by SABINE many years ago, and a description and figure of it were given in the fifth volume of the *Transactions of the Horticultural*

Society of London, November 19, 1822. Sir Joseph Hooker in the *Flora Antarctica* reduces it to a form of S. tuberosum. It will be remembered that tubers received from Chile under the name of Papas or Maghias were tried at Chiswick years ago, but it is not clear that the tubers of Solanum Commersoni have been introduced to cultivation before.

—— Summer Flowers in November.—The weather in some portions of Scotland must be very mild for this advanced period of the year, if we may form an opinion about it from a collection from twenty-eight different summer-blooming plants sent to us from West Kilbride Gardens, Ayrshire. There were some Roses still retaining enough traces of perfume to remind us of the Rose month; Cornflowers, Sweet Peas, Nasturtiums, Lupins, Linum rubrum, Ten-week Stocks, Fuchsia Rose of Castile, and a sort like F. Riccartoni, Godetia The Bride, Mignonette, Eschscholtzia, striped Marigolds, Iberis sempervirens, Chrysanthemum segetum, Love Lies Bleeding, Gladiolus, Pansy, Myrtle, Escallonia macrantha, almost ripe fruits of the Strawberry tree, &c. The collection was large enough and varied enough to have made a very pretty nosegay, had they not been so much knocked about on their long journey from the North.

—— St. Petersburg International Horticultural Exhibition.—It will be remembered that this exhibition was originally designed to be held during the present year, but that owing to the coronation of the Czar it was deemed advisable to postpone it till 1884. All the arrangements previously made remain in force, and all communications should be addressed to Dr. Regel, Botanic Garden, St. Petersburg. As there is to be no International in London next year, and that of Paris is not to take place till 1885, the ground is open to our Russian friends, and, judging from what they did before, their prospects of success are very good.

—— The Slough Nursery.—Mr. Turner's grand collection of Chrysanthemums has provided his neighbours with something else to talk about besides "the meet at Salt Hill" and the doings of the local pack of harriers, the display being so much in advance of anything seen at Slough in any other month of November. The exhibition was thrown open to the public one day last week, and over 5000 visitors passed through the three show-houses without a plant being injured. The large show-house is completely filled with Japanese varieties, an exhibition in itself of a novel and pleasing character. The show sorts and pompons find a congenial home in the large Camellia-house and the long span-roofed Rose-house, and a wonderful lot of plants they are, clothed with ample and vigorous foliage to the rims of the pots, and carrying flowers of a size and substance, combined with brightness of colour, that one very rarely sees. The collection includes about 3000 plants, while the number of sorts cultivated is about 200—the best that can be obtained. To specify names would be an act of supererogation where all are good, and we will therefore conclude with a "wrinkle." The flowers of some early blooming white varieties having been cut, the stems were shortened back, and the plants kept in a warm greenhouse, instead of being put outside when done with, with the result that the low buds are all now breaking, and every one producing a flower, thus providing another crop of blossoms, which, if small, will not be despised in a week or two's time.

—— International Exhibition, 1884.—The directors of the Crystal Palace Company, London, will hold at the Crystal Palace an International Exhibition of Arts, Manufactures, and Scientific, Agricultural, and Industrial Products. The Exhibition will open on April 3, 1884, and will be kept open for a period of six months from the date of opening. The following are some of the regulations published:—

"Application for space, with full particulars of the intended exhibit, must be made at the office of the Executive Commissioner or official agents before February 1, 1884. Necessary forms and all information may be obtained of the Executive Commissioner or any of the official agents.

"The ordinary charge for space inside the Palace will be 2*s.* per square foot, but with nationalities or colonies requiring more than 1000 square feet special arrangements will be made. Exhibitors desiring a frontage to any main avenue for their cases can obtain it on payment of an additional 2*s.* 6*d.* per foot for such frontage, irrespective of depth; but in cases where the space applied for exceeds 300 square feet, frontage will be given without extra charge. A passage of from 2 to 3 feet will be left round each case where desired, and exhibitors desirous of having spaces against the wall should mention the fact at the time of application. Space in the grounds will be let for 1*s.* per square foot, exhibitors undertaking to make good any surface damage after the close of the Exhibition. All applications must be accompanied by payment of the full amount for the space required, except in the case of exhibitors applying for more than 1000 square feet, with whom special arrangements can be made.

"The general reception of articles in the Exhibition buildings will commence on March 1, and cease one week before the opening, after which date no exhibits can be received.

"The awards will consist of—1st, diploma of honour; 2d, diploma for gold medal; 3d, diploma for silver medal; 4th, diploma for bronze medal; 5th, diploma for honourable mention. Every diploma for medal will be accompanied by an official medal of bronze.

"These rewards will be apportioned, on the reports of juries, to the exhibitors whose contributions are pronounced to be of incontestable superiority.

"Articles may be sold during the currency of the Exhibition, but cannot be removed without the special permission of the manager of the Crystal Palace."

George Collins Levey, Executive Commissioner, 19 and 21, Queen Victoria Street, London; G. Gordon Cleather, Manager, Crystal Palace, S.E.

—— Orchids in Flower in the City.—It may interest a good many City men, who admire and grow Orchids, but who cannot spare the time to visit collections further away, to know, that on Tuesday next, between eleven and half-past 12 o'clock, there will be a most interesting display of Orchids in flower st the Central Auction Rooms in Cheapside, after which the plants will be sold under the hammer by Messrs. Protheroe & Morris. Similar exhibitions and sales will be held on the last Tuesday of every month in the year.

—— Oberonia iridifolia.—To a casual observer this singular looking plant in general appearance has little or nothing in common to suggest the idea of its being an Orchid. The fleshy sword-shaped leaves are arranged in a distichous manner, and may not inaptly be compared to those of an Iris, as the specific name implies; but these leaves, together with the small spicate greenish-yellow or amber-coloured flowers, are, on the whole, so imitative of an Aroid that any one unacquainted with the plant might easily be excused for mistaking it as such. As a matter of course, an examination of its floral organs will at once settle its identity of relationship with the Orchids. This curiosity is to be seen in the cool Orchid-house at Kew, and there is a figure of it in the *Botanical Magazine*, t. 4517. It has received various names of different authors, being known as the Cymbidium iridifolium of Roxburgh, and the Malaxis ensiformis of Smith.

—— Chrysanthemum Propagation.—It has been said that the Chrysanthemum season commences in December and ends in November. Years ago cuttings were generally struck in January, so as to afford the earliest plants; now, with the growth of varieties and the extension of collections, it is necessary to begin a little earlier, and a commencement is made by December. Where large numbers of cuttings are required it is common to make up a bed of sandy soil in a cold frame, and to prick the cuttings out much the same way as one would Calceolaria cuttings. In the case of select collections it is the best and safest plan to put the cuttings singly into small pots, say, small 60's, placing them in a cold frame, and keeping them a little close for several days if the weather is cold and drying. They should be examined to see if damp is attacking them if the weather is damp and "muggy." When the plants are rooted they will do well in a cold frame, protected from frosty winds, and they will be all the better if they are prevented from becoming frozen. Really, unless there is adequate convenience for striking cuttings it is well to purchase a collection of rooted cuttings in spring. There are certain trade growers who lay themselves out to provide collections of these, either of their own selection or the purchaser's, and the leading varieties can be had at a comparatively moderate cost. This fact is enough to induce many who have not attempted the culture of the Chrysanthemum in pots to commence doing so. It is a plant that is almost entirely grown in the open air when cultivated in pots, and so but little glass accommodation is required, except at blooming time; and even then, in default of anything better, a rude structure will be found sufficient to ward off wind, rain, and frost. Only a few days ago we saw a bed of pompon Chrysanthemums in the open ground that were superbly bloomed, and sheltered by means of some uprights with mats placed round them on the windy side, and thatched hurdles on the top at night and in hot weather, and when frost threatened. Of late years we have had the enjoyment of fine open autumns, and these are always favourable to the well-being of the Chrysanthemums. And now-a-days many humble cottage gardens are aglow with Chrysanthemums during the months of October and November.

—— Messrs. Carter & Co.'s Nursery.—One of the special articles of cultivation at this suburban nursery is the Primula sinensis in all its known varieties. Here can be found in the proper season for flowering great numbers of plants in all the infinite variety of colours that the florist delights to find and to attach a name to. The tints are ever-varying in their intensity, or the reverse, whilst the forms so far adhere pretty closely to what they have been for a decade or more years past. They are pretty autumn and winter flowers, but we fear they are engaging the attention of gardeners to the exclusion of variety in other plants, and therefore tend, together with Cinerarias, to give the average British greenhouse an irritating monotony of effect. There is a nice display of Chrysanthemums of nearly all sections of this flower, in a long temporary shed, whose open front faces the public road, so that those who run may see. Owing to the cool night air and the perfect ventilation at all times, the plants look fresher, retain their foliage better, and do not suffer from the effects of damp and drip as plants do in some greenhouses, temporary or otherwise.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Nov. 19, issued by the Meteorological Office, London:—The weather at the opening of the week was generally fine and dry, but afterwards became very changeable, squally and rainy. Hail, snow, and sleet showers were experienced at many of our north-western and northern stations, and in some places were accompanied by thunder and lightning. The temperature has been slightly above the mean in "Ireland, S.," but from 1° to 3° below it in all other districts. The maxima, which were generally registered on the 18th, varied from 47° in "England, N.E." to 57° in "Ireland, S." The minima were recorded during the earlier days of the period, and were rather low in all places, ranging from 20° in the "Midland Counties," 21° in "England, N.W.," and 22° in "Ireland, W." to between 23° and 30° elsewhere. The rainfall has been about equal to the mean in "Scotland, E.," and a little less in "England, N.E.," but in all other districts an excess is shown. Bright sunshine, except in the southern and south-western parts of England and Ireland, has been less prevalent than during last week—the percentages of possible duration ranging from 14 in "England, N.E.," 17 in "Scotland, W." and 18 in "Scotland, E.," to 35 in "England, S.," 37 in "England, S.W.," and 38 in "Ireland, S." Depressions observed:—At the commencement of the period barometric pressure over the United Kingdom was comparatively high and uniform. While a depression existed over the Baltic. By the 11th, however, the conditions had changed, and during the remainder of the week some large depressions passed in an easterly direction to the northwards of Scotland, while several subsidiary disturbances travelled across our islands. The wind, which at first was light or moderate from the north or north-eastward, subsequently blew from between south and west, and at times increased to the force of a gale. On the 17th, during the passage of a small depression over central England, the gale at some of our southern stations was very severe.

TRADE MEMORANDUM.

The inquiry made at p. 592 for the present address of Mr. A. J. Curtis, who lately resided at 45, Lower Essex Street, Birmingham, has brought us, from an obliging correspondent, evidence that so late as the 14th inst. a Mr. A. Bloomfield dated a communication from 128, King Edward's Road, Birmingham, the handwriting of which seems undistinguishable from that of one signed A. J. Curtis, at the first address mentioned.

HOME CORRESPONDENCE.

Double Grafting.—Some time ago I sent you an account and drawing of the difference of the Durondeau Pear from the ordinary type, it being grafted on General Todtleben, which variety was grafted on the Quince. I then showed that the size was much increased, and the colour and flavour altered, the red having disappeared, leaving the fruit a light orange, and the flavour being much more mellow. This new character is borne out up to the present, the large size, though not altering the shape of most of the fruit from the Durondeau, though the variation in the way of flavour is still apparent. [A handsome specimen received with this letter bears out the statements here made. ED.] I now send you drawings of three Apples (fig. 119); they are all the Duchess of Oldenberg. A is the Duchess grafted on the early Strawberry, which was grafted on the Quince. The effect of this was a pleasant surprise, the fruit coming into use nearly three weeks before the usual time, and being also much larger and of different form; and as regards colour it is one of the most beautiful Apples I ever saw, wax-like, a delicate, softly-tinted pink, red, and lightly-tinted greenish-yellow, with a bloom overspreading it like Hoary Morning. It has not kept well, and lost its peculiar beauty in about a fortnight after it was ripe. B is the Duchess of Oldenberg grafted on the Golden Winter Pearmain, which was grafted on the Crab stock. Knowing the beautiful colouring of the Golden Winter Pearmain, I expected enhanced bright colouring in the Duchess. In this I was disappointed: the fruit has come a light green without any red on it, and although I have kept it, there is no shade of any other colour. It is also much smaller than A, and the flavour not so good. C is the Duchess of Oldenberg grafted on Reinette Van Mons grafted on the Crab. In this the flavour is improved, and, strange to say, the colour is much like that of the Duchess, but more of a carmine, with purplish-carmine blotches and streaks; the size is smaller than B, with rather a sweeter flavour and closer pulp: this kept the best. The foregoing experiments having been most interesting to me, I have thought they might prove so to others, and therefore trouble you with these notes; and I may add, that it will afford me much pleasure if others who, like myself, have tried double grafting, will give details of their experience. I think there is much to be learned yet in the way of the effect of the stock on the scion, more even than many suspect. I am making a considerable number of experiments both in Pears and Apples, of which, from time to time, I shall be willing to make known the results, if they are thought of sufficient consequence. [Decidedly.] With regard to the Durondeau Pear, that has been so altered by being grafted on the General Todtleben, I am trying the effect of a graft taken from it and placed on Beurré d'Amanlis Pear grafted on the Quince. It has taken fairly well, and now I am anxious to see the produce, for I have not the least idea of the kind of surprise, if any, that is in store for me. Will anyone say whether they have tried double grafting with Plums, and with what result. I may here mention this—I have the Black Diamond Plum grafted on the Sloe. The tree is many years old, but is still very small, not a quarter the size of those of the same sort and age grafted on the Plum stock. The fruit also is only about half the usual size. An Apple, I believe Reinette Van Mons, grafted on the Pyrus japonica some years since, is still a very small tree; it has bloomed several times, but as yet has not borne any fruit. Has any one tried this stock either for the Pear or the Apple? If so, I should much like to know with what result. *Harrison Weir, Weirleigh, Brenchley, Kent.*

Potato Disease.—From an article which appeared in the *Gardeners' Chronicle* of July 28 last, "Mr. Jensen and the Potato Disease," I was induced to make trial of the plan in my garden. The two rows experimented upon were side by side, planted with Gordon's Victoria from Messrs. McKenzie, Dublin; both had been treated in every respect alike until the appearance of disease-spots upon the leaves early in August, when one of the rows at once received a second moulding up, as recommended by Mr. Jensen, some 5 inches of the soil being forked on to the top. The Potatos in the two rows, 12 yards long each, were raised a few days ago, with the following results:—The moulded row produced sixty-one diseased and 227 sound Potatos, whilst the unmoulded row produced 126 diseased and 169 sound Potatos. I may add that the unsound Potatos in the moulded-up row were far less diseased than those from the unmoulded row. The trial, to my mind, has been so satisfactory that I shall make experiments upon a larger scale next year. *James Howard, Clapham Park, Bedfordshire, Nov. 14.*

Strawberries in November.—I was pleased to read at p. 632 that the supply of ripe Strawberries is being gradually extended over the twelve months, and that the attention given to the spring-forced plants of Vicomtesse Héricart de Thury, at Perry Hall, with a view to fruiting them again during the autumn and early winter months, has been rewarded with the success that the object aimed at deserved. This, and many like results, go to show that the production of a supply of ripe Strawberries throughout the year is, with the practical gardener, simply a question of labour and suitable accommodation, and that the Vicomtesse Héricart de Thury is the variety *par excellence* for yielding early and late supplies of ripe fruit, seeing that the latter may be gathered in January from plants of the "Vicomtesse" which had been layered into their fruiting pots the previous June, and again from the same plants, and those which had been fruited in February and March, and judiciously attended to during the interval, in September, October, November, and December. Perhaps the best way to manage spring-forced plants so as to get them to fruit again in the autumn and winter, is to slightly reduce the balls of earth after the fruit has been picked, and re-pot into pots a size larger than they were in before, then to place the plants in a cold pit to harden off, and subsequently plunge the pots to the rims either in coal ashes out-of-doors, or in north and south borders, so as to insure good successive crops. The plants, having been duly attended to in the way of watering during the interval, should all be taken up in the autumn before frost sets in, have the drainage seen to, the surface soil removed from the plants, and replaced with some more, consisting of pulverised horse-droppings and loam, the pots washed, and then transferred to the shelves on which they are to fruit. *W. H. W.*

Impostors.—I can sympathise with Mr. Lloyd (p. 632), having several times myself been taken in in a similar way. I think the same man Mr. Lloyd refers to called on me a few weeks ago, but having had so many of them lately I took the precaution to institute inquiries, and at the same time to very carefully question him, and soon found him out. I firmly believe there are a number of them who make a trade of it, travelling the country far and wide, and by so doing procure the names of gardeners and nurserymen, with whom they pretend to be on familiar terms, and in many cases, by claiming to have been employed by Mr. So-and-so or Messrs. So-and-so, one is at times led to credit their tale. In future I mean to be very careful, as I feel sure nine out of every ten are impostors. *R. Greenfield, Priory Gardens, Warwick.*

Isaria Disease of Grass.—It is curious that this Australian fungus first appeared in the Southern Counties of England, and gradually spread northwest to Ireland. The fungus of Hollyhocks took precisely the same course, as did the fungus of the Potato murrain. The contagion seems to reach us from the Continent. I am not sure whether the Australian plague of Thuias, Capnodium australe, followed in the same course, although the fungus has several times been sent to the *Gardeners' Chronicle* for a name. *W. G. S.*

Narcissus viridiflorus.—The day after I wrote to you from Gibraltar announcing the refinding of Narcissus viridiflorus, I, in company with Lieutenant Wolley Dod, had the pleasure of again gathering it in two other localities fully a mile distant from the place where I first observed it; and we also found an undoubted hybrid between N. viridiflorus and N. serotinus. Since my return I learn from a friend of its having been gathered in a fourth locality, close to the bridle path near the first Venta between San Roque and the Cook Wood, about 6 miles north-west of Gibraltar. It is evident that, though the plant has been so long overlooked, it is by no means rare in the heathy district north-west of Gibraltar. The species from Algiers distributed by M. Durando as N. viridiflorus and N. oxypetalus is N. elegans, a species quite distinct from the green Narcissus of Gibraltar. *George Maw, F.L.S., Broseley.*

Fuchsia exoniensis or corallina.—I was wrong some years ago in supposing that this plant was not at Kew, and as I gave expression to this belief in my letter of a fortnight ago I have now to make the correction. I was at Kew a week ago, and identified it with specimens grown as "F. Caroline," the correctness of which is since supported by Mr. Wolley Dod, who gives the information that gardeners used to call it by that name. I have reason for knowing that these plants were under my observation while still I considered the West of England plant to be different. These plants in the temperate-house are so totally different in appearance from the unlike conditions under which they are growing, that without the recent experience I have had of its unusual variability, there would be no motive for making the close comparison which alone could show their identity; in the one case they are comparatively weak and without character, whilst in the other there is a striking distinctiveness and development of form which cannot be forgotten. Unusual this variation seems to be, because there are other kinds not more peculiar which do proclaim their identity under similar variety of circumstances, and in this case of a finely ornamental plant it shows that it must be grown with full exposure, in order to obtain the beauty which belongs to it. The history of this plant I am still anxious to know, because, from its appearance, it must have some particular origin or parentage. There is in it what there is not in the other hardy kinds with which I am acquainted, and it is nothing like the present race of florists' Fuchsias which decorate our greenhouses. The parents of F. exoniensis were F. cordifolia and F. globosa; but Mr. Hemsley's remarks show that he is not certain of the correctness of his determination, and he points out a difference, so we, perhaps, are entitled to conclude by the evidence we have that this is another plant, properly called F. corallina. *R. Irwin Lynch.*

—— Your correspondent, "North Norfolk" (p. 632), has described this Fuchsia exactly. When quite a youth I first made its aquaintance in 1845 at a flower show in the North. It was a magnificent specimen, and was very graceful in growth, and produced a mass of richly coloured blossoms, the same as your correspondent describes. It was raised at Exeter by Mr. Pince, I believe, and there is no question but it was a seedling—and a distinct one—for that gentleman was too honourable a man to rename anything and send it out under false colours. *J. Rust.*

—— The description of this plant, p. 604 (named F. corallina), as given by Mr. Ellacombe, of Bitton, corresponds in all particulars with that of a plant I was well acquainted with about the years 1850—57. It was grown at Howick Hall, Northumberland, as a roof and wall creeper in a very lofty conservatory. The plants were grown for a season in pots, and were then transferred to slate tubs of about 15 inches square. In these they rapidly grew upwards, forming before reaching the roof grand pyramids of drooping foliage and pendulous flowers. These were crimson in the sepals, with dark plum-coloured corolla, and had a petiole of 2½ inches in length. The foliage was of a greenish-crimson tint, the under-side being of a dark crimson colour, as was also the young growth. The plant was a rapid grower, and therefore well adapted for the purposes it was usually planted for, namely, covering walls, columns, and roofs. How it came there at the date I have no means of discovering, but it was supposed to have come from one of the Edinburgh nurseries. *M.*

—— Your correspondents seem to be somewhat in a fog respecting Fuchsias exoniensis and corallina. They are very distinct varieties, and "Norfolk" is correct in stating that exoniensis was sent out first. Exoniensis has a dull red tube and sepals, with a purple corolla; corallina has a scarlet tube and sepals, and a rich dark purple corolla; the sepals do not expand or reflex anything near so well as in exoniensis. There is, for sake of comparison, as much difference between the two as in Riccartoni and corallina, and both are, no doubt, plentiful in some gardens. I used to see exoniensis frequently when travelling a few years since. *William Heale, Nov. 20.*

Peziza Disease of Potatos.—The growth of mycelium of Peziza postuma, B. and W., has been abundant on the west coast of Ireland during the present autumn, especially on land too heavily manured. The spawn completely exhausts all the moisture from the living stems, reduces them to tinder, and then forms black masses of compacted spawn, termed sclerotia, chiefly within the old stems. The disease has been spread generally over Sligo, Mayo, Galway, and Donegal. Large patches of Potato plants, 12 to 15 yards square, have been destroyed, and the most luxuriant crops (probably more apparent than real) are, it is said, the worse affected. The haulms were found to be full of the black sclerotia of the fungus. See *Gardeners' Chronicle*, Aug. 20, 1880, and Sept. 15, 1883. *W. G. S.*

Mistleto Trees.—In vol. xix., p. 605, of the *Gardeners' Chronicle* Mr. A. D. Webster gives a list of Mistleto trees, and asks if any one can add to his list. I am able to name four new Mistleto trees growing in this neighbourhood:—1, Pear tree (Pear trees with Viscum album are also mentioned as growing in the neighbourhood of Eppau in Hausmann's *Flora of Tyrol*); 2, Prunus domestica; 3, Abies pectinata; 4, Æsculus Pavia, the two latter growing in my park. Loranthus europæus grows frequently on Oaks, and I do not doubt that Viscum album may also be found on Oaks here; but it is very difficult to discern them from below. If ever I can discover one I will write, if it is of interest. *Otto Forster, Lebenhof, near Scheibbs, Lower Austria.*

Ampelopsis Veitchii. — Mr. Powell must seek further than paint for the reason of Ampelopsis Veitchii not clinging in the case he alluded to in your

pages a fortnight since. We have in the south front of the mansion here a blind window, the stone sill and woodwork of which have been kept in good condition as regards painting. A vigorous young plant of the above has this season sent several branchlets towards this window, and they have clung to stone, wood, and even the glass, though in the latter case it comes away more easily than it does from the wood or stone; at the same time it unmistakably clings, and is to be allowed to cover the window, which it will not take long to do at the rate it has grown this season. *John C. Tallack, Prideaux Place, Padstow.*

Cupressus macrocarpa.—I can quite corroborate Mr. Michie's statement (p. 633) regarding the value of this tree for planting in maritime situations. Along the coast here it succeeds admirably, although equally well at much higher elevations, our finest specimen growing near the entrance to the Pass of Nant Francon, and consequently at a considerable elevation above sea level. From its large size this tree must have been planted here shortly after its introduction in 1838. Does Mr. Fowler (p. 603) not make a mistake in recording the dimensions of his largest tree as 6 feet 2 inches in diameter (or about 20 feet in circumference) of bole at 4 feet up? thus far exceeding the average size of this Cypress in its native habitat. The timber of this tree grown here is yellowish-white, extremely close-grained, and takes a beautiful polish. Regarding its lasting qualities when cut up I am yet unable to speak; but a series of experiments are being carried out, and will in due time be recorded in the pages of the *Gardeners' Chronicle. A. D. Webster, Penhryn Castle, North Wales.*

New Asiatic Primulas.—Primula sapphirina, a Thibet species, was raised at the Edinburgh Botanic Gardens from seed introduced by Mr. Elwes. It is more like a small Androsace than a Primula in habit, the leaves of the rosette being a quarter to half an inch long, and deeply serrated. It blossoms in spring, the flowers being hardly so large as, and of a darker purple than those of most forms of P. capitata, but that shade of colour. They have also a most peculiar glandular disc on the limb of the corolla, which almost covers the stamens and pistil. Even this Primula is large in comparison with P. minutissima, the rosettes of which are hardly half the size of those of P. sapphirina, which it appears to resemble in habit. Mr. Lindsay received dried specimens of this minute Primula this year from India, and it is to be hoped he may get seed next year, as it would be a plant well worth raising, were it only from its curious contrast in size to P. imperialis, raised by Mr. Anderson-Henry, and flowered at Hay Lodge this year for the first time in Europe. This magnificent Primrose was raised from seed sent by Mr. Elwes; a description of the plant was given in the *Gardeners' Chronicle* last summer. Every grower of choice Primulas is sure to hail with pleasure its successful introduction. *C. M. Owen.*

Late Peas.—Reference is made at p. 505 to British Queen Pea, as being superior to Ne Plus Ultra, but such is not the case according to my experience. Several years ago when in Lancashire I tested both varieties side by side, two seasons together, and Ne Plus Ultra turned out by far the best Pea. I tested them again side by side when I took charge of these gardens four years ago, with the same results. For our mid-season supply I mainly depend on Veitch's Perfection, which is sown in succession from late March up to the end of May; early in June the first sowing of Ne Plus Ultra is made, in the third week the second sowing is made; from this we commence gathering about the middle of September and liberally through October, and as a proof of its character we gathered in spite of a previous frost of several degrees a very nice dish of Peas on November 9, being pronounced by my employer, Major Merham, to be of very superior quality: therefore those who have this, the choicest of all vegetables, to supply at as late a date as possible, will do well to decide upon Ne Plus Ultra. *J. Ashton, The Gardens, Pontyprydd Hall, Flint.*

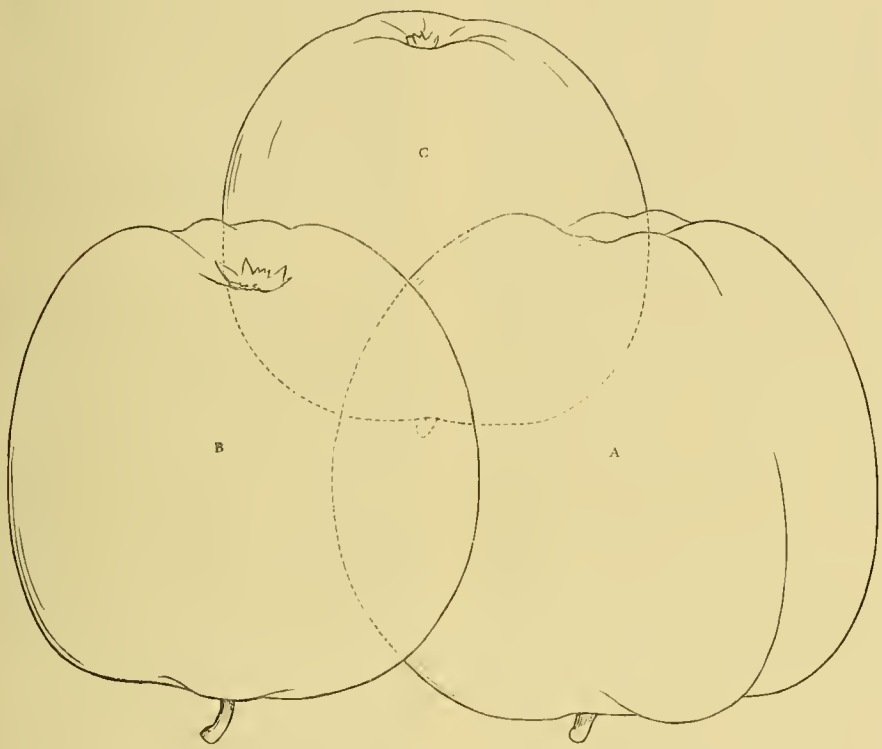

Fig. 119.—Apple Duchess of Oldenberg, showing variations resulting from double grafting. (See p. 664.)

Leycesteria formosa.—Although known in English gardens for the last half century, this plant does not receive the attention, nor is it grown in the quantity it deserves. It is well suited to the climate of this country, where it may occasionally be seen growing with the greatest luxuriance. A plot of this plant in our home nursery here is at present the admiration of all beholders, the contrast between the deep green hue of its stems and leaves and the reddish-purple of its large bracts and berries being very beautiful as well as conspicuous. It is a native of the Himalaya Mountains, at altitudes ranging from 6000 to 8000 feet. *A. D. Webster, Penrhyn Castle, North Wales.* [It is rather tender in some localities. Ed.]

Graft-changed Pear, "Backhouse's Beurré."—In your issue of Nov. 10, p. 603, your correspondent "A. D." says:—"Exceptions are exceedingly rare, and the rule as to the unchanged nature of grafted or budded fruits seems to need no exceptions to prove its incontestability." Now, admitting that exceptions, so strongly marked as in the present case, are "exceedingly rare," we must not, therefore, close our eyes to the fact, that some change through grafting is exceedingly common—so common, indeed, that it almost amounts to a rule. Witness the change, both in size and flavour, by working Pears on the Quince stock. Surely that is not "exceedingly rare"? From remote times, the fact that some change in quality of fruit has been exerted by grafting has been clearly recognised. The Apostle's argument about the "wild" and "good" Olive tree was based upon it. If, then, a visible influence, more or less, as a result of grafting, has occurred in countless myriads of instances, it must be a matter of mere personal opinion as to how far such change may extend. Some casualty which we do not understand the nature of, may cause a strong effect in one special instance; else why the occurrence of rare varieties or rare and perhaps unique developments in one part only of a plant? We call in question "A. D.'s" deductions also in regard to re-grafting. A great change, once caused by some obscure "casualty"—some unknown combination of circumstances—will not necessarily cease to show itself, by reverting to the (supposed) "original conditions." A special effect, once produced under special circumstances, may defy all human skill to undo it. In the *Journal of Horticulture*, October 27, 1881, Dr. Hogg says, in reference to this Pear, "This is a convincing proof of the influence which the stock exercises on the scion." And, after touching upon the question of cause, goes on to say, "We have recorded many singular instances of this transfusion of essences . . . in the pages of this journal . . . but we have never before witnessed so remarkable an instance," &c. Our reason for using the words "we believe" in our original article was because the actual experiment was made by our late senior partner, who, we know, awaited the result with much interest, but did not live to see it. *Jas. Backhouse & Son, York Nurseries, Nov. 16.*

—— Having had the opportunity of tasting and comparing some fruits of the Pear Messrs. Backhouse sent you specimens of, and referred to by "A. D." at p. 603, with Beurré Diel, I can most certainly say that in flavour and appearance it is distinct from that variety. Messrs. Backhouse's Pear was fit for table a month ago, and was melting and juicy, the latter partaking very much of the juiciness of Jargonelle. The tree from which the fruit was picked is a standard. Beurré Diel with us (about 9 miles from York, and of the same altitude as the Messrs. Backhouse's nurseries) is not yet fully ripe, and this with fruit from a tree grown on an east wall; in fact, Beurré Diel with us is not good more than one season out of four, and when at its best is not to be compared with the real melting ripeness of Messrs. Backhouse's Pear. In making these remarks I pass no opinion as to the absolute fact of the tree in question being a Beurré Diel grafted on a Jargonelle, only, having carefully inspected it, I do think it has a general resemblance in growth to Beurré Diel, with the exception that the branches have a more erect growth, very similar to standard trees of Jargonelle. *H. J. Clayton, Grimston, Nov. 14.* [See also Mr. Harrison Weir's note on p. 664. Ed.]

Tenant's Fixtures (see p. 632).—There have been differences of opinion and of legal judgments as to what constitutes a tenant's fixture, but I believe it has always been admitted that if the framework, sills, or plates of a house are attached to the walls by mortar or cement that portion becomes a part of the brickwork which—being in the soil—is (as a part of the land) the landlord's property. Loose sashes, such as ventilators and doors secured by screws (not nails) to the framing are always removable. Brickwork is decidedly not removable, except where used in houses for nursery or trade purposes, and in such cases boilers and pipes can be removed too. In other cases a boiler, if set in brickwork, is usually considered a fixture, and also the pipes attached to it as a part of it, unless these are screwed together or with special portable joints with a view to their removal. There are hundreds of houses erected annually called portable, and really so of themselves, which are made permanent legal fixtures owing to this bedding of them in mortar on low walls or two or three courses of bricks up to ground level; but in twenty-two years' experience of Sir Joseph Paxton's hothouses, during which time I have had more to do with their planning and erection than any other man, I have not heard of one decision against their legal portability as the tenant's property where he has put them up in accordance with instructions. *B. W. Warhurst.*

Early-flowering Chrysanthemums.—Frost has kept away so unusually long this year that numbers of people are asking, Why not grow quantities of the earlier-flowering and freer-growing Chrysanthemums, outdoors, for cutting and decorative purposes, during the generally dull months of October and November? And from present appearances, I may include December, as when I am writing (November 19) the night temperature is 50° Fahrenheit. The next question is,

What varieties should be grown? I venture to say this is just the time to ask this question. Nurserymen are preparing their catalogues and from communications just to hand from England and Dundee, as well as Ireland, I would ask your approval of the suggestion that they should mark, after duly testing as near as possible the time of flowering of as many varieties as possible under cool treatment. Allowance could be made for locality afterwards by the growers in any part of the British Isles. I speak of cool treatment, and mean growth outdoors, except about London and manufacturing towns, where it is almost impossible to have blooms clean and pure, so long as there seems no danger of smart frost. A few degrees will do no harm to Chrysanthemums that have been thoroughly exposed and ripened outside during summer and autumn. It will always be understood, if frost appears early, that protection is at hand. If grown against a wall—south is the best aspect—it takes a severe frost to do any injury, and even then light matting will guard the blooms. I have seen them safer in this way than in an unheated greenhouse. At present I have Fingal, Golden Empress, Julie Lagravère, Christine, James Forsyth, and that prince of reflexed flowers, Little Beauty, with its handsome pinkish-bordered petals; and several pompons, including Madame Marthe, Snowdrop and White Trevenna, both inside and outside, and so have many others in this locality; and in every instance where fairly treated, tied up, disbudded, and now and then, during the summer months, supplied with liquid manure, without exception, those outdoors have much the finest flowers with a fraction of the care. I at once admit that this would not have been the case had smart frost set in at any time during the past month, and this brings me back to my original inquiry, What are the best varieties to bloom during September and October, when frost, to injure Chrysanthemums, rarely ever comes? In a recent issue of the *Gardeners' Chronicle* I drew attention to this matter, and have since had communications on the point from various sources, and among the rest from Mr. Andrew Sinclair, Fountain Brae, Dundee, who has grown them—all the best varieties he could procure from France, which seems to be the principal place were they are raised—for some years, and considers the following dozen different colours the best:—Madame Desgranges: for size, as I already remarked in your columns, this stands first; it might fairly be included among the Japanese, and is a very pure white. Aureole: the class to which this belongs in the way of colour, is crimson, shading off to lemon in the centre, and will, of course, be included by growers. La Vierge: I have this also in bloom for the past six weeks, and with Virginia, introduced last year, which it resembles, I consider, as does the gentleman I have quoted, they are two of the best whites in cultivation, and almost full in the centre, the lack of which is the great defect of the early-flowering kinds. Sœur Melanie should be included among the whites—useful. Of yellows, Précoce would contrast with the deep orange l'Admirable—later. Among rose colours would be Boisduval, purple-rose, and Illustration, whitish-rose. Mdlle. Jolivart represents the best of the peach colours; Toulousaine (P.), bronze-red; Bouquet Fait, Japanese, and Lyon, rosy-purple, should be included. *W. J. Murphy, Clonmel.*

Chou de Burghley.—Opinions are greatly varied as to the merits of this vegetable. I was present when it was first exhibited before the Fruit Committee at South Kensington, and after a close examination, and a still better test, that of tasting, the committee were unanimous that it was first-rate, but having grown it this season, I am not disposed to think so favourably of it as I then did. It is not a bit better, if so tender and agreeable, as are young Cabbages, and it grows far too large ever to take the place of these. And last, but not least, it still requires a good deal of "roguing," some of ours are quite round, others oval, and others long and pointed. To which of the types does Mr. Gilbert apply the term "true"? *W. W.*

—— There appear differences of opinion respecting this vegetable. My opinion is that we are greatly indebted to Mr. Gilbert for one of the most useful of vegetables we have. I grew it this season for the first time, and I could wish for nothing better. I suspect the fault, in the case of those who dispute its merits, is in the cooking; it requires boiling well. *C. W. Cook, Rendcombe Park Gardens, Gloucester.*

—— All who are acquainted with this fine Cabbage will not, I think, agree with Mr. Grant (p. 633). With me it has by far exceeded my expectations, and I firmly believe, that when it becomes better known it will be universally grown, as it is undoubtedly an exquisite vegetable. *R. Greenfield, Priory Gardens, Warwick.*

—— I fail to see anything worthy of special merit in the Chou de Burghley as a vegetable. The glowing accounts which were given of it induced me, like many others, to sow and plant a large plot with it, with the result that I now have a fine crop of mixed coarse Cabbages of all sorts and forms, none of which are equal, certainly not superior, to other ordinary Cabbages planted at the same time. *T. J. Hart, Birr Castle Gardens, Kings Co.*

—— I do not know Mr. Grant, Hadlow Castle, who in your last issue complains that this Cabbage is too coarse, and does not heart well, &c.; but I do know that Chou de Burghley is daily eaten by some of the best families in England, on whose tables common Cabbage and Savoys would not be allowed. According to my experience it is far before other sorts of Cabbage, and, to prove that it does heart well, I have sent you two heads of Chou de Burghley, cut from plants that were raised from seed sown on May 1. *W. C. Leach, The Gardens, Fineshade Abbey, Stamford.* [The samples received have "hearted" as well as any good Cabbage we know. Ed.]

Edinburgh Notes.—In the Red Braes and Pilrig Park Nurseries shrubs are largely grown. In the latter are thousands of seedlings of Indian Rhododendrons, chiefly from Sikkim, including R. anthopogon, R. Campbelli, R. camelliæflorum, R. campylocarpum, R. lanatum, &c. R. ciliaris is hardy here, though occasionally the flowers are injured by late frosts. R. præcox and R. præcox superbum are almost equally beautiful; and there is a pigmy form raised here of Cunningham's white Rhododendron which is a good addition to dwarf kinds for rockwork. Amongst variegated shrubs the purple-leaved Peach, which is hardy in the South, is a valuable plant, not only for its dark foliage, but for its spring flowers and autumn fruits. The purple-leaved Plum, from Persia, is good; also the purple-leaved Vine (Vitis purpurea). There is a good new form of Golden Elm, and the golden forms of Sweet Chestnut, Laburnum, Elder, and Box, are well worth growing; of the latter (Buxus aurea) there is a good stock here, it is but a few inches high, and keeps its colour well all the year round. The foliage of Acer Schwedleri is red in spring Fraxinus aucubæfolia has spotted foliage; and Aucuba salicifolia is a distinct kind, having narrow, slightly toothed leaves. Ampelopsis Veitchii, so well known as a climbing plant, is grown here as a hanging plant, and its long sprays, 10 or 12 feet long, prove how well it is suited for this purpose. Hedera glomerata is very singular, with small leaves, and very compact habit. There is a good stock of Hypericum Hookeri, and also of Acer Hookeri, a new kind with long, pointed, cordate leaves, very unlike most Acers. Whether it is hardy or not, has not yet been tried here. A plant of Castanea crassifolia (?) is about 4 feet high by 4 feet through, grown in a well sheltered position in the Red Braes Nursery, where a pretty pond is surrounded by sloping banks, covered with shrubs and trees, to which the Red Braes nursery is chiefly devoted, florists' and other herbaceous plants being grown more at Pilrig Park. Castanea has Myrtle-like foliage, the leaves being golden on the under-side. Eugenia appendiculata is found here to be hardier than E. Ugni. Myrtus bullata, though grown under glass at Pilrig Park, might perhaps be hardy in the South; its brown tinted foliage is very distinct. Mahonia Fremonti has sharply serrated glaucous foliage. The beautiful white form of Rosa rugosa does well here. Forsythia Fortunei is very useful for early spring flowering. Amongst numerous small Conifers at Red Braes Retinospora squarrosa nova, with glaucous, almost grey foliage, and R. obtusa nana, with compact habit, are very distinct. Widdringtonia ericoides has purplish Juniper-like foliage; and Thuiopsis dolabrata and its variegated form are well worth growing, having a slight resemblance to a Selaginella in foliage. The pyramidal Oak is distinct; and a giant form of the Lombardy Poplar is more vigorous than the type, which does not succeed well in every part of the country. Populus cordifolia is striking, from its large and very glossy leaves. Alnus imperialis has finely cut foliage; and there is a curious graft used here, of Osmanthus ilicifolia on the Asb. Though all the Menziesias are worth growing, none are prettier than M. polifolia alba; a large bed of it was very effective in summer, and on into autumn. The curious M. polifolia bicolor is also grown. M. empetriformis does well about Edinburgh. M. cœrulea, the least effective, seems the most difficult to grow. Erica ciliaris is hardy on the rockery here; E. mediterranea is also fairly hardy in the Edinburgh Botanic Gardens, and at Comely Bank. Ledums are amongst the many Heath-like plants worth growing; L. palustre and L. thymifolium are distinct types. Some rare herbaceous plants are grown at Pilrig Park, including the Indian Parnassia rubicola, the Blue Poppy (Meconopsis Wallichi), Primula sikkimensis, P. capitata, and Senecio pulcher, which when it flowers well is a fine autumn plant. The effect of a mass of Aster longifolia formosa, about 2 feet high, was beautiful early in October. Saxifraga MacNabiana is largely grown, and there is an excellent stock of S. Stracheyi. Pentstemons are one of the specialities amongst florists' flowers, both at Pilrig Park and at Messrs. Laird's nurseries. Many beautiful kinds have been raised, and by careful selection the improvement in size, colour, and form is remarkable. Amongst the large collection of stove and greenhouse plants in Messrs. Laird's winter garden is a much improved form of the old hanging plant, Saxifraga sarmentosa, under the name of S. sarmentosa variegata, brightly variegated with rose colour. Another interesting hanging plant is Lycopodium ulicifolium (= L. Hookeri). The plant seems to be of strong habit, and may perhaps be less difficult to grow than most Lycopodiums. As some Conifers have a striking likeness to Lycopods, so this plant has a certain likeness to Conifers. There are some curious forms of Adiantum. A. concinnum latum has such deep indentations round the edge of the leaflets that they at first sight appear as if perforated with small holes. The foliage of this Fern is very effective, the leaflets are comparatively large. Adiantum Capillus-Veneris Pocockii is of very crisp and erect habit; and A. Legrandii is most singular, the leaf being so thickly set with small leaflets that it is half an inch or more through vertically. Pellionia Davaueana is a plant of much interest, the flowers having the same "smoke" of pollen as each blossom opens which is to be seen in the Artillery plant, Pilea muscosa. This plant has dark variegated foliage and a drooping habit. Aralia Chabrieri, from its drooping dark green foliage, might prove a good table plant. The leaf is very long and narrow, with a dark line up the centre. A brightly coloured Coleus (sent out from here), Lady Macdonald, has curiously crenated leaves, and is very distinct. Cestrum aurantiacum has panicles of waxy, deep yellow blossoms over half an inch long, with reflexed lobes. It is rather a rare colour amongst indoor plants in October. But the brightest part of these winter gardens early in October was a long house devoted to a varied and beautiful collection of zonal Pelargoniums in full blossom. When these flowers blossom so much better under glass than in the open air no regret need be felt at their place out-of-doors being taken by hardy plants which can stand wind and rain comparatively uninjured. Stigmaphyllum ciliatum seems to be an excellent stove climber, with ciliated cordate leaves; Mr. Laird says its yellow flowers resemble those of an Oncidium. *C. M. Owen.*

The Bird's-nest Orchis (Neottia Nidus-avis).—Unlike the generality of our British Orchids this curious plant is destitute of leaves, but has the stem clothed with brown sheathing scales instead. It has generally been supposed to be parasitical, but such is not the case, although the whole plant has the true palid hue, destitute of green, peculiar to parasitical plants in general. The root-stock is composed of a number of succulent fibres, crossing and entangling each other like the sticks of a crow's-nest, and from which the popular name of Bird's-nest Orchis is derived. The whole plant rarely exceeds a foot in height with a rather dense spike of dingy brown flowers, those at the base being placed rather distant apart. The lip is cloven at the extremity into two blunt, rounded, widely-spreading lobes. This plant is a frequent occupant of shady Beech woods, especially on a chalky or clayey subsoil, indeed the finest specimens I have seen were growing in stiff, tenacious clay, so hard that it was almost impossible to lift a plant uninjured. It is, however, strangely uncertain in its appearance, frequently disappearing from places where it has been known to exist for years and reappearing in quite another part of the same wood. I have repeatedly tried the cultivation of this Orchid, but with no success, the plants never appearing after the first year, and I should be glad to hear of any one who has successfully grown and flowered this curious and interesting species of our native Orchids. *A. D. Webster, Llandegai, Bangor.*

Seed Lying Dormant.—That acute observer, Gilbert White, mentions in his *Natural History of Selborne* that seed lies dormant in Beech woods so long as the thick cover remains, and vegetates on its removal. A Beech wood clothes the high chalk hill above Selborne, and White noted that the naked part of the Hanger was covered with Thistles of various kinds, the seeds having lain probably under the thick shade of the trees for many years without vegetating till the sun and air were admitted after the trees were felled. The same thing may be constantly observed in underwood or coppice after the periodic cutting. Sportsmen accustomed to cover-shooting must have noticed that the first year's growth of underwood affords a dense growth of grasses, Brambles, Foxgloves, and other plants; that the overcrowding of the second year's growth weakens this under-crop; and that afterwards the ground becomes quite bare of herbaceous vegetation, till the next cutting of the copse. In many cases no doubt the undercrop springs from small plants rather than from seed. This must certainly be the case with biennials and perennials, though not necessarily with the grasses or perhaps with Thistles. The writer has seen Birch spring thickly on the sand rocks near Dorking when part of a Beech wood planted by Evelyn had been overturned by a storm. The wood was 200 years old, and too dense for under-

growth, so that the Birch could hardly have grown except from seed. He has also observed a thick growth of Birch after the upper surface of a sandhill had been removed to a depth of about a foot. The seed, therefore, sprung from the subsoil, but how or when it was sown is unknown. Another instance given by Gilbert White is that of Strawberries, which covered the ground in a year or two after the Beeches were felled. The seeds must have lain in the ground "for an age," he thinks. Close observer as he was, he adds that one of the trenches, called "slidders" at Selborne, down the middle of the Hanger Close, covered over in his day with lofty Beeches nearly a century old, was still called "Strawberry Slidder," and although the people live long at Selborne, where an old lady of ninety-eight came regularly to church with her daughter, aged seventy, and the former beat the latter in a little race upon the common, and where eight persons at one time were of the average age of eighty-five and a half, still no one could remember when Strawberries grew on the "slidder." It can hardly be doubted that they did abound before the Beeches smothered them, and that the seed of crops that are crowded out in Beech woods, or other woods, lie dormant till their growth is rendered possible by the removal of the trees or a portion of them. *E.*

FRUIT NOTES.

The Winter King Grape.—I see by your last issue that you would be glad of confirmatory evidence as to the origin of this Grape, which Mr. B. S. Williams exhibited at Kensington on the 13th inst. I am pleased to be able to furnish such evidence, as I saw the fruit hanging on the Vine a fortnight before it was exhibited. For bold and striking individuality Winter King is the most handsome Grape in cultivation, being in colour a deep blue-black, which makes it stand out conspicuous from any other Grape known, and which gives it a very rich appearance when hanging on the Vine. It is of robust constitution, a free setter, colours freely, and is rich in flavour, bearing some affinity to a thoroughly well finished Hamburgh, but with more aroma. Fancy a Grape with the colour of an Ickworth Impératrice Plum with every quality which a winter Grape ought to possess, and we have something which has been long wanted. Your remark as to how the Grape was obtained is correct in every particular. The foliage and general character of the Grape is completely altered by the union of the Raisin de Calabre. I was much struck with its appearance when I saw it hanging in a house with several others, all admirably grown and finished. *John Gadd, Gr. to Sir T. B. Lennard, Bart., Belhus.*

—— I note in your report of the last meeting of the Royal Horticultural Society at South Kensington, that a Grape named Winter King was exhibited, and that its origin was stated to be the result of a graft of Gros Colmar on Raisin de Calabre. By its being named Winter King, I presume it is intended to be offered as a new variety, which, in fact, it cannot be, for if propagated from eyes taken from the graft that has been grown on the Raisin de Calabre, there will—notwithstanding the great change that has been effected—doubtless be an entire reversion to the old variety. *W. W.* [Our correspondent says doubtless; will he try the experiment and report? Ed.]

PLANT PORTRAITS.

Calamus? Lindeni, Rodigas, *Illust. Horticole*, t. 489.—A remarkably handsome Malayan Palm, with spines on the leaf-stalks and on the under surface of the midrib, oblong, pinnately divided leaves, pinnæ lanceolate, dark green above, silvery beneath. Its genus is not known with certainty.

Calendula sicula, Cyr.; Regel, in DC. *Gartenflora*, t. 1128.—A South Italian annual or perennial Marigold.

Cattleya Skinneri alba, Rchb. f.; Moore, in *Orchid Album*, t. 112.—This variety, which was described in these columns, n. s., vol. vii., 810, has pure white flowers.

Chamelum luteum, Philippi, in *Gartenflora*, t. 1129.—A perennial dwarf-growing rhizomatous Irid, with tufts of linear hairy leaves and stalked yellow flowers, like those of a small Crocus, but with very narrow segments. A very curious plant.

Opuntia Pœppigi, Otto; Philippi, in *Gartenflora*, t. 1129.—Flowers stalked, yellow. Chili.

Opuntia Segethi, Philippi, in *Gartenflora*, t. 1119.—Flowers pink. Chili.

Ornithogalum arabicum, *Garten Zeitung*, November, 1883.

FORESTRY.

International Forestry Exhibitions.—We are glad to see that the prospects of the exhibition at Edinburgh are very bright. There is a notion prevalent in some quarters that, so far as this country is concerned, the forestry question is of little moment. The success of this Exhibition, which we assume to be assured, will supply the best answer to this opinion. The development and improvement of our woodlands appear to us to be matters of the highest importance, more especially in regard to the depressed state of agriculture and the necessity of turning our waste lands to account. We have already alluded to the vast importance of the subject as concerns Ireland, but Great Britain is only a constituent of a Greater Britain, and the importance of forestry, looked at from this point of view, becomes at once enormously enhanced. We hope one result of this Exhibition will be the establishment of a proper School of Forestry in the northern capital—a proposal we have always advocated in the interests of our colonies and of India, as well as of our own land. We would fain hope that another result of the Exhibition will be manifested in the collection of trustworthy information as to the value for economical, as well as mere ornamental purposes, of the numerous coniferous and other trees that have been introduced in such large numbers of late years. Our Edinburgh correspondent furnishes us with the following report on the progress of the Exhibition up to the present time:—"The arrangements proceed apace, and the committee are finding much encouragement in the prosecution of their work. The sum already promised towards the guarantee fund very nearly touches £5000. Nothing more encourages those who have the means to subscribe to such undertakings than the prospect of their realising the sanguine anticipations of their promoters; and, as this is being daily put beyond doubt in connection with the forthcoming exhibition, the committee will doubtless find additional encouragement given to them by seeing the subscriptions already promised backed up to a large extent by others. We learn that the committee have received an offer of valuable duplicate specimens of colonial woods from the Royal Gardens at Kew. Everything, indeed, now promises well for an interesting and instructive exhibition, and if the matter of site were once fairly settled, the committee would proceed with the plans of such a building as would be at once convenient for the purpose of showing their specimens and ornamental to the city."

A Reuter's telegram from Ottawa says:—"It is announced that steps will probably be taken to have Canada represented at the International Forestry Exhibition in Edinburgh."

Comparative Advantages of Autumn and Spring Planting. — Autumn Planting. — Whether heat in the soil, or atmospheric influences, or both combined, be the causes of success, or neither, matters little to the practical forester, for it signifies nothing to him whether the producing cause be known or unknown, if only the results are established, and are sure and certain.

Certain trees and shrubs, in some cases, gain a full season's growth by being planted in autumn instead of spring, of which the following is an example:—On the southern slope of a Heath-covered hill in Strathspey, in the highlands of Scotland, planted with Scotch Fir, partly in autumn and partly in spring, at one particular part, seen at a mile distant, it was quite obvious where the planting was suspended in autumn and resumed in spring. The appearance was so marked that it might have been thought it was two years older. The ground was the same, and the plants of the same growth, and everything equal except the one thing, namely, that one part was planted in October, and the other at the end of February. It requires, however, to be stated that the autumn in question was exceptionally fine for planting, while the spring was the reverse. That the weather exerted no small degree of influence is very obvious from the circumstance that during several years similar planting, when there were repeated intervals between the spring and autumn planting, no such marked difference of growth ever again presented itself, although there was at least a perceptible difference, and the greater the difference always in proportion to the length of interval between the leaving off in autumn and beginning again in spring. Sometimes, by reason of snow, work was suspended in October, and not resumed till March. It has been repeatedly found, on lifting Scotch Fir plants in November, that were planted at the beginning of October, that they had produced new fibres, and were well established in the ground. From close observation of this subject I am led to believe that in autumn in most, if not all cases, root-growth occurs in evergreens, but it is not so obvious in the case of deciduous plants. Having repeatedly planted Holly hedges and large shrubs both of it and Bay Laurel, both in spring and autumn, I can with confidence recommend the month of September as the best time for doing such work. If the ground at that season is very dry the plants will require one thorough watering, but seldom more than one.

Another advantage of autumn planting is that the winter frosts and rains pulverise and wash the soil in about the roots of the plants, thereby both providing it with food and at the same time closing the openings made in the ground in planting, thereby preventing drying up.

Cuttings of Bay Laurel put into the ground in September, with a little sharp sand in the soil, and each scion with all its leaves on both above and below ground, root better in September than in any other month of the year, and seldom if ever fail. If Nature has a lesson to teach on the subject of planting it is one of much latitude in regard to the season of the year for doing the work. In autumn very early the Whin and Broom scatter their seeds amid accents sharp and clear. The Oak and Chestnut also plant in autumn, and with or without the presence of the hog or wild boar, drop their treasures in autumn, which either fatten the animal or furnish the forest. Our Pines and Firs, on the other hand, for reasons which we do not know, keep their seeds in the cone till the heat of the early summer opens them, when they wing their way, and modestly hide their head in the nearest crevice.

Spring Planting.—The question is frequently asked, Why do you plant in spring at all if autumn is the best? To this question there can be given more than one answer. One reason for planting in spring is because autumn is not long enough to enable the planter to overtake all his work, and therefore he must extend the period into spring. Again, the days grow very short as the autumn advances, and therefore much less work can be done, and consequently costs more in the doing of it. And again, as we merge into winter the weather is usually, on account of the prevalence of frost and snow, such that in many cases it is impossible to collect sufficient hands to do the work even after allowing it to cost more money, and when women are employed to put in the plants, as is very common, they cannot stand amid wet heath and wintry winds.

Another reason for planting in spring is the fact that plants may not be mature and ripe; the Larch, for example, is late in autumn in perfecting its young wood, and there is often great risk of losing the leader if lifted before it is mature.

There is also another obstacle in the way of autumn planting in that of plants having to be brought from a distance while yet the foliage is upon them, which, as is too well known, is the occasion of sweating or heating in the package, to the injury or destruction of the plants. This is eminently the case with Sycamore, Lime, Oak, Birch, and several other species which are late in defoliating.

In boisterous wintry weather, especially if accompanied by much rain, and when the soil is clayey, plants, especially if large, suffer seriously by windwaving, which if done in spring to some extent obviates the evil, as the ground is firmer and the plants somewhat rooted before winter.

Upon many estates rabbits are so numerous that the newly planted trees are eaten the first night after being planted, and it is somewhat remarkable that the animals will eat a plant newly planted and not touch others by its side, although bared of all herbage and the ground disturbed, as if it had been newly planted. In spring the young grass forms a counter attraction to them, and after the first season is over they are less liable to be eaten.

It is often during the covert shooting that much of the planting about the policies and preserves is determined upon, and if not done off-hand at least between the covert shooting and the breeding season it would not be done at all.

Much of the planting done, at least what is termed ornamental and pleasure planting, is at the suggestion of the proprietor's friends on the annual covert shooting visit, and as this usually takes place in November or December, the planting is therefore carried out in spring.

Autumn planting, as has been explained, has many advantages, but in the practical operations of forest history there has been, and probably ever will be, more done in spring than in autumn. *C. Y. Michie, Cullen House, Nov. 13.*

Reports of Societies.

Edinburgh Botanical: *Nov.* 10.—The Society met in 5, St. Andrew Square, W. B. Boyd, Esq., President, in the chair. The following communications were read:—

I. President's introductory address, "Remarks on the Cultivation of Alpine and Herbaceous Plants." At the outset, the following statement as to the present numerical position of the Society was made:—There were four honorary fellows, six British and nineteen foreign subjects, 146 ordinary members, 182 non-resident fellows, eight lady associates, 167 foreign corresponding members, and twenty-seven associates—total, 559. Mr. Boyd gave the result of his observations of alpine plants during a journey in Switzerland and thereafter he described the habits and appearance of a large variety of herbaceous plants.

II. "Note, with exhibition of a flowering stem of Phormium tenax with seed capsules ripened in the open air at North Ronaldshay, Orkney." By Wm. Traill, M.D., of Woodwick. The specimen, about 6 feet long, with other plants of the same New Zealand exotic, had flowered and ripened seeds three times in the open air. The first year of such ripening was in 1879, and the next in 1881. On both occasions many young plants were raised from the seed, as has also been done during the present year of ripening. The young plants of 1883 look fully better matured, perhaps because the flowering occurred in the beginning of July, instead of, as in 1879, in the beginning of August. The date of the second flowering was not recorded. Thus far they have flowered in Orkney every second year, whereas in New Zealand, it is said, they mostly flower every third year. In connection with this paper Mr. Lindsay exhibited a young healthy plant from the Royal Botanic Garden, which had been raised from some of the seeds of 1881.

III. "Report on Growth of Half-hardy Plants on the East Coast of Arran." By the Rev. D. Landsborough, Kilmarnock. The measurements are given at 5 feet from the ground, unless otherwise mentioned:—

The east coast of Arran is more favourable for half-hardy plants than any place in Scotland, and as favourable as any in Britain. Without enumerating all the half-hardy plants that grow there I shall mention such as call for special notice.

Gums.—The Peppermint tree (Eucalyptus amygdalina) of Tasmania, the tallest tree in the world, grows at two places in Arran; the specimen at Cromla, Corrie, is 22 feet in height, and 9⅜ inches in girth. The Blue Gum (E. globulus), at Captain Brown's, Lamlash, a well shaped tree, is now 1 foot 7 inches in girth. The White gum (E. coriacea), and the Cider Gum (E. Gunnii, synonym E. polyanthemos) also grow freely at the same place.

Palms.—I saw lately a beautiful photograph, entitled "The Palm Avenue, Botanic Gardens, Ballarat." This Victorian Palm grows luxuriantly at Cromla, Corrie, of three species—Cordyline indivisa, C. australis, and C. Veitchii.

Tree Ferns.—Arran is the only place in Britain where the Tree Ferns of Australia grow in the open air without protection in winter. There in a sheltered spot the great Bush Fern (Dicksonia antarctica) grows with the utmost luxuriance. This year it sent forth a magnificent crown of eighteen fronds, each averaging 6 feet in length by 2 feet in breadth. The girth of the stem is 2 feet 4 inches, height 1 foot 9½ inches. The fronds of Dicksonia squarrosa are 2 feet 9 inches in length and 13 inches in breadth, girth 9½ inches.

Among the Ferns of lower degree that grow at Cromla are Todea superba, T. hymenophylloides, Pteris scaberula, and Trichomanes radicans.

Camellias.—During the whole of April and part of May the front of Cromla was rendered gay by a plant of Camellia reticulata, which bloomed abundantly. Camellia japonica grows freely, but rarely blooms.

Acacia.—One of the most valuable of the timber trees of Australia, the Black Wood (Acacia melanoxylon) is growing well at Cromla, Corrie. The very beautiful Feather-leaf, or Black Wattle (Acacia decurrens), grows luxuriantly at Captain Brown's, Lamlash, as does also the Silver Wattle (A. dealbata).

Broad-leaved China Fir.—After much inquiry it has at length been satisfactorily determined that this tree, planted in Brodick Castle High Garden about the year 1858, is Cunninghamia sinensis, or the Chinese Broad-leaved Fir. In general appearance and habit it much resembles Araucaria brasiliana, but the leaves are more light in texture. The cones would be readily distinguished.

Norfolk Island Pine.—Two young plants of this most beautiful tree (Araucaria excelsa) were last summer placed in Captain Brown's garden at Lamlash. The Captain was told they would not stand the winter, but he was determined that they should. Procuring pieces of thick glass he placed them round the plants, and he put another over them, so as to admit air in mild weather. The trees remained in excellent health during the whole of the winter, and would have been so still had they not been transplanted in spring. They are now recovering.

Miscellaneous Trees and Shrubs.—The Cork tree (Quercus suber), 2 feet 3 inches in girth 4 feet from the ground, grows freely in the Castle grounds, Brodick. The She Oak or Beef Wood (Casuarina equisetifolia), 13 feet in height, grows freely in the Castle High Garden. In a side border of the same garden a beautiful white Heath was in one mass of bloom during the whole of the month of April. It is 7½ feet in height, and 15 feet in circumference, and well becomes its name—Erica arborea. Escallonia rubra albiflora also flowers abundantly. A beautiful white Sikkim Rhododendron, 14½ feet in height, now blooms in the garden at Cromla, Corrie. It did not bloom till it was thirty years of age. A plant of the Holly-like Desfontainea spinosa, 7 feet 3 inches in height, comes into bloom at Cromla in the beginning of July, and continues in bloom till December. A standard Myrtle (Myrtus communis), 11 feet in height, here blooms abundantly every year. There are also plants of Elæagnus reflexa variegata, Photinia serrulata, Coccoloba vespertilionis, Azalea amœna (blooms abundantly), Euonymus latifolia aurea, &c. Pittosporum Ralfii grows at Captain Brown's, Lamlash. A plant of Buddleia globosa, 19 feet in height and 7 inches in girth, at Whitehouse, Lamlash, was during the months of June and July most attractive, being covered with its sweet-scented orange-coloured bloom. The early blooming scarlet Rhododendrons at Whitehouse, as also in the Brodick Castle grounds, are yearly most gorgeous. Those who have only seen these most magnificent shrubs in the neighbourhood of towns, or in places where they are exposed to much frost, have no idea of what they are in Arran, where there are many plants of thirty or forty years' growth in perfect health, without which there cannot be richness of colour. I much doubt if even in their native Indian mountains they are more gorgeously magnificent.

IV. "Note on a variegated form of Asplenium adiantum nigrum found at Pitlochrie." By Mr. Robert Lindsay. This was a fine variegated variety of Asplenium Adiantum nigrum which was presented to the garden by P. H. Rooke, Esq., Weybridge, who obtained it near Pitlochrie in the autumn. The variegation was better than usually found on this species.

V. "Report on the Progress of Vegetation at the Royal Botanic Garden." By Mr. Robert Lindsay, Curator.

October has been remarkable for the fine, dry, almost summer-like weather which prevailed throughout the entire month, frost occurred only once, viz., on the 22d, when 3° were registered. In consequence of the mildness, deciduous trees have parted with their foliage most reluctantly, many, which in October are usually stripped bare of their leaves, were still covered with foliage, few leaves having fallen, unless those which were so thoroughly ripened that they dropped off from sheer exhaustion. Many trees and shrubs have this season produced grand effects with their autumn tints, which predominated during the month. The most beautiful were Acer saccharinum, A. rubrum, A. monspessulanum, A. Lobbii, and the varieties of A. Pseudo-Platanus; Quercus rubra, Q. coccinea, and Q. conferta; Pyrus Aria and Pyrus vestita, Salisburia, Beech, Thorns, and Tulip tree, Ampelopsis, Azaleas, Cornus, Mahonias, and Weigelas, &c. Among herbaceous plants Saxifraga purpurascens and Funkia Sieboldii were most striking. A few evergreens have also shown rich colouring, and contrasted favourably with the more beautiful, but shorter lived deciduous coloured leaves; amongst such may be mentioned Cryptomeria elegans, Thuia elegantissima and aurea, Golden and Silver Hollies, and the various Japanese Retinosporas. The season, though favourable for the development of leafage, has apparently been most unfavourable in developing flower-buds for next year. Rhododendrons, Azaleas, and other American plants, which are usually lifted about the end of the month for forcing purposes, have not for many years been so deficient in flower-buds. Yew, Holly, and Cotoneaster have a fair crop of berries, which are now well coloured. Advantage has been taken of the fine weather in transplanting and making improvements in the garden, the ground being in excellent condition for such operations. The lowest temperatures occurred on the 2d, 33°; 12th, 34°; 22d, 29°; 23d, 35°; 30th, 35°; while the highest morning readings were, on the 4th, 50°; 7th, 52°; 8th, 52°; 9th, 60°; and 14th, 57°. On the rock garden thirteen species of plants came into bloom, making a total for the season of no less than 981, being the largest number yet recorded as having flowered in one season, and 107 more than flowered last year; this result is not due to the season, but simply to the fact that new plants are constantly being added to the collection from various quarters, many of which flower, and are recorded.

A collection of leaves showing autumn tints came from the garden. Mr. John Campbell, Ledaig, Argyllshire, sent a number of flowers from the open air.

Brighton and Hove Chrysanthemum: *Nov.* 13 *and* 14.—This Society held its first annual show in the Dome, Royal Pavilion, Brighton, and taking into consideration the fact that it was the first attempt, the committee may congratulate themselves upon having achieved so great a success. The show in itself was all that could be desired, and quite surpassed anything ever seen in the South of England. At the back of the large orchestra was arranged a collection of fine specimen Chrysanthemums, not for competition, but kindly sent by S. W. Smith, Esq., The Lawn, Dyke Road, Brighton; while more to the front, and on each side, were massive groups, of all shades of colour, kindly sent by Mr. W. Balchin, of Hassock's Gate Nursery. In front of the orchestra (which is of crescent-shape) was arranged a continual row of very fine standards, in front of them again being a row of good dwarf-trained plants. The room being circular in shape, groups were arranged around on the outside under the balcony, with the cut blooms, fruit, and vegetables placed on tables in the body of the room, allowing plenty of space for promenading, and the general effect, looking from the balcony, was very good.

In the open competition for groups Mr. Miles, of the West Brighton Nursery, carried off the 1st prize; Mr. Spottiswoode, gr. to — Duddele, Esq., Queen's Park, Brighton, being 2d; and Mr. Bunney, Dauny Park, Hurstpierpoint, Sussex, 3d. For cut blooms (twenty-four), incurved, distinct, Mr. Gibson, gr. to J. Wormald, Esq., Morden Park, Mitcham, Surrey, was 1st; Mr. J. Ridout, gr. to T. B. Haywood, Esq., Woodhatch Lodge, Reigate, Surrey, 2d; and Mr. Russell, gr. to Dr. C. F. Lewis, Henfield, Sussex, 3d. For twelve incurved flowers Mr. Elphick, gr. to J. Clutton, Esq., The Orchards, Reigate, came in 1st; Mr. Ridout 2d, and Mr. Russell 3d, as in the class above. The 1st prize for twenty-four Japanese varieties was also taken by Mr. Gibson, Mr. Ridout being 2d, and Messrs. Dixon & Co., of Hackney, 3d. For twelve Japanese varieties Mr. Ridout gained 1st honours, Messrs. Dixon & Co. coming in 2d, and Mr. W. Jupp, gr. to — Boulton, Esq., Torfields, Eastbourne, 3d. The class for large Anemone flowers brought only two competitors—Mr. Duncan, Warnham Court, Horsham, Sussex, who was 1st; and Mr. J. Clark, gr. to Mrs. Joad, Patching House, Worthing. In the second division, for cut blooms, Mr. Elphick gained three consecutive 1st prizes, Mr. Jupp being twice 2d, and Mr. Goode, gr. to G. G. Stone, Esq., Eastcote, Redhill, Surrey, twice 3d. For six large Anemone flowers Mr. Ridout was again 1st; Mr. Hyde, gr. to R. Bacon, Esq., of the Old Ship Hotel, Brighton, 2d. The competition in all the cut flowers was very keen. Mr. Meachen, gr. to C. Armstrong, Esq., Woodslee, Withdeane, was 1st in both divisions for black Grapes, and Mr. Harris, of Denne Park, Horsham, Sussex, 1st in both divisions of white Grapes. Dessert Apples and Pears were very good, also stewing Pears and culinary Apples. In the 2d division for groups Mr. Turner, gr. to Major Way, Wick Hall, Hove, took the 1st prize; Mr. Bunney being 2d, and Mr. Hill, gr. to Marriage Wallis, Esq., Withdeane, 3d. Standards and dwarf-trained Chrysanthemums were very well done, the principal exhibitors being Mr. Spottiswoode, Mr. Hyde, and Mr. Meachen, the honours being reversed in different classes. The class for trays of vegetables brought about a strong contest, Mr. Bunney, of Dauny Park, being 1st; Mr. Mantoo, gr. to Captain Borror, Clayton Wickham, 2d; and Mr. Harris, 3d. Messrs. Sutton & Sons also offered a handsome prize for the best six varieties of Potatos, twelve tubers of each, which was carried off by Mr. W. May, gr. to Mr. G. Neame, Littlehampton; Mr. Coombs, Damhurst, Sussex, being 2d; and Mr. Harris, Denne Park, 3d. In addition to the show a promenade concert was arranged for each evening, and which, no doubt, brought much grist to the treasury. (*From a Correspondent.*)

Chrysanthemum Show at Devizes: *Nov.* 17.—This is an annual exhibition of this fine autumn flower held in connection with a benevolent society whose main object it is to minister to the wants of the poor of Devizes during the winter months. The show is largely supported by the Devizes folk; it is held in the spacious Corn Exchange, and is admirably arranged by Mr. Thomas King, the worthy gardener at Devizes Castle. This show was a remarkably good one, and a most decided advance on that held last year, and should it yet increase it will become one of the best exhibitions of the kind in the West of England.

PLANTS.—In the class for six plants of large-flowered Chrysanthemums some capital specimens were staged, the best coming from Dr. Hitchcock, Fiddington House (Mr. Offer, gr.), who had large-sized, even, well-grown and bloomed plants of Mrs. Dixon, Mr. Corbay, Golden Empress of India, Mrs. Cunningham, Refulgence, and Christine; 2d, C. N. May, Esq., Elm Lodge (W. Hall, gr.), with good examples of Gloria Mundi, Mrs. G. Rundle, Queen of England, Alfred Salter, Empress of India, and Mrs. Dixon; 3d, B. W. E. Clarke, Esq., Trowbridge (Mr. G. Tucker, gr.). In the class for four plants some excellent examples were staged by E. B. Anstie, Esq., Devizes (W. Plant, gr.), the varieties being Mrs. Dixon, Queen of England, Prince of Wales, and Mrs. G. Rundle (the flowers of the first-named were particularly fine); 2d, E. E. Colston, Esq., Roundhay Park, Devizes (Mr. H. Clack, gr.), who had well grown and flowered plants of White Venus, Golden Christine, Mrs. Dixon, and Barbara. Mr. Tucker had the best six plants of pompon Chrysanthemums, staging good specimens of Stella, Mr. Holboro, Golden Perfection, Andromeda, Rosamond, and Aurora Borealis; 2d, Mr. Hale, with a creditable lot; Mr. Plant being 3d. Mr. H. Clack had the best four plants, staging excellent flowered examples of Marabout, Rob, Mdlle. Marthe, and Mrs. Dix; 2d, Dr. Hitchcock, having Mrs. Dix and Astrea, very good. The really very fine specimens of Japanese Chrysanthemums were a surprise, but they were trained a little too flat, though finely grown and flowered. The varieties in Mr. C. N. May's collection, to which the 1st prize was awarded, were Fleur d'Hiver, Peter the Great, James Salter, Soleil Levant, Bertha Rendatler, and Elaine; 2d, Mr. G. Tucker, with good plants of Soleil Levant, Elaine, Nymph, James Salter, &c. Dr. Hitchcock had the best four, grown upright, and grandly bloomed: they were Magnum Bonum, Album plenum, Peter the Great, and Fair Maid of Guernsey; 2d, Mr. H. Clack, with Soleil Levant, Bertha Rendatler, Elaine, and James Salter. In the previous classes the pots in which the plants were growing were restricted to pots 12 inches in diameter; but in order to ascertain whether better specimens could be grown in larger pots prizes were offered for four specimens in any sized pots; but the result seemed to be that as good a specimen could be grown in a 12-inch pot as in one of larger dimensions. Mr. C. N. May was 1st, with George Glenny, Mrs. G. Rundle, Gloria Mundi, and Empress of India; 2d, Mr. G. Tucker, with Mrs. G. Rundle, Mrs. Dixon, Mr. Corbay, and Alma. One class was for groups of miscellaneous plants, arranged for effect, Mr. H. Clack being placed 1st with an excellent lot, arranged

in a circle, and consisting of Crotons, Palms, Dracænas, various flowering plants, &c. ; 2d, T. Chandler, Esq , Devizes (gr., A. S. Ledwell), with a capital group also.

Cut Flowers.—Some very good blooms were shown, especially by Dr. Hitchcock, who had the best twelve in four distinct varieties ; they were Lady Hardinge, Mr. Bunn, Prince of Wales, and White Venus. Mr. John Baylie, Bristol, was 2d, with Mrs. Cunningham, a white variety not generally found in collections ; Golden Empress of India, Prince Alfred, and Barbara—both lots very good indeed ; and Dr. Hitchcock had the best of twelve Japanese varieties, having good blooms of Album plenum, Mons. de Germiny, Luteum striatum, Fair Maid of Guernsey, Peter the Great, Fleur d'Hiver, Cry Kang, Bouquet Fait, Sarnia, Elaine, &c. 2d, Mr. Clack, with good flowers. Mr. John Baylis had the best twelve blooms of incurved flowers, distinct, his leading blooms being Mrs. Heale, Prince of Wales, Bronze Jardin des Plantes, Pink Perfection, Princess of Wales, General Bainbrigge, Prince Alfred, Baron Beust, &c. 2d, Mr. G. Hobbs, Lower Easton, his best blooms being Beverley, Golden Beverley, Nil Desperandum, Prince of Wales, Princess Teck, &c. Dr. Hitchcock had the best twelve, shown with 4 inches of stem and foliage ; Mr. Clack being 2d. The premier plant was a specimen of Mrs. Cunningham, shown by Dr. Hitchcock in class 1., and the premier bloom, Prince Alfred, shown by Mr. May.

Fruit.—But one general collection was shown in the class open to fruiterers of Devizes ; it came from Mr. Chivers, and deserved the highest praise for its variety and arrangement.

Vegetables.—Mr. J. Lye, Clyffe Hall, Market Lavington, sent a collection of his new varieties of Potatos, viz., Wiltshire Giant, a large red kidney ; Purple King, Clyffe Hall, Wiltshire Giant, Progress, and Beauty of the West. Samples of each were cooked, and while all were of good table quality the last-named was found pre-eminently good, and a First-class Certificate of Merit was awarded to it.

Loughborough Chrysanthemum. — This, the ninth annual show in connection with this Society, was held in the Corn Exchange on the 17th inst. The various productions exhibited were of that generally meritorious character for which the Society has become noted ; many of the blooms, especially in the section for Japanese varieties, were the largest ever seen in Loughborough, and many of the incurved class measured 5 inches in diameter and nearly as much in depth. The competition in all classes was of the keenest, making the work of the judges one of some difficulty. Many of the gentlemen's gardeners in the neighbourhood took part in the contests. The President of the Society, the Rev. John Bird, Walton Rectory, was most successful in the first four classes for pot-grown specimens, being 1st in each. In the pompon classes the most successful competitors were Mr. J. Smith and Mr. J. Maxted. In cut blooms Mr. Bird was awarded 1st for eighteen incurved distinct varieties ; 2d, Messrs. J. & H. Hickling ; 3d, Mr. J. Smith. For twelve incurved Mr. Bird was again 1st ; Mr. H. Smith, gr. to Sir W. H. Salt, Bart., 2d ; Messrs. J. & H. Hickling 3d. In the competition for twelve blooms, Japanese varieties, 1st, Mr. H. Smith ; 2d, Mr. Bird. In that for six blooms, Japanese, the results were similar—1st, Mr. H. Smith ; 2d, Mr. Bird.

The fruit section of the show contained some excellent samples of Grapes by several exhibitors, those of Mr. Shaw and Mr. Squires being adjudged the best, Messrs. Hickling, Mr. Smith, Mr. McLean, Dr. Palmer, and Mr. Bird taking prizes in the competition for Apples and Pears, as well as in the Grape classes. The attendance of visitors was very good throughout the day.

Bath Chrysanthemum Show : *Nov.* 14 *and* 15. —Early spring and late autumn shows oftener than otherwise are a drag on the resources of the societies that supplement their principal exhibitions with displays of these first and latest of the year's flowers. So much is this the case that in some places where they have been introduced the promoters have been obliged to discontinue them. Yet it is a pity that such should be the case, for the flowers that herald spring, and those that linger longest with us, are the most acceptable. And if the public for whose pleasure these displays are brought together would second the efforts of those who thus cater for public enjoyment the societies in every large town might have their Hyacinth and Chrysanthemum shows. This exhibition was held in the Assembly Rooms, and was a marked success both as regards the extent and quality of the display, and equally so in the crowds of visitors who thronged the spacious rooms of the building. Chrysanthemums in the shape of plants and cut flowers were well represented, a desirable feature in the plants being that most of the exhibitors had not carried the training to such unnatural lengths as often practised. Specimens trained as flat as a pancake, and as much in diameter as the driving wheels of an express railway engine, may exemplify what is possible in cultivation ; but they go further, to show to what extent unnatural distortion may be carried. Here many of the plants were tied with a view to the requisite support, rather than, as often apparent, to exhibit the precision with which the flowers can be arranged. Chrysanthemum growers seem to be so well acquainted with the sorts that answer best for pot specimens, that the varieties staged at any important show are almost a reflex of those to be seen at all the others.

In the class for six large-flowered sorts Mr. Bradner as usual took the lead with a nicely flowered group ; 2d, Mr. H. Scott, 3d Mr. R. B. Cater. Four large-flowered varieties.—1st, Major W. P. Clarke ; 2d, Mr. Lansdown Daubeny. Six Japanese kinds.—1st, Major Clarke ; 2d, Mr. R. B. Cater, who both staged well bloomed plants. Six pompon varieties.—1st, Mr. Bradner ; 2d, Major Clarke. Four pompons.—1st, Mr. H. Scott ; 2d, Mr. R. B. Cater. Single specimen large-flowered Chrysanthemums.—Mr. R. B. Cater was easily 1st here, with a huge example of Peter the Great, 7 feet across, bearing some six hundred of its yellow flowers—it was in the form of a dense bush about 4 feet high and not overtrained ; 2d, Major Clarke.

Six large-flowered Chrysanthemums, in 8-inch pots, trained suitably for a conservatory. — Here, too, Mr. Bradner took 1st honours, staging a well managed half dozen ; 2d, Messrs. Cooling & Son. Three standard Chrysanthemums.—1st, Mr. Bradner, with plants very well bloomed ; 2d, Major Clarke. The class for groups of Chrysanthemums, occupying a space of 12 feet by 6, were quite a feature of the show, Mr. Lansdown Daubeny taking the lead ; 2d, Mr. S. P. Budd ; 3d, Mr. J. W. Brown. Collections of miscellaneous flowering and fine-leaved plants were contributed by Messrs. Cooling & Son, and Mr. W. C. Drummond, who took the prizes in the order of their names.

The Primulas were almost an exhibition in themselves, an immense number being staged, filling the middle of the centre stage of the large room. With twelve singles, six dark and six light, Mr. F. J. Walker was 1st, Mrs. Counsell 2d. Six singles, any colour.—1st, Mr. T. Canning ; 2d, Mr. F. J. Walker. Four double Primulas.—1st, Mr. E. F. Pocock ; 2d, Mrs. Counsell. Six fine-foliaged plants.—1st, Mr. E. E. Bryant ; 2d, Mr. W. C. Drummond. Four fine-foliaged plants.—1st, Mr. R. B. Cater ; 2d, Mr. T. Jolly. Single stove or greenhouse plant, in flower.—1st, Mr. E. E. Bryant, with Bougainvillea glabra, well bloomed ; 2d, Mr. W. H. Mould, staging Impatiens Sultani ; 3d, Mr. T. Jolly, who had a large dense bush of the seldom seen Eupatorium odoratum.

Cut blooms were really well shown, the competitors being numerous, and the flowers in excellent condition. In the classes for large kinds there was enough variety, the deep compact forms being represented as well as the large loose sorts—a desideratum far from general now-a-days at many exhibitions. With twenty-four Mr. Baylis was well in front with a beautiful stand, noticeable in which were splendid flowers of Empress of India, Princess of Wales, Barbara, White Venus, Prince Alfred, Baron Beust, Guernsey Nugget, and Jardin des Plantes ; 2d, Mr. Hobbs ; 3d, Mr. D. C. Powell, both having very good stands. Twelve large-flowered varieties.—1st, Mr. Pethick ; 2d, Mr. J. Waite ; 3d, Mr. W. Fox. Twelve varieties of pompons, shown in threes.—1st, Mr. Jolly ; 2d, Mr. H. Scott. The Anemone sorts were well done. For twelve Mr. W. Pethick had 1st, with beautiful flowers, amongst which were Empress, Louis Bonamy, Acquisition, Fleur de Marie, and Lady Margaret ; 2d, Mr. Baylis. As usual, the Japanese varieties were the most attractive, 1st honours for twelve going to Mr. D. C. Powell, who, along with others, had finely developed blooms of Madame C. Andiguier, Fair Maid of Guernsey, Meg Merrilies, Soleil Levant, Daimio, and Album plenum ; 2d, Mr. Pethick, who also had beautiful flowers. One of the most attractive features we have seen at any exhibition this year were the baskets filled with foliage, green and tinted, to which berries were added or not at the discretion of the exhibitors. Of these there were from twenty to thirty exhibitors, their productions collectively making a charming display, in most cases the baskets being very tastefully arranged. 1st, Miss Pearce ; 2d, Mr. H. Lord ; 3d, Miss Martin. Hand bouquet.—1st, Mr. W. H. Mould ; 2d, Mr. Hookings. Three button-hole bouquets.—1st, Mr. M. Hookings ; 2d, Mr. W. K. Wait. Vase of cut flowers.—1st, Mr. Hookings ; 2d, Miss Annie Turner.

Fruit.—Grapes were shown in excellent condition. With a collection of six dishes of fruit Mr. Nash, gr. to the Duke of Beaufort, took 1st, staging nice Muscat of Alexandria Grapes, and Black Alicante in beautiful order, large bunches, and good berries, splendidly finished ; with these was a good dish of Beurré Diel Pears, a Melon, Medlars, and Red Nonpareil Apples. 2d, Mr. Bannister, gr. to H. St. Vincent Ames, Esq., who also had a nice collection, including Black Hamburgh and Bowood Muscat Grapes. Four bunches of Grapes.—These were well represented, Mr. Nash here also showing Muscat of Alexandria and Black Alicante, both good ; Mr. Bannister, who was 2d, had smaller examples of Black Hamburgh and Muscat of Alexandria, the last-named being unusually fine in colour. Apples were shown in quantity, and nothing could exceed the beautiful condition they were in ; all the leading kinds, both dessert and culinary, were present, remarkable for the intense colour which they put on in this favoured Apple district. Six dishes, dessert.—1st, Mr. Pinder ; 2d, Mr. H. Beavis. Four dishes, dessert.—1st, Mr. E. Hull ; 2d, Mr. H. Taylor. Six dishes, culinary.—1st, Mrs. S. Butler ; 2d, Mr. A. Beavis. Pears likewise were well shown, but in comparatively much less numbers than the Apples. With six dishes, Mr. A. George had 1st, Mr. F. R. Smith 2d. Four dishes of Pears.—1st, Mr. E. Jones ; 2d, Mr. R. B. Cater.

Staines and Egham District.—The second exhibition of this young Society was held in the Literary Institute, Egham, on the 15th inst., but owing to the darkness of the rooms occupied, and their limited area, an otherwise capital display of Chrysanthemums was robbed of its charms, and we can but hope, in the interest of the shows, that the fine Town Hall at Staines will be, henceforth, the only place of exhibition. The groups of plants arranged for effect formed a strong feature, there being eight of these in the competition, the 1st place being taken by Mr. Thatcher, gr. to H. O. Bennett, Esq., Thorpe, whose bank of plants ran from 20 inches in the front up to 6 feet at the back, presenting an unusually large area of bloom and forming a most attractive arrangement. Mr. Springthorpe, gr. to G. H. Palmer, Esq., Egham, was 2d, with a first-rate lot of bloom on his plants ; and Mr. Riddick, gr. to W. Paice, Esq., Egham, came 3d. Trained plants were not largely shown, standards, perhaps, being predominant, and as training goes these were well done and finely flowered. Mr. Riddick had the best four large-flowered kinds, and Mr. Jennett the best pair. Mr. Thatcher's single trained plant was Golden Christine, capitally flowered, though of no great merit, and was placed 1st. Zonal Pelargoniums are usually done well at this show and on this occasion there came a number of richly flowered plants from Mr. Cox, gr. to J. F. Mervielle, Esq., Staines, that well merited the 1st place. Several other lots were staged. Solanums make a pleasing feature, and of these small but finely berried plants came from Mr. D. Challis, gr. to A. F. Govett, Esq., Virginia Water, that well merited the 1st prize, though the other lots were very good. Very fine indeed were the pots of Mignonette shown, the six sent by Mr. Belcher, gr. to Baroness Halkett were some 18 inches in height and full of bloom ; those which took 2d place and came from Mr. Hutchings, gr. to C. Ashby, Esq., Staines, were some 10 inches in height, but dense and compact and covered with bloom. Some good Chinese Primroses came from Mr. Thomas, Englefield Green, whose six plants of the Ruby type were well grown and flowered. Several other lots were also excellent, Mr. Thatcher's lot being specially worthy of notice. Open classes for twenty-four incurved blooms and same of Japanese kinds brought in the first a very good competition. Mr. Hill, gr. to A. Savory, Esq., Chertsey, was 1st, with some capital blooms, though run very close by Mr. Strong, gr., Wellington College, and by Mr. J. Strong, gr. to H. Sweet, Esq., Weybridge, who came 3d. In the Japanese class the same places were held by Messrs. Hill and Strong, the blooms in both cases being similar to those so largely noticed at other shows last week. Mr. Bloomfield, gr. to B. Warwick, Esq., Englefield Green, Mr. Thatcher and Mr. Hutchings had some good incurved blooms in the limited class, but the Japanese flowers were only of moderate quality. In the class for a dozen incurved blooms Mr. Springthorpe was a good 1st, with excellent flowers, Mr. Gray coming 2d, and an easy 1st with twelve Japanese. Some very fine flowers were shown in a special class for prizes offered by the Secretary, Mr. Rawlins, comprising six incurved and six Japanese, two kinds only ; the 1st place was taken by Mr. Riddick with Princess of Wales and Fair Maid ; and Mr. Bloomfield was 2d, with White Empress and Soleil Levant.

Fruit and vegetables were well shown. Some splendid Lady Downe's Grapes, sent not for competition, were put up by Mr. Robinson, Cooper's Hill, as also some fine Muscat of Alexandria and Gros Colmar ; and Mr. Peckham, gr. to A. Sharpe, Esq., Thorpe, had some remarkably fine Alicantes. The best two bunches of black Grapes came from Mr. Craile, gr. to F. Yeo, Esq., Staines—very finely finished Madresfield Court ; Mr. Bloomfield coming 2d with Lady Downe's. Several beautiful lots of Apples were shown, and capital vegetables.

Kingston Chrysanthemum Show.—In addition to the information conveyed to our readers in last week's issue concerning the awards given and the general features of this important suburban show, may be specified the several groups of miscellaneous plants, warm-house and greenhouse kinds, which were arranged in accordance with the schedule requirements. In this class of exhibits 1st prize was awarded to Mr. T. Glover, gr. to W. Evill, Esq., Worcester Court, Worcester Park, whose group consisted mainly of Calanthes, Palms of graceful contour, Ferns, Begonias, Chrysanthemums, and other minor plants, the whole arrangement being done with a light hand and graceful in effect ; 2d, Mr. J. Martin, gr. to — Forder, Esq., Elm Lodge, Surbiton, for a somewhat similarly composed group of Palms, Pandanus, Dracænas, Lycopodiums, &c. ; 3d, Mr. C. Cattrell, gr., Bank Grove Gardens, Kingston. In the class for three trained specimens of the large-flowered incurved varieties, 1st, Mr. Sallow, gr. to J. J. Flack, Esq., Hampton Road. His plants consisted of the sorts L'Isle des Plantes, Fleur d'Hiver, and Prince of Wales, all of them in excellent condition ; 2d, Mr. J. Hoskins, gr. to S. Williams, Esq., The Laurels, with an almost equally good lot of specimens ; 3d, Mr. R. Watson, gr. to J. M'Kostie, Esq. In the class for cut blooms, twelve distinct varieties, 1st, Mr. E. Coombs, gr. to F. A. Brown, Esq., Lawn Bank, Teddington, whose stand consisted of finely finished blooms of Queen of England, John Salter, Golden Queen of England, Alfred Salter, Angeline, Nil Desperandum, Mrs. Heale, Prince Alfred, Golden Beverley, Lady Hardinge, Barbara, and Hero of Stoke Newington ; 2d, Mr. Lyne, Belvedere, who had capital blooms, of which may be specified as very superior, Queen of England, Refulgence, Mr. Bunn, Prince Alfred ; 3d, Mr. Fyfe, gr. to W. F. Dick, Esq., Thames Ditton ; 4th, Mr. R. Watson, gr. to J. M'Kostie, Esq. For six large flowered incurved distinct varieties.—1st, Mr. J. Story, Thames Street, Weybridge, who staged some immense blooms of Golden Empress, Empress of India, Alfred Salter, Mrs. Heale, Cherub, and Princess of Wales ; 2d, Mr. F. A. Benson, gr. to W. H. Roots, Esq., Canbury House, Kingston ; 3d, Mr. Orchard, gr. to J. Galsworthy, Esq. The above-mentioned blooms consisted of such as would be recognised as first-class ones in any show. For six blooms of an incurved variety.—1st, Mr. Molyneux, who showed a very fine Princess of Wales in his usual well-finished style ; 2d, Mr. Strong, Thames Street, Weybridge, with Empress of India ; 3d, Mr. T. Benson. The awards made to those who had never taken a Chrysanthemum prize before, were, 1st, Mr. Bates, gr., Poulet Lodge,

Twickenham, who had excellent blooms, notably Queen of England, Alfred Salter, Nil Desperandum; 2d, Mr. Hoskins; 3d, Mr. H. C. Lambert, gr. to W. Truefitt, Esq., Percy House, Teddington. The competition in the class for twelve Japanese varieties was an exceedingly interesting one, the blooms shown being, if anything, larger than in the class for twenty-four, and very varied, many of them of newer introduction. 1st, Mr. Molyneux; 2d, Mr. J. Childs, gr. to W. Slade, Esq., Cleygate; 4th, Mr. J. Burns, gr. to H. A. Rigg, Esq., Hersham. For six distinct varieties of Japanese blooms.—1st, Mr. Orchard, with Triomphe de Châtelet, Madame C. Andiguier, Criterion, Mons. Ardenne, Père Delaux, Madame Lacroix; 2d, Mr. T. Benson; 3d, Mr. D. Gibbon. In the competition with one Japanese variety only, 1st, Mr. Molyneux, with Madame C. Andiguier; 2d, Mr. Becket, with Boule d'Or; 3d, Mr. Woodgate, with Madame B. Rendatler. For those who had never taken a prize in a Chrysanthemum show there was a class for six Japanese varieties in which Mr. Munroe, Cambridge House, was awarded 1st prize; 2d, Mr. W. Bates; 3d, Mr. H. C. Lambert. It is fair to state, that although the samples shown were beaten by many blooms in the show, they were very fair samples of careful cultivation. In the class for twelve Anemone-flowered varieties, in not less than six sorts, Mr. Molyneux was 1st; 2d, Mr. J. Lyne; 3d, Mr. Woodgate. For twelve bunches of pompon Chrysanthemums, distinct varieties.—1st, Mr. Clark, gr. to A. Nagle, Esq., Bijou Cottage, Kingston; 2d, Mr. Lyne; 3d, Mr. Becket, gr. to J. P. Currie, Esq., Sandown House, Esher. The exhibits of twelve bunches Anemone pompons, in not less than eight varieties, were very bright samples of these brilliant little flowers. 1st, Mr. Becket; 2d, Mr. T. A. Benson; 3d, Mr. J. Moorman, gr. to Miss Christy, Combe. There were some of the plants which are so commonly used for dinner-table decorations placed in the centre of the long tables on which the cut blooms were displayed, making an artistic and natural setting and foil to these. The 1st prize was awarded to Mr. E. Becket; 2d, Mr. Munroe; 3d, Mr. J. Lyne, for nine plants. Mr. Buss took 1st in the class for six. There were some small lots of Chinese Primulas, six very well flowered, as were also berried plants and Cyclamen.

In the fruit classes, 1st, Mr. Attrell, with four dishes of Apples, two dessert and two culinary, with excellent samples; 2d, Mr. T. Glover. In the competition for the four best dishes of Pears, 1st, Mr. G. King, who showed very fair samples of Beurré Diel, Duchesse d'Angoulême, Comte de Flandres, and Catillac; 2d, Mr. C. Orchard.

In the purely amateur classes entries were not very numerous, nor particularly fine, when compared with the productions shown in the open ones. For twelve Chrysanthemum blooms, in not less than six varieties, 1st, Mr. G. Smith, St. James' Road, Kingston; 2d, Mr. W. Minett, Gibbon Road, Kingston; 3d, Mr. Chadwick, Lawn Cottage, Berrylands. In the class for six varieties Mr. R. Burton and Mr. W. J. Lemon, of the *Surrey Comet* Office, were respectively 2d and 3d. For six Japanese varieties, of which medium-sized blooms were shown but of new kinds.—1st, Mr. H. A. Rolt; 2d, Mr. Minett; 3d, Mr. Chadwick. In this section, six bunches of pompons, three spikes each, the prizes were taken by Mr. W. G. Smith, 1st; Mr. W. J. Lemon 2d, Mr. R. Burton, Canbury Park Road, 3d. A few entries were made by cottagers, Mr. R. Boss taking 1st prizes in the class for six Chrysanthemums in pots, and for the single specimen plant; and Messrs. M. Mendell, R. Press, and A. Pacey for twelve blooms of Chrysanthemums of any section, excluding pompons; and for six blooms by Mr. Grist 1st, and Mr. Keene 2d. For six bunches of pompons shown in the usual way, 1st, Mr. Minett; 2d, Mr. A. Pacey; 3d, Mr. R. Press.

Prizes were offered for table decorations, open to ladies only. The competition was not severe, as but few were shown, and those that were, composed chiefly of wild flowers, twigs of hardy shrubs and trees, with a suitable setting of autumn tinted foliage, seemed to please the fair judges the best. The 1st prize was awarded to Mrs. Hardy, and the 2d to Mrs. Drewett, who also took 1st and 2d prizes in the competition for table decorations where cut flowers and foliage were used only. Mrs. Hardy was also the winner of the best buttonhole bouquet; 2d, Mr. C. Orchard; 3d, Mr. M'Kostie. The 1st prize for the best arrangement of Chrysanthemums and foliage, in which cottagers only were permitted to compete, was awarded to Mr. Press. Messrs. Jackson, of Kingston, showed their new Chrysanthemum Mdlle. Lacroix, a fine white Japanese variety that had previously obtained a First-class Certificate from the Floral Committee of the Royal Horticultural Society at South Kensington on November 1. The flower was much admired for its size and the purity of its colouring.

Clonmel Root, Fruit, and Flower Show.—This was held on the 14th inst. in the spacious skating rink and the grounds adjoining, and both in the variety and superiority of the exhibits exceeded anything of the kind hitherto held here. Lord Lismore (Mr. Frazer, gr.) got the Silver Cup for an admirably well-grown collection of about forty different garden vegetables; Captain Moore, Barne, being 2d; and Winston Dugare, Esq., 3d. The collections of fruit contained some fine varieties of Grapes, Apples, and Pears, the prizes going, 1st, to Mrs. Thos. Malcomson (Mr. Crehan, gr.), and Lord Lismore 2d. In the extra class, not for competition, Messrs. T. Phelan and F. Clibborn had select stands of Chrysanthemums; and D. Saunders, Esq., Friar's Walk, Cork, had seventy-two varieties of Chrysanthemums (very Highly Commended), eighty-four distinct varieties of fruit, and fifty of stove and greenhouse cut flowers. The roots in the gentlemen's and farmer's classes were large and well-grown, while grain, poultry, and cottagers' flowers and home-made produce were well represented. The writer showed, not for competition, specimens of Chou de Burghley, and was Highly Commended. *W. J. Murphy.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, NOVEMBER 21, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degrees of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Nov.	In.	In.	°	°	°	°	°		°		In.
15	29.79	+0.03	41.9	29.0	12.9	35.6	− 5.7	31.7	84	W.; W.S.W	0.00
16	29.60	−0.15	48.5	38.0	10.5	44.0	+ 1.8	39.4	83	W.; W.S.W	0.11
17	29.57	−0.17	49.5	34.5	15.0	41.9	− 0.1	39.2	92	S.S.W.; W.S.W	0.16
18	29.77	+0.05	49.6	33.8	15.8	42.4	+ 0.5	37.1	82	N.W.	0.00
19	29.79	+0.09	50.0	40.0	10.0	44.5	+ 2.7	36.7	80	S.W.; S.S.W.	0.02
20	29.81	+0.11	47.5	38.0	9.5	43.1	+ 1.4	37.2	79	W.;	0.02
21	29.77	+0.08	51.7	37.5	14.2	45.5	+ 3.8	37.1	73	W.SW.; W.N.W	0.02
Mean	29.73	−0.01	48.4	35.8	12.6	42.6	+ 0.6	36.9	82	W.S.W	0.33

Nov. 15.—Fine, cold day; fog in morning. Dull night; a few drops of rain.
— 16.—Rain in early morning. Fine day and night.
— 17.—Fine morning till 8.45 A.M.; slight rain. Heavy shower from 1.30 P.M. to 3 P.M. Fine, clear night.
— 18.—Fine day; cloudy from 4 P.M; rain from 7.30 P.M. occasionally. The maximum temperature of this day took place at midnight.
— 19.—Dull morning; rain from 8.45 A.M. till 9.30 A.M.; bright at 9.45 A.M. Fine clear day and night.
— 20.—Fine and bright at times, mostly overcast; rain falling from 3 P.M. to 4 P.M. Fine clear night. Lightning at 5.30.
— 21.—Rain in early morning, and showers throughout the day. Fine night; windy.

LONDON: *Atmospheric Pressure.*—During the week ending November 17, the reading of the barometer at the level of the sea increased from 29.77 inches at the beginning of the week to 29.83 inches by 9 A.M. on the 11th, decreased to 29.72 inches by midnight on the same day, increased to 30.19 inches by midnight on the 13th, decreased to 29.68 inches by 9 A.M. on the 16th, increased to 29.90 inches by midnight on the same day, and was 29.77 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.91 inches, being 0.31 inch higher than last week, and 0.04 inch below the average of the week.

Temperature. — The highest temperature in the shade in the week was 49°.5, on the 17th; the highest reached on the 15th was 41°.9. The mean of the seven high day temperatures was 45°.1.

The lowest temperature was 29°, on the 15th; on the 16th the lowest was 38°. The mean of the seven low night temperatures was 32°.6.

The greatest range of temperature in one day was 15°, on the 17th; and the smallest was 9°.6, on the 11th. The general mean was 12°.5.

The mean temperatures were—on November 11, 40°.6; on the 12th, 36°.6; on the 13th, 37°.7; on the 14th, 37°.2; on the 15th, 36°.6; on the 16th, 44°; and on the 17th, 41°.9; and these were all below their averages (excepting the 16th, which was 1°.8 above) by 2°.6, 6°.3, 5°, 5°.3, 5°.7, and 0°.1 respectively.

The mean temperature was 39°.2, being 5° lower than last week, and 3°.3 lower than the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 81°.5, on the 17th. The mean of the seven readings was 70°.6.

The lowest reading of a thermometer with its bulb placed on short grass was 22°.5, on the 14th and 15th. The mean of the seven readings was 25°.6.

Rain.—Rain fell on the 16th and 17th, to the amount of 0.27 inch.

ENGLAND: *Temperature.*—During the week ending November 17 the highest temperatures were 53°.2 at Truro, 52°.7 at Plymouth, and 51°.1 at Brighton; the highest at Bradford was 45°, at Bolton 45°.1, and at Wolverhampton 45°.7. The general mean was 48°.

The lowest temperatures in the week were 21° at Nottingham, 22°.5 at Bristol, and 22°.8 at Cambridge; the lowest at Liverpool was 32°.6, at Plymouth, 32°.5, and at Brighton 31°.1. The general mean was 27°.3.

The greatest ranges in the week were 27°.5 at Bristol, 27°.2 at Truro, and 27°.2 at Cambridge; the smallest ranges were 15°.4 at Liverpool, 15°.8 at Bradford, and 16°.5 at Preston. The general mean was 20°.7.

The mean of the seven high day temperatures was highest at Truro, 52°, at Plymouth 49°, and at Cambridge 46°.7; and was lowest at Preston, 42°.5, at Bradford 42°.7, and at Leicester 42°.9. The general mean was 45°.1.

The mean of the seven low night temperatures was highest at Truro, 38°, at Plymouth 35°.7, and at Liverpool 35°.7; and was lowest at Wolverhampton, 27°.4, at Nottingham 29°.7, and at Leicester 30°.3. The general mean was 32°.9.

The mean daily range of temperature was greatest at Wolverhampton, 15°.7, at Cambridge 14°.9, and at Bristol 14°.2; and was least at Liverpool, 9°.4, and at Bradford and Preston 9°.5. The general mean was 12°.2.

The mean temperature was highest at Truro, 44°.6, at Plymouth 42°, and at Liverpool 40°; and was lowest at Wolverhampton, 34°.8, at Leicester 36°.2, and at Nottingham 36°.3. The general mean was 38°.6.

Rain.—The largest falls were—1.73 inch at Truro, 1.29 inch at Wolverhampton, and 1.25 inch at Leicester; the smallest falls were—0.27 inch at Blackheath, 0.28 inch at Bradford, and 0.30 inch at Bristol. The general mean fall was 0.70 inch. Rain fell on six days at Hull.

SCOTLAND: *Temperature.*—During the week ending November 17 the highest temperature was 46°.6, at Dundee; at Glasgow the highest in the week was 45°.2. The general mean was 46°.

The lowest temperature in the week was 19°.5, at Paisley; at Aberdeen the lowest temperature was 31°.9. The general mean was 27°.2.

The mean temperature was highest at Aberdeen, 39°.7; and lowest at Glasgow, 34°.4. The general mean was 37°.4.

Rain.—The largest fall was 0.87 inch at Aberdeen; and the smallest was 0.05 inch at Edinburgh. The general mean fall was 0.30 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

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

KAY'S DENDROMETER.—Mr. Fowler gives very high praise to this as an efficient instrument for measuring trees. Where can it be procured? *Q.*

THE CORSICAN PINE (PINUS LARICIO).—Will some of your correspondents who have had experience with planting this tree on a large scale kindly report the results, and oblige. *X.*

Answers to Correspondents.

APPLE GROWN AT BELVOIR: *W. J.* The Apple grown in the orchards at Belvoir Castle under the name of Herefordshire Pearmain is not the true Herefordshire Pearmain, but very closely resembles the variety known in Sussex as the Forge Apple—if, indeed, it be not that sort.

BOOKS: *Vitis. The Grape Vine*, by Mr. A. F. Barron, Royal Horticultural Society, Chiswick.

CATTLEYA SUPERBA: *J. L.* If you will grow it on a block, in a warm house, and keep it always moist, but not too wet when growing, you will succeed admirably.

CHRYSANTHEMUM: *J. H.* Your sport from Mrs. George Rundle is not a poor flower, being incurved and primrose-yellow in colour; but it is not so good as we already have in yellows, being too flat. The new Bendigo beats it hollow.

FOX COVERT: *R. G. F.* Gorse may be sown or planted, but in either case a good deep cultivation of the soil should be undertaken, during the winter, and, if poor, manure should be added to insure vigorous growth. The seeds may either be put into drills, or sown broadcast and harrowed-in, in the proportion of 6 lb. to the acre. If planted with strong stuff, it should not be put in nearer than 3 feet apart, for if too thickly planted the Gorse would grow quickly, certainly, and a great quantity of the plants would die from overcrowding—and as that would happen in an irregular fashion unsightly bare patches would be visible for some few years; 4840 plants at this distance would be required per acre, and Thorns at 20 feet apart would eventually meet over the whole surface; although many years would elapse before they did so. At the latter distance you would require about 108 per acre.

NAMES OF FRUIT: *B. B. Apples:* 2, Blenheim Orange; 3, Bess Pool; 4, Aromatic Russet; 5, Blenheim Orange. *Pears:* 1, Beurré Clairgeau; 6, Hughes' Bergamot.—*T. Marriott.* 2 and 3, Cox's Orange Pippin; 4, Blenheim Orange; 5, Margil; 6, King of the Pippins; 7, Cellini.—*H.* 1, red Apple, not known; 2, yellow, a small Emperor Alexander. — *Bell & Son.* 8, King of the Pippins; 9, Red Autumn Calville; 10, Warner's Pippin; 12, Warner's King. The one

named Aromatic Russet is probably true.—*Cockell, Attleboro.* 1, Cellini; 2, Dumelow's Seedling; 3, Colonel Vaughan; 4, Margil; 5, Scarlet Nonpareil; 6, Braddick's Nonpareil.

NAMES OF PLANTS: *J. W. J.* Rhamnus catharticus. —*J. W. E.* Send a characteristic shoot of each, and we will try to name them for you. Hollies cannot be safely identified by single leaves.—*C. W. D.* Selaginella Kraussiana, commonly called S. denticulata in gardens.

ORCHID-GROWING IN CENTRAL AMERICA: *J. L.* In the numbers for November 3 and in the present issue.

PINE GROWING: *J. W. The Culture of the Pine-Apple*, by Mr. D. Thomson, published by Blackwood & Sons.

SEEDLING PEAR: *J. Henderson.* This appears to be a distinct variety. In form it resembles Beurré Rance, whilst in the colour of the skin and the texture of the flesh it more nearly resembles Beurré Diel. It is, however, sweeter and better flavoured than that variety usually is, and is well worthy of cultivation.

TUBEROSES: *A Subscriber.* You can hardly succeed in having these in bloom all the year. By starting the bulbs as soon as procurable in early autumn in slight bottom-heat, and in a temperature at the beginning of not more than 50° Fahr. by night, with a 10° rise by day, blooms may be obtained in late winter. Slight bottom-heat would mean from 80° to 85°. The bulbs should be potted in a fairly moist compost of sandy loam in which some well rotted dung is mixed, and evaporation of moisture from the soil should be prevented by covering the pots either with some of the plunging material or with cocoa-nut fibre, so that if possible no water need be given before they push up the foliage. Afterwards a slight increase of heat may be given; bottom-heat is better dispensed with gradually, and the plants should be kept as close to the glass as is consistent with safety. Bulbs may be potted successiooally to keep up the display. In early summer-time bulbs planted on moderately warm hot-beds, such as have carried early crops of saladings, or have been used for seed raising, and which have been turned over and the heat renewed with a little fresh material. When treated in this way they grow stocky, and produce abundance of flowers of good substance. Planted singly in 48-sized pots, and sunk in such beds, they do very well, and are easily managed, requiring the lights to be kept over them only till fairly started, when these adjuncts may be taken away.

CATALOGUES RECEIVED.

MAURICE YOUNG, Milford, near Godalming — Hardy Ornamental Trees and Shrubs, Roses, Fruit Trees, &c.

WOOD & INGRAM, Huntingdon — General Nursery Stock.

JACOB-MAKOY & Co., Liége, Belgium — Stove and Greenhouse Plants, Orchids, &c.

W. LEIGHTON, 89, Union Street, Glasgow — Forest Trees, Conifers, Roses, Fruit Trees, &c.

W. DRUMMOND & SONS, Stirling—Forest, Ornamental, and Fruit Trees, &c.

THOMAS CRIPPS & SON, Tunbridge Wells—Wholesale Catalogue of Nursery Stock.

FRED. BURVENICH, Gentbrugge, near Ghent, Belgium —Hardy Trees and Shrubs, Fruit Trees, &c.

THOMAS KENNEDY & Co., Dumfries — Forest, Fruit, and Ornamental Trees.

COMMUNICATIONS RECEIVED.—J. Weeks & Co.—D. T. F.—Enquirer.—W. P.—Subscriber.—James Pulham & Son. (We were not aware of the fact or would have mentioned it.)—W. C. L.—W. C. B.—W. Chitty.—E. G. H. & Son.—J. D.—W. R.—E. C. H. (next week.).—E. M.—F. S.—E. R.—G. N.—E. R., St. Petersburg.—P. Wolkenstein.—R. H.—F. W. B.—Prof. Tanner.—Asa Gray.—C. A.—Baron v. Mueller.—E. B.

Markets.

COVENT GARDEN, November 22.

GRAPES in full supply; prices still low. Apple market as last week. Kent Cobs dull. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve ..	1 0–	4 0	Lemons, per case ..	15 0–	25 0
Cobs, per 100 lb...	150 0–	..	Pears, French, doz.	1 6–	4 0
Figs, per dozen ..	1 0–	..	Pine-apples, Eng., lb.	2 0–	..
Grapes, per lb. ..	1 0–	3 0	— St. Michael's, each	4 0–	8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Globe, per doz. ..	..	3 0– 5 0	Lettuces, Cabbage, per dozen ..	..	1 0– ..
— Jerusalem, bush.	4 0–	..	— Cos, per dozen ..	1 6–	..
Beans, French, lb. ..	1 0–	..	Mint, green, bunch ..	0 6–	..
Beet, per doz. ..	1 0–	..	Mushrooms, p. baskt.	1 0–	2 0
Cabbages, per doz. ..	1 0–	2 0	Onions, per bushel ..	3 6–	..
Carrots, per bun. ..	0 4–	0 6	— Spring, per bun.	0 6–	..
Cauliflowers, English, dozen ..	..	2 0– 3 0	Parsley, per bunch ..	0 4–	..
Celery, per bundle ..	1 6–	2 6	Radishes, per doz. ..	1 6–	..
Cucumbers, each ..	0 4–	0 8	Salsafy, per bundle ..	0 8–	..
Endive, English, per dozen ..	..	1 0– ..	Seakale, per punnet	2 6–	..
Garlic, per lb. ..	0 6–	..	Small salading, pun.	0 4–	..
Herbs, per bunch ..	0 2–	0 4	Spinach, per bushel	3 6–	..
Horse Radish, bund.	3 0–	4 0	Tomatos, per lb. ..	0 9–	1 0
			Turnips, new, bun.	0 4–	..

POTATOS.—Kent Kidneys, £4 to £4 10s. per ton; do., Regents, £3 10s. to £4 10s.; Champions, £3 10s. to £3 15s. per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	12 0–	24 0	Ferns, in variety, per dozen ..	4 0–	18 0
Arbor-vitæ (golden), per dozen ..	6 0–	18 0	Ficus elastica, each	1 6–	7 0
— (common), dozen	6 0–	12 0	Foliage Plants, various, each ..	2 0–	10 0
Begonias, per doz. ..	6 0–	12 0	Fuchsias, per dozen	4 0–	9 0
Bouvardias, doz. ..	12 0–	18 0	Marguerite Daisy, per dozen ..	8 0–	12 0
Chrysanth., per doz.	6 0–	18 0	Myrtles, per doz. ..	6 0–	12 0
Coleus, doz. ..	2 0–	6 0	Palms in variety, each ..	2 6–	21 0
Cyclamen, per dozen	9 0–	18 0	Pelargoniums, scarlet, per dozen	4 0–	9 0
Dracæna term. doz.	30 0–	60 0	Poinsettias, per doz.	18 0–	24 0
— viridis, per doz.	12 0–	24 0	Solanums, per dozen	8 0–	15 0
Epiphyllum, per doz.	18 0–	30 0	Tulips, doz. pots ..	10 0–	12 0
Erica, various, doz.	9 0–	24 0			
Euonymus, various, per dozen ..	9 0–	18 0			
Evergreens, in var., per dozen ..	6 0–	24 0			

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilon, 12 bunches	2 0–	4 0	Marguerites, 12 bun.	4 0–	6 0
Arum Lilies, 12 blms.	4 0–	8 0	Mignonette, 12 bun.	2 0–	6 0
Azalea, white, 12 spr.	1 0–	2 0	Narcissus (Paper-white) ..	2 0–	4 0
Bouvardias, per bun.	1 0–	1 6	Pelargoniums, 12 spr.	1 0–	1 6
Camellias, per doz.	2 0–	5 0	— zonal, 12 sprays	0 3–	0 6
Carnations, 12 blms.	1 0–	3 0	Poinsettia, 12 blooms	6 0–	12 0
Chrysanth., 12 blms.	0 6–	2 0	Primula, double, bun.	1 0–	1 6
— 12 bunches ..	4 0–	9 0	— single, 12 bun. ..	6 0–	9 0
Cyclamen, 12 blooms	0 3–	0 6	Roses (indoor), doz.	2 0–	6 0
Epiphyllum, 12 blms.	0 6–	1 0	— coloured, doz. ..	3 0–	8 6
Eucharis, per doz. ..	4 0–	6 0	Stephanotis, 12 spr.	6 0–	8 0
Gardenias, 12 blms.	5 0–	9 0	Tropæolum, 12 bun.	1 0–	2 0
Gladioli, 12 spikes ..	1 0–	3 0	Tuberoses, per doz.	2 0–	3 0
Heliotropes, 12 sp. ..	0 6–	1 0	Tulips, 12 blooms ..	2 0–	3 0
Hyacinths (Roman), 12 sprays ..	1 6–	2 6	Violets, 12 bunches	1 0–	1 6
Lapageria, white, 12 blooms ..	3 0–	6 0	— French, per bun.	1 6–	2 0
— red, 12 blooms ..	1 0–	3 0	— Parme, per bun.	4 0–	5 0
Lilac, white Fr., bun.	8 0–	10 0	Wallflower, 12 bun.	3 0–	4 0
Lily-of-Valley, spray	0 6–	1 0	White Jasmine, per bunch ..	0 6–	1 0
— 12 sprays ..	8 0–	12 0			

SEEDS.

LONDON, *Nov.* 21.—There is now a fair trade passing in farm seeds. Red Clover, following the advance in American and Continental markets, is again dearer. Alsike and white continue exceedingly scarce. In Trefoil the tendency is upwards. Tares are neglected. More favour is shown towards imported Italian. The increased rates demanded for Canary seed stop business therein. Hemp seed is easier. Choice Blue Peas are now getting into narrow compass. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday sales of Wheat were difficult to effect, and in some cases easier terms were conceded, though quotations were not currently altered for either English or foreign. Flour, with a slack sale, tended in favour of buyers. Malting Barley was rather lower for second qualities; grinding descriptions steady in value, but a slow sale. Beans and Peas were firm and unchanged. Flat Maize was rather dearer on the week. Common Russian Oats were 3*d.* easier, and other grades unaltered.—On Wednesday trade was exceedingly quiet, and the demand very dull, prices tending in favour of buyers, though sales were not pressed at any quotable decline. The same remarks will apply to flour. Barley was a slow sale, at unaltered rates. Beans and Peas were quiet and unchanged. Flat Maize was firmly held. Oats were quiet, but not appreciably altered in value.—Average prices of corn for the week ending Nov. 17:—Wheat, 40*s.* 3*d.*; Barley, 33*s.* 4*d.*; Oats, 19*s.* 11*d.* For the corresponding period last year:—Wheat, 40*s.* 8*d.*; Barley, 34*s.* 4*d.*; Oats, 20*s.* 6*d.*

CATTLE.

At the Metropolitan Market on Monday, with full supplies, the beast trade was dull. Choice qualities maintained their value from scarcity, but middling descriptions were depressed. Sheep barely supported the rates of that day week. Supply was larger, and Canadian and Danish sold at 5*s.* 4*d.* to 6*s.* 2*d.* The calf market was slack. Quotations:—Beast, 4*s.* to 5*s.*, and 5*s.* 4*d.* to 6*s.* 2*d.*; calves, 4*s.* 8*d.* to 6*s.* 6*d.*; sheep, 5*s.* 6*d.* to 6*s.*, and 6*s.* 6*d.* to 7*s.* 2*d.*; pigs, 4*s.* to 4*s.* 8*d.* —Thursday's trade was quiet. Both in beasts and sheep sales progressed slowly, but the quotations for prime breeds ruled firm. Calves and pigs were quiet.

POTATOS.

The Borough and Spitalfields Markets reports state that there was a good supply on offer, but demand dull. Quotations:—Magnum Bonums, 100*s.* to 110*s.*; Regents, 100*s.* to 110*s.*; Champions, 80*s.* to 90*s.*; Roses, 80*s.* per ton.—Importations into London during the past week:—16,115 bags from Hamburg, 20 Harlingen, 3002 Bremen, 46 Ostend, 662 Odessa, and 4146 Stettin; 213 tons Roscoff, 80 Pontrieux, and 56 tons Barfleur; 3 sacks St. Nazaire, 105 Boulogne, 117 bales 3 casks and 4 baskets from Rotterdam.

COALS.

The following are the prices current at market during the week:—Bebside West Hartley, 15*s.* 3*d.*; East Wylam, 17*s.*; Walls End—Original Hartlepool, 16*s.* 6*d.*; Lambton, 18*s.* 6*d.*; Wear, 17*s.*; Hulam, 17*s.* 3*d.*; Thornley, 18*s.*; Hetton, 19*s.*; Hetton Lyons, 17*s.*; Tees, 19*s.*

Government Stock.—Consols closed on Monday at 101¾ to 101⅞ for both delivery and the account. Tuesday's figures were 101⅜ to 101¾ for delivery, and 101 11/16 to 101 13/16 for the account. The final quotations of Wednesday and Thursday were 101¾ to 101⅞ for delivery, and 101 13/16 to 101 15/16 for the account.

To the Trade.

SEEDLING FOREST TREES, &c.—The Subscribers will have pleasure in sending a Copy of their TRADE NURSERY LIST, on application.
W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

To the Trade.

CUT ROMANS, 16*s.* per 100. Cash with order.
EDWARD CARR, Nurseries, 25, Aughton Road, Birkdale, Southport.

TREES and SHRUBS. 100,000 Hardy HEATHS, nice plants, suitable for planting on banks and mounds. Can be supplied in 20 or 30 varieties, at 4*s.* per dozen, 25*s.* per 100, or £10 per 1000.
LARCH, 2 to 3 feet, 21*s.* per 1000; 2½ to 3½ feet, 23*s.* per 1000; 3 to 4 feet, 25*s.* per 1000; 3½ to 4½ feet, 30*s.* per 1000.
FIR, Scotch, 1 to 1½ foot, 18*s.* per 1000; 1½ to 2 feet, 27*s.* per 1000.
CEDRUS DEODARA, 2 to 2½ feet, 12*s.* per dozen, 90*s.* per 100; 2½ to 3 feet, 24*s* per dozen, 160*s.* per 100; 3 to 4 feet, 30*s.* per dozen, 230*s.* per 100; 3½ to 4½ feet, 36*s.* per dozen, 275*s* per 100—beautiful plants, having been recently transplanted.
RHODODENDRONS, Hybrids, 9 to 15 inches, 27*s.* per 100, or 250*s.* per 1000; 12 to 18 inches, 32*s.* per 100, or 300*s.* per 1000; 15 to 20 inches, 42*s.* per 100; 1½ to 2 feet, 50*s.* per 100.
CATALOGUES, containing other Evergreens and Flowering Shrubs, may be had on application to
JAMES SMITH AND SONS, Darley Dale Nurseries, near Matlock.

Order at Once.

THE BEST PEAS for FRAMES or FORCING.
LAXTON'S MINIMUM, the earliest and dwarfest white wrinkled Pea; height 6 inches. Price 2*s.* 6*d.* per half-pint.
LAXTON'S WILLIAM HURST, the most prolific and finest podded dwarf early blue wrinkled variety; height 1 foot. Price 3*s.* 6*d.* per half-pint.
THOMAS LAXTON, Seed Grower, Bedford, and all Seedsmen.

JOHNSTONE'S ST. MARTIN'S RHUBARB.
Strong Roots, 1*s.* each, 9*s.* per dozen.
We have tried all sorts of Rhubarb, and have found none to surpass, if even to equal "Johnstone's St. Martin's"—it is the paragon of excellence for forcing, or for outdoor culture. Trade Price, and Copy of TRADE NURSERY LIST, may be had on application.
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GARDEN REQUISITES.
COCOA-NUT FIBRE REFUSE.
4*d.* per bushel; 100 for 25*s*; truck (loose, about 2 tons). 40*s.*; 4-bushel bags, 4*d.* each.
LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s*; sacks, 4*d.* each.
BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks 22*s.*; sacks, 4*d.* each.
COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* per half ton, 26*s.* per ton; in 2 bushel bags, 4*d.* each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1*s.* per bushel.
SPHAGNUM MOSS, 8*s.* 6*d.* per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Free Price LIST.—H. G. SMYTH, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

COCOA-NUT FIBRE REFUSE, best quality, as supplied to the principal Nurserymen and Nobility, 1*s.* per Bag; 15 Bags, 14*s.*; 30 Bags, 25*s.*, sent to all parts; Truck-load, 30*s.*, free to rail. Best LOAM and PEAT.
A. FOULON, 32, St. Mary Axe, London, E.C.

COCOA NUT FIBRE REFUSE, newly made, as supplied to the Royal Horticultural Society and principal Nurserymen in England, in sacks at 1*s.* 3*d.* each, or 15 sacks, 18*s.*; 30 sacks, £1 5*s.*, sacks included. Truck-load, loose, 33*s.*; fifteen bags or more and truck-load free on to rail. Post-office order or cheque with all orders will oblige. Established 1872—J. STEVENS AND CO., "Greyhound" Yard, and 132, High Street, Battersea, S.W.

PEAT, for Rhododendrons, &c., of excellent quality, also the finest Yellow Fibrous LOAM, Light or Close, from rich forest pasture land, in trucks of 4 tons, 48*s.* each Selected PEAT, 3*s.* per sack. SILVER SAND and LEAF MOULD, 8*d.* per bushel. Sacks, 6*d.* each. Remittance with order. B. LAMBERT, Ringwood.

12-oz. Sample Packets, free by post, 12 stamps.
FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6*s.* per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15*s.* per ton per Truck. Sample Bag, 5*s*; 5 Bags, 22*s.* 6*d.*; 10 Bags, 45*s.* Bags included. Fresh SPHAGNUM, 10*s.* 6*d.* per Bag. SILVER SAND, Coarse or Fine, 52*s.* per Truck of 4 tons. Red Sandstone ROCKWORK, £5 per Truck of 4 tons. GRAVEL, good colour, 25*s.* per Truck of 6 tons.
WALKER AND CO., Farnborough Station, Hants.

EUREKA!!! INSECTICIDE, prepared by WILLIAM SMITH, Chemist, Edinburgh. In Bottles, 1*s.*, 2*s.*, and 3*s.* 6*d.* each. 7*s.* 6*d.* per Gallon. Special quotations for large quantities.
TESTIMONIAL.
"*Clovenfords, by Galashiels, N.B., July* 25, 1883.—Mr. Smith: Dear Sir, we have now tried your Insecticide on all the Insects we can find on any of our Plants, including Orchids, and used as directed by you, we find it instant destruction to them all, while it neither stains nor injures the tenderest leaf. We shall in future use no Fir Tree Oil or other Insecticide but yours.—We are, yours truly, WM. THOMSON AND SONS."
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To His Royal Highness the Prince of Wales.

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MOISTENS IN HEAT. HOLDS HEAT IN COLD WEATHER.

Terms, strictly cash with order. Prices as follows:—Sacks, 1s. 6d. each; 10 sacks, 13s.; 15 sacks, 18s.; 20 sacks, 23s.; 30 sacks, 30s. (all sacks included). Truck-load, free on rail, £2. Limited quantities of SPECIAL QUALITY, Granulated, in sacks only, 2s. 6d. each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from the Manufacturers, **CHUBB, ROUND & CO.,**
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LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), LIMITED,

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and Sold by them and all Nurserymen and Seedsmen.

This is the Manure used to produce the splendid Grapes growo by Messrs. WM. THOMSON & SON, Clovenfords.

For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

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PEAT, LOAM, SILVER SAND,
COCOA-NUT FIBRE REFUSE, TOBACCO CLOTH, PAPER and ROPE, &c.

Superior quality, at exceptionally low prices.

PEAT, best Black Fibrous, from 4s. 6d. per sack.
PEAT, best Brown Fibrous, from 5s. per sack.
PEAT, specially selected for Orchids, from 6s. per sack.
LOAM, Yellow Fibrous, 1s. per bushel.
LEAF MOULD, best, 1s. per bushel.
PEAT MOULD, 1s. per bushel.
SILVER SAND, Coarse, 1s. 6d. per bushel.
RAFFIA FIBRE, best, 9d. per pound.
TOBACCO PAPER, CLOTH, and ROPE, from 6d. per pound.
COCOA-NUT FIBRE REFUSE, 1s. 6d. per bag; per truck-load of about 2 tons, 35s.
SPHAGNUM MOSS, 4s. 6d. per bag.
VIRGIN CORK, 18s. per cwt.

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SOLUBLE FIR TREE OIL INSECTICIDE. For destroying ALL INSECTS and PARASITES that infest Trees and Plants, whether at the Roots or on the Foliage. Kills all Vegetable Grubs, Turnip Fly, &c. Cures Mildew and Blight. Cleans Grapes from Mealy Bug, &c., and makes a good Winter Dressing. Of all Seedsmen and Chemists, 1s. 6d., 2s. 6d., 4s. 6d. a bottle. Per gallon 12s. 6d., or less in larger quantities. Maker, E. GRIFFITHS HUGHES, Manchester. Wholesale from HOOPER & CO., CORRY, SOPER, FOWLER & CO., C. E. OSMAN & CO., and from all the London Seed Merchants and Wholesale Patent Medicine Houses. New York: RÖLKER & SONS.

GARDEN REQUISITES.

PEAT, LOAM, SILVER SAND,
PREPARED COMPOST, RAFFIA FIBRE,
TOBACCO CLOTH, &c.

Quality the Best in the Market.

(All Sacks included.)

PEAT, best brown fibrous .. 4s. 6d. per sack; 5 sacks for 20s.
" best black fibrous .. 3s. 6d per sack; 5 sacks for 15s.
" extra selected Orchid .. .. 5s. 0d. "
LOAM, best yellow fibrous .. .. } 1s. per bushel (sacks included).
PREPARED COMPOST, best .. .. }
LEAF MOULD .. .. }
PEAT MOULD .. .. }
SILVER SAND (coarse) .. .. 1s. 3d. per bushel.
RAFFIA FIBRE, best only .. .. 10d. per lb.
TOBACCO CLOTH, finest imported .. 8d. per lb., 28 lb. 18s.
" PAPER, finest imported speciality 8d. per lb., 28 lb. 18s.
SPHAGNUM MOSS, all selected, 2s. per bushel, 6s. per sack.
COCOA-NUT FIBRE REFUSE (see special advertisement).

Terms, strictly Cash with order.

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

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1s., 3s., & 10s. 6d.

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

GISHURSTINE, for dry feet and boot comfort, is much used by Gardeners, Farmers, Ladies, Sportsmen, and Shore-waders; is sold by Nurserymen and Oilmen, with testimonials and directions for use, in boxes, 6d. and 1s. each. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), London.

SPECIALLY CHEAP GLASS.

Packing Cases free and not returnable.

100 Squares, good Glass, at the following prices, in Leeds:—

15 oz.	21 oz.
13½ by 8 for 9s. 6d.	13½ by 8 for 12s 6d.
12 by 9 for 9s 6d.	12 by 9 for 12s. 6d.
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HENRY WAINWRIGHT, Glass and Lead Merchant, 8 and 10, Alfred Street, Boar Lane, Leeds.

PRUNING MADE SAFE and EASY.

This implement is unrivalled for Pruning, Trimming, and Thinning-out Trees of all kinds, Shrubs, Fruit Bushes, Vines, &c. Is used in the Parks and Gardens of the Queen, H.R.H. the Prince of Wales, the principal Nobility, and is also ordered by Her Majesty's Commissioners of Works and the Metropolitan Board of Works, to be generally adopted in the Parks and Gardens under their control. The leading Horticultural Authorities join in the universal opinion as to its being the best tool for the purpose ever invented. Its length varies from 2 to 20 feet, and its price from 4s. 6d. each. It is Sold by the principal Ironmongers and Seedsmen, from whom Illustrated Price Lists can be obtained, or of the Sole Proprietors and Makers,

THE STANDARD MANUFACTURING COMPANY,
Patentees and General Machinists, Strand Arcade, Derby.

UNDER SPECIAL ROYAL PATRONAGE

DAY, SON & HEWITT,

Inventors and Sole Proprietors of the "ORIGINAL"

STOCK-BREEDERS' MEDICINE CHESTS,

For all Disorders in Horses, Cattle, Calves, Sheep and Lambs,

And Inventors of the First Animal Medicines ever known as "Day's."

Price of Chest complete, including "Key to Farriery," £2 16s. 6d., sent carriage paid throughout Great Britain.

CAUTION.—Beware of imitations, and see that the name, DAY, SON & HEWITT, is on all Bottles and Packets.

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AND WANTAGE, BERKS.

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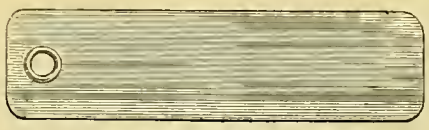

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and all kinds of
DIRECTION LABELS.

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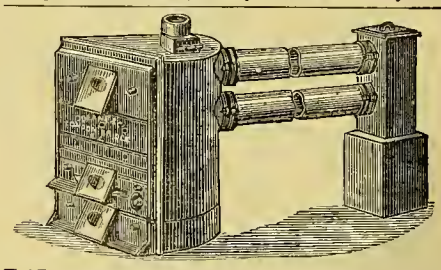
INDIAN MUSLIN, for Garden Shading.—100 yards for 10s., delivered at Burnley Station; or 85 yards for 10s., delivered free per Parcels Post. Very useful pure Cotton for Curtains, Blinds, Draperies, &c.; cream colour. Postal Order to be sent with each Order. Send stamped envelope for Pattern.
J. KAY AND SONS, Burnley Wood Mills, Burnley.



THE LOUGHBOROUGH GREENHOUSE HOT-WATER APPARATUS.

Price, as engraving, with boiler, open feed syphon, 12 feet of 4-inch hot-water pipe, and patent joints complete, £4 4s. Delivered free to any station. Discount for cash.

Cost of apparatus for houses of any size on application.

This is the simplest, cheapest, and most powerful apparatus made. It requires no brick setting, no stokehole, and no hot-water fitter for fixing. The boiler stands in the greenhouse, the front only being outside and flush with the outer wall, so that the whole of the heat from the boiler itself is utilised. It burns over twelve hours without attention, at a nominal cost.

Illustrated LIST with full particulars post-free.

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(46, King Wm. St.), LONDON BRIDGE.

STOVES.

Terra-Cotta! Portable! For Coal!

ROBERTS'S PATENT.

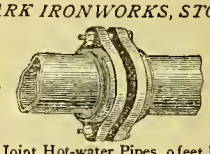
Pure and ample Heat 24 hours or longer for about 1d., without attention. For Greenhouses, Bedrooms, or almost any purpose. Pamphlet and authenticated Testimonials sent. In use daily at Patentee's—THOMAS ROBERTS.

112, Victoria Street, Westminster, S.W.

THOS. W. ROBINSON,

DENNIS PARK IRONWORKS, STOURBRIDGE.

The "Expansion Joint."

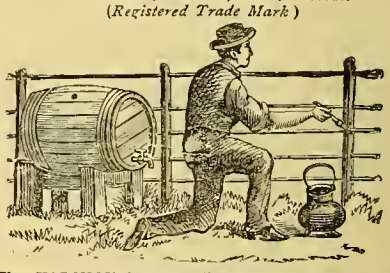


The Best and Quickest Made.

4-in. Expansion Joint Hot-water Pipes, 9 feet long, 4s. 3d. each.
4-in. Socket Hot-water Pipes, 9 feet long, 4s. 6d. each.
Price List on application.

Oil Paint No Longer Necessary.

HILL AND SMITH'S BLACK VARNISH,
for Preserving Ironwork, Wood, or Stone.
(*Registered Trade Mark.*)



This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the Advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in Casks of about 30 gallons each, at 1s. 6d. per gallon at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"*Piercefield Park, June 21, 1876.*—Sirs,—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, WM. COX."

CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

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J. BLACKBURN AND SONS are offering ARCHANGEL MATS at a lower rate than for the last ten years for present orders. PETERSBURG MATS and MAT BAGS. Having bought nearly the whole stock from Cronstadt, are prepared to sell at low rates. Prices and samples on application at
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ASTON CLINTON STRAW MATS.—The Warmest Coverings for Pits and Frames.
Sizes—6 ft. 6 in. × 3 ft. 9 in., 2s.; 6 ft. 6 in. × 4 ft. 6 in., 2s. 2d.; 6 ft. 6 in. × 7 ft., 3s. 2d. Apply to
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25,000 Common DUNNAGE MATS, at 20s. per 100.
ARCHANGEL, TAGANROG, and PETERSBURG MATS, as per CATALOGUE just issued.

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MARENDAZ AND FISHER, 9, James Street, Covent Garden, W.C., can offer a very fine parcel of new ARCHANGEL MATS at a very low price. Immense stock of PETERSBURG MATS and RAFFIA FIBRE.

Rhubarb and Seakale Forcing.

STRONG WELL-MADE POTS for the above.
GARDEN POTS, ORCHID POTS, ALPINE POTS, FERN PANS, SEED PANS,
and all kinds of GARDEN POTTERY of the best quality.
Price List Free.
J. MATTHEWS, Royal Pottery, Weston-super-Mare.

In the "Gardeners' Chronicle" of Sept. 15, it says:—

"THE FASCINATING ROCK GARDEN at Floore is rather extensive, Beautifully, carefully, and Scientifically arranged, to suit the variety of subjects planted thereon; that there is a striking air of naturalness, &c., including happy families of Cacti," &c., &c.; but omits to say the Rocks were executed by

PULHAM of BROXBOURNE, HERTS;

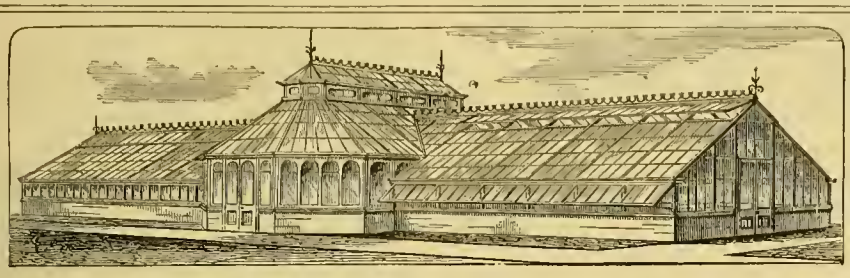
also the picturesque home of the Emus, North African Rams, &c., for E. G. LOLER, Esq.

Our system is with the Rocks and Planting to produce Picturesque Scenery, pleasing all the year round.

Photo Illustrated Book sent to inspect for 12 stamps.

Also Book of FOUNTAINS, TERRACES, JARDINIERES, KERBING, VASES, Figures, Art Flower Boxes, Pots, &c., sent to inspect for 12 stamps.

Five 1st Prize Medals recently awarded in open competition.



Five 1st Prize Medals recently awarded in open competition.

R. HALLIDAY & CO.,

HOTHOUSE BUILDERS AND HOT-WATER ENGINEERS,
ROYAL HORTICULTURAL WORKS, MIDDLETON, MANCHESTER.

Vineries, Stoves, Greenhouses, Peach Houses, Forcing Houses, &c., constructed on our improved plan, are the perfection of growing houses, and for practical utility, economy, and durability cannot be equalled. We only do one class of work, and that THE VERY BEST.

Conservatories and Winter Gardens designed architecturally correct without the assistance of any one out of our firm, from the smallest to the largest. **Hot-water Heating Apparatus,** with really reliable Boilers, erected, and success guaranteed in all cases. **Melon Frames, Sashes, Hotbed Boxes, &c.,** always in stock.

Plans, Estimates and Catalogues free. Customers waited on in any part of the Kingdom.

Our Maxim is and always has been—

MODERATE CHARGES. FIRST-CLASS WORK. THE BEST MATERIALS.

Rosher's Garden Edging Tiles.

THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.
Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.
Illustrated Price LISTS Free by Post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheet of Plain or more elaborate Designs, with Prices, sent for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.
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SILVER SAND, fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Stations. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries.
KENT PEATS or LOAM supplied at lowest rates in any quantities.
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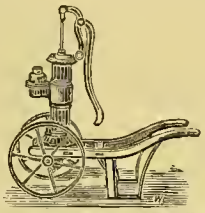
PUMPS and PUMPING MACHINERY

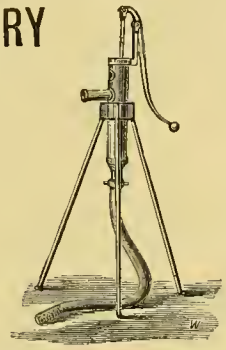
Of every description for Steam, Water, Wind, Horse, or Manual Power.

Prices upon application with particulars of requirements.

Warner's Garden, Farm, or Greenhouse Lift Pumps.



Warner's Improved Farmer's Fire Engine, or Portable Force Pump for Manure.

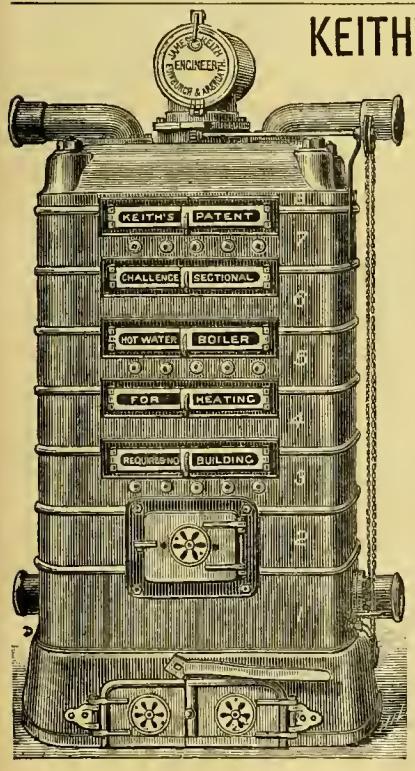


Warner's Portable Pump, with Improved Valves for Liquid Manure.

J. WARNER & SONS, Hydraulic and Sanitary Engineers,

CRESCENT FOUNDRY, CRIPPLEGATE, LONDON, E.C.

KEITH'S PATENT HOT-WATER BOILERS.



Can be heightened or lowered, or made to suit any requirements. They stand complete in themselves, and require no building work, being wholly water-jacketed and thus entirely free from risk by fire. They can be had all sizes, to heat from, say, a few feet up to 8000 feet of 4-inch pipe each; are now in all parts of the world, and are unrivalled as being the best, most powerful, and most economical Hot-water Boilers in use.

Specimen Extracts from Testimonials:—

From W. MORGAN ROBBINS, Esq., *Architect, Ilfracombe, September* 9, 1880.
"I am delighted with your Boiler; it answers admirably, and the directors are satisfied that it is one of the best £25 worth ever put in the hotel."

From Q. C. CHALMERS, *Gardens of* James Mudie, Esq., *Broughty Ferry, September* 15, 1880.
"Your Boiler beats all my expectations; at present one fire serves for twelve hours, and keeps up a good, steady heat."

From ISAAC HOLDEN, Esq., *Oakworth House, Keighley, Yorkshire, June* 19, 1881.
"Your Boilers are the best we have tried." (Note: One of these Boilers heats nearly 8000 feet of 4-inch pipe.)

From WM. FRASER, *Kippen Gardens, Dunning, Perthshire, December* 6, 1881.
"I consider your Boiler most efficient; as for economy, it is the acme of perfection."

From Rev. JAMES CARDWELL, *Military Academy, Highlands, Jersey, December* 31, 1881.
"Nothing could be better than the Boiler you sent me; it burns all sorts of rubbish, and gives an excellent heat."

From ARTHUR BOOTY, Esq., *Rose Villa Nurseries, High Harrogate, March* 22, 1882.
"Your Boiler has exceeded all my expectations; it will pay for itself as a fuel saver in a short time. It heats 2000 feet of 4-inch pipe."

Keith's Treatise on "Heating by Artificial Means," post-free, for twelve stamps.

HIGHEST AWARDS WHEREVER EXHIBITED.

ESTABLISHED 1823.

KEITH'S
PRIZE
HYDRAULIC RAMS and HYDRAULIC RAM PUMPS,
Self Acting,
For Raising Water, are the most powerful, most efficient, and most durable in use.

KEITH'S

PATENT MINERAL OIL GAS WORKS, are unrivalled for use in the Country or in the Colonies.
PATENT SECTIONAL HOT-WATER COIL TABLES, have three times the Radiating Surface of any other form of Pipe Coil.
PATENT OPEN FIRE, Ornamental HOT-WATER APPARATUS, combining Warmth, Cheerfulness, Ventilation and Perfect Safety

JAMES KEITH, GAS, HYDRAULIC and HEATING ENGINEER, LONDON, EDINBURGH, and ARBROATH.
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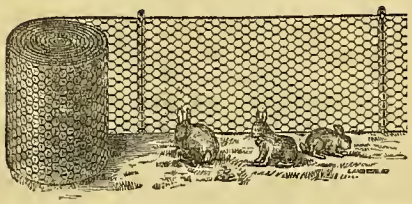
IRON HURDLES, GATES, TREE GUARDS,
Iron and Wire Espalier, &c., &c.



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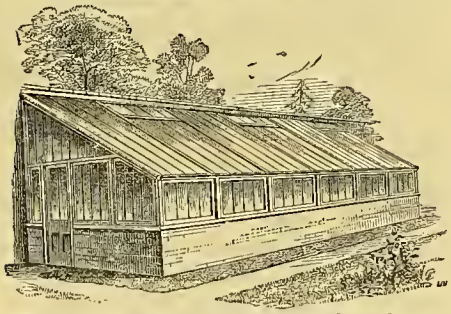
BAYLISS, JONES & BAYLISS,
VICTORIA WORKS, WOLVERHAMPTON;
And 3, Crooked Lane, King William Street, London, E.C.

W. H. LASCELLES & CO.,
HORTICULTURAL BUILDERS,
121, BUNHILL ROW, LONDON, E.C.



W. H. LASCELLES AND CO. will give Estimates for every description of HORTICULTURAL WORK, free of charge, and send competent assistants when necessary.

LASCELLES' NEW ROCKWORK material in various colours.

Samples can be seen, and prices obtained at 121, Bunhill Row, and 35, Poultry, Cheapside, E.C.

Illustrated Lists of Wooden Buildings, Greenhouses and Conservatories, and Concrete Slabs for walls, paths, and stages, sent post-free on application.

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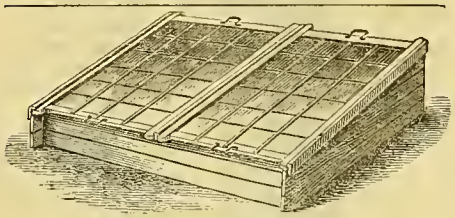
London Office: Mansion House Buildings, E.C.



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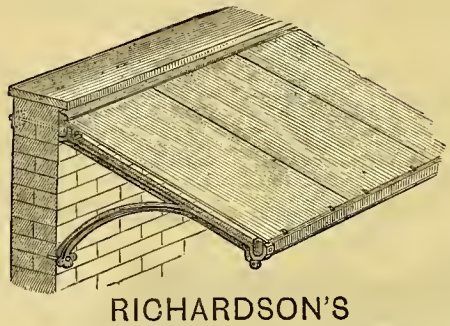
R. HALLIDAY AND CO. desire to draw special attention to their Cucumber Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.

Prices, delivered to any station in England:—		£	s.	d.
2-light frame, 8 feet by 6 feet	Packing Cases free	3	10	0
3-light frame, 12 feet by 6 feet		5	5	0
6-light frame, 24 feet by 6 feet		10	0	0

The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.

R. HALLIDAY AND CO., Hothouse Builders and Engineers, Royal Horticultural Works, Middleton, Manchester.

SAVE YOUR FRUIT CROP
USING



RICHARDSON'S WALL-TREE PROTECTOR,
The Cheapest Made and Thoroughly Strong.
2 ft. wide, 1s. 10d. per ft. run; 3 ft. wide, 2s. 6d. per ft.
Carriage paid for Orders over £5.

W. RICHARDSON & CO.,
Horticultural Builders & Hot-Water Engineers,
DARLINGTON,

EXTENSIVE SPAN LANTERN-ROOFED VINERY or ROSERY for SALE, as very recently erected by Mills, of London, with 145 selected Vines and with or without fully 1300 yards of 4-in. steam-piping, valves, Bends, &c. The whole has only been placed about three years. Length, 298 feet 6 inches by 26 feet 6 inches, containing 14,824 square feet of Glass. The Glass and all Material can readily be removed and replaced elsewhere as it now stands as one splendid house in four compartments, or removed as four separate houses of about 74 feet 6 inches by 26 feet 6 inches each. The Sashes or Sheets 17 feet 6 inches by 9 feet 5 inches; squares of glass 1 foot 9 inches by 1 foot 1⅜ inch. Situated half a mile from Kendal station.

Apply to DIXON CLOUDSDALE, Esq., Matson Ground, Bowness, Windermere.

BELGIAN GLASS for GREENHOUSES, &c.
Can be obtained in all sizes and qualities of
BETHAM & SON,
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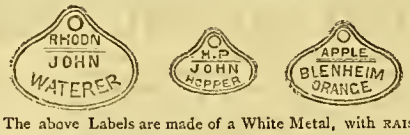
B. & Son have always a large stock in London of 20 in. by 12 in., 20 in. by 14 in., 20 in. by 16 in., 20 in. by 18 in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200-ft. and 300-ft. cases.

PURE WOOD CHARCOAL
FOR
VINE BORDERS, FRUIT TREES, STRAWBERRIES, ROSES, FLOWER BEDS, POTTING PURPOSES,
AND GENERAL HORTICULTURAL PURPOSES.
HIRST, BROOKE, AND HIRST, Manufacturers, Leeds, Yorkshire.

GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of WATSON AND SCULL, 90, Lower Thames St., London, E.C.

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



The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

Samples and Price Lists free.
J. SMITH, The Royal Label Factory, Stratford-on-Avon.

MONEY LENT WITHOUT SURETIES by the NATIONAL DEPOSIT BANK.
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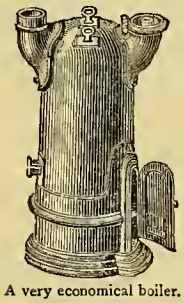

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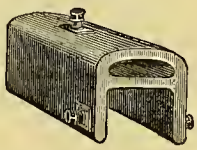

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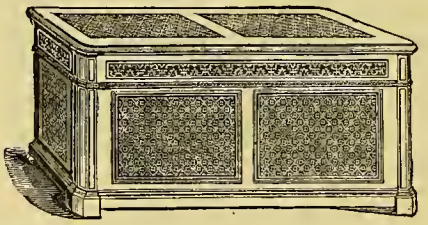

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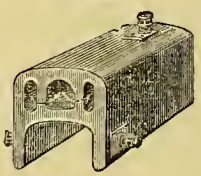

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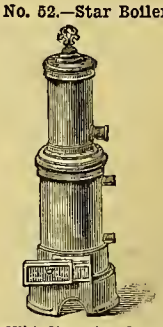

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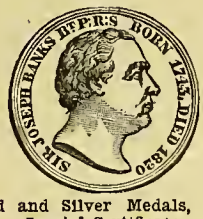

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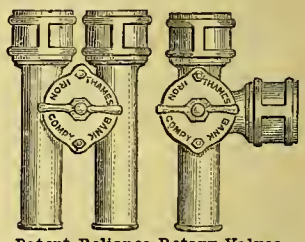

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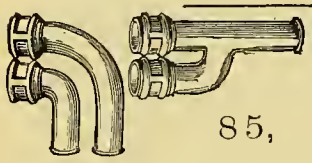

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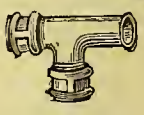
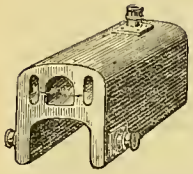
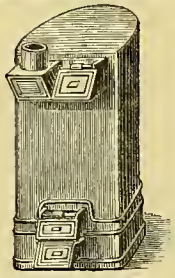


THE COVENT GARDEN BOILER.



This new Wrought Welded Amateurs' Boiler is intended for fixing flush *in* the wall of the greenhouse, the feeding door and flue pipe being left on the outside. A considerable amount of heat which is lost with other Boilers is thus given off *into* the house—a great advantage; and the necessity of a stoking-hole is thus dispensed with. The Boiler is strong, durable, and cheap, and we can thoroughly recommend it.

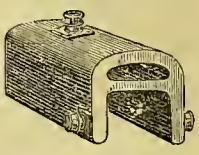
Large and Small Hot-water Apparatus erected complete in Town or Country, or Materials only supplied.



The Covent Garden Boiler.

☞ VERY SPECIAL NOTE. ☜

Our Establishment is open at 6 o'Clock every Tuesday, Thursday and Saturday Morning, for the Special Convenience of Nurserymen and others who come to Covent Garden. Customers are thus enabled to take back in their empty vans any goods they may require, and save cost of extra cartage from the City, or Rail Carriage and Breakage. By this means we are able to sell at more favourable prices than any House in the Trade.



Illustrated Catalogues on application and Special Quotations on receipt of Particulars.

ARTHUR HILL & CO., 85, ST. MARTIN'S LANE, W.C.

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THE

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THE GARDENERS' CHRONICLE, Volume XIX., JANUARY to JUNE, 1883.
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The Subscription to America, including Postage, is $6.35 for Twelve Months.
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SPLENDID TREE CARNATIONS coming into bloom. The finest subjects for Winter Decoration, in rich colours — Pink, White, Rose, Crimson, Yellow, and Scarlet, &c. Awarded Prize Medal at Royal Horticultural Society, on Tuesday, November 13. Price 2s. 6d., 3s. 6d., and 5s. each, according to size.
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East Lothian Stock and Pansy Seed.
R. B. LAIRD AND SONS (sole Successors to DOWNIE & LAIRD) can offer the above. Particulars as to price, &c., on application.
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EIGHTY THOUSAND CLEMATIS, in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants.
Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

FRANCIS BELL, NURSERYMAN, Easingwold, offers for sale 2,000,000 LARCH, 2 to 5 feet, recently transplanted, with good leads and well rooted, at greatly reduced prices.

Daffodil, Daffodilly, Daffodowndillies.
A DESCRIPTIVE CATALOGUE of more than 200 sorts of DAFFODILS free on application.
BARR AND SON, 12, King Street, Covent Garden, W.C.

CHRYSANTHEMUMS.—20,000 White, Cut Blooms, to offer; fine, under glass, Elaine and Mrs. G. Rundle, at per dozen, 100, or 1000.
R. LOCKE, Red Hill, Surrey.

GORSE COVERT.—Well-rooted, 2-yr. old, twice lifted, 2s. 6d. per 1000, £7 10s. per 100,000.
S. SMITH, Tansley Nursery, Matlock, Derbyshire.

To the Trade.
CUCUMBER SEEDS.—We shall be glad to quote prices of Veitch's Tender and True and Rollison's Telegraph Cucumber Seeds in large or small quantities. Both are very superior stocks, of our own growth, and carefully selected.
GEO. COOLING AND SON, Seedsmen, Bath.

New White Neapolitan Violet.
COMTE BRAZZA.—Flowers perfectly double, delightfully fragrant, and purest white. First-class Certificate Floral Committee. Plants in small 60's, 1s. 6d. each, 15s. per dozen; large plants in 48's, 3s. 6d. each, 31s. 6d. per dozen.
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CREEPERS for WALLS, TRELLISES, &c., in great variety. See Descriptive LIST. Most of these plants, being in pots, may be moved now.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

MAGNOLIAS grandiflora and exoniensis, very fine plants. Prices on application to
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

Erica hyemalis, in flower.
HUGH LOW AND CO. offer the above, in 48-pots, at 75s. per 100; can be supplied by the 1000.
Clapton Nursery, London, E.

BOUVARDIAS. — Fine, bushy, healthy plants, of A. Neuner, Dazzler, and others, 40s. per 100.
Tree CARNATIONS, best free blooming kinds, 40s. per 100.
Mrs. SINKINS, best white CLOVE CARNATION, for forcing, 30s. per 100.
W. JACKSON, Blakedown, near Kidderminster.

Vines—Vines—Vines.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this season, as usual, a splendid stock of VINES, suitable for Fruiting in Pots and Planting Vineries. Also a fine stock of Maréchal Niel, Gloire de Dijon, and other TEA ROSES.
Descriptive Priced LIST on application.
The Vineyard, Garston, Liverpool.

Grape Vines—Grape Vines.
B. S. WILLIAMS begs to announce that his stock of VINES this season is remarkably fine, and is now ready for sending out. A Descriptive LIST will be found in the Bulb Catalogue, post-free on application. Early Orders are solicited.
Victoria and Paradise Nurseries, Upper Holloway, N.

To the Trade.
PEAS.—Veitch's Perfection, Yorkshire Hero, Day's Early Sunrise, Harrison's Glory, Kentish Invicta, &c. Cheap for cash.—BRINKWORTH AND SONS, Reading.

POTATOS.—Sutton's Reading Hero, White Elephant, Beauty of Hebron, and Ashleaf Kidney. A few Tons each of these popular sorts cheap for cash, to save storing. BRINKWORTH AND SONS, Reading.

WANTED TO PURCHASE or EXCHANGE, large plants of DAPHNE INDICA RUBRA and ALBA.
The LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited, The Vineyard, Garston, Liverpool.

Notice to Senders.
WE HAVE NOW a good DEMAND for the undermentioned :—
GARDENIAS, STEPHANOTIS, CHRYSANTHEMUMS of all kinds (in quantity), TUBEROSES, White AZALEA, White CYCLAMEN, GLADIOLUS, Roman HYACINTHS, ROSES, ODONTOGLOSSUM and other ORCHIDS, &c.
Also GRAPES, TOMATOS, CUCUMBERS, &c.
WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

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

To Flower Growers.
CONSIGNMENTS RECEIVED for DISPOSAL at Market Prices.
WANTED, GARDENIAS, EUCHARIS, ARUMS, White AZALEAS, CAMELLIAS, ROSES, &c., in any quantity. Boxes supplied. Terms upon application.
HOOPER AND CO., Covent Garden, London, W.C.
Address—Flower Commission Department.

WANTED, GARDENIAS, TUBEROSES, ORCHIDS, CHRYSANTHEMUMS, EUCHARIS, ROSES, White AZALEAS, CAMELLIAS and other CUT FLOWERS. Also strong flowering Bulbs of EUCHARIS AMAZONICA.
W. DENMAN, Salesman and Horticultural Agent, Covent Garden, W.C.

WANTED, EUCHARIS AMAZONICA. Strong flowering bulbs. State quantity and price for cash to T. HEWITT, New Barcombe, Sussex.

WANTED, a large PALM, either a Seaforthia elegans, Areca lutescens, or a Kentia, about 6 to 9 feet. Quote low cash price, with full particulars, to
FRANCIS R. KINGHORN, Nurseryman, Richmond.

WANTED, 1500 White Swan GOOSEBERRY BUSHES. State price, age, &c., to
THOS. SEEKINGS, Earith, St. Ives, Hunts.

HOLLY for HEDGES.—12 to 15 inches, 25s.; 15 to 18 inches, 35s.; 18 to 24 inches, 50s. per 100. Forest LIST, containing heights and prices of well-grown transplanted Quick, Ash, Larch, Spruce, Pines, Oaks, Cover Plants, &c., free.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

FOR SALE, fine Plants of CALANTHE VEITCHII and VESTITA, coming in flower.
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DESCRIPTIVE CATALOGUE of Roses, Fruit Trees, Rhododendrons, Deciduous and Evergreen Trees and Shrubs, Forest Trees, Azaleas, Camellias, Grape Vines, &c., free by post.
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LILIUM AURATUM.—Good, plump, sound bulbs, 4s., 6s., 9s., 12s., 18s., and 24s. per dozen; extra strong, 30s. and 42s. per dozen. All other good LILIES at equally low prices.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

LILIUM AURATUM — new GREENHOUSE BULBOUS PLANTS of great beauty, &c.
Please send for "Special LIST," just published.
FRED. HORSMAN AND CO., Colchester.

IMANTOPHYLLUMS Fresh Seeds, hybridised from the sorts with large flowers per dozen, 5s.; per 100, 30s.; per 1000, £10.
Forwarded free by post to all parts of the world for cash.
ED. PYNAERT, Ghent, Belgium.

CARNATION, "MARY MORRIS."
Plants now ready for delivery.
First-class Certificate was awarded at Kensington, Aug. 22, 1882. A beautiful Rose-coloured Self, very highly scented, of great size, very full, and of perfect shape; does not burst the calyx, a very free blomer and vigorous grower, and perfectly hardy. See *Gardeners' Chronicle*, August 4, 1883, page 146. Price and all particulars on application to
H. G. SMYTH, 21, Goldsmith Street, Drury Lane, W.C.

Orchids, Bulbs, Lilies.
THE NEW PLANT AND BULB COMPANY, Lion Walk, Colchester, have just published their AUTUMN LIST, No. 64, containing more novelties and rarities than ever.

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

SURPLUS STOCK.—Handsome and Choice Evergreen and Deciduous TREES for Avenues, Parks, Gardens, Streets, &c. Very good and cheap. LIST free by post.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

LARCH FIR, extra strong, transplanted, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet. Extra strong transplanted SCOTCH FIR, 2 to 3 feet. Samples and prices on application to
J. SLATER AND SONS, The Nurseries, Malton, Yorks.

SPECIAL TRADE OFFER.—200,000 Dwarf ROSES, on Manetti, fine, our own selection, 25s. per 100, £12 per 1000. 300,000 MANETTI STOCKS, fine, 30s. per 1000, £13 per 10,000. 10,000,000 ASPARAGUS, 2-yr. Connover's, 17s. 6d. per 1000; 3-yr. Connover's, 20s. per 1000; 2-yr. Giant, 15s. per 1000; 3-yr. Giant, 17s. 6d. per 1000, for Cash with all orders, otherwise will not be attended to.
R. LOCKE, Royal Nurseries and Rose Farms, Redhill, Surrey

PRIZE COB FILBERT TREES.—Gentlemen desirous of obtaining the true WEBB'S PRIZE COB FILBERT TREES for present planting, should send their orders to
Mr. COOPER, F.R.H.S., Calcot Gardens, Reading, of whom alone the various sorts can be obtained.
Price LISTS on application.

STRAWBERRIES.—Capital planting roots, 4s. per 100 (free by parcels post, 4s. 6d.); plants in pots for forcing, 16s. per 100. Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

SEAKALE and PARSLEY SEED, the growth of 1883; strong Seakale for Forcing—extra strong.
MANETTI STOCK and CUTTINGS for Sale.
Apply to
Mr. WILLIAM BISHOP, Hemsby, Great Yarmouth.

Firms in the Nursery and Seed Trade
wishing to publish their announcements in Ireland, will find
THE IRISH FARM, FOREST, and GARDEN, an excellent medium. Specimen Copies, Scale of Charges, &c., on application to
Mr. THOS. MOORE, Sole Proprietor, 39, Lower Ormond Quay, Dublin.

Now Ready.
THE GARDEN ANNUAL, ALMANAC, and ADDRESS BOOK for 1884. Price 1s., post-free, 1s. 3d. The most complete and accurate Yearly Reference Book for the use of all interested in Gardens yet published.
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SALES BY AUCTION.

Sale this Day at Half-past 12 o'Clock precisely.
CONSIGNMENTS of PLANTS and BULBS from Holland, France, and Belgium.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., THIS DAY, SATURDAY, December 1, at half-past 12 o'Clock precisely, a consignment of choice named CAMELLIAS, Indian AZALEAS, well set with buds; RHODODENDRONS, fine named sorts; PALMS, and other GREENHOUSE PLANTS, from Ghent; Standard and Dwarf ROSES from English and French nurseries; Variegated and Green HOLLIES, Hardy Ornamental CONIFERS, Standard flower-ing TREES, &c., from Holland; and an importation of Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, SCILLAS, GLADIOLI, LILIUMS, and other DUTCH BULBS.
On view morning of Sale, and Catalogues had.

Monday Next.—(Sale No. 6532.)
BULBS from Holland, ROSES from France.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY NEXT, December 3 at half-past 12 o'Clock precisely, a consignment of First-class Standard and Dwarf ROSES, fine named varieties, from one of the best known Nurseries in France; also an importation of choice named Double and Single HYACINTHS, of all colours, for Glasses, Pots, and Borders; TULIPS, CROCUSES, NARCISSUS, SCILLAS, SNOWDROPS, IRIS, ANEMONES, RANUNCULI, and other Dutch BULBS, in lots, to suit all buyers.
On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6534.)
PLANTS and BULBS from DUTCH, ENGLISH, and FRENCH NURSERIES.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, December 5, at half-past 12 o'Clock precisely, 2000 first-class Standard and Dwarf ROSES from well-known English and French Nurseries, Standard and Pyramid FRUIT TREES, Specimen Hardy Ornamental CONIFERS, RHODODENDRONS, Flowering TREES and SHRUBS from Holland, CARNATIONS, PICOTEES, PINKS, Hardy Herbaceous BORDER PLANTS, a consignment of Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other DUTCH BULBS, LAWN MOWING MACHINES, GARDEN ENGINE, &c.
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6535.)
CYPRIPEDIUM LAWRENCEANUM.
DENDROBIUM LOWII.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, December 6, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., several hundreds of splendid plants of CYPRIPEDIUM LAWRENCEANUM, in the best possible condition; DENDROBIUM LOWII, in quantity; CATTLEYA MENDELII, ODONTOGLOSSUM TRIUMPHANS, O. ALEXANDRÆ, fine masses; LÆLIA PURPURATA, established plants, with flower-sheaths.
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6535.)
LILIUM AURATUM from Japan.
7000 Bulbs in fine condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, December 6.
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6535.)
CYPRIPEDIUM ROBBELENI, Rchb. f.
AERIDES SPECIES, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, December 6, at half-past 12 o'Clock precisely, by order of Mr. R. Pfau, a magnificent importation in splendid specimens of CYPRIPEDIUM ROBBELENI, Rchb. f., and AERIDES SPECIES, variety with orange-yellow lip. Both have been collected in a new locality, and have just arrived in the very best condition. At the same Sale will be offered a few lots of the rare ODONTOGLOSSUM KRAMERI and EPIDENDRUM PSEUDEPIDENDRUM; also the following:—TRICHOPILIA LEPIDA and CRISPA, ODONTOGLOSSUM REICHENHEIMII, LÆVE, EGERTONIANUM; CYPRIPEDIUM CAUDATUM, PESCATOREI, CERINA; TRICHOCENTRUM PFAUII, SOBRALIA FENZLIANA, &c.
On view morning of Sale, and Catalogues had.

Immense Importation of Lilium auratum and other BULBS from JAPAN.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., EARLY THIS MONTH, a consignment of 313 cases from Japan, comprising some gigantic bulbs of LILIUM AURATUM, L. KRAMERI, L. SPECIOSUM, ROSEUM and ALBUM, L. LONGIFLORUM, and L. THUNBERGIANUM.
On view morning of Sale, and Catalogues had.

500 Camellias from America.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., EARLY THIS MONTH, by order of Messrs. Hovey & Co., of Boston, U.S.A., about 500 plants of the three Seedling CAMELLIAS—C. M. Hovey, C. H. Hovey, and Mrs. Anna Maria Hovey; also a few other PLANTS and BULBS.
On view morning of Sale, and Catalogues had.

Stove and Greenhouse Plants.

MR. J. C. STEVENS is instructed to offer for SALE by PRIVATE CONTRACT, a quantity of STOVE and GREENHOUSE PLANTS, comprising about 240 plants, the majority in tubs and pots, consisting of Camellias, Azaleas, Dracænas, Palms, Araucarias, Tree Ferns, &c., suitable for large Hotels, Halls, &c.
For Cards to view the above, which are at Birmingham, apply to Mr. J. C. STEVENS, 38, King Street, Covent Garden, London, W.C.

Monday, Thursday, and Saturday Next.
DUTCH BULBS.—Great Unreserved Sales.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY, THURSDAY, and SATURDAY NEXT, at half-past 11 o'Clock precisely each day, extensive consignments of HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, GLADIOLUS, and other ROOTS from Holland.
On view mornings of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Important Sale of about 300 Choice Double Camellias and AZALEA INDICA, compact plants, 1 to 3 feet, beautifully set with bloom-buds; GREENHOUSE PLANTS, in variety: 400 handsome Standard and Dwarf ROSES of the best sorts; Selected FRUIT TREES, Hardy CONIFERÆ, SHRUBS, AMERICAN PLANTS, DUTCH BULBS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, December 4, at 12 o'Clock precisely.
On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 8, New Broad Street, E.C.

Wednesday Next.
5000 LILIUM AURATUM, fine Bulbs.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, at half-past 12 o'Clock precisely, 5000 very fine Bulbs of LILIUM AURATUM, just received from Japan; a fine assortment of hardy English-grown LILIES, MILLA BIFLORA, ROSES, CARNATIONS, PICOTEES, and various other PLANTS and BULBS too numerous to mention.
On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Consignment from India
Of about 200 PANAX VICTORIÆ DIFFUSUM, DUMOSUM, and a New Variety.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE, to take place at the Central Auction Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT.

Sunbury, Middlesex.
Ten minutes' walk from the Station.
By Order of the Executors of the late Mr. R. A. Osborne.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Osborne's Nursery, Sunbury, on THURSDAY, December 6, at 12 o'Clock precisely, the Fourth and Final Portion of the exceptionally well grown NURSERY STOCK, comprising a variety of Ornamental and Deciduous Trees, 20,000 Fruit Trees, including 600 Moor Park Apricots, trained and Maidens; 10,000 Maiden Apples, 3000 Plums and Damsons, 4500 Pears, 8000 Dwarf H.P. Roses, 900 Standard H.P. Roses, small Evergreens in large quantities, and 50 bushels of Peas.
The Auctioneers beg to draw special attention to the large quantity of FRUIT TREES, for which the late firm of Messrs. Osborne were so justly celebrated, the whole being for Sale, without the least reserve.
May be viewed. Catalogues had on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, and 8, New Broad Street, E.C.
N.B. The valuable FREEHOLD NURSERY, with the Glass Erections, is FOR SALE on advantageous Terms. Particulars of the Auctioneers.

Saturday Next.
ROSES, BULBS, and PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on SATURDAY NEXT, at half-past 11 o'Clock precisely, 500 fine named Standard and Dwarf ROSES, a collection of hardy English-grown LILIES and BULBS, DUTCH FLOWER ROOTS, CARNATIONS, PICOTEES, &c.
On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Ottershaw Park Nursery, Ottershaw, Chertsey.
UNRESERVED CLEARANCE SALE of well-grown NURSERY STOCK. Owing to this property being Sold, and the Lease having expired,

MESSRS. R. AND J. WATERER AND SON have been favoured with instructions from Mr. W. Fletcher to SELL by AUCTION, upon the Premises, on MONDAY, December 3, and following days, at 11 for 12 o'Clock precisely on each day, the whole of the NURSERY STOCK, on the above Land, comprising 50,000 Standard and Pyramid Fruit Trees of the choicest sorts of Apples, Pears, and Plums; 300 Dwarf-trained Fruit Trees; 10,000 Common Privet; 15,000 Forest Trees, consisting of Horse Chestnut and Birch, 12 to 20 feet; Scarlet Oaks, 4 to 6 feet; Weymouth Pine, 8 to 12 feet; Purple Beech, 7 to 12 feet; Weeping Beech and Elm, 8 to 10 feet; Norway Maple, 8 to 14 feet; Hornbeam, 6 to 12 feet; Limes, 4 to 10 feet; Spanish Chestnuts, 1 to 3 feet; Elms, 2 to 3 feet; and a number of Ornamental Shrubs, Picea Nordmanniana, Aucubas, named Rhododendrons, Variegated and Green Hollies, &c.; a few choice Standard and Dwarf Rose Trees, and other stock.
May be viewed, and Catalogues obtained 7 days prior to the days of Sale, at the principal Hotels and Inns in the neighbourhood; of Messrs. FLETCHER AND SONS, Ottershaw Nurseries; and of the Auctioneers, Chertsey, and Weybridge Station, Surrey.

LAND.—WANTED to PURCHASE, or LEASE, 4 to 6 acres or more of good Land, suitable for a Nursery or Market Garden, facing a main road, and near a Railway Station, not more than 12 miles from Covent Garden. If with good house preferred.
Send particulars to R. OWEN, Mill End, Henley-on-Thames.

To Nurserymen and Others.

TO BE SOLD, with possession on settlement, a valuable NURSERY, close to Brighton. A going concern. For particulars, address
Messrs. EVERSHED AND SHAPLAND, Solicitors, Brighton.

FOR SALE, a FREEHOLD PLOT of LAND, with five Greenhouses well Heated with Hot Water; Stove, Rosery, Vinery, two Flower-houses. In a rapidly rising neighbourhood surrounded by villas, 15 miles from London, three minutes from Junction on London and North-Western Railway. Price, with Stock, £550, or could be taken at valuation. Illness cause of leaving. Apply,
H. PETTY, Watford, Herts.

FLORIST'S BUSINESS, first-class investment combined with a genteel occupation. The Shop is most commanding, and situated in one of the best main suburban thoroughfares.
Particulars of Messrs. PROTHEROE AND MORRIS 8, New Broad Street, E.C.

A SPLENDID OPPORTUNITY is offered to any enterprising party or parties in the Nursery Trade for the acquisition, either by RENTAL or PURCHASE, of a well-known and long established NURSERY in the central part of England. Both soil and situation are admirably adapted for the purpose, producing clean, well grown stuff, splendidly rooted, and for which it has a high reputation in the trade. The stock is all young and healthy, and embraces a general collection of Nursery Stuff, with unique selection of Conifers, Ornamental Trees and Shrubs, and Fruit Trees. It is a sound going concern, with a good Retail Connection, in addition to a large Wholesale Trade, both of which, in capable hands, might be greatly extended. Advanced age of the proprietor is the sole reason of this eligible business being offered. Principals only will be negotiated with, and fuller particulars may be obtained on application to
G. B. C., Mr. John Downie, 144, Princes Street, Edinburgh.

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

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 8, New Broad Street, E.C.

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

Trade Catalogues.

WANTED, AGENTS for the following Horticultural Specialities:—
FERTILISING MOSS—for Growing Plants without Earth.
UNIVERSAL PLANT FOOD—the best and safest Plant Stimulant and Ground Dressing extant.
PRUNING and GRAFTING COMPOSITION—for Healing Cuts and Wounds, and for Preserving Grafts and Cuttings; sure Protection from Rabbits, &c.
The above should be included in every Trade Catalogue. Liberal terms. Trade Travellers apply.
Burstow Nursery, Horley, Surrey.

Amsterdam Exhibition, 1883.

The Diplôme d'Honneur. SUTTONS' GRASS SEEDS were used for Sowing the whole of the Exhibition Grounds, and have been awarded the Highest Recompense, viz., the Diplôme d'Honneur.
SUTTON AND SONS, The Queen's Seedsmen, Reading, Berks.

FOR SALE, 2 Royal George and 2 Noblesse PEACHES, dwarf-trained trees. Have been growing against greenhouse wall. Will remove well. Average height and breadth, 9 feet. Apply to
E. PAUL, Obston Road, West Barnet, Herts.

MANETTI STOCKS, clean, hard, and well-rooted, fine for grafting, 30s. per 1000, £6 per 5 co. RASPBERRIES, strong, well rooted canes, of a large free bearing market variety, 6s. per 100; 50s. per 1000. All package free for Cash with order.—KIRK ALLEN, The Nursery, Fen Drayton, near St. Ives, Hunts.

SPECIAL OFFER of ROSES, FRUIT and ORNAMENTAL TREES and SHRUBS of the best quality—all sizes, at Reduced Prices. Price LIST on application to
WALTER CHAS. SLOCOCK, Goldsworth Old Nursery, Woking, Surrey.

SEAKALE for Forcing, the largest in growth. Price on application.
ALFRED ATWOOD, Market Gardener, 50, Shelingston, Battersea, S.W.

Standard Roses.

H. LANE AND SON can supply fine Standard and Half-Standards, at 15s. to 18s. per dozen. Catalogue on application.
The Nurseries, Berkhampsted, Herts.

Lilium auratum.—To the Trade

JAMES CARTER, DUNNETT AND BEALE are prepared to offer Cases containing 50 and 100 bulbs, as imported—unopened and examined. Price on application. Also strong bulbs of L. LANCIFOLIUM ALBUM, RUBRUM, and ROSEUM.
237 and 238, High Holborn, London, W.C.

AFRICAN TUBEROSES, a second and very fine consignment, just arrived.
GLADIOLUS BRENCHLEYENSIS, unusually fine this year. Price per 1000 and 100, to the Trade, on application to
JAMES CARTER, DUNNETT AND BEALE, 237 and 238, High Holborn, London, W.C.

AUSTRIAN PINE, very fine transplanted trees, 2 to 2½ feet, 30s. per 1000; SCOTCH FIR, 2 to 3 feet, 20s. per 1000. PINUS LARICIO, 2½ to 3 feet, 30s. per 1000. PICEA NORDMANNIANA, 1½ to 2 feet, 40s. per 100. CEDRUS DEODARA, 1½ to 2 feet, 50s. per 100, and others very cheap. PLUMS, Rivers' Early Prolific, 5 feet high, 50s. per 100.—W. JACKSON, Blakedown, Kidderminster.

FOR SALE, 8 well-furnished Moorpark APRICOTS, in large pots, from 4 to 8 feet high; 6 Mayduke CHERRIES, Wall Standards, and a quantity of first-class PEARS, Wall Standards all in first-class fruit-bearing condition. Also 2 large plants of ARAUCARIA EXCELSA, 8 feet high, well-furnished. Price and particulars
ROBERT SLEIGH THOLM, Burntwood Hall Gardens, near Barnsley, Yorkshire.

CROTONS, ARALIAS, &c.—CROTONS in variety, well furnished stuff, in 48's, at 18s. per dozen. ARALIA SIEBOLDI, good plants, 48's, at 6s. per dozen. Black Hamburgh GRAPE VINES, strong fruiting canes (8 feet), 6s. each. Lower prices per 100.
SMITH AND LARKE, Ashford, Middlesex.

FRUIT TREES—FRUIT TREES in all the Best Cropping Varieties.
APPLES, PEARS and CHERRIES, Dwarf-trained, good trees, 15s. and 18s. per dozen.
PEARS, Pyramid, 40s. and 50s. per 100; good fruiting trees, 75s. and 100s. per 100; Maidens, 30s. per 100.
APPLES, Pyramid, 40s., 50s., and 75s. per 100.
CHERRIES, Dwarf-trained Morello and May Duke, 15s. and 18s. per dozen.
CURRANTS, Red and Black, of sorts to name, 8s., 10s. and 12s. per 100.
RASPBERRIES, Fillbasket, 6s. per 100.
ROSES Dwarf H.P.'s, our selection, 30s. per 100.
CONIFERS, bushy, for pots, window boxes, &c., 9 to 15 in., 25s. per 100.
POPLARS, Lombardy and Ontario, from 5 to 10 feet, 8s. to 35s. per 100; 12 to 16 feet, extra fine, for screens, grown in single lines, 15s. per dozen, 100s. per 100.
SHRUBS, Deciduous, 12s. and 15s. per 100, good plants.
HEATHS, Hardy, of sorts to name, 15s. per 100.
THORNS, Double and Single, of sorts, Standards and Pyramids, 50s. and 75s. per 100.
SPIRÆA PALMATA, fine forcing clumps, 10s., 15s. and 20s. per 100.
AUCUBAS, well coloured, for boxes, pots, &c., 9 to 12 in., 16s. per 100; 12 to 15 inches, 20s. per 100.
WM. CLIBRAN AND SON, Oldfield Nurseries, Altrincham.

To the Trade.
HOME GROWN VEGETABLE and FIELD SEEDS.
H. AND F. SHARPE are prepared to make special offers of all the varieties of VEGETABLE and AGRICULTUAL SEEDS they have grown this season from choice selected stocks. The quality of the seeds is excellent, and the prices are very low.
Seed Growing Establishment, Wisbech.

FRUIT TREES (74 acres).—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, &c, as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety. VINES, excellent canes, 3s. 6d. to 10s. 6d. ORCHARD HOUSE TREES in pots, from 5s. FIGS, from 3s 6d. Descriptive LIST, containing a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping Treatment under Glass; also information as to Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., free by post.
RICHARD SMITH AND CO., Worcester.

READING HERO.—A few Tons of this famous POTATO for Sale. Price £8 per ton, or 9s. per cwt., on rail. bags included. Cash with order.
J. J. CLARK, Goldstone Farm, West Brighton, Sussex.

Lily of the Valley.
E. KRUIJFF, Sassenheim, near Haarlem, Holland, has to offer, to the Trade only, strong selected Buds of CONVALLARIA MAJALIS for Forcing, at 2s. 6d. per 100, 22s. per 1000. Terms cash. Samples free on application.

Hyacinths, Tulips, Narcissus, Lilies, &c.
BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland.
Wholesale CATALOGUE now ready, and will be sent post-free on application.

KELWAY AND SON'S CATALOGUE of GLADIOLI, describing all the varieties worth growing, and at prices as low as those of any other house, will be forwarded on application.
Langport, Somerset.

GRAPE VINES.—A fine stock in leading varieties, Planting and Fruiting Canes. Apply to FRANCIS R. KINGHORN, Nurseryman, Richmond.

ORCHIDS for SALE.—A GENTLEMAN changing his residence, offers large healthy Specimens of ODONTOGLOSSUM VEXILLARIUM, &c. Fine varieties.
G. HARMAN, Lytham Villa, Croydon Road, Penge, S.E.

WHITE (CAPE) EVERLASTINGS.—50,000 Bunches of 50 in a bunch, in large or small quantities, 20 per cent. cheaper than any other house in the trade. Samples and prices on application to
WALTER WATSON, Florist, Higham Hill, Walthamstow, Essex.

CLEARANCE SALE of NURSERY STOCK.
The Proprietor is giving up business, and offers his Stock, consisting of Larch, Scotch and Spruce Fir, Austrian Pine, Oak, Elm, Ash, Beech, Birch, Thorn Quicks, Conifers of different ages and sizes, Standard and Dwarf Roses, Fruit Trees, Greenhouse Plants, &c., at VERY REDUCED PRICES.
Samples and Prices on application at Clonmel Nurseries, Ireland.

To the Trade.
PALMS and FERNS from Stores.
PALMS—Latania borbonica (Livistona sinensis) and Corypha australis, 6s. per 100, 55s. per 1000.
FERNS—Blechnum corcovadense, Phlebodium aureum, Adiantum pubescens, and Pteris cretica albo-lineata, 8s. per 100; Cheilanthes elegans, and Gold Gymnogrammas, 12s p. 100. Ferns in about 8 or 10 varieties, from stores, 7s. per 100.
These are all good strong stuff.
Trade LIST free on application.
W. M. CROWE, Boleyn Nursery, Upton, Essex.

ASPARAGUS.—Extra fine stuff, 2, 3, and 4-yr. Samples and price on application.
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

CUT LILY of the VALLEY. — The Advertisers are now booking orders for a regular supply of cut Lilly of the Valley, commencing December 15 up to April. Orders should be sent in early to insure really fine blooms for Christmas Price, &c., on application to
TURNER BROS, Florists, Green Hill Nursery, Allerton, Liverpool.

To the Trade.
SEED POTATOS.
H. AND F. SHARPE are prepared to make special offers of their fine selected stocks of SEED POTATOS, grown under their own superintendence expressly for seed purposes. Their LIST includes all the varieties worthy of cultivation, and the prices will be found very reasonable.
Seed Growing Establishment, Wisbech.

NEW APPLE.

"HEREFORDSHIRE BEEFING."

CRANSTON'S NURSERY & SEED COMPANY
(LIMITED)

have much pleasure in now offering, for the first time, good healthy young trees of this valuable, late-keeping Apple, which for beauty and general good qualities they have every confidence in stating is unsurpassed. The tree is upright in habit, very vigorous and healthy in growth, never failing to produce, even in the most unfavourable seasons, abundant crops of large and very handsome fruit. Colour deep red all over; flesh white, very firm, crisp and juicy. It will keep in good condition till June, and is excellent for either dessert or culinary purposes.

This excellent Apple was much admired by all who saw it at the Great Apple Congress recently held at Chiswick.

Strong Maiden Trees.. 3s. 6d. each.
,, 2-yr. ,, .. 5s. 0d. ,,

Fruit Tree Catalogue free on application.

CRANSTON'S NURSERY & SEED CO.
(LIMITED),
KING'S ACRE, near HEREFORD.
Trade Price on application.

—THE OLD ESTABLISHED—
NURSERY, SEED & IMPLEMENT BUSINESS
PLANTING SEASON
UNRIVALLED FOR
QUALITY VARIETY & EXTENT
FOREST · FRUIT ·
& ALL OTHER
TREES & PLANTS
EVERGREENS · ROSES · VINES &c.
PRICED CATALOGUE POST FREE
JAMES DICKSON & SONS
"NEWTON" NURSERIES
— CHESTER —

ANTHONY WATERER
Invites attention to the following LIST of well-grown and properly rooted NURSERY STOCK:—
HOLLIES, Common Green, 3, 4, 5, 6, 7, 8 to 10 feet high.
,, laurifolia, ditto.
,, Hodgins', 3, 4, 5 to 8 feet.
,, myrtifolia, ditto.
,, Saw-leaved, ditto.
,, Scottica, 3 to 8 feet.
,, Yellow-berried, altaclarense and others.
,, Variegated, of sorts, 3, 4, 5, 6, 8 to 10 ft.
,, Waterer's, splendid plants, 3, 4, 5 and 6 feet, 8 to 15 feet in circumference.
(many thousands.)
,, Golden Queen, 3, 4, 5, 6, 7, 8 to 10 feet, hundreds of beautiful specimens.
,, Perry's Weeping Holly, on straight stems, with beautiful heads, ten to fifteen years' growth, hundreds.
,, new Golden Weeping, a large number of very beautiful plants.
BOX, Green and Variegated, 3, 4, 5, 6, to 7 feet, many thousands.
YEWS, Common, 3, 4, 5, 6, to 10 feet, thousands.
,, Golden, of all sizes up to 10 feet. We have many thousands as Pyramids, Globes, Standards, in point of variety and size unequalled.
CUPRESSUS ERECTA VIRIDIS, 3, 4, 5, 6, to 8 feet, thousands.
,, Lawsoniana lutea, 3, 4, and 5 feet, hundreds of beautiful specimens.
THUIOPSIS DOLABRATA, 3, 4, and 5 feet, hundreds.
RHODODENDRONS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet. The plants are covered with buds.
AZALEAS, Hardy, the finest varieties known, 2, 3, 4, and 5 feet high, thousands.
JUNIPERS, Chinese, 7, 8 and 10 feet high.
PICEA PINSAPO, 6 to 8 feet.
,, NORDMANNIANA, 6, 7, and 8 feet.
Knap Hill Nursery, Woking Station, Surrey.

CRANSTON'S Descriptive CATALOGUES of Fruit and FOREST TREES, SHRUBS, &c., are now ready, and may be had free on application.
CRANSTON'S NURSERY AND SEED COMPANY (Limited), King's Acre, Hereford.

Forest Trees.
WILLIAM FLETCHER has to offer:—LARCH, twice transplanted, 2 to 4 feet; HAZEL, 2 to 4 feet; CHESTNUT, Spanish, 2 to 4 feet. Prices on application. The Nurseries, Ottershaw, Chertsey.

Carriage Paid.
CAULIFLOWER, &c., PLANTS:—Autumn sown sturdy good plants, Early London, Asiatic, Cyprus, Erfurt, and Walcheren CAULIFLOWER; Bath, White, Green, Blood-red, and Brown Cos, Winter Passion and Swede's Head CABBAGE LETTUCE; Broad-leaved Batavian and Green Curled ENDIVE; Giant Rocca and Flat Trioli ONION PLANTS; Early Rainham, Saint John's Day, Daniel's Defiance, and many other choicest varieties of CABBAGE PLANTS; Abergeldie and Melville's Variegated KALE; Aigburth BRUSSELS SPROUTS, and Purple Sprouting BROCCOLI, 1s. 6d. per 100. Good large plants only sent. Also the following varieties of Herbs, viz:—Pot MARJORAM, Winter SAVORY, LEMON and Winter THYME, HYSSOP, BALM, LAVENDER, WITLOEF, BELLVILLE SORREL, TANSY, FENNEL, Broad-leaved SAGE, HOREHOUND, WORMWOOD, and FEVERFEW, 1s. 3d. per dozen, 8s. per 100.
Post-office Order (with order) payable Godalming, to
EDWARD LEIGH, Dunsfold, Godalming.

SEAKALE.—A large Stock of fine strong Roots, for Forcing and Planting.
Also good 2-yr. old GIANT ASPARAGUS.
FRUIT TREES.—Fine healthy stock of horizontal and dwarf-trained Apples and Pears, and dwarf-trained Apricots, Cherries, Plums, Peaches and Nectarines.
Price on application.
D. S. THOMSON, The Nurseries, Wimbledon.

Forest and Ornamental Trees and Shrubs.
THE LAWSON SEED AND NURSERY COMPANY (Limited), Edinburgh, have an immense Stock of the leading kinds of Seedling and Transplanted FOREST TREES and SHRUBS, &c.—all in healthy condition and prices moderate. Special offers on application.

JAMES SMITH AND SONS, Darley Dale Nurseries, near Matlock, beg to offer the following in nice plants:—
AZALEA PONTICA, 1 to 1½ foot, 20s. per 100, or 190s. per 1000; 1½ to 2 feet, 30s. per 100, or 280s. per 1000.
BERBERIS DARWINII, 1 to 1½ foot, 18s. per 100, or 160s. per 1000; 1½ to 2 feet, 25s. per 100, or 220s. per 1000.

TO THE TRADE.
CHRISTMAS ROSES, extra fine stuff, well set with flower-buds, 42s per 100.
HYACINTHS, White Roman, 11s. per 100.
NARCISS, Paper-white, 7s. per 100.
,, Pheasant's-eye, 14s. per 1000.
CROCUS, Yellow, 7s. per 1000.
SNOWDROPS, 16s. per 1000.
SCILLA SIBIRICA, 3s. 6d. per 100.
GLADIOLUS BRENCHLEYENSIS, 25s. per 1000.
SANDER AND CO., Seed Growers, St. Albans.

Fruit Trees to Offer.
STANDARD APPLES and PEARS, also PURPLE and WEEPING BEECH. Price per 100 on application to
WILLIAM FLETCHER, Ottershaw Nursery, Chertsey, Surrey.

DUTCH BULBS.—Choice selections of Double and Single HYACINTHS, TULIPS, CROCUSES, &c., for cultivation in the Room or Garden, in assorted packets, at 7s. 6d., 10s. 6d., 15s. 6d., 21s. 6d., 36s. 6d., £2 2s., and £3 3s. Also a new kind of TULIP, just appeared, with variegated leaves, highly ornamental, even after the flower has ceased to bloom. Obtained from the well known florist at Haarlem. Kindly send Orders before Dec. 7 with remittance to Miss ELONT, 73, Mildmay Park, N.
Any profit arising from the sale to be devoted to the work of the Deaconesses among the East End poor in connection with the Conference Hall, Mildmay Park, London, N.

SPECIAL OFFER, for Cover Planting, &c. ASH, BIRCH, BEECH, Spanish CHESTNUT, OAK, PRIVET, LARCH, Scotch and Spruce FIR, OSIERS and WITHY; also a good selection of Ornamental TREES and SHRUBS, ROSE and FRUIT TREES of all sizes.
CATALOGUES and samples on application.
W. VIRGO, Wonersh Nurseries, near Guildford.

R. GILBERT begs to inform the Public he is now prepared to send post-free CHOU DE BURGHLEY, at 2s. 6d. per ¼ ounce Packet. BURGHLEY PET MELON, 2s. 6d. per Six Seeds.
R. G. regrets through a printer's error to be made say Chou de Burghley is sold in ½ ounce Packets, which should be in QUARTER-OUNCE PACKETS. See CIRCULAR.
High Park Gardens, Stamford.

JOHNSTONE'S ST. MARTIN'S RHUBARB.
Strong Roots, 1s. each, 9s. per dozen.
We have tried all sorts of Rhubarb, and have found none to surpass, if even to equal "Johnstone's St. Martin's"—it is the paragon of excellence for forcing, or for outdoor culture. Trade Price, and Copy of TRADE NURSERY LIST, may be had on application.
W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

Deutzia gracilis.
WILLIAM FLETCHER has many thousands to offer. Fifteen to thirty branches on each plant. Price on application.
The Nurseries, Ottershaw, Chertsey.

Sharpe's Seeds.
CHARLES SHARPE AND CO., SEED GROWERS and SEED MERCHANTS, Sleaford, will be glad to forward, post free on application, Special Wholesale quotations of their own selected stocks of Garden and Agricultural Seeds. Sleaford.—October, 1883.

NEW POTATO, "THE MAYFLOWER."—The remarkable new American sort. Per bushel, £1; per barrel, £2 10s., f.o.b. at New York.
J. C. VAUGHAN, Potato Grower, Chicago, U.S.A.

VIOLET, COUNT BRAZZI'S WHITE NEAPOLITAN.

Magnificent variety. Flowers large, double, pure white, deliciously scented. The finest of all Double White Violets. Splendid for bouquets. Awarded a First-class Certificate by the Royal Horticultural Society on November 13.

Good strong plants, from pots, 15*s.* per doz., 1*s.* 6*d.* each; extra strong, 24*s.* per doz., 2*s.* 6*d.* each. Carriage free.

DANIELS BROS.,
TOWN CLOSE NURSERIES, NORWICH.

TO THE TRADE.

Dwarf-trained and Maiden Fruit Trees and Roses, of fine quality, grown on fresh land at Bush Hill.

APRICOTS, trained, 36*s.* per dozen.
CHERRIES, in variety, trained, except May Duke and Morello, 21*s.* and 24*s.* per dozen.
PEACHES and NECTARINES, trained, £12 10*s.* p. 100.
PEACHES, Dwarf Maiden, £3 15*s.* per 100.
PLUMS, trained, £7 10*s.*, £8 15*s.*, and £10 per 100.
PLUMS, Dwarf Maiden, £2 10*s.* per 100.
ROSES, Standard and Half-standard, £3 10*s.* to £4 per [100.

HUGH LOW & CO.,
CLAPTON NURSERY, LONDON, E.

THE RUIN OF NURSERYMEN

May be understood when circumstances lead to such Prices as the following:—

STANDARD RHODODENDRONS worth 5, 4, 3, and 2 guineas, are being sold at 21*s.*, 15*s.*, 10*s.* 6*d.* and 5*s.*
BUSH RHODODENDRONS, 7, 6, 5, 4, 3 and 2 guineas, sold at from 7*s.* 6*d.* to 1*s.*
ANDROMEDA FLORIBUNDA, and other kinds, 3*s.* 6*d.* to 1*s.*
SPIRÆA PALMATA, fine forcing clumps.
SPIRÆA JAPONICA, fine forcing clumps. The largest stock in Europe.
HODGINS' and other HOLLIES, perfect specimens, 7, 6, 5, 4, 3 and 2 feet, from 15*s.*, 10*s.* 6*d.*, to 1*s.*
AVENUE TREES, perfect specimens, 12 to 15 feet, at 5*s.*, 3*s.* 6*d.* and 2*s.* 6*d.*
COLLECTION of SHRUBS and TREES for general planting, 25*s.* to 75*s.* per 100.
Extra large FRUITING TREES of APPLES, PEARS, CHERRIES, &c., from 3*s.* 6*d.* to 1*s.*
Other Trees, Shrubs, &c., not enumerated in this Advertisement, will be supplied on the same liberal terms.
CHARLES NOBLE, Bagshot.

TO THE TRADE.

I have pleasure in stating that my Trade offer of SINGLE DAHLIA and other CHOICE FLOWER SEEDS is in course of preparation, and will be posted in the course of a few days to all my Trade Customers. It may also be had by any of the Trade not already upon my Register.

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

ROSES IN POTS,

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

These World-famed ROSES cannot fail to give the greatest satisfaction.

DESCRIPTIVE LISTS on application.

RICHARD SMITH & CO.,
WORCESTER.

CHAS. KERSHAW'S

NEW EARLY RHUBARB, "PARAGON,"

May be had of the following Firms:—

Messrs. HURST AND SON, 152, Houndsditch, London, E.
Messrs. SUTTON AND SONS, Reading.
Messrs. WATKINS AND SIMPSON, Strand, W.C.
Messrs. JACOB WRENCH AND SONS, London Bridge, E.C.
Mr. ALFRED LEGERTON, 5, Aldgate, London, E.C.
Messrs. JAS. FARRAR AND CO., 36, Primrose Street, Bishopsgate, E.C.
Messrs. TOOLE AND CO., Dublin.
Messrs. HOOPER AND CO., Covent Garden, W.C.
Messrs. NUTTING AND SONS, 60, Barbican, London, E.C.
Messrs. RCHD. SMITH AND CO., Worcester.
Messrs. JAS. BACKHOUSE AND SON, York.
THE LIVERPOOL HORTICULTURAL COMPANY.
THE LAWSON SEED COMPANY, Edinburgh.
Messrs. DANIELS BROS., Norwich.
Mr. SAMUEL YATES, 16 and 18, Old Millgate, Manchester.
Messrs. WAITE, NASH, HUGGINS AND CO, 79 Southwark Street, S.E.
Messrs. JAS. DICKSON AND SONS, Newton Nurseries, [Chester.
Messrs. FISHER, SON AND SIBRAY, Sheffield.
Messrs. HARRISON AND SONS, Leicester
Messrs. C. LEE AND SON, Hammersmith, W.

Trade Price on application.

Or, direct from—CHARLES KERSHAW,
The Slead Syke Nurseries, Brighouse.

LILIUM HARRISII

(the Bermuda Easter Lily),

one of the most valuable introductions of late years, a long trumpet-flowered white Lily, beautifully reflexed, bearing frequently from 6 to 10, and has been photographed with over 30 flowers on one spike. Forces in pots with great facility, and is so full of vitality that several and continued growths frequently spring from one bulb. It is quite distinct from L. longiflorum.

Bulbs, 2s. each, 18s. per dozen, 120s. per 100.

Delivered free. Special terms to Trade growers in quantity.

HOOPER & CO., COVENT GARDEN, LONDON, W.C.

FRUIT TREES,

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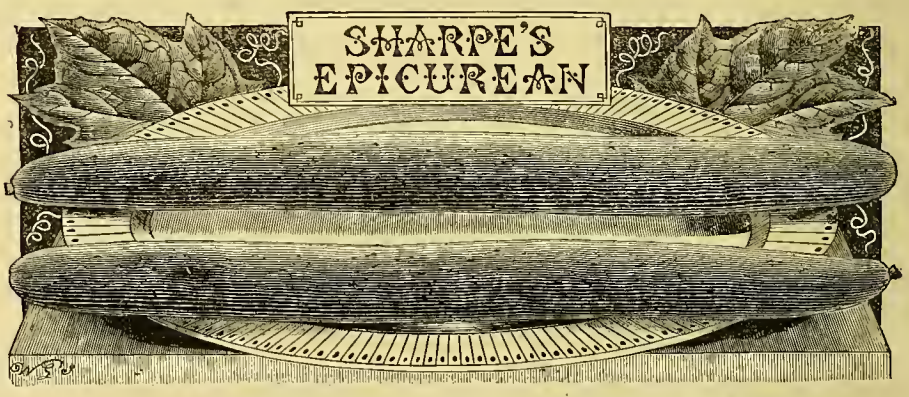

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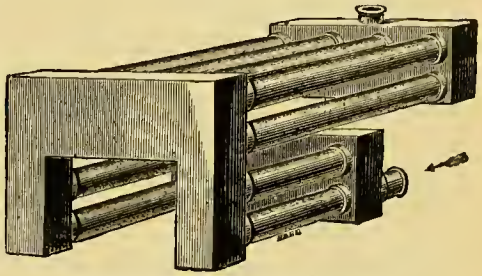

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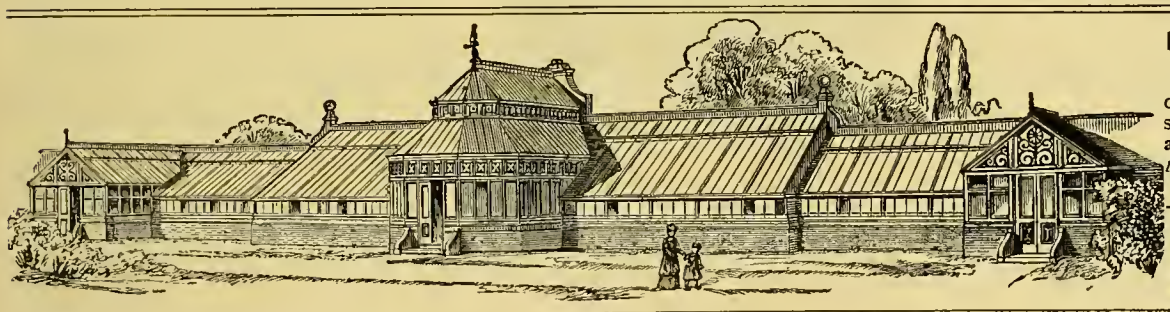

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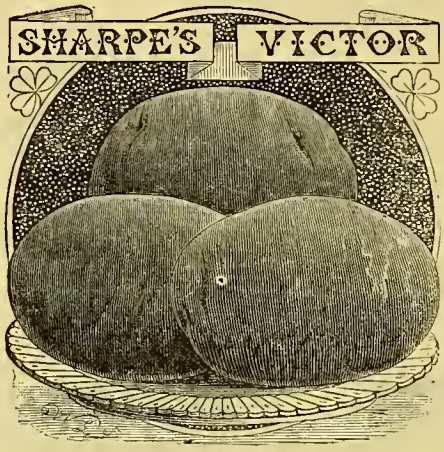

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Packing free and extra plants sent to compensate for carriage.
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Kent, The Garden of England.

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The Kent Roses do Live.
Extra well-rooted stuff, very good, very cheap.
Descriptive Rose CATALOGUE Free.
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AZALEAS, Ghent, mollis, Pontica, or indica, all with buds, for Forcing, 18s., 24s., and 30s. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 1, 1883.

TREE PLANTING.

DOTTING AND GROUPING.

IN addition to the mistakes in planting already adverted to at p. 617, there are not a few others almost equally glaring and mischievous. One of the most common of these consists in the almost universal dotting of single trees at regular or irregular distances all over the demesne. This system of planting, doubtless, originated in the desire to make every tree a perfect specimen of its kind. This is so desirable that, in large places especially, space ought to be provided in the park or pleasure ground for the development of perfect specimens. Such spaces should be treated as pinetums or arboretums—in other words, places for the perfect culture and free growth of single trees. But where trees are planted for shelter, profit, or the formation of landscapes, the dotting system should give place to the grouping. However skilfully planted, it is well-nigh impossible to force an assemblage of single specimen trees into an efficient shelter. The winds could hardly fail to sweep round their outlines, and form eddying and flowing currents that would find their way through such imperfect barriers. Again, in planting for profit, the perfection of individual specimens must give place to the timber value of aggregated masses. While steering clear of overcrowding, as at once unsightly and unprofitable, yet the massing together of trees hastens their growth and improves the quality of their timber. Every one of the slightest experience in the growth of timber for profit will admit that it is grown faster and of finer quality in masses or groups than in isolated trees. In the former each tree fosters, and is fostered by, its neighbour; whereas in the latter each stands alone, exposed to every wind that blows, and subjected to a far lower temperature than those in masses.

Groups and masses of trees and shrubs have been so generally planted to shelter other things—such, for example, as the dwelling-house, garden, or orchard—that their fostering influence on the trees or plants that compose them has been too frequently overlooked. Measured, however, by the superior growth of the individual trees in such groups, as well as by direct experiments on their superior temperature, the results are equally striking. But the strongest objection to the dotting system consists in the obvious impossibility of forming a landscape by such means. Neither the genius of a Loudon, a Price, a Nesfield, nor a Marnock could form a lovely landscape by such means. No matter what trees might be used, the formality and regularity of dotting them about singly at regular distances would rob the sky and ground lines alike of all easy grace or flowing beauty. To take an extreme example, what landscape gardener could make anything in the way of landscape out of fifty Scotch Firs planted at, say, 30 feet apart? But group the same number of trees on a kind of rising ground, and a striking feature of a noble landscape might at once be formed of the self-same materials. And it is exactly the same with all trees whether deciduous or evergreen.

Less trees have been more effective in landscapes, to take another example—the Araucaria imbricata. Doubtless this is partly owing to its peculiar structure and outline. But the tree has been robbed of any merit it may possess for the formation of landscape by being dotted or avenued out of all its artistic merit. Groups of these of considerable size, planted so closely as to allow interlacing of their branches, and then growing up into a mass, would furnish a new feature in not a few landscapes which are now more or less marred and spoiled by the isolated character and repellent habit of Araucarias dotted all over it. Thus treated the trees are in the landscape, but not of it, and never can add a single factor to its enrichment, or better or more distinct furnishing.

These two examples are chosen, not because they have any special merit as landscape trees, but rather because they are familiar to most readers. The same rule applies to all trees and shrubs. For the formation of effective landscapes the groups should, as much as possible, be composed of one species or variety of trees. Sufficient mass of one colour or form to fill the eye at one time may be said to be essential to the formation or enjoyment of the most pleasing landscapes. Where the form and colour are ever changing there can be no rest or repose, and consequently no artistic satisfaction, nor real pleasure. Most landscapes of moderate size are more or less marred or ruined by variety; there is too much and too many sorts crowded in. Not a few of them resemble a picture—all colour; they have neither shade nor repose in them. Half-a-dozen or so of groups, each formed of but one variety, would, be far more effective than the twenty, thirty, fifty or a hundred separate and distinct trees or shrubs. These not seldom remind one far more of a raree show than of a well-furnished, satisfying landscape.

New Garden Plants.

ZYGOPETALUM BURKEI, *n. sp.**

A VERY interesting plant, discovered by Sir Robert Schomburgk more than forty years ago in Demerara, as is proved by the itinerary records of this traveller kept at the British Museum. Specimens, however, appear to have been lost altogether, provided they are not mislaid and come one day to light. It is well known that a great part of Sir R. Schomburgk's treasures was lost *en route*. Lately the plant has appeared with Messrs. J. Veitch & Sons, having been rediscovered by Mr. Burke, a well-doing traveller, as I learn from Mr. Harry Veitch, who requested that the plant might bear the name of its collector.

These first flowers are only two-thirds the size of what they will become later. Sepals and petals of finest darkest blackish-purple inside, with green signatures, partly linear, partly hieroglyphical, quite green outside. Lip white. The callus on the base, however, has thirteen purple ribs, which makes a very pretty effect.

The column is of light whitish-green, with numerous dark purple longitudinal lines in front, but with no hairs at all.

The linear auriculæ to the column, the very thick leaves, and the nearly tetragonous shining bulb, exceeding 2 inches in length, are very peculiar. *H. G. Rchb. f.*

CYPRIPEDIUM RÖBBELENII, *n. sp.*

It is a great surprise to receive what appears a neighbour and rival species to Cypripedium philippinense, Rchb. f., *Bonpl.*, x., 1862, p. 335, better known in the horticultural circles under the name of Cypripedium lævigatum, Bat., and which was very accurately represented in Sir William Hooker's *Botanical Magazine* by Mr. Walter Fitch.

The fresh plant (species or very aberrant variety—we know not which) is an epicurean creature, since it lives only on the borders of the finest limpid rivulets, drinking in idyllic peace, by the aid of its long roots, the murmuring water! There it was seen without the usual companion of Cypripedium philippinense, Vanda linochiloides (Bateman) by Herr Röbbelen, the Swiss collector, who first visited the Philippine Islands for Mr. F. Sander.

My poor materials consist of three single dried flowers, sent in a letter to Herr Consul Kienast Zölly, of Zuric, who kindly sent them to me. I recommend heartily to Herr Röbbelen the method of drying specimens practised, after Mr. F. Sander's instructions and orders, by Mr. Förstermann. Then Mr. Pfau, of Chiswick, sent me two fresh leaves; and last, not least, a fresh peduncle, with a freshly expanded flower, no doubt developed in the case, bent like a shoot of an Asparagus grown in a glass bottle. The marks on which I rely in adopting Herr Röbbelen's view about the distinction are the following:—The leaves are narrower. The peduncle is more hairy. The upper sepal is narrow, with nearly equal transverse diameters, whitish, with five long and three very short dark purple nerval lines. The under sepal is purplish-white, with some microscopic purple spots on the base and longer than the calceolar lip. The hooded staminode has a small apiculus between its two anterior teeth.

The stigmatic body has a long apiculus, bent upwards as the trunk of an elephant is sometimes.

To these remarks I may add, that the lip is light yellow, and the staminode is light ochre without the least vestige of those longitudinal and transverse green markings which look so charming in Cypripedium philippinense. Colours are, however, much subject to variation, and it would be dangerous to speak positively about those which must have been developed in a most probably dark case.

Will all these marks keep constant? No one can stand for them altogether. *Qui vivra verra.* It would, however, be very surprising, if the majority of the marks do not prove constant, as we cannot expect the plant to be a summary of all possible aberrations, as old veterinary books used to show a horse suffering from all diseases and shortcomings at once. *H. G. Rchb. f.*

* *Zygopetalum Burkei.* n. sp.—Pseudobulbo tetragono costis obscuris solitariis inter angulos, triphyllis; foliis pergameneo-coriaceis; pedunculo plurifloro (ad 5); sepalis subbilabiatis, lateralibus deflexis, margine interno supra involutis; tepalis subæqualibus; labello breve unguiculato, ante unguem utrinque auriculato, dein ligulato antice dilatato obtusato; callo inter auriculas 13 jugo; columna utrinque apice lineari auriculata.—Demerara, Robert Schomburgk, Burke! (Viv. mis. cl. Veitch.) *H. G. Rchb. f.*

THE PEACH WALL AT DITTON PARK.

WE have occasionally made reference to the excellence of the culture of stone fruits on open walls as practised at Ditton Park, Slough, by a veteran gardener, Mr. Lindsay, and something in accord with the spirit of the old proverb about the proof of the pudding, &c., now present on an illustration of a portion of the Peach wall in these gardens (fig. 120), taken at the end of August by Messrs. Runnicle Brothers, photographers, of Eton, whilst the trees were laden with fruit. Unfortunately, owing to the strong reflective power of the luxuriant glossy leafage as compared with that of the fruit, the latter does not stand out so clearly as could be desired; but our readers may accept our assurance that every tree in the gardens, whether Peach or Nectarine—and there are many such as are represented—were fully laden with very fine fruits, such as would have done credit to any garden in the kingdom. The three trees seen in the picture speak for themselves, and better display the grand way in which the wall is covered than would one having a far longer perspective. These three trees cover a length of exactly 56 feet of wall, the which is clear 10 feet in height, and in point of health, vigour, and fruitfulness could not be excelled. The one in the foreground is an Elruge Nectarine nine years planted; the second is a Noblesse Peach, and the third Walburton Admirable Peach. On the wall immediately to the left of the part shown in the picture is a Lord Palmerston Peach, five years planted, that carried nearly twelve dozen of grand fruits, and next year will quite cover its allotted space of wall. Belle Bosc, Violette Hâtive, and Barrington, are also huge trees, covering the wall completely and fruiting well.

It is one of the most conclusive proofs of the excellence of Mr. Lindsay's culture and general treatment of his trees that he seldom misses a crop; indeed, last year, when Peaches were generally thin, he had a heavier crop than this year, though the past season has been most productive. Though the illustration represents a portion of the outer garden wall, yet there are some noble trees within the garden, and notably a Walburton Admirable, 7 yards in length, that covers the wall from top to bottom. The old Buckingham Mignonne is represented by a fine tree, 18 feet by 10 feet high, and though said to be the same as the Barrington, is here found to be earlier. It carried a grand crop. A Lord Palmerston, now 10 feet by 9 feet high, transplanted in the spring, carried, in spite of its removal, a splendid lot of fruit. The earliest kind grown is Early Louise, which does well; and the latest is the Salway, the which, a fine tree, keeps its fruits well into November, and ripens as well as the Salway ever does outdoors. Whilst the not uninteresting matter of size of flower may present itself to some readers' minds, it is a fact that at Ditton little heed is paid to that subject, but that kinds are grown that exhibit comparative hardiness Perhaps it is because gardeners have not sufficiently considered that important feature in outdoor Peache that so many failures have resulted. In any case goo drainage and culture are more relied upon here for the production of good crops of fruit than spring coverings, of which but little is used. In natural advantages we do not see that Ditton possesses any beyond what are found in most southern gardens.

TRUFFLES.

I AM sorry to find that English "Truffle-hunters and their dogs" are described in last week's *Gardeners' Chronicle* as "alike extinct," and that, so far at least as England is concerned, "the art of gathering" these savoury tubers must be classed among "forgotten or forsaken industries." Nor, although M. Chatin is still hopeful, does any real progress appear to have been made in their scientific cultivation. Yet it is not for want of trying. Half a century ago Loudon devoted an entire number of the *Gardeners' Magazine* (then published only on alternate months) to this unctuous subject; but the article bred no Truffles. Some twenty years later Mr. Disney and Dr. Lindley took the matter up, and with no better success. But now that the parasitic habits of this redoubtable fungus are better understood we may cease to wonder at the failure of all attempts to cultivate it away from its natural haunts; nay, we might as well expect to find forced Rafflesias in Covent Garden Market as baskets of the black Truffles of Perigord artificially produced. But are all the species equally intractable? Can nothing be done with the white Truffle of Piedmont, about which your correspondent "Dodman" (the late Mr. Bellenden Kerr, of whom more anon) used to discourse so pleasantly in your columns? I am not aware that it exclusively affects the woods. Then there is the African Truffle (Terfezia), which is plentiful in the neighbourhood of Mogadore, and which Mr. Berkeley says—and from his verdict there is no appeal—is even better than the white! Again, Mr. and Lady Anne Blunt met with what they describe as a Truffle, though evidently not hypogeous, and which is so abundant in certain parts of Mesopotamia that the Arabs identify it with the manna on which the Israelites subsisted in the wilderness! (*Bedouin Tribes of the Euphrates:* London, 1879.) As the "feathered fowls" (erroneously rendered "quails" in the A. V.) which the heavens "rained as the sand of the sea" (Psalm lxxxviii, v. 28) were most probably red geese, we must not be surprised to hear some day that the chosen people feasted upon *foie gras!* This, however, by the way.

And now with your permission, I will rehearse the story of a Truffle hunt, of which I happened to be chief promoter, and which your own most interesting article has vividly recalled to my recollection. Possibly it may suggest some new ideas. Nor is it improbable that among your numerous readers there may be some who formed a part of "the field" on this notable occasion; if so, I am sure they will thank me for reviving the memory of a very pleasant day spent (towards the end of February, 1869) in the "Department" of "Les Alpes Maritimes." We, *i.e.*, myself and family, had established ourselves for the winter at the Hôtel Bellevue, Cannes, where the frequent appearance of Truffles, very fresh and very good, naturally suggested the proximity of a Truffle country. Then why not have a day's hunting? This, however, was not the easy matter I supposed, for the Oak coppices where the Truffles grew were as zealously watched as a Cran-

berry swamp in Delamere Forest, or a habitat of Vanda Sanderiana in the recesses of the Philippines. Still the thing had to be done. I therefore went, as all who were in any difficulty usually did, to Mr. Bellenden Kerr, and the oracle was propitious. Mr. Kerr immediately scribbled a note of introduction to M. Prosper Merimée, whose estates in the neighbourhood of St. Vallier were known to be redolent of Truffles. So off I went to the great man. Unfortunately I knew nothing of two middle-aged English dames who out of sheer Platonic admiration of M. Merimée's genius had attached themselves to his household. Conceive, then, my astonishment when on being shown into the drawing-room there entered to me a lady, plainly though neatly attired, who replied in most unimpeachable English to my salutation in very indifferent French! "M. Merimée," she said, "would soon appear, and meanwhile would I take a chair." We chatted pleasantly enough for some time, but who could the lady be? I was still speculating and theorising when the door opened, and in walked M. Merimée. The renowned Senator (of the Second Empire) was exceedingly affable, and when he knew the object of my visit entered heartily into the idea. He would write to his people at once, and when their answer came he would immediately let me know; and he was as good as his word. A few days later I received one of his quaint, cynical notes—alas! I did not preserve it—in which, after telling me with the utmost geographical precision where the Truffle region lay, he concluded with the not very encouraging assurance that if his instructions were carefully observed, "Mr. Bateman might perhaps see a Truffle-fly, and possibly find a Truffle!"

Here, however, was something to go to work upon, and as the Truffle season was nearly over I set about my preparations at once. Having made up a party of agreeable people—ladies and gentlemen in equal proportion—I bespoke the services of two professional hunters, and ordered luncheon at the chief hostelry in St. Vallier. (This is a little town about 12 miles from the coast. It is mentioned in *The Hundred Days* as the place where Bonaparte slept the second night after his return from Elba; or, as the *Moniteur* expressed it, after "The monster had landed at Antibes!") At ten o'clock on the day appointed we *rendezvoused* at Grasse—just half-way if you reckon by distance, but since from this point the ascent is continuous it was past twelve when we reached St. Vallier. Here the professionals met us—well-built fellows in sombre suits of olive-brown cloth, and with leathern pouches at their sides. They were armed with a kind of diminutive battle-axe, a combination of mattock and pick-axe, wherewith they could scoop out the soil or force out the stones. Of dogs or pigs they had none, relying entirely on the quick scent of the flies to find the tubers, and on their own sharp eyesight to find the flies. We started immediately for the happy hunting ground—a sort of wilderness mainly composed of irregular patches of dwarf Oak coppice intersected in all directions by tracks or bare open spaces. These for the most part were plentifully sprinkled with small stones (not gravel) of the same reddish hue as the soil. It was in such places that the Truffles grew. We had not long to wait for "a find." Indeed, I suspect that the men had beaten the coverts betimes in the morning and marked the spots where flies were flushed, for there of course the treasure lay. This was perfectly fair. Of any trickery—such as I fear was formerly not uncommon in England when grandees were expected—I quite acquit them. At all events, in the excavations which I "personally superintended" the ground had evidently not been meddled with. But I anticipate.

As to the Truffle-flies that I supposed had been previously disturbed, we certainly found "the creatures at their dirty work again," and but for our unwelcome intervention the tubers which we carried home would no doubt have been converted into egg-chests before nightfall. The flies themselves were far from numerous, and when surprised rose rapidly on the wing. Only one was captured, and this fell to the lot of Lord Henry Scott, who, I hope, has taken every care of his unsavoury prize. (N.B. The insect, so far as I remember it, was of a rufous tint, and about the third of an inch long; of course it was a female as the other sex has no eggs to deposit.) We did not make a large bag—the Truffle season, as I have already remarked, being nearly over. What we found lay at a depth of from 18 inches to a foot below the surface. After the tubers were reached we allowed the ladies to detach them, on the principle that consigns Major Reynard's brush to any fair equestrian who may happen to be in at the death. As it was now 1 o'clock we had to think of luncheon, which was ordered for that hour. Here—whatever might be the case in the coppice—there was no scarcity of the kind of game we had come to seek. There were piles of the blackest of tubers in the whitest of napkins. According to the *menu* they were prepared "*à court-bouillon*"—that is, they had been simply and sharply boiled. I was reminded of them the

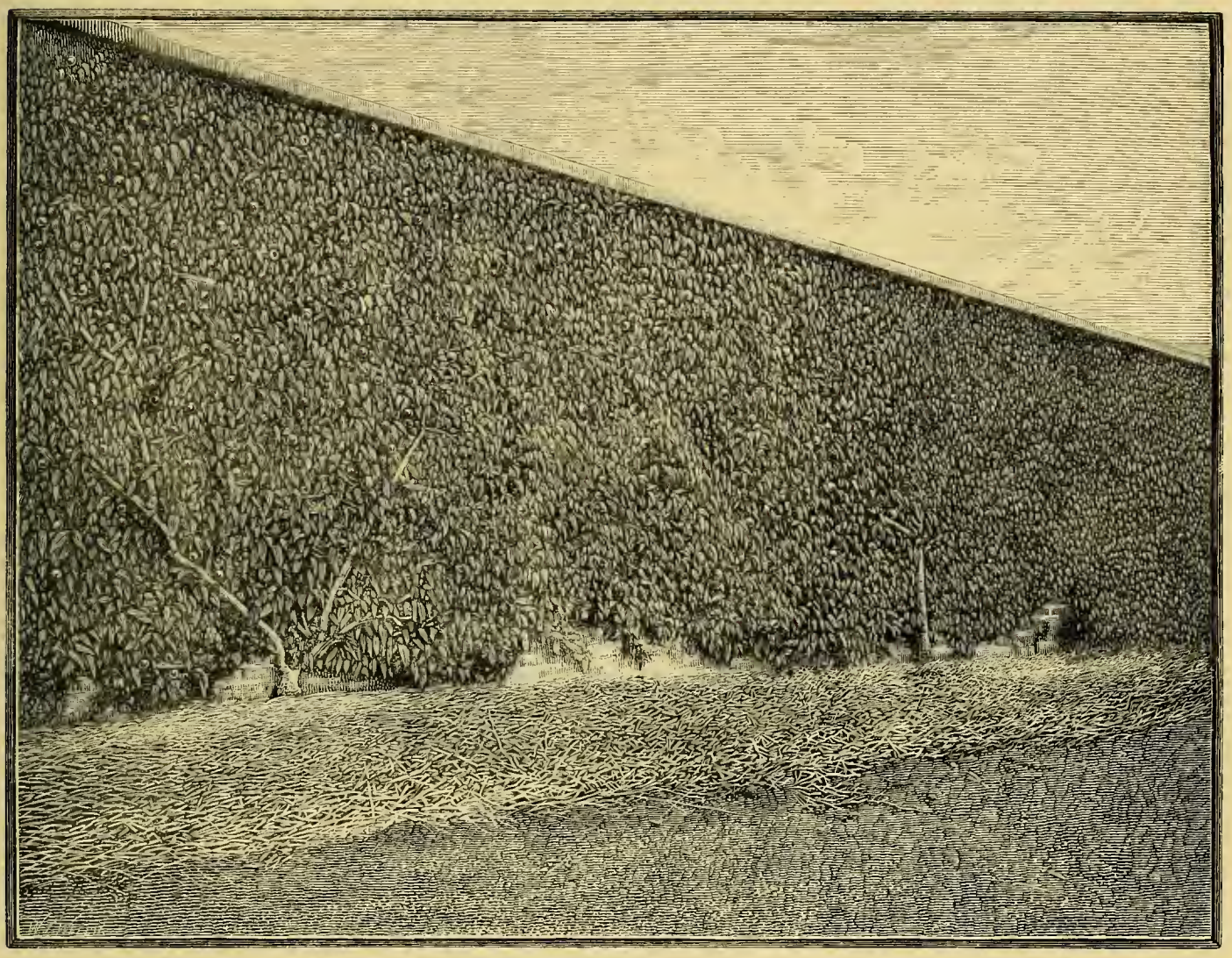

Fig. 120.—The Peach Wall at Ditton Park, Slough. (see p. 684.)

*

other day by a passage in *Lothair*, where we are introduced to an open-air luncheon presided over by Madame Phœbus, who has at her side "the chief patron of British art." The lady's remark that a luncheon of this kind was "rather jolly" elicited from her neighbour the more rapturous exclamation that it was "a perfect romance"! To which the hostess rejoined—

"'With a due admixture of reality,' helping him, at the same time, to an enormous Truffle, which she extracted from its napkin. 'You know,' she said, 'you must eat it with butter.'" *Lothair*, p. 183, new edition in 1 vol., 1870.

This, of course, is exactly what we did, and very good the Truffles were. The next best thing was a leg of wild boar, which—though often hard and tough on English tables—was perfectly tender. We owed the success of the luncheon to a Grasse cook, especially imported for the occasion, who had a wonderful notion of the dignity of his art; so much so that no sooner had he sent up the last *plat* than he took up his station at the door of the *salle-a-manger* in order to be ready to receive the congratulations of the guests, all of whom —His Grace of Buccleugh included—he shook cordially by the hand in quite a patronising way. This solemn function over we re-entered our *voitures* and reached Cannes just before sunset. *J. B.*, 9, *Hyde Park Gate South, S.W., Nov.* 26.

P.S.—Knowing that my daughter (now Mrs. Ulick Burke), who was present at the hunting of *Tuber melanogaster*, had—more fortunate than her parent—also assisted on a similar occasion when our English *T. æstivus* was the quarry, I wrote to ask for a few particulars, and I have now her letter before me. She tells me that at a certain place in Dorsetshire, where the hunt took place, the work was done by "a little broken-haired black and white terrier which scratched for the Truffle, and when found, brought it in his mouth to the keeper as tenderly as a retriever would a bird. He was rewarded by a bit of bread, or in case the Truffle was worm-eaten or otherwise spoiled, it was given him. The Truffles are always found under Beech trees, and the hunting goes on every autumn as a regular thing. The keeper has a special preserve near the house, which he only hunts when Truffles are wanted in a hurry for the kitchen. Truffle dogs are a special breed, very expensive, and very difficult to train."

—— I read with much interest, and some surprise, your article on Truffles in last week's *Gardeners' Chronicle*. The writer says, "Truffle-hunters and their dogs are alike extinct"! I can only suppose he has never been in Hants, Wilts, or Dorset at this time of year, or made any inquiries in either of those counties. I do not think that the old "Truffle man" who passes my door about once a fortnight during the season, considers himself or his clever little dogs by any means extinct. Truffle-hunting is not yet a forgotten industry in these parts, whatever it may be elsewhere; and an old custom, or kind of royalty, which was formerly observed very generally, is still carefully maintained on some manors, viz., that the Truffle-hunter must first bring all he finds to the owner of the soil, who has the right to keep as much as he likes at a fixed price per pound. Two acquaintances of mine, one in this county and one in Hants, keep up this custom, and consequently they are generally well supplied with English Truffles at a low price, as I know from experience. That this Mushroom is sometimes found in queer places, and not immediately under Beech trees, is certain; and as an instance I might mention that only last autumn I saw two little dogs "mark" some Truffles in a hard footpath by the side of the high road, some 200 yards from where I am sitting, and hardly out of the town; and a second lot were "marked" and dug out of a bank on the other side of the road a few minutes afterwards. In this bank there are no trees of more than twenty years' growth, I should think, and they are chiefly Elm. Some Beech trees, however, are growing on the other side of a high wall which bounds the footpath in question, and their roots may possibly run under the path, but could not cross the road at that point. *H. H., Wilts.*

—— In reference to the interesting article on Truffles at p. 660, I may say that the Truffles of the Continental markets are not the same with English Truffles. The Truffle usually consumed here is an inferior one, named Tuber æstivum. The Truffle of French markets is T. melanosporum, of Italian markets the Garlic-scented Tuber magnatum. Neither of the two last are British. Travellers on the Continent who eat Strasbourg pie and stuffed turkeys, say how superior the French and Italians cooks are to the English, but the fact is that the former cooks are able to use Truffles of a superior class whilst we here are obliged to be content with a hard, disagreeable-tasting, indigestible and inferior species. *W. G. S.*

POTATO CULTURE.*

The Potato has offered to those writers who are afflicted with the *cacoethes scribendi* a prolific subject for the making of books; and the one under notice is, perhaps, the latest, and certainly not one of the best. So much has been written from time to time concerning the Potato, in our columns and in those of our gardening contemporaries, that it is difficult to find anything new to be said; and certainly the author gives us nothing fresh, except it is here and there to express some absurdities that may mislead, but cannot instruct. Really, so much is known about Potato culture, and so well, as a rule, is that esculent grown, that in a cultural sense little is left to be said that is new or useful. Putting aside the disease, our most truculent enemy, it is doubtful whether we ever raised better crops of Potatos than we do now; and were there no disease, or were it at least as tolerant as it has proved to be this year, we should soon find the Potato to be such a prolific cropper as to make us presently cry—"Hold, enough!" Let it be known that our wondrous crops now arise less from improved methods of culture—for, after all, generally, these have changed but little —but rather from the introduction of new kinds, that whilst giving some immunity from the disease, have been wondrously instrumental, through their great cropping qualities, in adding to the Potato produce of the kingdom.

Our author, in his preface, urges the value and interest which attaches to the raising of new kinds from seed, and yet in almost the same breath terms those selfish who purchase collections to grow them. We should like to learn how good new kinds are to be made useful widely, and to be generally cultivated, if they are not put into commerce and purchased. Amateur book writers, however, are not always logical. Raising new kinds from seed is held by the author to be of such importance that he devotes the opening chapters of his book to this subject and very early supplies the novel information that the flowers of the Potato plant never becomes fully developed here—a statement that may possess some modicum of truth as far ar particular kinds are concerned, but is not correct as far as concerns very many others; thus showing that the defect is not so much of climatic production as the result of breeding, or other cause — as for instance, those famous kinds, Woodstock Kidney and International, both from the same seed-ball; and yet, whilst the first will produce bloom and fertile seed in vast quantities, the other seldom sets its blooms. We may, therefore, dismiss the idea that climate has anything to do with the natural non-setting of bloom on some kinds. Very much stress is laid upon the necessity of planting kinds intended to be operated upon at intervals, so as to ensure in some such way simultaneous blooming; but that can hardly be needful, as a breadth of any kind of Potato will furnish bloom over a month at least, and thus give ample time for cross-breeding. The assumption that it is needful to assist Nature to produce mature seed by removing the root-tubers from the plant naturally provokes a smile, inasmuch as carrying one, or at the most two seed-balls, needs but little additional aid, and will be in no way affected by the carrying of a crop of tubers.

Most elaborate directions are given as to the sowing Potato seed, the soil to be used, pricking out, potting, and final planting out, that seem singularly overdone because so needless. Potato seed may be sown in a pan of any fair soil, will germinate in the spring under glass without heat, the seedlings may be potted up singly, or may be pricked out into other pans thinly, and from these be in May transferred into ordinary garden soil, where with ordinary culture large crops of tubers will be produced the first year, and all without the least fuss or bother. Nothing new is said about soils, trenching, manuring, planting, &c., but we are told that the thinning out of the top growth is desirable. That may be so, but would be a costly work if performed over a large area; and under any circumstances is not quite the best method of proceeding. Prevention is better than cure, and if any kind is in the habit of throwing up too many shoots or shaws the best plan is to remove the superfluous eyes before planting; in fact, all who grow Potatos for exhibition adopt that plan. 'Tis true the author affords such information later on, and thus renders his preceding heading superfluous.

A chapter devoted to the Potato disease is but a rehash of old notions and scientific opinions jumbled together, and seems to be written on the assumption that cultivators are generally careless, reckless people, who care nothing for their seed tubers, plant in the worst possible situations, and generally do everything they should leave undone. The author does not give his name or habitat, and therefore when he writes about his system of culture and methods of producing crops for market early worth £480 per acre, he raises up an imaginary El Dorado, the which readers naturally desire to find in substance. That splendid result is based upon an average crop of 14 lb. to the square yard, and reckoned as worth 2*s*. That one simple calculation is pretty good evidence of the unpractical nature of the information contained in the book.

* *Potato Culture.* By an Old Exhibitor. (Cassell & Co.)

CHRISTMAS ROSES.

We are now in a position to give an excellent illustration of Helleborus niger var. altifolius, Hayne, concerning which much discussion has taken place. Our figure (fig. 126, p. 693) is taken from a specimen furnished us by Mr. Brockbank. To a large extent the illustration speaks for itself, but we may add that the expanded flowers, which Mr. Worthington Smith has so well represented, were of a creamy-white colour, in some cases flushed with a shade of rose, as is so common in these plants, and that the flowers sent by Mr. Brockbank fully bore out the description given by that gentleman.

Leaving Mr. Brockbank to tell his own story in the subjoined letter, and also referring to his previous communications (p. 527), we may here add a few historical memoranda, which may be of interest to those of our readers—and they must be very numerous—who have an affection for Christmas Roses. No doubt the varieties of Helleborus niger must have been familiar to botanists and cultivators in past ages, but the first positive mention of the particular form under the name altifolius that we have been able to light upon is that of Hayne, who, in the first volume of his *Getreue Darstellung und Beschreibung der in der Arzneikunde Gebräuchlichen Gewachse*, &c., published in 1805, p. 7, gives descriptions and coloured figures of two Hellebores, one of which he calls Helleborus niger humilifolius, and of which he gives brief descriptions in German and in Latin. The latter runs thus:—"H. scapo sub bifloro subnudo foliis pedatis longiore." We may leave this on one side for the present, and turn to his var. β, "H. niger altifolius, Hayne," which is, we suppose, the prototype of our present plant, although the figure he gives is poor indeed by comparison with that we now give. Of this altifolius variety Hayne gives the following diagnosis:—"H. scapo sub bifloro, subnudo foliis pedatis breviore" (*Hochblättrige Schwarze Christwurz*). From this it will be seen that he distinguishes this variety in virtue of its flower-stalk or scape being shorter than the leaves, whereas in the humilifolius variety it is longer than the leaves. The localities given are the Apennines, Tuscany, Austria, &c.

The figure shows the leaf-stalk and the flower-stalk spotted with red, while there are no such spots in the figure of humilifolius. The flowers of altifolius are figured as white flushed with rose, about 3 inches across, and with the flower-segments more pointed than in humilifolius, in which latter the flower does not exceed 2 inches in diameter. The leaf-segments of altifolius are, as represented by Hayne, longer and more coarsely and irregularly toothed than in his var. and humilifolius.

Reichenbach, in his *Fl. Germanicæ*, tab. 112, No. 4727, p. 747 (1839), adopts Hayne's altifolius as a var. β of H. niger. His figure shows the long leaf-stalks and long sharply-toothed leaves—both leaf-stalk and flower-stalk speckled. The flower is represented as white, while that of niger is flushed with rose. Reichenbach gives as the locality where the plant is to be found in Tyrol and Carinthia, and adds, "Habitu pariter ac punctatione petioli caulis

que inventorum in Carniolia testimonio semper distinguitur."

In the Kew herbarium are native specimens of this H. niger var. β altifolius, from Tyrol and Carinthia.

Purposely omitting more than incidental reference to the ordinary type of Helleborus niger as represented in the *Botanical Magazine*, t. 8 (1786), and which belongs to the humilifolius section, we may now pass in review some of the older figures, which appear to us to belong more or less closely to the altifolius form.

Turner, in his *Libellus* (1538), mentions Elleborus niger, which is our Veratrum nigrum, but adds:—"Cœterum ego censeo illam herbam quam vulgus Cantabrigiense vocat Bearefote esse verum Elleborum nigrum." Whether H. viridis or H. fœtidus is meant is not clear; but it is more likely that one of these is meant than the cultivated H. niger.

Matthiolus, in his *Commentaries*, published in 1583, gives a poor figure of "Elleborus niger" and of "Elleborus niger alter." The former appears referable to the altifolius type.

Gerard, in his *Catalogus* (1596), mentions Helleborus niger verus, as well as others which need not be cited. In the first edition of the *Herbal* (1597) the same author gives a bad figure of Helleborus niger verus, which, whatever it may be, is not our altifolius. We have not consulted Johnson's edition of Gerard (1633), but, according to Mr. Brockbank, the plant there represented is what is now known as the H. niger var. angustifolius—a point upon which we can at present express no opinion.

Clusius, in his *Rariorum Plantarum Historia* (1601), p. 274, under the title "Elleborus niger legitimus," gives a reduced figure of a Hellebore, which, so far as the relative proportion between leaf and flower goes, was decidedly of the altifolius form. This is what he says of it:—"Elleborus item niger legitimus albo amploque simplicis rosæ instar flore, qui marcescens purpurascit."

Clusius quotes Dodoens as mentioning a "Veratrum aliud nigrum viridiflore quod Dodonæi secundum est," &c.; and to this plant of Dodoens, which is the Veratrum nigrum of Matthiolus, ed. 1558, p. 591, and the Helleborus viridis of the moderns, he says:—"Germania Christwurz quod ipsa bruma circa Christi natalem diem flores promere incipit." From this, as well as other sources, we learn that the German name is not Christmas Rose, but Christ's Root, and that the name was applied to H. viridis; and even now, according to Ulrich's *Wörterbuch der Pflanzen namen*, the term Christmas Rose is not used in Germany, though "Winter Rose," and "Christblume," and "Böhmische Christwurz," with other names, are given to Helleborus niger.

Turning to Dodoens' *Pemptades* (1616), (we have not at hand the *Cruydboek* of this author, 1554), we find the same figure as that of Clusius, just mentioned under the title Veratrum nigrum I., his Veratrum nigrum II., being Helleborus viridis. He says:—"Quod autem inter hæc genera primum (nigrum I. = altifolius) vulgo a Germanis Christwurz—videlicet quod hieme clemente circa natalem Domini nostri Jesu Christi diem floreat."

Parkinson, in his *Paradisus* (1629), p. 344, has a figure of Helleborus niger verus which is of the humilifolius type. He speaks of it as Christmas flower.

Bauhin in his *Pinax* (1651) apparently mixes up H. niger and fœtidus, but says of niger:—"Flore roseo-flos purpureo-candidus sic flos ioitio albidus dein purpurascens postremo virens et qui albo flore marcescens purpurascit; flos albescit cum aliqua diluta rubedine."

Besler, in his magnificent folio, *Hortus Eystettensis*, 1613—a book whose fine illustrations lose somewhat of their usefulness from defective indexing and numbering—gives under his section "Plantæ hyemales" a really fine figure of the altifolius type under the name Helleborus niger legitimus. In leaf and flower this is an excellent figure of altifolius as we now know it. We quote a portion of what he says concerning it:—"Helleborus niger legitimus Stiriacus aliis et Veratrum nigrum primum Remberti Dodonaei seu Elleborine nigrum Petri Andreae Matthioli herbaceo viridique colore in foliis floribus albis purpurascentibus, stamina habet pallescentia. . . Germanice, Christwurz, Schwarze Niezwurz," &c. This latter name is also used in modern German, as Niesswurz (Sneezewort!).

Chabræus, in his *Stirpium Icones* (1666), has a woodcut of one of the humilifolius set as Helleborus niger flore albo ac interdum etiam valde rubente. His "H. niger vulgaris flore viridi vel herbaceo" is our H. viridis. The following verses cited by him are of medical interest:—

"Helleborus ait geminas species testatur habere
Album quod sursum purgat, nigrumque deorsum,
Vim siccam calidamque tenet et tertiis illis
Est enim in utroque gradus nigro violentius album," &c.

Coming now to Jacquin's *Flora Austriaca*, vol. iii. (1775), we find a figure of Helleborus niger, which, so far as the relative length of leaf-stalk and flower-stalk are concerned, falls under the altifolius type.

Hale, *A Complete Body of Husbandry* (1756), pl. 31, f. 5, gives a figure of one of the humilifolius, set under the name Christmas flower, and referring to his predecessors he says, "These authors had the accuracy to observe that the distinction in the colour of the flower was accidental, and to be considered only as a variation of the same plant."

Salisbury, in the *Transactions of the Linnean Society*, viii., 304, changes the name niger to grandiflorus, because, as he well says, all the species have black roots. Happily botanists have preferred to keep the old name, even at the risk of inconsistency.

Lastly, we come to Sweet's *Flower Garden*, ser. 2 (1832), t. 186, in which we find a white flowered, spotted stem form, under the name of H. niger var. vernalis, which he says flowers six or eight weeks later than the common kind. (Can this be the same as angustifolius?) "Of the three varieties of the Christmas Rose which we have observed in the gardens the one now figured (vernalis) is entitled to the preference, as being less encumbered by foliage and having the blossoms at least a third larger and of a clearer colour." And then comes a sentence which we heartily commend to those who are apt to place undue reliance on spots and tints:—"The varieties differ in their size and time of flowering and form of the segments of their leaves, but they agree in the more essential parts of their structure. A botanist should be wary of making species out of long cultivated plants, for they, like domestic animals, are much more prone to vary than those in a wild state."

Koch, in his *Synopsis* (1843), says, and, we believe, with truth, "Inter H. nigrum et H. altifolium auct. limites non reperio."

Mr. Baker, in his account of the species of Hellebore, *Gard. Chron.*, April 7, 1877, p. 432, mentions the variety altifolius, and none other.

It will be seen that several of the older botanists recognised the distinction that was afterwards formulated by Hayne, and that they were fully aware of the varying tints of the flower. If priority goes for anything the name "legitimus"—which, as we have seen, is applied to the form with relatively short flower-stalk—has precedence over angustifolius. But we must frankly say that we do not think discussion upon these points is likely to be very profitable unless associated with the physiological "reasons why" which are overlooked by most writers—the significance of the greening of the flower-segments as the seed ripens being to our mind of much greater importance than mere questions of variations of size, spotting, colour, &c., in which we entirely agree with Sweet. It is singular, too, to note how entirely the most marked peculiarity, and, in some senses, the most interesting one of all—the tubular petals or nectaries—are passed over. These organs make a Hellebore what it is, and it would be most desirable to more fully investigate their functions. In some experiments recorded by us at the Scientific Committee some years since we adduced some evidence to show that they possessed the same properties as those which rendered the Drosera famous. Our experiments were, indeed, merely tentative, not absolutely conclusive; but at least they merited confutation or confirmation.

These nectaries soon fall away, which may be the reason why these—the essential features of a Hellebore—are entirely omitted from Mrs. Duffield's plate in the *Garden* of August 24, 1878. We now append Mr. Brockbank's last communication:—

It is pretty widely known that Mr. T. H. Archer Hind has for many years devoted his attention specially to the cultivation of Hellebores, and that all florists are greatly indebted to him for information as to their culture and their history. The following extracts from a letter I have received from him with reference to my recent communication on the above Hellebore (altifolius) will probably be of interest to your readers, and I have Mr. Archer Hind's permission to publish it. He writes:—

"I have always believed H. niger altifolius, or maximus, to be an accidental variety of H. niger, and not a distinct species; but I had no reason for my belief, except that no natural habitat had been assigned to it. The only question appeared to be whether the North or the South—Aberdeen or Devon—had the priority of possession. Miss Hope had her first plant in 1863, and as it was at that period to be had only in one garden, or one very limited locality, we may presume that it had not been for any length of time introduced into Scotland. Now if you will refer to the *Garden* for 1883, p. 222, you will find that on the information of a friend whom I could thoroughly trust I quote a case in which H. niger maximus was known to have existed in a Torquay garden for at least fifty years prior to 1879, which gives more than thirty years' precedence of Aberdeen. At p. 244 (*Garden*) Mr. Ellacombe in a great measure endorses my statement, and in p. 199 of the same Mr. Wolley Dod supplies very particular information about Miss Hope's first plant of H. niger maximus. . . . My plants began to flower this year September 25, and some apparently good seed is formed already, but I never had good seed from this kind. At this moment I have more half-expanded than full flowers, but I measured one 5 inches across, and my memoranda state them to be from 4 to 5½ inches. The bulk of the stems, as well as the height, is what is most striking. As you rightly remark, there is no other H. niger which has the ends of the pistil persistently tinted with pink. This alone proves to my mind the identity of the flower you have discovered in Reichenbach with our plant, and this is your very interesting contribution to its history. Carniola seems a most probable habitat, and if Hayne found it there in or before 1840 (?1805), and called it 'altifolius,' I should imagine that should be its name; for though it appears to have existed in Devon for many years previous to that, no one seems to know whence it came nor what it was then called. I myself rather prefer 'niger maximus;' it seems to complete the series—niger, niger minor, niger major, niger maximus. I call your beautiful angustifolius 'major' as being the name under which it was known forty years ago. No doubt 'altifolius' is a good name when the plant is compared with the niger family, but it is very far short of argutifolius in stature, and amongst the hybrids (raised between colchicus and abchasicus albus, probably) I have many at least as tall as H. niger maximus." (Two leaves were enclosed measuring respectively 19 and 21 inches high.) "Now the name 'maximus' fits all round. Flower-stem and leaf, no other niger comes near it. It is strange how easily the history of a plant is lost. In an old Northumberland garden, more than forty years ago, I found a Hellebore which I named olympicus major, but its history and introduction were entirely unknown." *T. H. Archer Hind, Devon.*

Mr. Gusmus, of Vilbach, has also written me confirming the conclusion I had arrived at, that the plant grows wild in Carniola. "H. niger," he says, "is the common species found everywhere in our calcareous mountains; varieties I have also found in the wild state. H. niger altifolius, the higher leaved plant; H. niger macranthus: the teeth of the leaves are very large and thick, like thorns. It is a native of Southern Tyrol. The variety with fol. var. of Leichtlin belongs to it. H. niger laciniatus: a very curious plant, the teeth of the leaf being nearly an inch long; it is rare in the Alps. H. niger bifolius, with two stalks on one stem, I observed in the Kranisch Alps. H. niger is often found here with fine variegated leaves, yellow or white, but when planted in the garden the foliage is green the following year."

It is clear from Herr Gusmus' note that there are many forms of H. niger which are unknown to us, and which we may look for in the future. *Wm. Brockbank, Brockhurst, Didsbury, Nov. 12.*

Cultivation of the Hazel in Trebizond.—Hazel-nuts, which are produced in large quantities in Trebizond, yielded during last year a very abundant harvest, reckoned at not less than 500,000 cwt. This having also been the case in the preceding year, so plentiful successive crops of a product which is not of first necessity encumbered foreign markets, and rendered the sale, even at reduced prices, so difficult that only a little more than half the quantity produced was exported. Though not so remunerative as other products, the plantations of Hazel-nut trees are daily extending in all parts of the province, owing to the little work that their cultivation entails on the peasants, and though arable fields are often turned into Hazel-nut groves, in many cases lands otherwise unavailable to agriculture are made good use of with these plantations.

AUSTRALIAN SEED-VESSELS.

II.

Myrtaceous Seed Vessels.—In my notes on the seed-vessels of the Gum trees of Australia I incidentally mentioned that the seeds of all the species are small, and of some, especially of the gigantic arboreous species, very minute. I may here add that it has been computed that an ounce of sifted seed of the Blue Gum (Eucalyptus globulus) contains about 10,000 fertile grains. It should be explained that the sifting removes the often numerous abortive seeds. And these minute seeds retain their germinating power at least four years, as Baron Mueller has proved by direct experiment. He further found that the more minute seeds of E. amygdalina germinated six years after being collected. What a contrast in the size and vitality of these seeds and some of the larger dicotyledonous seeds! Take, for example, that of the Dimorphandra Mora, a leguminous tree of Guiana, each one of which will cover the palm of one's hand. Then there is the gigantic, curiously shaped seed of Carapa moluccensis. The seed-vessel is ovoid and 6 or 8 inches in its greatest diameter, with about eight seeds, so arranged that by mutual compression each seed is roughly in shape the eighth part of a sphere.

Belonging to the same tribe of the Myrtaceæ as the Gum trees are several other Australian genera remarkable in some way or other for the peculiarities of their seed vessels.

Some of these genera number many species, and like Eucalyptus are specially characteristic of the Australian flora. Among them is the genus Melaleuca, of which Mr. Bentham defines ninety-seven species in his *Flora Australiensis*. The peculiarity of the seed-vessels of many of the species of Melaleuca is their persistence on the plant, apparently during its whole lifetime. M. decussata is a shrub sometimes as much as 20 feet high, with slender branches and small Heath-like leaves. The flowers are produced in short spikes, or rather they are clustered near the tips of the branchlets, and sometimes appear to be spicate, in consequence of the branch at that stage not being produced above the flowers. Sometimes even before the flowers are expanded the branchlet bearing them is produced an inch or two beyond them, and clothed with leaves; sometimes the axis is not prolonged until after the flowering stage, as in fig. 121, A, which represents the seed-vessels of Melaleuca decussata soon after flowering and before the seeds are shed. Fig. 121, B, shows them one season older than A, and C one season older than B. In ordinary herbarium specimens, say about a foot long, there are usually three or four generations of seed-vessels, besides flowers. Eventually, as represented in C, the seed-vessels become quite embedded in the substance of the branch; yet between the clusters of seed-vessels of different ages the branches retain their slender character. On the older branches the swollen parts containing these embedded seed-vessels look like a gall production rather than a normal condition of things. This particular species was in cultivation in this country in 1821, when it was figured in the *Botanical Magazine*, plate 2268.

In the allied genus Calothamnus, or at least in some of the species, the base of the flower is embedded in the thick branchlet, and in course of development the calyx itself enlarges and becomes woody. Fig. 121, D, represents the calyx of Calothamnus torulosus, a little more than natural size, just after the stamens have fallen away. Fig. 121, E, shows a ripe seed-vessel of the same species; in this particular seed-vessel only two of the four lobes of the calyx have grown out and become lignified. Sometimes only one grows out, sometimes three, and occasionally all of them. Other species offer equally grotesque and singular forms of seed-vessels, though the genus does not offer the diversity found in Eucalyptus.

Proteaceous Seed-vessels.—The Proteaceæ of Australia exhibit as great a variety in their seed-vessels as they do in their foliage and flowers. Among the more conspicuous members of the order in the landscape are the species of Banksia. They are scattered nearly all over the country, but thirty-six out of forty-six of the described species are restricted to West Australia. In stature they range from shrubs of 2 or 3 feet in height to trees of medium size, rarely exceeding 40 or 50 feet, and they bear at the same time seed-vessels of many successive seasons, expanded flowers, and undeveloped inflorescences. The flowers are very densely crowded in terminal, cylindrical, or spherical spikes. Fig. 122 represents a spike while the flowers are still in bud; each of the white squares is the tip of a flower-bud. One of these flower-spikes often bears more than 1000 flowers, while the number of seed-vessels that attain maturity is very small, often only four or six, though sometimes as many as there is room for, which is not a large number, because they are from

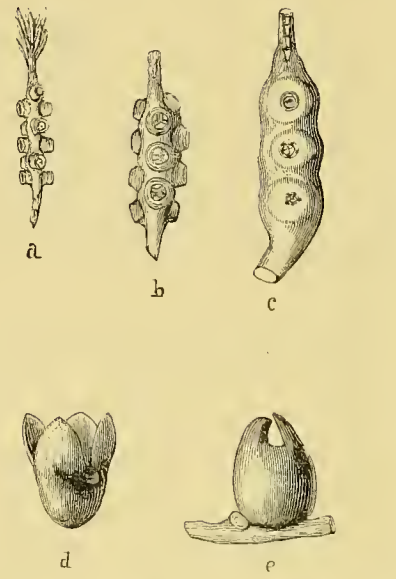

Fig. 121.—A, B, and C, Clusters of the seed-vessels of Melaleuca decussata respectively one, two, and three seasons (years?) old: natural size. D, Calyx of Calothamnus torulosus, after the stamens have fallen away: slightly enlarged. E, Seed-vessel of the same plant, natural size; two of the calyx lobes indurated, the others having shrivelled up.

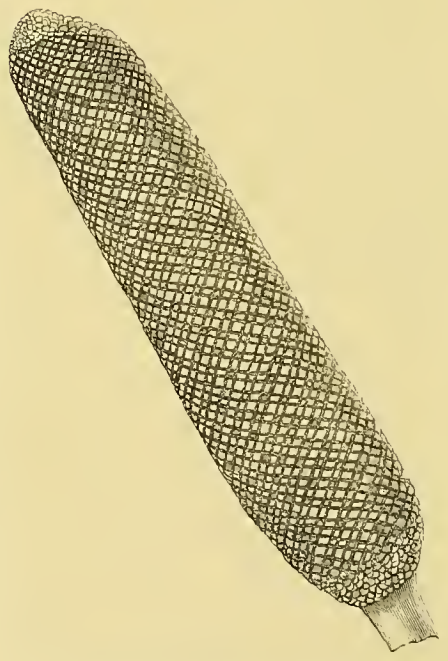

Fig. 122.—Inflorescence of a species of Banksia before the separate flowers have begun to expand: natural size.

½ inch to 1 inch or more broad, and nearly as thick, varying in different species. Usually woody, they split open in two gaping valves something like our fig. 124, but they are seated on a thick axis, and half embedded in the fibrous remains of bracts.

In Grevillea gibbosa (fig. 124, p. 689) the flowers are borne free from each other on a comparatively slender axis destitute of bracts. Rarely more than one or two seed-vessels are matured from a raceme of 100 or 200 flowers. In form the seed-vessel is not unlike a bivalve shell, opening in the same manner to free the one or two seeds, which are flat, and provided with a broad membranous encircling wing, that would bear them to a considerable distance in a high wind. Nearly all of the Australian Proteaceæ have winged seeds, often of great beauty and delicacy. The valves of the seed-vessel of Grevillea gibbosa are very hard and woody, affording absolute protection to the fragile seeds. Scarcely less hard and woody is the seed-vessel of Xylomelum pyriforme, the "Wooden Pear" of the early colonists (fig. 123). In the specimens figured the valves have opened and freed the footstalk. This species is a native of New South Wales, and there is another found in Queensland, besides two in West Australia: all having quite similar seed-vessels.

Franklandia triarista is a plant that would puzzle anybody at first sight. Its seed-vessel (fig. 125, p. 689) is unique in the order, being enclosed in the persistent tube of the perianth, and crowned when ripe by a long three-branched plume. The comparatively small dark part between the plumose portion and the spindle-like base contains the single small seed. In the genus Petrophila the flowers are in spikes or cones, each flower being sessile within a bract or scale, which hardens and persists, so that at the fruiting stage the spike (of some of the species more than others), has very much the appearance of the cone of a true Conifer of small dimensions. Each separate seed-vessel contains only one seed, is quite small, furnished with a plume of hairs, and does not burst open to free the seed; but being so small, and provided with a plumose appendage, it is conveyed to a distance by the wind. The large genus, Conospermum has similar seed-vessels, but they are not arranged in cones. In the beautiful genera Telopea and Lomatia the seed-vessel is a coriaceous follicle opening along one side and containing a number of rather large winged seeds. Macadamia has a globular seed-vessel, the outer thinner layer of which is fleshy, and the inner hard and bone-like. It contains either one spherical or two hemispherical seeds. Finally, Cenarrhenes nitida has a very succulent outer layer to the one-seeded fruit. *W. B. Hemsley.*

BOTANIC GARDENS.

The perusal of your leading article in the number for August 25 gave me great pleasure, as I concur fully in the general views expressed by you on the distinct importance of botanic gardens, although I can hardly think that all Continental botanic gardens are so much behind the requirements of the times as your article would indicate. [We made exceptions.] Nearly forty years ago the botanic garden of the university at which I studied gave away to the medical students, proportionally perhaps, as many fresh botanical specimens as the justly renowned botanic garden of Edinburgh now. But as pointed out in a lecture on the objects of a botanic garden (the print of which discourse was widely circulated) in 1871, and as also partly explained in my opening address delivered in the section for agriculture, horticulture and pastoral pursuits at the Social Science Congress in connection with the Melbourne International Exhibition, the limits between real botanic gardens and ordinary public horticultural places are, as a rule, not distinctly drawn, the former being more essentially establishments for science, the others more particularly places for recreation and amusement, although the former may secondarily be pleasure gardens also, and the latter afford likewise secondarily some means for study. With this view, doubtless many Continental botanic gardens aim at scientific utility, mainly or even solely, more especially so as their scanty fund in most instances is quite inadequate to do more. If we would only recognise that true botanic gardens are primarily gardens *plus* science, while municipal gardens, cemetery gardens, &c., primarily are gardens *minus* science, then much about the competitive difficulties of these two classes of horticultural establishments would vanish, and in fairness no more would be expected from either of them than was intended, and each class would be left peacefully to its own proper pursuits, and not attempt to do both duties with conflicting interests and insufficient resources. You in your able article have touched some of the many points also already advanced by me, but much might be added to your remarks, and in venturing to make from a large experience of former years some further suggestions I beg it to be clearly understood at once that no one can be a greater advocate for æsthetic and scenic culture also in botanic gardens, properly so-called, than myself. Pine arboreta on hill-slopes

in the Melbourne botanic gardens, a geyser, fountains, ridgy islands with Gynerium, Bamboo, &c., in the lake, a short Fern tree gully, rockeries, an aviary expanding into two wings over small trees, with a bridge and arched bower between, large glasshouses (the first in Australia), a Victoria Regia tank, an orchestra building, all this effected twenty or twenty-five years ago, bear or bore witness to this recognition of the ornamental claims in botanic gardens by myself even when water supply by gravitation was only scanty, and for years did not exist, and when, to speak with Pope, "the soil was stubborn." But to my mind, when a botanic garden is to fulfil its functions to the highest extent, the main planting should be ruled by strictly scientific principles, which procedure, however, need not exclude a few ornamental lawns, some little decoration in the way of flower borders, such as I saw in German gardens fully forty years ago, but which is costly and unproductive.

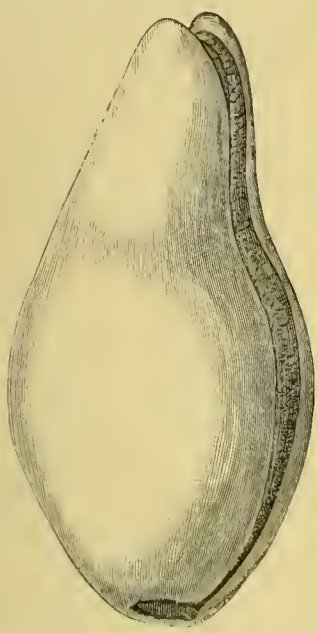

Fig. 123.—Seed-vessel of Xylomelum pyriforme (Wooden Pear) opening; foot-stalk fallen away: natural size.

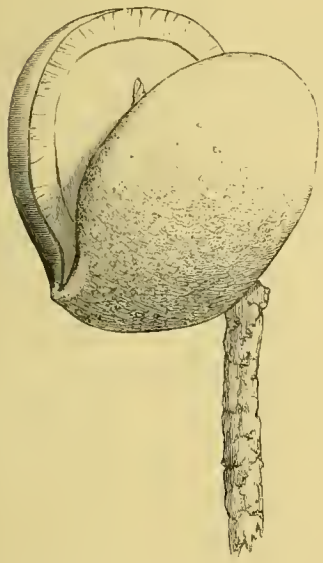

Fig. 124.—Seed-vessel of Grevillea gibbosa, open: natural size.

In old-established ground he who has to deal with the planting operations of a strictly botanic garden is probably hampered, because he likes to respect the work of his predecessors, as he expects his own work afterwards to be respected. But on new ground all planting should be performed on strictly scientific considerations. Thus I gradually, even on older grounds, rearranged the plants, geographically, systematically, and industrially. Nearly each part of the garden had in this way its distinct meaning; the larger portion of the area was devoted to geographic planting, for which in the warm temperate zone we have here, perhaps, ten times greater facilities than in northern or even middle Europe. Thus, North and South America had their own large areas, so also North and South Asia, North and South Africa, and North and South Europe, due scope being given to Eastern and Western Australia, also to New Zealand and Polynesia; and I found no difficulty in introducing at the same time the scenic elements, though I did not sacrifice old specimen trees foreign to any of the adopted geographic divisions of the grounds, but left them unlabelled to divert primary attention from them. This geographic arrangement I adopted nearly fifteen years ago in the Palm-house and smaller conservatory, inasmuch as the plants of the Western Hemisphere were kept on the western side of the building, the plants of the Eastern Hemisphere on the eastern side, and Northern and Southern plants again being placed respectively. It is obvious how easily plants are thus to be found, even by strangers, either in extensive open grounds or anywhere under glass. The systematic planting done in 1857 was strictly according to Jussieu's system, allied orders of plants coming into juxtaposition, and the whole forming a compact plantation, not a dissevered scattering of odd orders of plants over wide areas, with the loss of all facilities for comparison of the genera and species of cognate orders. Monocotyledons and Acotyledons were not planted for want of means at the time, and an improvement in the systematic arrangement could be effected by distributing the Apetaleæ (except the Gymnospermeæ), among the orders nearest to them in alliance. The industrial ground was not extensive, and my desire was to enlarge still more the division for grasses, medicinal, textile, tanning, and any other utilitarian groups of plants—a special work, which went through several editions, having purposely been written to promote the study of these plants; but the respective plots were lined with different kinds of plants, fit for edging, to show the merit of each sort. Such rigorous method in planting over a large area did not exclude the grouping of numerous kinds of Oaks from various parts of the globe on one spot as a miniature Oak forest, nor did it prevent the collection of the species of the great genus Acacia, also of Ilex, and others; nor did it stand in the way of having each line of most of the main walks shaded with a particular species of tree, to exhibit the value of each for shade lines; nor was thereby the scenic effect impaired, although *de gustibus non est disputandum.* I could enlarge on many other important functions of a botanic garden, but within the limits of this communication I would only allude to the inestimable advantage of a botanic garden to a professional botanist. Many a great man in systematic botany would have been far less great had he not enjoyed the advantages of frequenting rich botanic gardens; in such, moreover, far more readily large herbaria can be accumulated than otherwise, though *nulla regula sine exceptione.* Extensive phytographic writers perhaps occasionally forgot, or unconsciously never recognised, that they owe their main auxiliaries really to botanic gardens. Who among descriptive botanists was not glad to go from the herbarium to the class ground of the garden to study in Nature, comparatively, leaf-buds, prefloresence, location, and directions of ovules, dimorphism, colour of flowers, and a multitude of characteristics with ease, which in herbaria are traced with difficulty altogether or lost, not to speak of sacrificing specimens of dried plants, particularly if such are glued down. What monographer would not hail with delight a collection of the plants in cultivation coming under his review?—especially if the monograph pertains to trees, the bark, wood, habit, and defoliation, &c., requiring to be studied, as I myself most seriously experienced when endeavouring to deal satisfactorily with the Eucalypts. No; on this question of the high importance of real botanic gardens, for descriptive botany there ought to be only one voice. Then how is he on whom it may devolve to call forth or to foster new resources, to fulfil his functions, without living plants under his immediate care? Agriculture, forestry, technologic industries, pastoral concerns, designs truthful to Nature for artistic purposes, cannot much be advanced either by a herbarium or by simple pleasure gardening. Furthermore, how is the raw material for the technologist or phytochemic laboratory to be obtained readily except from a botanic garden worthy of the name? That such material cannot always be obtained from plants of decorative value must be evident, though thus far the unthinking portion of the public may, perhaps, cry down, even in a new country, any plant not decorative. Gardens, plain and simple, for amusement, or for pleasure walking, ought to be near the centres of populations; botanic gardens, on the other hand, should be more in quiet retreats. From the united action of leading botanic gardens in the world we may expect henceforth the issue of standard annual catalogues, based on intimate and special knowledge, for universal use, just as the annual nautical almanacs serve all navigators simultaneously. Could my wishes have been realised, we should have had also here, as recommended everywhere else, regular monthly reports, emanating also from our botanic garden, relating to temperature in its influence on thousands of reliably named specific forms in vegetation, referring to pathological data, bringing descriptive notes on new or rare plants arisen under local cultivation, setting forth the time of flowering and fruiting of multitudes of species, and dwelling on hundreds of the phenomena in plant life. *F. von Mueller, Melbourne.*

Fig. 125.—Franklandia triaristata seed-vessel contained in the persistent tube of the perianth; perianth-tube from which the seed-vessel has been removed; and seed-vessel surmounted by a three-branched plume: natural size.

Darwin on Instinct.—At the meeting of the Linnean Society to be held next Thursday evening, the paper to be read is a posthumous Essay on Instinct, by Charles Darwin. A discussion will follow.

Foreign Correspondence.

Kieff.—So far as regards cultivation, there is a close alliance between gardening and farming, and the products of a garden are certainly not out of place at an agricultural exhibition. Here, where exhibitions are still very rare, and where an active and well organised horticultural society does not exist, it is only natural that gardeners and nurserymen should avail themselves of an excellent occasion such as the recent exhibition (see p. 508) afforded them for bringing their products before the notice of the public; and it must be allowed, that in doing so they greatly contributed to render the exhibition more attractive than it would otherwise have been. Yet, strange to say, several nurserymen who could have made a very good turn-out did not take the trouble to send anything, and perhaps did not even go to see what others had done. This simple fact is quite in keeping with the want of public spirit and co-operation which prevails not only among gardeners here, but also among others from whom better things might be expected. The editor of one of the daily papers, while reviewing the excellent results of the exhibition, and awarding a well merited meed of praise to its promoters, did not fail, at the same time, to throw out a severe rebuke where it was justly deserved.

Among the exhibitors in the horticultural section, the first place belongs to M. Wesser, of the Château des Fleurs. This is, I believe, the oldest and largest firm in Kieff, and a gold and a silver medal were awarded for the numerous collections of different kinds shown. Of these, an extensive display of fruit, chiefly Apples, was much admired. A vast and commodious structure in the way of a greenhouse, but having a roof of boards, was completely filled with plants, fruit and vegetables. The other nurserymen who received medals were M. Christer (gold); M. Christiani (silver); Benedict (bronze); several certificates were given to others. From the private garden of M. Doppelmayer there was sent a large collection of Begonias, and M. Grote, of Odessa, had a small miscellaneous group, the most prominent of which was a very tall Yucca gloriosa in flower. A great number of young fruit trees, chiefly Apples and Pears, occupied different clumps in the open ground, and they were sold by auction at the end of the show. There was no lack of garden implements, such as rakes, spades, watering cans, pumps, knives, garden seats, ornamental pots and flower-stands, in great variety. Collections of seeds and dried specimens were especially numerous, and two or three garden plans might be seen here and there, but they had no doubt been prepared in haste.

A large open space in the middle of a circular pavilion was very neatly laid out as a carpet bed, having a group of statuary in the centre. This was a decided ornament, due to the firm of M. Wesser, who in general took a very active part in the decorations of the show.

In the arboricultural section there were a considerable number of specimens of different kinds of wood and a few boxes of young plants, chiefly Coniferæ.

The display of Roses, Dahlias, and other flowering plants in the open ground was not successful, owing to the lateness of the season and to a very unfavourable change of weather which took place during the exhibition. The nights especially were unusually cold, though in other respects it was generally warm and sunny enough for the end of August. In the technical sections several persons were appointed to give lectures and explanations where they were considered necessary, and even a catalogue after a time was ready for distribution. One of the booksellers, too (Tdzikofsky), very properly had a large stall of books suitable for the occasion. A good many things of different kinds were shown which belong neither to gardening nor farming, and yet they were very interesting, and deserved both attention and study. For instance, one exhibitor showed the model of a house quite furnished, and, with the exception only of the window, all in straw. Such houses, of course, do not require to be heated, and it is even doubtful if they would last long except under the surveillance of a good cat. A lady in the country sent a stock of home-spun cloth, suitable for peasants, and different articles of wearing apparel in the same way. These were mostly well-finished, and pretty enough. Then there was a special section for the propagating of fish, which was much patronised; but with respect to bee-keeping and poultry there was nothing worthy of particular notice.

The show of cows and pigs, too, was very limited, but of the latter two or three "Yorks" and "Lincolns," from the estate of the Count Bariatinski, received much attention. They were remarkably large and well fattened, at the same time firm on their legs, and capable of movement. But from the first day to the close the show of horses formed the chief attraction of the exhibition, and that part of the ground reserved for the stables and exercises was always crowded with visitors. This is easy to understand in a country where horse-breeding is more or less the occupation of everybody.

It would lead me too far to say much of machinery and implements generally; but this section occupied a large extent of ground and comprised some first-rate threshing machines, straw-cutting machines, reaping machines, and others, for the most part by English makers. There was no lack of pumps, large and small ploughs of the newest sort for working ground several feet in width at once; hay-rakes, to supersede a dozen labourers in a country like Russia, are especially of the greatest value; some of the best makers in Berlin, Warsaw, and Moscow were also contributors in this section.

On the whole, it is generally allowed that this exhibition, which lasted fully two weeks, has been highly successful, and that it has done much good. It is only fair to infer that another will be opened next year, and that it will be still better. Once let it be decided to have such an exhibition every year, and it is quite sure that there will be plenty of exhibitors, and that the public will patronise and support it. What has been done is a step in the right direction, and it is only necessary to go on. It is equally clear, too, that a flower show, if only for two or three days in the month of May or June, would also be successful, and have a beneficial result. Let us hope that next year a fair trial will be made. *P. F. Keir.*

Orchid Notes and Gleanings.

Work in the Houses.—No operation connected with Orchids at this season of the year requires greater care than the admission of fresh air to the warmer species. Currents of cold air, if allowed to pass over the plants unchecked, will soon do serious mischief. To prevent this occurring the ventilators should have a piece of coarse tiffany tacked over them, which will allow of free ventilation being given with safety, and the tiffany guard will also act as a conservator of the moisture in the house. While there is danger in too free ventilation, it is as great a mistake to keep the houses too close and moist at this season, especially if unnecessarily high temperatures are indulged in. The plants may look well and thrive for a time under the close treatment, but growth made under these conditions can have no lasting fibre in it, and is generally the first to get diseased. A day temperature of 68° will be sufficient for the East Indian plants, but during mild weather the temperature should be run a few degrees higher, when a thorough change of air should be given to the plants, as a nice buoyant atmosphere under these conditions will be maintained. The best precautions should now be taken to guard the Phalænopsis from any sudden fluctuations of temperature, and some double or treble thicknesses of mats should be in readiness to place over the glass during stormy weather. As these plants should always occupy positions near the glass it is very necessary during the winter season to adopt the system of covering the plants during cold nights. These plants are rapidly pushing out their spikes, and will need every encouragement during the next six weeks. Some of the earliest are already in flower, but they are principally the weakest plants: and the spikes, as soon as fully open, will be removed from them. Any of the winter-flowering Angræcums and Saccolabiums should have their spikes removed before the flowers begin to decay, otherwise there is danger of the dead flowers dropping into the axils of the leaves of the plants, and causing the foliage to rot. All the spring-flowering Aërides and Vandas must now be kept as quietly at rest as possible, giving them only sufficient water at the roots to keep them fresh both in foliage and root. Most of these are always more or less on the move both at the roots and in growth, but this should not tempt any one to try to get extra growth on them during the winter season, as all such growths would be sure to get diseased before another winter passed over them. With the mild weather, and consequent quicker development of the plants in the cool-house, many of them will soon be showing their spikes in greater abundance than hitherto, and this will render extra precautions necessary to guard them from being destroyed by snails and other causes. The plants that have completed their growths should be examined, and as soon as their spikes are seen a little cotton wadding or some other equally good protection should be placed around them, otherwise the slugs will insinuate themselves between the leaves and the bulbs, and in this way soon do much mischief, by destroying the young spikes. Plants of Odontoglossum bictonense, O. odoratum, O. Rossii, and other autumn bloomers should be carefully cleaned after flowering, and any of them that may be commencing fresh growth may be repotted before the growths get advanced. Where this is not necessary a top-dressing will be an assistance in keeping the surface of the compost open, and so render it more permeable to the beneficial influence of the atmosphere of the house. Plants of Masdevallia tovarense in this house now showing flower should be removed to the cool end of the Cattleya-house, where they will keep in better condition than in the moist atmosphere of the cool-house. *J. Roberts, Gunnersbury Park Gardens.*

Lælia autumnalis atrorubens.—The typical form of the species figured in Bateman's *Orchidaceæ of Mexico*, t. 9, has flowers of a lilac-purple or rosy colour, but in this variety the colour is intensified to a rich reddish or magenta-purple, deepest towards the tips of the sepals and petals, but especially so on the upper part of the labellum, while the lower is almost pure white. Not only is there a marked distinctness in the colour of this varietal form, but specifically this Orchid has a very characteristic individuality separating it from its numerous congeners under cultivation. This is seen not only in the contrasting colours of the labellum, but its shape (the lower part not clasping the column, as in other species). The spreading sepals and petals are revolute at the tips, and the short pseudobulbs, with long peduncles or flower-stems, is another well marked feature. The plant is flowering in the cool Orchid-house at Kew.

Odontoglossum Roezlii seems always in flower somewhere or other, and a lovely and fragrant thing it is, with its large and variously marked blossoms. Few Orchids are more liked where it does well, and few are more miserable-looking where it is badly cultivated. When badly grown it is attacked with yellow thrips and also a fungoid growth of rust-like appearance, both of which evils appear when the plants are grown either warm or cold, provided they be in bad condition. It cannot, therefore, be said that either too much heat, or too little, is the cause of it. However, when they are attacked by these pests the first step should be to endeavour to get rid of them, and this is best accomplished by dipping the plants, head downwards, in a weak solution of tobacco-water and repeating the dipping every three or four days for a fortnight or so. At the same time the plants should be shifted to a light but shady place (a shelf if possible) in a moist intermediate or airy warm-house, where they could be syringed lightly with rain-water once or twice a day. So managed they require but little water at the root and seem to make larger and cleaner bulbs and leaves and finer flowers than when they are kept very moist in the pots. Of course the syringing must be discontinued while the plants are in bloom. Some grow O. Roezlii in the cold-house in summer, and move it to the intermediate-house in winter, and some succeed equally well with it in a warm-house all the year round. There are not many Orchids easier to grow when once the proper situation can be found for it, and in seeking such a situation the main things to bear in mind are that it does not like direct sunlight, and that it must have a good air, but it will not do well in a draughty place. A great thing in the culture of O. Roezlii is to keep off the yellow thrips, which are so fond of it; on the slightest suspicion of this insect being present the tobacco-water dipping should be resorted to. Where the plants are in very bad condition they ought at once to be turned out of their pots and have the roots well washed, and be repotted back into small pots, using as compost only broken crocks, with a thin covering of living sphagnum. The dead sheaths, also, which always cling about the bulbs

when the plants are not thriving, should be carefully removed. A layer of living sphagnum moss on the stage or shelf on which the plants are placed is of great assistance in keeping the atmosphere around them sufficiently humid.

Masdevallia racemosa Crossii.—The carefully arranged floral picture, composed of many scores of dried flowers, with stems and leaves, which was exhibited by Messrs. Shuttleworth, Carder & Co. at Stevens' Rooms on November 22, when part of the few surviving plants out of Mr. Carder's large collection of it were offered for sale, was enough to set any Orchid lover wild after a specimen. Some of the flower-spikes bore from ten to fourteen large showy flowers, all orange-coloured in the dried specimens, as the various tinges of scarlet surface-colour had (as usual with Masdevallias) dried out. The variety, as it has been recently introduced, seems to be a much showier thing than the old M. racemosa, dried flowers of which have been in the country for some years; it is a pity that it should be so very difficult to get over alive, as a plant can hardly be expected to get cheap while a long and dangerous journey has to be taken for it, and twenty cases brought in order to get a score plants alive. May it some day arrive in quantity; but experience up to the present points to the fact that it is not a good traveller.

Odontoglossum Alexandræ.—In January last I bloomed an O. Alexandræ; it carried five flowers of a remarkably good form and substance. They had in the aggregate twelve spots on them, all small, but good in colour. It has now opened its flowers (eight) the second time. Each and every sepal has a large (and in some two or three in a lump) spot of a fine red-brown colour, and of course the substance in size and shape has improved by the gain of the plant in strength. I should much like to know if this is a common thing. I know good spotted forms that at first blooming show their spotted character become better, but did not think a rose-spotted form would become a very fine spotted one within a year. Can other growers corroborate this? as, if so, no one ought to part with a fine-shaped form in bloom unless they have seen if it will develope spots in another season. *Angræcum.*

The Flower Garden.

Protection.—The present is a period of the year when, from the uncertainty of our climate, we may, within a few days, nay, even hours, experience very varied and extreme changes of weather, snow and hail, warm showers and intense frosts sometimes alternating with each other with marvellous rapidity. These sudden changes are often very destructive to tender, and even to hardy plants, sometimes much more so than even a long continuance of severe weather would be. To newly planted subjects they are especially so. This arises from the loosened state of the soil, and the consequent uprooting of the plants by the action of frost. Protecting materials of various kinds should, therefore, be always ready at hand for immediate use when required. Where the plants occupy only small spaces of ground hoops and mats, Frigi-domo, canvas, or any similar material which can be conveniently supported off the ground and without being in contact with the plants, is much the best method, but where the plants cover large areas this plan is not practicable, and other means must be employed. When the garden is not situated near the mansion dry straw, pea haulm, or Fern, each form excellent material for the purpose, and, where employed, often save from destruction hundreds of plants and tender bulbs which would otherwise perish. Where these cannot be conveniently used leaf-mould and sand mixed together are capital protectors, and where neatness is a consideration these materials should be largely used for the purpose by mulching the beds entirely over with them. Cocoa-nut refuse is also useful, but after heavy rains it becomes too compressed, and in this state excludes the air too much, and if allowed to remain frequently cause succulent plants to rot at the base of the stem. All half-hardy plants in pots, whether annual or perennial, intended for next year's use should be carefully stored away in cold frames before they become injured; this also applies to all late sown comparatively hardy plants which, from their young state, would assuredly perish if transplanted now unless the winter proves exceptionally mild. If plunged in ashes in a cold frame until the return of spring, freely exposing them at all times except during frost or heavy rains, they will be found invaluable for spring and early summer decoration. For this purpose, and where a constant and continuous display is required in the flower garden, the value of cold frames can scarcely be overestimated.

Bulbs.—The planting of all bulbous plants intended for spring flowering should now be completed, and should severe weather set in they should, unless intermixed with and sufficiently protected by low-growing herbaceous plants, receive temporary protection; but this should be immediately removed when the frost disappears. Dahlias, Lobelia cardinalis, Salvias, and all similar plants should now be stored either in cool sheds, cellars, or frames, care being taken by occasional inspection to prevent injury from damp. Gladiolus I would still advise to be left in the beds till such time as the bulbs become thoroughly matured. Do not, however, allow frost to penetrate sufficiently deep to injure them; this can easily be done by placing a small quantity of leaf-mould or dry litter over the beds.

Roses.—As the weather still continues open Roses may yet be planted where the situation is elevated and where the soil is moderately dry; should these conditions not exist, special care must be taken to mulch heavily immediately after planting with dry litter, so as to effectually exclude frost from the roots. Tea and Noisette Roses can scarcely be cultivated with full satisfaction in the open garden, unless the soil and situation be exceptionally favourable. There is one method, however, which I think is not sufficiently practised, and one which, although not so profitable as wall culture, yet deserves to be more freely adopted. Every autumn, either in the first or second week in November, according to the state of the weather, the plants should be taken up and laid in rows by the heels rather closely together in a somewhat dry position behind a north wall. During severe frosts they should be protected either by hoops and mats, or dry litter, they should, however, be fully exposed on every possible occasion. About the first week in March they should be again planted in their summer positions, choosing a mild day for the work, the position should be a very sunny and somewhat dry one; and the soil should be of a sandy and somewhat poor description. A good mulching should be given immediately, and, if dry, a good soaking of water also, which should be frequently repeated with the addition of liquid manure during dry weather. By adopting this method but little pruning will be required as the plants receive a check by the annual removal; masses of fibrous roots are formed, and an abundance of blossoms is the result. *T. S. C.*

Grapes and Vineries.

Vines.—If the earliest house was started as advised in my last calendar, keep the night temperature at 50°, with a rise of 10° by day, and do not give air if the temperature does not exceed 70°. When the sun is bright it will sometimes go higher, when a little air must be given on the back ventilators for a short time, but close the house again early to make the most of the sun-heat. Turn over the fermenting material every morning, and add fresh as the heat declines; syringe the rods with tepid water several times daily, or whenever they are dry, and keep up a moist growing atmosphere. The Vines in succession-houses must be pruned as soon as the fruit is cut, or where there are only a few bunches left they may be cut and put in the fruit-room, so that the Vines can have as long a rest as possible. In pruning, if the Vines are newly planted, shorten the leading shoot to about 8 feet long, so that the Vines will reach the top of the house in about three years, and if the Vines are established, prune them back to one eye on each spur if they are in good condition, but if they are weak, prune them back to a good eye; apply styptic, and dress them as advised in my last Calendar. Late Hamburghs that are required to be kept as long as possible, will now keep as well in the fruit-room as on the Vines, so that they are better cut and bottled, and the house thrown open for a few days before they are pruned. Keep the temperature of the Grape-room as near 45° as possible, and the atmosphere dry. Muscats can be kept as advised in my last Calendar, with a few degrees lower temperature if the weather is cold. Late varieties of Grapes, as advised in my last Calendar, must be closely examined for decayed berries, as if neglected for only a few days they soon spoil the bunches. The earliest pot Vines must be kept at a night temperature of 50°, with a rise of 10° by day: keep the evaporating pans filled, and syringe the rods overhead with tepid water several times daily; give them plenty of tepid water at the roots whenever the soil is dry, and maintain a moist growing atmosphere. *Joshua Atkins.*

The Hardy Fruit Garden.

Pruning should be proceeded with whenever an opportunity offers. In the case of standards, bush, or pyramid trees, the severe thinning out of the wood is a great point to be kept in view, the centre of the tree should be so pruned that an abundance of sun and air can be admitted to insure thorough ripening of the wood and the perfect maturation of the fruit. On the branches of some varieties spurs are produced too thickly, these must be kept thinned-out, or exactly the same results will ensue as with overcrowded branches—small-sized and immature fruit. Where trees have been neglected, the operation of thinning must be performed gradually; cutting away a portion annually until the desired balance of branches be obtained. If the trees are kept well thinned from the first, by the time they are in full bearing there will be no occasion for severe pruning, causing loss of fruit and injury to the tree. Scrape off any moss growing on the tree with the back of the knife, or a wire brush, afterwards giving it a good scrubbing with a strong brine of common salt.

The continuous wet weather has again delayed planting, except on very light soils, therefore every advantage should be taken to hasten it when the soil is in a suitable condition. On very heavy soils it would be very unwise to plant when the earth is cold, and of the consistency of mortar. On such land the aim should be either to have everything in readiness to plant early in the season, or planting should be deferred till after the turn of the year.

The pruning of Gooseberries and Currants should be proceeded with; the former, where the destruction of the buds by bullfinches is expected, can be left until later in the season. In pruning Gooseberries the overcrowding and crossing of branches should be avoided, keeping the centre well open, cutting back the lateral or side growths to two or three buds from the base. The branches of red and white Currants also require to be kept well thinned, to ensure free admission of light and air; and the lateral growths to be spurred-in closely. Established trees will require their main shoots to be cut back to keep them within proper limits. Young bushes of course will require some to be left their entire length, or only just stopped to insure a proper balancing of the branches. Black Currants are not pruned on the spur system, but have their old growths cut away where there are young growths to replace them, the object being to keep the trees well supplied with young wood, on which the crop of fruit is produced. When taking cuttings of Currants, which may be done at any time during the period allowed for pruning, those of black Currants should not have any of the eyes at the base removed, as these produce the suckers which are useful in keeping the bush furnished with plenty of young growth. These should be left entire at the pruning season. Continue to make new plantations of Raspberries, and make secure to the stakes or wires, and the canes of those in bearing condition, afterwards giving a thick mulching of 4 or 5 inches of decayed manure. See that all newly planted trees are well mulched before frost sets in. As the leaves drop from the trees rake and clean up and carry to the rubbish-heap instead of digging them into the borders. Give ventilation to the fruit-room when the temperature without corresponds with that within. Look over the fruit laid out on shelves, and remove any showing signs of decay. Those stored in barrels, if selected fruit, as previously advised, will not require looking over, if of late keeping varieties, and a dry, cool, and even temperature has been maintained. *D. C. Powell, Powderham.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Dec. 3	Sales of Dutch Bulbs, at Stevens' and Protheroe & Morris' Rooms.
TUESDAY,	Dec. 4	Sale of Camellias, Roses, and Bulbs, at the City Auction Rooms at Gracechurch Street.
WEDNESDAY,	Dec. 5	Sales of Plants and Bulbs, at Stevens' Rooms. Sale of Lilies, at Protheroe & Morris' Rooms
THURSDAY,	Dec. 6	Linnean Society meets at 8 P.M. Sale of Imported Orchids and Lilium auratum Bulbs, at Stevens' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms. Sale of Fruit Trees at Osborn's Nursery, Sunbury, by Protheroe & Morris.
FRIDAY,	Dec. 7	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	Dec. 8	Sale of Plants and Bulbs, at Stevens Rooms. Sale of Roses, Lily and other Bulbs, at Protheroe & Morris' Rooms.

FROM the time of BERNARD DE JUSSIEU onwards botanists have distinguished between ARTIFICIAL AND NATURAL SYSTEMS OF CLASSIFICATION.* LINNÆUS, albeit his professedly artificial system came to be so generally used just because it was at the time so eminently useful, recognised that a natural method of arranging plants should be the first and last consideration of the botanist. His views on this matter were in some senses a great advance on those of BOERHAAVE. For the Dutch naturalist botany was that department of natural history by whose assistance a knowledge of plants might most conveniently and with the least trouble be obtained. This indeed is the end and aim of any artificial system. For practical everyday use we have to take things as we find them—to avail ourselves of what science teaches, and, in default, to make the best of our nescience. But such expediency will not long satisfy the mind of the student. Convenience of arrangement and facility of reference are not everything. The mind yearns for more, stimulated by the fact that the more it learns the more perfect becomes the system—the more natural, in fact. Is there, then, a natural system, and if there is, is it attainable? The answer must be that there is such a system, and one which, although from the circumstances of the case never likely, in this state of existence, to be fully grasped, is in daily progress towards perfection. Every well ascertained fact, no matter how apparently insignificant it may be, is a step in advance. Professed botanists, physiologists, gardeners, amateurs, students may all help the work forward.

But it is needful to give precision to our ideas as to what constitutes a natural system. Not so long ago it was considered as the expression of a mere ideal abstraction. For practical purposes it was taken to mean the association of different plants or animals, according to the amount of resemblance between them. If the resemblance was great and was manifest more or less generally throughout all the organs of a plant, then the group consisting of plants thus nearly resembling each other was considered natural, and natural in proportion to the degree of resemblance. As time went on and experience accumulated various improvements were made in the mode of estimating the degree of relationship. The mere number of points of agreement or of difference was not so much considered as the intrinsic value to be placed upon certain points in comparison with others. Hence arose the study of the "subordination of characters"—a point too technical to be discussed here. In this state things remained till the advent of DARWIN'S *Origin of Species*, when all of a sudden the so-called natural system which men had been groping for, and concerning which they had been entangling themselves in vain metaphysical speculations, became illumined and vivified. Definite tangible propositions took the place of postulates and speculations, and the underlying principle of the natural system became manifest. "Propinquity of descent, the only known cause of the similarity of organic beings is the bond, hidden as it is by various degrees of modification, which is partially revealed to us by our classifications . . . . All true classification is genealogical; community of descent is the hidden bond which naturalists have been unconsciously seeking, and not some unknown plan of creation, or the enunciation of general propositions, and the mere putting together and separating objects more or less alike. The idea of the natural system, so far as it has been perfected, is genealogical in its arrangement, with the grades of difference between the descendants from a common parent, expressed by the terms genera, families, orders, &c."

This view of the genealogical basis of all natural systems, enunciated by DARWIN, is now almost universally accepted as true. There are, and will be, differences of opinion as to the starting-point—the how and the why and the when; but these differences of detail in no wise affect the validity of the general principle.

This being so, how are we to proceed in the absence of written pedigrees, to unravel the genealogy of existing plants and animals? DARWIN himself tells us that we have to make out community of descent by resemblances of any kind, laying special stress on those "characters" or points of difference or agreement which are the most constant and invariable—those, in other words, which have been the least modified by the circumstances to which the plant has been recently exposed. For instance, by the favourable conditions we give our Hellebores or other plants in cultivation we enable them to produce larger and finer flowers than in a state of Nature. But mere size and enhanced colour, however important for our purpose, are clearly less important to the plant than those curious arrangements of the parts of the flower which render a Hellebore what it is. The one set of characters is relatively of individual importance only, modern, fleeting, and inconstant, evolved to suit particular requirements of time and place, and capable of being modified when those circumstances change. The other set of characters is common to the whole group, ancient in origin, relatively constant and durable—so much so that often no change is observable from the first appearance of the plant known to us to the present time. A Fern of the coal measures presents absolutely the same general characteristics as the Fern of the present day. The Apples of the Swiss lake dwellings—far less remote than the Coal Measures, but still remote beyond historic reckoning—are as much Apples as those which graced the tables at Chiswick the other day; but while the Apple in those old times existed under one form only, how many hundreds and thousands of modifications by descent have since accrued it would and did puzzle the committee to determine; nevertheless, they were all Apples—all clearly owed their origin to a common stock. The point we wish to illustrate now is that the ancestral characters, by virtue of which they remain Apples, are of vastly more importance for classificatory purposes than those minor shades of variation which enables us to divide them into Codlins or Russets, Pearmains or Pippins. It follows from what has been said that in endeavouring to unravel the line of descent of plants we must give special importance precisely to those very characters which we as florists or fruit growers should pass over. The object to be attained is almost totally different, and hence the means to be employed are different also, though different only in degree—divergent we should rather have written.

Cumulative evidence is clearly of great importance in a case of this kind. When several points of agreement are found throughout a large group—especially if convergent from the various starting-points—the suspicion of the plants having inherited these points from a common ancestor becomes enhanced.

The evidence afforded by embryology—the study of animals and plants literally *ab ovo*—has revealed the fact of the identity of appearance up to a certain period of the members of the great groups of animals and plants. AGASSIZ, having forgotten to ticket the embryo of some vertebrate animal, could not tell even whether it was that of a beast, a bird, or a reptile—it might have been either; and so when we find during the progress of development that individuals of different species go through the same stages, that fact furnishes strong presumptive evidence that they started from a common origin. By way of illustration, we may say that the Apple and the Pear, which are so different in the adult stage that no one confounds them, are at first identical in conformation, and go through the same stages, so that up to a certain point it would be impossible, in the absence of previous knowledge, to say which was which. Such a fact as this furnishes very strong presumption that Apples and Pears are offshoots from one primitive stock.

The evidence afforded by fossils has hitherto not helped us much in the construction of pedigrees; the record at present is too imperfect for more than a few wide but none the less important generalisations, still the existence of certain well defined groups of plants as far back as the Coal Measures should serve a double purpose—of confirming the notion of the existence of ancestors, and of checking reckless speculation upon imperfect evidence.

Accurate comparison, then, of large numbers of living plants in all their stages, but more especially during their embryonic condition, comparative investigations into their minute anatomy, into the reversions, deviations, and "sports" they exhibit, furnish us with the reasonable hope of unravelling piece by piece the tangled genealogical web of existing plants. The evidence we have at present from these sources, though doubtless considerable, is a mere nothing as compared with the requirements of the case. And this is the point upon which we differ from Mr. GRANT ALLEN. His book on *Flowers and their Pedigrees* has, in truth, suggested these remarks. We consider that much gratitude is due to Mr. ALLEN for the attractive way in which he has put the case before the unscientific public, not only in this but in others of his publications. He has, we venture to say, opened up a new world of interest and thought for the general reader, who would be deterred by the more carefully worded and necessarily more technical language of a DARWIN or a HUXLEY. Even PETER BELL might be induced by Mr. ALLEN to see that a Primrose offers for study a page of history—a most interesting one, too; and the truth of EDWARD FORBES' dictum, that the ways of a periwinkle are of more importance to the world than the march of an ALEXANDER, become apparent to many minds who previously would have looked on that statement merely as a daring paradox or something worse. But Mr. ALLEN draws his inferences from much too limited a number of facts, and puts down as fact much that is at present merely speculation. Strangely devoid of scientific caution, he seems never to be troubled with doubts or hesitations: he talks glibly of reversions, consolidations, advances, degenerations, and the like. So far as we can see, and for aught Mr. ALLEN tells us, the facts may in many cases be susceptible of precisely the opposite interpretation to that which he gives. Indeed, looking at the matter from the point of view of the progressive development of the flower, it seems to us that Mr. ALLEN has occasionally a marked faculty of putting the cart before the horse. We sympathise with his effort, and we can often go with him so far as our very limited knowledge of comparative morphology and anatomy go; but directly this personal

* *Flowers and their Pedigrees.* By Grant Allen. (Longmans.)

FIG. 126.—HELLEBORUS NIGER VAR. ALTIFOLIUS, HORT. (SEE P. 686.)

knowledge fails us, and we have to trust to Mr. GRANT ALLEN, we find much bare assertion and only scanty evidence that the speculative views he propounds are based upon any actual study, on a sufficiently comprehensive scale, of how things come about. It may be true what he says—we know some of it is, and we fear some of it is not. In any case we require to see the vouchers—not for one or two cases only, but for the whole series of so-called facts which Mr. ALLEN takes as his premises. As materials for discussion Mr. ALLEN'S remarks are valuable. He should nail them up in some academic hall for the criticism of his fellows, not impose them as gospel upon a public not competent to judge in the matter.

—— THE WEEK. — The Chrysanthemum is to bloom all the year round. In a new *restaurant*, not a hundred yards from the Temple, the decorative panels, made by Messrs. DOULTON, represent named varieties of Chrysanthemum. The effect is good, but certainly the flowers, as exhibited, would not gain First-class Certificates, although, as we learn, the models were taken from the Temple Gardens.—A machine has been invented by Mr. H. C. SMITH, which, it is said, solves the problem of cleaning Rheea fibre so as to render it available for use. Prizes of £5000 have been offered by the Indian Government for such a machine, but hitherto without avail; but now, according to a report in the *Times*, the treatment of the Rheea plant (Bœhmeria nivea) has been fully and fairly accomplished. The machine, it is confidently hoped, will be available for the preparation of the fibre of Fourcroya and other plants, and if so it will prove of the greatest value in developing the resources of India in the matter of fibre plants.—Mr. FLETCHER calls attention in the *Journal of the Society of Arts* to the value of Chamærops humilis in rooms lighted with gas, the injurious effects of which it resists better than most plants. It is also hardy, or nearly so, out-of-doors.—Mr. MURRAY's lecture on the Potato fungus gives a very clear account of the life-history, so far as known, of the Phytopthora infestans. It will be seen from the abstract in another page that Mr. MURRAY reserves his opinion as to the nature of the resting-spores of the fungus, considering it not proven that they really belong to that particular fungus. He shows that the "sclerotioids" of Mr. A. S. WILSON are masses of oxalate of lime, and doubts the efficacy of Mr. JENSEN'S proposals, concerning which, however, Mr. HOWARD reported favourably in our last issue. Lastly, Mr. MURRAY insists on the necessity—equally urgent, whatever view be taken—of destroying the diseased haulm immediately and thoroughly, so far as that is practicable.—The death of Mr. J. ELIOT HOWARD removes from among us one who by his persistent researches—chemical, botanical, cultural, and commercial—into the matter of Cinchona will ever rank among the foremost benefactors to humanity.—The death of Mr. J. FLEMING, of Cliveden, will also be considered as a great loss by all who knew this genial man and excellent gardener.—A correspondent sends us from Hurstmonceaux a spray of white Lilac in full flower. The tree had been stripped of its leaves by wind on September 2.

—— DU MORTIER.—A statue has been erected at Tournai to the famous Belgian botanist who to his other qualifications added those of a pomologist. The Belgian people naturally regarded DU MORTIER as a statesman devoted to the interests of his country, but beyond the frontiers his qualifications as a botanist were also held in esteem. Not only his courtesy, but his fire and energy were retained to a great age. In the herbarium at Brussels is a bust of the *savant*, presented by his colleagues in recognition of his services to botanical science and to the botanic garden at Brussels.

—— ROADSIDE TREES IN BELGIUM. — In 1881 there were 871,685 trees along the roadsides, of the estimated value of 10,399,635 fr.

—— PAMPAS-GRASS.—M. H. VILMORIN, in the *Illustration Horticole*, advises those who wish to use the panicles for house decoration, to cut them before they have more than half escaped from their sheaths, and to dry them. The sheath is then removed and the panicles dried by fire-heat. All the spikelets unfold at once, and preserve their elegant appearance.

—— THE NEW BANKRUPTCY ACT. — Messrs. TANNER & Co., 27, Chancery Lane, E.C., are publishing, at the low price of one penny, *The Peoples' Guide to the New Law of Bankruptcy*, by Mr. W. BERRY GREENING, a chartered accountant. It is a valuable exposition of the changes in the law created by the stringent Act which comes into operation on January 1 next, and as such should be read by every trader.

—— THE EMPEROR WILLIAM AT ERFURT.—We are informed that when the Emperor WILLIAM recently visited the horticulturally famous city of Erfurt, some street decorations of a novel character were carried out by the well known firm of J. C. SCHMIDT, who distributed over 1000 fronds of the Date Palm (Phœnix dactylifera), each from 6 to 8 feet long, among the scholars of the high schools of Erfurt, who formed a line in one of the principal thoroughfares and waved the fronds as a salute on the approach of the Imperial carriage. HIS MAJESTY, we are told, was agreeably surprised at the novel and majestic character of this demonstration in his honour, and asked several questions on the subject. These Phœnix fronds are now largely imported into Germany for decorative purposes, and were used on a large scale, made up into various devices, in the decoration of the principal church at Potsdam for the ceremony of celebrating the four hundredth birthday of MARTIN LUTHER.

—— THE GLASGOW AND WEST OF SCOTLAND HORTICULTURAL SOCIETY'S Spring Show will be held on March 26, 1884.

—— FIRE AT STOURBRIDGE.—A fire broke out on the morning of November 23 at the extensive mills of Messrs. WEBB, seedsmen and millers, of Wordsley, Stourbridge. It originated in the "smutter" in the flour-mill, and the flames spread with great rapidity. The neighbouring fire-brigades were soon on the spot, but it was impossible to check the flames, and the flour-mill, which produced 1000 sacks per week, was destroyed, the damage being about £10,000. The seed warehouses escaped injury. The property was fully insured.

—— MOCK GINGER. — The succulent portion of stems of Lettuces which have gone to seed, is an excellent substitute for preserved ginger when properly prepared, as we can ourselves bear testimony. *M. T. B.*

—— ZONAL PELARGONIUM, HENRI JACOBY.—This should be noted as an excellent flowering variety, and a good companion for Vesuvius. It is grown by Mr. H. B. SMITH, at Ealing Dean, for cut flowers, and he finds it effective. It is one of the most useful crimson flowered zonals we have—good for ordinary pot-culture, bedding, and exhibition purposes.

—— FROST IN CENTRAL INDIA.—It may surprise many to learn that the chief enemy of Teak in the Bori Forest (lat. 22° 20′) is, according to Dr. BRANDIS, night frost, which occurs in December, January, and February. The seedlings are cut down annually by the frost, but shoot up again, and when they have attained a certain height they are able to resist the frost.

—— CALIPHRURIA SUBEDENTATA.—This comparatively recent introduction is welcome in its flowering at this season—or, indeed, at any time—inasmuch as the flowers possess the purity of the Eucharis, although wanting in size. Its cultivation and necessary treatment are the same as for the latter, and it is, moreover, sometimes known under the name of Eucharis, the difference being only in degree, not in kind. The foliage is precisely similar, and, like E. Sanderi, it shows a deviation from the E. grandiflora type in the ascending or suberect segments of the perianth. The corona is almost or wholly adnate to the tube (which is here rather short and nearly erect), leaving the dilated bases of the stamens free. These stamens are obsoletely toothed on the sides or entire, thus showing a type intermediate between the old Caliphruria Hartwegi and the Eucharis proper. The present species, of which a figure is given in the *Botanical Magazine*, t. 6289, is blooming in the Palm-house at Kew.

—— THE PROFESSORSHIP OF RURAL ECONOMY AT OXFORD—now separated from that of Botany—will be filled up this month. Candidates are requested to send to the Registrar of the University their applications, and any documents they may wish to submit to the electors, on or before Monday, the 10th inst. According to the regulations sanctioned by the Court of Chancery, the Sibthorpian Professor of Rural Economy shall lecture and give instruction on the scientific principles of agriculture and forestry. He shall be entitled to the emolument of £200 derived from the benefaction of Dr. JOHN SIBTHORP, Doctor of Medicine, and assigned to the professorship. The Professor holds his office for a period of three years from election, and no longer. He may be re-elected for a second period of three years, and no longer; but no Professor shall hold the professorship for more than six years consecutively. The Professor will have the use of the garden (not the Botanic Garden) appropriated for making experiments on the subjects of his professorship. The Professor shall give not less than twelve lectures in the course of the academical year, in full term, and not more than two in any one week.

—— APHELANDRA FASCINATOR.—We have in the small genus of Acanthads to which this belongs, a wealth of variety, both in the flowers and foliage, that is at once ornamental and interesting. The present one resembles A. aurantiaca and A. bullata in the dwarf stout habit, but has, in addition, its leaves beautifully marked on the principal veins with silvery-grey lines, thus giving it a doubly decorative value. The greatest drawback, which seems to be common to them all, is that, unless quickly grown on from young plants to the flowering state, the older parts of the stem are apt to lose their leaves and become naked. The same may be said of many other members of the order, and notably among the rest the various species of Thyrsacanthus. The orange-scarlet flowers are produced in a dense four-sided spike, and continue expanding their flowers from the base upwards for some considerable time. It is figured in the *Illustration Horticole*, 3 ser., t. 164, and specimens are flowering in the stove at Kew.

—— IPOMŒA HORSFALLIÆ ALBA.—We have received from Messrs. IRELAND & THOMSON, of 20, Waterloo Place, Edinburgh, a specimen of a very handsome seedling Ipomœa in the way of I. Horsfalliæ. It is a climber, with rough purplish stems and bold 3-foliolate leaves, the leaflets almost leathery in texture, bright green, glabrous, oblong, or oblong-lanceolate. From the axils of the leaves emerge flower-stalks, which divide into two or three pedicels, each terminated by large trumpet-shaped white flower 2½ inches across. As we hope to give an illustration of this very striking plant we defer further comment.

—— BOTANICAL INSTITUTE OF LIÈGE. — Some time since we had occasion to speak of the deplorable state into which some of the foreign botanical gardens had fallen. This week we have the pleasure of calling attention to some facts of a different character, and which prove that, in Belgium at least, the importance of these institutions is duly recognised. At Liège great works have been for some time in hand, under the energetic direction of Professor MORREN. The new works consist of two groups of buildings separated by a wide terrace. One group is devoted to lecture-rooms, museums, laboratories, herbaria, and other accessories necessary for the instruction of a large number of students, and for the prosecution of original research. A large Palm-house, with four other erections, and an additional erection the counterpart of the Palm-stove, contain a large collection of living plants. In the left wing are buildings containing the museum of economic botany, the library, and physiological laboratory. Numerous other greenhouses and aquaria, and a rockery for alpine plants, occupy a lower level. The official opening of the new buildings took place on Saturday last, with the usual ceremonial; and considering that the Ministers of State and other officials had to take part in the inauguration, not only of the new buildings at the botanic garden, but of an institute devoted to the study and applications of electricity, and to another devoted to pharmacy, as well as in the inspection of the works in progress for the corresponding institutes of anatomy, physiology, and zoology respectively, it will be readily understood, not only that the University of Liège may well be proud of the advances being made to

further the "higher studies," but that they had well earned the magnificent banquet with which the proceedings terminated. We shall have another opportunity of adverting to the botanic garden, but in the meanwhile we may congratulate Belgium on the public spirit manifested in the development of her university system. Liège has now, it appears, 1400 students, while within the memory of one of its Professors there were but 240. It was only last spring that we were privileged to take part in a similar ceremony at the University of Ghent, so that it is abundantly clear that Belgium recognises the fact that if she is to maintain her prosperity she must develope to the utmost that instruction in the principles and applications of science, upon which the welfare of humanity pre-eminently depends.

—— The Surveyors' Institution.—"The Agricultural Holdings Act, 1883," is the title of the paper to be read by Mr. J. W. Willis Bund at the meeting on Monday next.

—— Salvias.—No one seeing the rather pretty collection of these at the Westminster Aquarium on the occasion of the Hackney Chrysanthemum Society's Show, could fail to be impressed with the usefulness of such brilliant-hued flowers in our conservatories and other plant structures during the dull time of the year. In spite of their brightness, they suffered somewhat by being placed in too close proximity to some great bunches of scarlet and pink zonal Pelargoniums, the colours of which dimmed the rays of the Salvias. This, by the way, is an error in arrangement not unfrequently observed in the stands of florists' flowers at shows. The exhibitors are so convinced of the exceeding beauty of their particular productions that they fail to perceive that the flowers would show themselves off a great deal better by the use of some foliage other than that afforded by the plant from which the blooms are cut. In the summer exhibitions this is perhaps the less noticeable, as then the blooms are not cut from plants in pots but from those growing in the open borders whose foliage is more abundant; at least, that may be taken as the rule. In colours we have azure-blue in S. Pitcheri and S. angustifolia, the latter flower being less compact, which is rather an advantage for a cut flower, especially suited for glasses; white and rose in S. Betheli, a sort that has pleasing foliage; Apple-scented magenta-coloured blooms in S. rutilans. S. splendens is a sort well known, and if properly treated is a good kind for autumn flowering, as are also the whole of those named above. S. gesneriflora should not be relied on for this season, as its proper time is late winter and spring. These kinds associate well with light-coloured and white Chrysanthemums, white Tree Carnations, and Camellias. We want something as deep in colour as S. patens for autumn flowering, blue not being a colour at all common among autumn-flowering plants.

—— Japanese Chrysanthemum Boule d'Or.—This may be set down as one of the best and most distinct of recently introduced varieties. It forms flowers of the shape of a large incurved ball of broad ribbon-like florets of pure gold, and it is an exceedingly fine exhibition variety. It does not appear to be generally cultivated, and perhaps it is not so well known as it deserves to be. It was foremost in a collection of cut blooms of Japanese Chrysanthemums shown by Mr. J. Harman, gr. to F. Capps, Esq., Crown Point, Ealing, at a recent Chrysanthemum exhibition held at Ealing Dean. Thunberg and F. A. Davis were also very fine indeed. This young gardener grows one of the best exhibitions of Chrysanthemums seen in this district, which contains not a few successful cultivators.

—— Market Pelargoniums.—At this time of the year, when in the open all Nature is so dull, dirty, and lugubrious, it is scarcely possible to find, as far as colour is concerned, a warmer contrast than is seen on entering one of the long broad houses at Messrs. Hawkins & Bennett's place at Twickenham. There suddenly bursts upon the vision a vast expanse of brilliant scarlet that it would be hard to excel, even in the height of summer. The house, divided into three compartments, is a very broad lean-to, and the plants arranged in lines along the narrow shelves of the stage that run through the length of the house may be counted by thousands. All the plants just now are in 60's, and as such are not marketed, but are yielding up bloom which is daily gathered and sent to town in bunches, thus furnishing that brilliant hue which is so much more acceptable in the dull winter season than at any other time. Presently these myriads of plants will be shifted into the regulation 48's, and then, well established, will go to market themselves, finding a bourne from whence none return. To shift these now would be suicidal, as far as the bloom is concerned, because leaf and wood would be developed at the expense of flower. The favoured Vesuvius still remains the most largely grown kind, but others are being slowly introduced, market growers having to proceed with caution. When they get a good thing they know how to stick to it, and proceed to exchange it for other kinds but slowly. Thus Madame Vaucher has for years been grown by thousands as the best white, especially for the winter production of bloom; but Cannell's Eureka is being found even better, and its stout stems and purer blooms, freely produced in the winter, will certainly ensure its extensive cultivation. Master Christine, in like manner, bids fair to be ousted by other good pinks; but in the double section of that colour it will be hard to beat Madame Thibaut. The stock throughout—not least, the Maidenhair Ferns—is in first-rate form. In a large span-house recently erected the system of top-heating by means of 2-inch pipes is introduced with great success. The place is always well worthy a visit.

—— Orchids in the City.—At Messrs. Protheroe & Morris' Rooms, on Tuesday morning, there was a very pretty display of flowering Orchids, and at the subsequent sale full values seemed to be realised. Odontoglossum hebraicum sold for £9; a very pretty form of O. blandum for £6 15*s.*; a good ordinary variety of O. Alexandræ was knocked down for £9 9*s.*; a nicely spotted form for 15 guineas; and a strongly grown, good form, with a very fine spike of flowers, fell to a bid for 29 guineas.

—— A Rara Avis.—A specimen of white sparrow, known as Passer domesticus, was shot a few days ago at Pattingham, near Wolverhampton. It was prettily marked brown and white, the latter preponderating, and has been entrusted to a taxidermist for preservation.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Nov. 26, issued by the Meteorological Office, London:—The weather during this period has been very changeable and unsettled, intervals of clear sky having alternated with frequent, and in some places heavy, falls of rain, hail, or sleet. In several parts of the kingdom thunderstorms have been experienced. The temperature has been about equal to, or slightly below, the mean over Ireland and in the east of Scotland, but above it elsewhere, the excess in "England, S.," being as great as 4°. The maxima were generally recorded on the 25th, and varied from 50° in "Ireland, N.," and 51° in "Scotland," to 57° in "England, E.," and 58° in "England, S." The minima, which was registered at most stations on the 23d, ranged from 30° in "Scotland, E.," and "England, E.," to 35° in "England, S.W.," The rainfall has been less than the mean in "England, N.E.," but more in all other districts. In all the more western and south-western parts of the country the excess has been considerable. Bright sunshine shows a slight increase in most places, the percentages of possible duration varying from 26° in "England, E.," to 41° in "England, N.E." Depressions observed.—The barometer in all the more northern parts of our area has been influenced by several large and important depressions, which have travelled in an easterly or north-easterly direction off our extreme northern coasts, while some small subsidiary disturbances have passed eastwards over the United Kingdom and the North Sea. In the south of France pressure has been comparatively high and steady. S. to S.W. and W. winds have consequently prevailed over our islands, and, though generally moderate to fresh, have occasionally risen to the force of a gale.

—— Gardening Appointments.—Mr. Peter Newton, Foreman, Callander Park, Falkirk, as Gardener to Michael Benny, Esq., Denny, Stirlingshire.

Home Correspondence.

Tomatos at Reading—Glamorgan Tomato.—Permit me to correct an error which has crept into the interesting article you publish on these at p. 655. Glamorgan is said to be the name of a Tomato raised at Margam Park; but we have no claim to this honour, as it belongs to my friend, Mr. Crossling, for many years the much-respected gardener at St. Fagan's Castle, near Cardiff, and now of the Penarth Nurseries. I have, however, shown this Tomato frequently, and grown it rather extensively for several years, and I must say it is in my opinion the best and most prolific open-air Tomato I have ever seen. In a summer like the one just gone, when Tomatos generally in the open air were all but failures, the Glamorgan was a perfect success, producing large clusters of fine fruit, which ripened freely in September and October. In its home at St. Fagan's this Tomato used to be a wonder. Mr. Crossling cultivated some of it in a long Peach-like case, and scores of plants were trained up the back wall, and the 6 feet and 8 feet long stems to be seen here were one entire mass of beautiful fruit, many of which I have seen cut and weighing 14 oz. each. On the true variety the fruits are never "corrugated," but only slightly ribbed. I do not know the seed firm of Messrs. Stewart & Co., Nice, and I cannot understand why they should be so much interested in this Tomato as to send it to any one for trial. It was the late Messrs. Osborn, of Fulham, who sent it out, and I cannot help thinking, that if trials of the kind are to be useful and reliable the utmost care should be taken to have the stock from the original source. *J. Muir, Margam Park, Glamorganshire.*

—— In the account of "Tomatos in the open ground at Reading," p. 655, allusion is made to the above Tomato, which is said by "R. D." to have been raised by Mr. Muir, of Margam Park, and sent on trial by Messrs. Stuart & Co. The description given in no way tallies with the variety Glamorgan raised by me, nor with the specimens exhibited by my friend Mr. Muir, in London, Edinburgh, and elsewhere, from seed with which I had the pleasure of supplying him. If "R. D." will refer to his own note on "A Trial of Tomatos," p. 650, Nov. 18, 1882, he will there find that he spoke of it as "Glamorgan, a variety raised by Mr. Crossling, and recently distributed by Messrs. Osborn & Son, and is represented by a very fine and prolific Tomato; very large, a strong grower, the fruit somewhat ribbed; crops freely alike in the open and against a wall." This correctly describes the variety, and suffices to show the distinctness and value of the sort in question; and I might not have troubled to remind your valued correspondent as to its raiser had I not considered it a loss to the public as well as to myself, to have a seemingly worthless variety sent for trial with the same name that my Tomato has been distributed under for three years, first by the lamented firm of Osborn, and subsequently by myself. *Ralph Crossling, Penarth Nurseries.*

A Pilgrimage to Drayton Beauchamp.—Being in the neighbourhood, I determined to visit the above place. Having found the beautiful sequestered churchyard, looking round I saw several new graves, and soon found the one I wanted without a guide. I knew it by the number of winter and autumn Crocuses just peeping through the soil, placed there by loving hands that well knew the flower he most loved. I stood by the grave of the Rev. Henry Harpur-Crewe. A better, kinder, or more unassuming man never lived. I could not help exclaiming:—

"Pass with thy flowers, old friend,
Ere the autumn shadow lengthens;
Pass where life hath no end;
Rest in the hope that strengthens.
Safe where there's no to-morrow,
Safe where no change can come;
Ours be the blank and the sorrow
As we stand by the empty home."

Being about to leave the place, I was accosted by a venerable old man, who said, "You stand by the grave of a good man, sir; I have known him twenty-three years; every one in his parish loved him. He never made an enemy or lost a friend. We shall never see his like again. In Christ he sleeps the sleep of peace till Christ himself shall wake him at the Resurrection. We always said if he died among us we would bury him in flowers, and so we did, for we filled his grave." Turning away, I wended my way to his empty home to take a last look at the garden he loved. What a change was there! The beds and borders, once so brilliant with thousands of flowers, and containing many of Nature's rarest gems, were turned over and trampled down. Seeing two or three men on their knees, with small forks carefully turning over the soil and picking up

the smallest bulbs and folding them in paper, carefully placing them in baskets, I asked an old man, who I found had been gardener there many years, if he knew where the rare collection of Snowdrops were grown. "Oh, yes, sir; many of them grew in that round bed, and some in the pits. Galanthus virescens grew there, but it is gone; it was more valued by Mr. Harpur-Crewe than any plant he had, and he never parted with a bulb. I am glad it is gone where it will be taken care off." He also pointed to one small round bed, saying, "That was the last bed made, and Mr. Crewe was to have planted it with some new Crocuses he had got four days before he died, but was not able to get out, so it lies empty." I am glad to say this grand collection of plants has gone to augment one of the richest collections in the country, which I believe is not now surpassed, if equalled. Thus ended my last visit to Drayton Beauchamp. *Iberia.*

Chrysanthemum Triomphe de Chalets.—I thought this a Japanese variety of singular form when I saw it for the first time at Birmingham last week. I wonder if it is easy of culture and useful to grow in a private establishment? Perhaps some of your readers would answerthe question. *R. Fraser, The Upper Hall Gardens, Ledbury, Herefordshire.*

Fuchsia exoniensis and corallina.—Two points chiefly seem to have been raised in the discussion going on in your columns respecting the Fuchsias exoniensis and corallina, namely (1), Is the latter a scarce, little known variety? and (2), Do the two names belong to one and the same plant? Some of the remarks made concerning these would seem to give an affirmative reply to both questions, but I believe it would be quite erroneous to arrive at these conclusions. As to the first point I can of my own knowledge bear witness that F. corallina has been a common garden plant in the metropolitan district any time during the last quarter of a century—probably much longer, being known sometimes under its true name, corallina, and in other cases under the perverted one of Caroline, as has been already mentioned by some of your correspondents. Then is it the same as exoniensis? My recollection of exoniensis as a plant is not so clear, but how any one comparing the figure in your pages of corallina with the original plate of exoniensis in Paxton's *Magazine of Botany*—a most natural looking drawing, and, as I believe, quite faithful—can have any doubt of their dissimilarity I cannot imagine, for it does not require a very close comparison to see that the tube of the flower in exoniensis is at least half an inch longer than in corallina—a difference which to my mind is decisive. That they are of the same class or type of Fuchsia I have little doubt; probably the younger is a seedling from the older, and may have made its way with cultivators as a better bloomer, but of this I cannot speak positively. F. exoniensis was raised by the late Mr. Robert T. Pince, of Exeter, and was sent out about 1842. I have not had sufficient leisure to hunt up the history of F. corallina, but I find it in the catalogue for 1851 issued by Messrs. Jackson & Son, of Kingston. F. corallina as a Fuchsia of the olden type, and as a thoroughly good hardy kind, deserves all that has been said in its praise. *T. Moore, Chelsea.*

—— If Mr. William Heale, or any other correspondent, will be so good as to put me in the way of getting the plant they knew thirty years ago under this name, I shall be very much obliged. *R. Irwin Lynch, Botanic Garden, Cambridge.*

Adiantum farleyense.—This, which is justly recognised as the queen among Ferns, deserves to have every attention bestowed upon it, for whether grown in small pots for table decoration or as large specimens, it is a most beautiful and pleasing plant. Sometimes great difficulty is experienced in growing it to that size which gives it a massive appearance and brings out its full beauty, but this is generally owing to a mistaken idea that it requires a choice and specially prepared compost to grow it in. We have been able to grow it very successfully in the following manner:—We simply use two parts stiff red turfy loam, using it fresh, just after the grass has decayed, shaking out the soil so as to render it open and spongy, and one part of charcoal, broken to about the size of a hen's egg for large specimens, and smaller in proportion to the size of the plants. Full grown specimens require repotting annually in March, after which they ought to be watered sparingly round the crown until they commence to grow. When the pots are full of roots stable liquid-manure should be applied three times a week. *R. Fraser.*

Tenants' Fixtures.—The inquiry of "Tenant," p. 632, has been replied to by your correspondent, Mr. B. W. Warhurst, in a very lucid manner in your last week's issue, the point turning greatly upon whether the houses have been used for business purposes or not, as there explained. I have occasionally been consulted on the building of glasshouses by tenants who had not the trade privilege of removal of "fixtures," and have always recommended a light wall-plate, bedded as usual in mortar, to which a second plate can be attached with bolts and nuts, believing this to leave the house lawfully movable by a tenant, who could not otherwise remove the framework of any structure attached to brickwork, concrete, or walling of any description. In the matter of boiler, I have seen no way in which a serviceable one set in brickwork can be removed, but of course there are several forms of joints now in use that allow of removal of the attached piping by the tenants on the expiry of lease or otherwise. *Ralph Crossling.*

Chou de Burghley.—Although there are adverse opinions regarding the qualities of this vegetable after another season's trial I believe it will become a general favourite. With some a misapprehension exists; they imagine that after the Cabbage is cut it will produce a Broccoli! which is, of course, quite a mistake. Its chief point of merit is its much hardier constitution than most of the winter vegetables. By successional sowings it can be had in season from early autumn till spring. It hearts like a firm Sugarloaf Cabbage, with the flavour of a Broccoli when cooked. With us it has proved a success, and, with few exceptions, every plant hearted well. *Oxonian.*

—— I, like your correspondent, Mr. Hart, fail to see any special merit in Gilbert's Chou de Burghley, or Cabbage Broccoli, as it was named. Having a rather large family to provide for, and being anxious to furnish them with a succession of vegetables daily, I was induced to buy a packet of seed, and have now a large flat of mixed coarse Cabbages, which our cook says are not to be compared with the old London Colewort, or the sprouts of the summer Cabbage, but I intend keeping some of them until the spring, thinking I may be rewarded with a few Cabbage Broccoli. *W. Driver, Standish House, Stonehouse, Gloucester.*

—— This does not appear likely to solve the great problem (as its raiser stated it would do) of pleasing everybody. I have had my doubts about it ever since I planted out the first batch in early spring. It had too much of the Cabbage growth about it to hide a Broccoli in its heart. I cut open and examined a good few, still no Broccoli, yet some were white and bursting open. I have another batch fit for use from seed sown on June 16, and have come to the conclusion that it is a Cabbage, and nothing more. Yet it has a different appearance from other sorts of Cabbage, though hardly so good when cooked. I have not tried the cooking qualities of that now fit for use. I shall grow it no more as a summer vegetable, there being so many things better at that season. It will be as a winter Cabbage that I shall try it in future. *A. J. Sanders.*

—— I have grown this fine vegetable for the first time this season, and find it excellent in quality, better flavoured than any Cabbage or Sprout I know, not excepting even the dwarf growing Coleworts. I quite agree with "W. W." (p. 666), that it still requires a good deal of "roguing" before it becomes fixed in character, but notwithstanding this defect it will win its way to favour wherever choice flavoured vegetables are in demand. *Alex. Miller, Rood Ashton Park Gardens, Wilts.*

—— I send you a specimen of our Chou de Burghley. I am very much surprised to hear that some of your correspondents cannot get it to heart; they surely cannot put any powder in the land. Some also say they have no Broccoli inside. Surely they cannot expect them to heart if they cut them before the time. Let them stop until March, and then they will find a small Broccoli inside each one. If your correspondent, "W. W.," will cook Chou de Burghley as it was done at the committee meeting—viz., boil it one hour and twenty minutes—he will find it on a par with the sample he tasted in London. It is simply impossible for it to be otherwise. *R. Gilbert, Burghley.*

Horse Radish Cultivation.—We seem to be sending large sums of money yearly to the Dutch and the Germans for our Horse Radish, which might very well be kept at home. What are our growers about? There is doubtless some reason for our importing early Potatos, Peas, Asparagus, and saladings from warmer climates than our own, but Horse Radish can hardly be catalogued as tender, and its season extends the whole year through. If the foreigner required it, would he send hundreds of miles for it when he could produce it himself? I think not. Beyond sending Grapes from southern vineyards and walls, Oranges, Figs, and a few, very few early vegetables from South to North, the foreigner does not send the products of the garden or the field any long distance for his own consumption. If he does not or cannot produce an article he goes without it in the greater number of cases. If we Englishmen import a goodly portion of our beef, there can be no reason why we should not do the same in the case of Horse Radish? Its price here at the present moment is due doubtless to its comparative scarcity. If I require a stick I must pay for it at the rate of 8*d.* per pound, or 74*s.* 8*d.* per cwt. This price is preposterous, and I don't know any other culinary article that realises anything like so high a figure in the retail shops. The market value is of course much less, but yet dreadfully high for an article of general consumption. There must be considerable stretches of deep sandy land, alluvial deposits near the mouths and banks of streams, and others which, with some effective system of drainage, could be made very suitable for its cultivation. Deep culture, although it is the best way to secure paying results, is not all-essential. I have seen first-rate produce got from land that was well manured, and then thrown into low ridges like those for Celery, and the sets planted in the middle of the ridge, 1½ to 2 feet deep. This method almost doubles the depth of the staples, gives plenty of room for the plants, and affords an easy means of flooding the land with water or liquid-manure. The land being thus laid up in ridges, there is much less difficulty in getting the roots out than when it is grown in the usual muddling way. The trenches between the ridges would accommodate various crops, such as French Beans, Marrows, Gourds, Cucumbers, that do not mind a little shade, or they could be used for the propagation of small fruits, the ridges would not be disturbed, for digging out the Horse Radish crop under a lapse of two years. The ridges may be made singly, 3 feet wide at the base, which distance leaves them as much apart at the apex, or the space of two ridges may be utilised for one, so that the land would look like an Asparagus-bed. Where space is no object, I incline to the former mode. *M.*

The Phylloxera Laws in Holland.—In the session of the Second Chamber of the Dutch States-General of November 23 last the proposal to give adhesion to the Berne Phylloxera Convention of 1881 came on for discussion, and after a warm debate was carried by the House by sixty votes to six. In the session of November 27 of the same House a second law was discussed, by which the execution of the former law was to be done by Royal decree. This law was also carried by fifty-six votes against one, but with the restriction that after two years' practice the Royal decree will have to be sanctioned by the law. Both laws have now, before being presented to the King for His Majesty's sanction, to pass the First Chamber of the States-General, which is called to meet on November 29, and where without doubt these laws will be soon put as the order. *J. H. Krelage, Haarlem, Nov. 27.*

Bonapartea stricta.—There is at present in the Palm-stove here a good specimen of this plant in flower. It seems to be so very rare an occurrence for any of the Bonaparteas to flower in this country that I think this instance is worthy of record. The plant is growing in an 11-inch pot; it has never flowered before, and is eighteen or twenty years old. The bole of the plant measures 22 inches in circumference, and the Rush-like leaves average from 18 to 20 inches in length. The flower-stem rises to a height of 8½ feet, ofthat 6 feet are furnished with flowers of a greenish-white, about the size of those of a single Hyacinth; the stamens are double the length of the flower, of a purple colour, tipped with yellow, and the anthers three-quarters of an inch long. There are upwards of 400 flowers on the stem. B. juncea was flowered by Mr. Mackie, Lea Park, Morayshire, N.B., in August, 1879—that is the only one I am aware of having flowered. I shall be glad of any information with regard to this plant, and whether it will be of any use hereafter. *Geo. Harris, Arle Court Gardens, Cheltenham, Nov. 26.*

Sweet Scabious.—I can fully endorse all "J. S." has said as regards this plant. I have at the present time some examples in 32-sized pots from seed sown at the end of May in 48's, and potted on into 32's, leaving five plants in each pot. It is very useful as a pot plant for decoration, or for supplying cut flowers; but it lacks the one thing needful—a pleasing odour. I have given them liberal treatment, and there seems to be no lack of flower-buds. I cut down two plants nearly to the pot when they were some 18 inches high, and I think they will answer well, having broke away strong, and are showing flower. *A. J. S.*

The Jensenian Method of Potato Culture.—I am pleased to observe some one has ventured upon a trial of high-moulding as a preventive measure against the Potato disease, and that the result has been satisfactory as far as it went. I can confidently assure Mr. Howard that if he had high-moulded his trial row of Potatos before any disease spots at all appeared he would most likely have found six instead of sixty diseased tubers. Some experiments performed by myself during the past season here had the effect of convincing the gardeners in whose gardens the experiments were made that Mr. Jensen is right as far as practice goes, however far he may be wrong theoretically. It is very hard to give up belief in old-established views, whether they be concerning the

heteræcism of Uredines, the life history of lichens, or the physiology of the Peronospora. But if our old beliefs are wrong they must sooner or later give place to what is true. Nothing is really gained by ridiculing the views of those who differ from us, beyond the acclamation of the multitude. If ridicule had possessed any power of controlling the belief of the thoughtful, who to-day would have been a believer in evolution? Until two years ago I had the most mistaken belief that all Potatos became diseased by the mycelium of the Peronospora travelling down the haulm to the tubers; nothing was further from my previous notions on this point than that the spores could pierce the skin of the tubers, and thus directly infect them. Experiment convinced me last year that the latter is, however, true; actual observation this year has convinced me that the former is not the way that Potatos become diseased. It was my intention to have communicated some of my observations on these points to the last meeting of the Scientific Committee of the Royal Horticultural Society, but from a mistake in the date on which it was held I failed to do so. These observations must be reserved for a future occasion. *Charles B. Plowright*, 7, *King Street, King's Lynn, Nov.* 25.

—— There can be no doubt that the earthing-up of Potatos is often, although not always, followed by good results. Potatos earthed-up are obviously more free from the many injuries that Potatos partly exposed are liable to. This fact has been so long known that it is mere waste of time to advert to it at any length. Mr. Jensen, however, makes a great mistake in supposing that earthing-up prevents the Peronospora spores reaching and piercing the tuber. He is altogether at sea in this part of the question. The subject of earthing-up was exhausted in a paper by Dr. Jeffrey Lang in the *Journal of the Royal Agricultural Society* for 1858, No. xli. He experimented to the full depth of a spade or fork, and double ploughed, the Potato plants being early earthed-up. "Another and most unexpected result was also obtained," says Dr. Lang; "few or none of the Potatos so grown were diseased." He also gives the case of a grower who "on dry days, in order to save his Potatos, instead of digging them up, made the earth very fine, earthed the stalks up very high, and saved his crop most effectually." Elsewhere, Dr. Lang says his "results were wondrous." He ends the article by writing "Earthing-up repeatedly with fine earth is the only effectual preventive to the ravages of the disease." Readers interested in the earthing-up system should refer to this paper. *W. G. S.*

Treatment of Begonia Tubers.—Supposing that these have been dug up from the open ground, or shaken out of the soil, if grown in pots, without cleaning them over carefully, they should be laid out to dry partially in a sunny greenhouse that has a slight heat from the hot-water pipes day and night, with sufficient ventilation to allow the moisture to find its way to the outside. Here they may be spread out on the staging till the adherent soil can be rubbed off, and they have parted with some of their moisture, but not so long that shrivelling has commenced. The stems will have been cut off on removal from the ground, but their bases will still remain in the tuber, and will shrink during the drying, but not enough usually to cause it to fall out, and it is better removed with the point of a knife, or rotting will be apt to attack the bulb. When sufficiently dry that all the mould can be gently removed, the tubers may be packed in dry sand in boxes, and put in a safe cool room. *M.*

Violet Marie Louise.—This is one of the best of all autumn and winter flowering Violets, and so easy of cultivation that any one with a spare pit or frame may have a plentiful supply of its fragrant flowers from September to April. Ours are blooming most profusely. As the weather is still so open and free from frost, the lights are kept off all day, and just put on last thing at night. I think a word in praise of this Violet will be most acceptable to all lovers of the flower. *Thos. Garnett, Rounds, Devonport.*

Late Peas.—Your correspondent is labouring under a misapprehension if he thinks, as he seems to do in p. 665, that I was advocating the discarding of that excellent late Pea, Ne Plus Ultra. I simply recorded the fact that with us this season British Queen was superior to that variety as a late Pea, in carrying a heavier crop and also continuing longer in bearing under exactly the same conditions—two very important points in the month of October, which in my opinion deserved a fair trial for it from those who are expected to produce a good supply of Peas as late in that month as possible. Since writing the article referred to I had occasion to visit the gardens at Knowle Hill, Cobham, and was pleased to see British Queen largely grown there for a late supply and spoken very highly of by Mr. Welsh, the head gardener at that place. Your correspondent's system of confining himself so much to the sowing of one variety from late March up to the end of May seems to me to be anything but a good one, as some varieties are more influenced by the weather than others, and none more so than Veitch's Perfection—one of the very best in a warm and moist summer, but the last sort to depend upon in a dry one, as I have known many instances of its not growing much more than a foot high in a hot and dry season and producing next to no crop, while by its side Huntingdonian, Emperor of the Marrows, and Laxton's Supreme did well and bore excellent crops, so that it is not a very wise thing to trust all one's eggs in one basket for fear of a smash. *H. Henderson.*

Cupressus macrocarpa.—Referring to the notes that have lately appeared as to the merits of this Cypress, may I be allowed to testify to its extreme beauty as seen growing at Bournemouth, in which town and neighbourhood it is grown more extensively than any other shrub, not even excepting the Euonymus and Tamarisk, two other maritime shrubs—at least one may thus classify them if their great luxuriance in such positions be accepted as the standpoint. In the churchyard at Talbot village, about 3 miles from Bournemouth, there is an avenue of Cupressus macrocarpa, consisting of the most perfect specimens that it is possible to imagine. The plants are about 18 feet high and 6 feet through, and perfectly furnished with branches from top to bottom. If there is a fault about them it is that they have been too severely clipped to keep them symmetrical, though perhaps their position—each side of the path leading into the church, and the small distance between each plant—renders close clipping a necessity. There is another avenue of them in St. Peter's churchyard, which is in the very centre of Bournemouth, and as seen here their appropriateness—mute-like appearance—for cemetery planting cannot fail to strike even those that care least about such matters. I ought to add that the plant seems equally at home in full exposure to the sea as it does in sheltered places a mile away from it. *W. W.*

Cabbage Variations.—Some outcry has been made from time to time about an undue amount of variation in these vegetables, the writers seeming to forget that as the particular kind under consideration was itself only a seedling variation from some older form, the varietal tendency having been induced by intentional impregnation from another form of the same primordial species, or had been brought about by its surroundings, or by insects, or by the inclination to variations within certain limits. This tendency to form variations should teach us not to expect general uniformity in the characteristics of any new hybrid, which cannot have had time during, perhaps, one or two transmutations, to assume a mode of growth that may be comparatively enduring There are too many agencies at work for us to expect any kind of vegetable to become irrevocably fixed, cross-fertilisation by insects or by wind-blown pollen being alone sufficient to prevent that, unless the surrounding circumstances were very favourable, and that is with us an impossibility in our little island, where so many are engaged in saving seed of Cabbages, Turnips, Rape, Broccoli, Kale, &c. Most gardeners will have noticed variations in Cabbages, and these are most noticeable in large breadths, where from the great numbers growing under the same conditions, some great extremes of variation in form, texture of leaf, direction of veins and nerves, sufficient in those the most widely different to give grounds for supposing they belonged to two different kinds, and yet the seeds may have been derived from the same plant, and perhaps from the same capsule. The flavour and texture of leaf after cooking may also vary as much as the outward form. I am led to make these remarks in defence of a good kind of Cabbage sent out by Mr. Gilbert of Burghley, called the Chou de Burghley, and which has been condemned severely by some, whilst it has received complete praise from others. I can only say that, owing to the short period of time lapsed since the sort was originated, there has been too little opportunity to "fix" it, by assiduously pulling out the "rogues." *M.*

Gardenias.—Having seen that the attention of some of your readers has lately been given to the Gardenia, perhaps I may be allowed to state the manner in which I have several times seen them brought into flower about Christmas, when they are highly prized. A batch of plants is cut back about the beginning of January, and introduced into a brisk temperature, where they soon break, and are then repotted. They are afterwards accommodated with a pit to themselves, where they are grown on rapidly, and kept heavily syringed to keep them clean. Liquid manure is given in abundance as soon as the pots become filled with roots. Towards the end of August they are covered with buds, when syringing is discontinued and plenty of air given. In fact we have occasionally pulled the lights off altogether. About the end of October they are brought into a strong heat, and never fail to repay us for the labour bestowed upon them. Getting Gardenias to make their growth early, so as to have their buds well advanced by the autumn, and afterwards plenty of heat, I believe to be the key to their successful winter flowering. *E. C. H.*

A Novel Fernery.—As a curious instance of the changes Time so often brings in its train to things mundane, may be instanced a fernery that is actually made on a portion of the wall which the Romans built from the Solway to the North Sea; so that what was erected to keep in check the warlike tribes of Caledonia serves, in this case, the peaceful purpose of the *connoisseur* in Ferns. The wall is greatly reduced in height, doubtless by frequent pilfering of the natives in days not so far distant, but when there was no Archæological Society to look after these relics of bygone ages, so that it is now not more than 4 feet high, and is in a generally dilapidated state. Round about are many fragments of coarse earthenware, which have been dug up close by, also of Roman handiwork. These have also been made to do duty as receptacles for Fern growing—a widely different purpose for these pipkins—I beg pardon, amphoræ—than that for which the rough potters made them. This novel fernery is to be seen at Benwell, near Newcastle, the residence of J. W. Pease, Esq. *M.*

PLANT PORTRAITS.

Amaryllis crocata, Gawler; Saunders, in *Refug. Bot.*, t. 358.—Flowers triangular in outline, segments pointed, dull cinnabar-red with a central yellow blotch. Brazil.

Anticlea Fremonti, Torrey; Baker, in *Refug. Bot.*, t. 354.—A Californian bulbous plant with lanceolate leaves and panicled cymes of greenish-yellow star-shaped flowers, each about 1 inch across.

Aster hispidus, Baker, *Refug. Bot.*, t. 342.—Cape herbaceous perennial, with oblanceolate leaves and solitary flower-heads on a long stalk; ray florets pinkish, reflexed; disc yellow.

Begonia Hookeriana, Gardner; Baker, in *Refug. Bot.*, t. 341.—A very singular species, more or less densely covered with reddish-brown hairs, leaves lanceolate-serrate. Flowers minute, white, in much-branched cymes. South Brazil.

Begonia sparsipila, Baker, n. sp., in *Refug. Bot.*, t. 340.—Leaves fleshy, obliquely ovate, with scattered hairs on the under surface, flowers numerous, pink, in cymes. Central America.

Bomarea Kalbreyeri, *Revue Hort.*, November 16.—A new species, introduced by M. André. It has downy stems, oblong acuminate leaves, and trusses of flowers, each about 1¼ inch, with orange-red sepals, half the length of the oblong, retuse, yellow spotted petals. Very handsome greenhouse climber.

Chlorophytum Bowkeri, Baker, in *Refug. Bot.*, t. 352.—A Cape Liliaceous plant, with broadly lanceolate leaves, and erect clusters of white star-shaped flowers, about half an inch in diameter.

Cineraria alchemilloides, DC.; Baker, in *Refug. Bot.*, t. 344.—A native of the Cape. Herbaceous perennial, 2—3 feet, covered with floccose pubescence. Leaves stalked, roundish, irregularly toothed; flower-heads yellow, numerous, in branched panicles.

Crassula rubicunda, E. Meyer; Baker, in *Refug. Bot.*, t. 339.—A South African shrubby species, with red flowers in much branched cymes.

Dracæna latifolia, Regel; Baker, in *Refug. Bot.*, t. 353.—A caulescent species with a tuft of broad lanceolate leaves at the top of the stem, from the centre of which springs a densely-branched, many-flowered inflorescence of greenish flowers. Native of South Africa.

Embelia Kraussii, Harvey; Hiern, in *Refug. Bot.*, t. 345.—Myrsinaceæ. Natal. Inconspicuous.

Gamochlamys heterandra, Baker, in *Refug. Bot.*, t. 346.—A Tropical (?) African Aroid, with a solitary, ovate, pinnately lobed green leaf. Spathe green, adherent to the spadix. A very curious plant, forming the type of a new genus. See *Gard. Chron.* 1876, p. 164, vol. vi.

Kleinia neriifolia, Haworth; Baker, in *Refug. Bot.*, t. 343.—A very old-fashioned and singular plant, rarely seen in flower. The flower-heads are narrow, surrounded apparently by a long tubular involucre; flowers yellowish, inconspicuous. Canary Islands.

Nothoscordum flavescens, Kunth; Baker, in *Refug. Bot.*, t. 351.—A Chilian bulb, with linear leaves, and stalked umbels of greenish-yellow stellate flowers of no great beauty.

THE POTATO DISEASE.

THE following extracts are taken from a lecture by Mr. George Murray, of the Botanical Department of the British Museum, recently delivered before the Parkes Museum of Hygiene. After detailing the structure of the Potato, Mr. Murray proceeds to sketch the life hisory of the fungus, which competes with ourselve for the food it contains, in the following terms :—

If you will look closely at a field of Potatos about the end of July, or the beginning of August, and should the summer happen to be a damp one, you may observe that the foliage here and there has a yellowish tinge—a sign of ill-health, and if you will look yet more closely, discoloured spots will be seen on the leaves. If you take one of these leaves with the discoloured spots and look at the under-surface of it a white, flocculent outgrowth will be found, not unlike in appearance the mould which is familiar to every one on damp, decaying organic substances. To examine it thoroughly it is necessary to use the microscope, and with its aid this flocculent mass will be seen to consist of very numerous branching filaments bearing many egg-shaped bodies. The filaments emerge from the leaf in which they are rooted, as it were, and they bear these bodies on their branches as a tree bears fruit. The filaments consist of living cells filled with protoplasm and other matters, but no green matter or chlorophyll to enable the fungus to form starch and the like for itself, so that it is driven to seize upon the food already prepared for the plant's own use. Let us trace the growth of one of these filaments. If a short one be selected just as it has emerged from the leaf, and kept under observation it will be seen that, after growing in length a little, it first proceeds to throw out very short side branches, and by-and-bye at the ends of these, as well as at the end of what we may call the main stem, bodies arise, round, but gradually becoming egg-shaped : these bodies are termed spores (conidia). They increase in size, and when they are quite full grown are turned aside, and in time drop off, while the branches continue to grow, producing others in like fashion, and leaving a knotted or jointed swelling where each spore has been developed. You will find them commonly enough with a spore seated on each swelling.

Now in each flocculent mass a vast number of these egg-shaped spores are produced, and if a field of Potatos be badly diseased countless millions of them arise. Let us watch them further, as it were, and see what part they play in the matter. Each is at first a single cell with a definite membrane of cellulose and contents of protoplasm and other less important matters. If we were to place a number of them in a watchglassful of water, and so under a microscope the contents of each spore would be seen presently to divide into eight or fewer portions. Then the outer membrane would burst, and these portions would escape into the water, each provided with two exceedingly delicate whip-lash threads, which vibrate to and fro with considerable rapidity. The original spores would be left as empty shells, and the water would soon swarm with these actively swimming bodies. They are called "zoospores," from the resemblance in respect of locomotion which they bear to certain animals. After a few hours at the most they begin to settle down, the whip-lashes are withdrawn, and soon each one sends forth a protuberance, which grows into a definite filament. If we were to watch a great number of the original spores we would find now and then one of which the contents did not thus break up into swimming zoospores, but which, omitting this part in the life-history, directly threw out a filament exactly as one of these zoospores does. Now the function of the spores is to reproduce the fungus, just as a seed (bud) reproduces a plant. If the field from which we took them contain a fair number of diseased plants, a very simple experiment will show how these bodies are distributed and the disease spread. First find out how the wind is blowing—a very gentle breeze will do—and then place on the lee side of the field, on some convenient spot, a number of glass slides, such as are used for the microscope, and let them be covered with a thin coating of glycerine to which objects alighting will stick. When your slides have been so exposed for several hours you will most likely find on each a number of these egg-shaped spores ; from which it is quite safe to conclude that they are borne by the atmosphere just as the spores of common moulds are. Birds, rabbits, and other moving objects, very probably carry them too. I venture to say that from a single diseased field of Potatos countless millions of these spores may be wafted, each of which may produce as many as eight zoospores under favourable circumstances, and each of these in turn is capable of setting up the disease anew. Were they all to take effect, I fear we should now be speaking of the Potato as one speaks of the dodo—it would long since have become a thing of the past. But the spores fall for the most part on barren ground, since all other plants, with one or two exceptions, are no more harmed by them than we should be. But suppose one to fall on a Potato-leaf moist with dew or rain, and what I described as taking place in the watch glassful of water would take place in the moisture on the leaf. The zoospores after swimming about would settle down, push out their filaments over the epidermis of the leaf, and wherever they met with a stomate or breathing-pore would there enter, and by rapidly branching in the tissues and feeding upon the food of the Potato plant would thus set up the disease anew. If we were to examine the tissues we should find the filaments which constitute what is called the mycelium of the fungus ramifying in all directions and breaking down the cells, carrying destruction throughout the vital parts of the plant. We should soon see discoloured spots—soon a flocculent mass—soon fresh spores to be detached and wafted away again, carrying the disease to fresh fields and new pastures. But let us see what happens farther to our diseased plants. The mycelium—*i.e.*, the filaments in the tissues—soon descend the stem, carrying destruction with it, and presently reaching the tuber, the great storehouse of the plant. Here there is abundance of food for the fungus, and here we find it enjoying vigorous life. The tubers are thus destroyed, and the appearance of a diseased Potato is only too well known to need description. Fortunately for us this fungus is very susceptible to changes of temperature and a dry condition of the atmosphere, and the colder weather of autumn stops its operations, leaving the Potato plant rotting and a prey to other fungi, the habit of which is to attack dead or decaying organic matter. Of these one, Fusisporium solani, particularly affects the Potato, and it steps in to consume what its forerunner—the fungus of the disease—has left. When the colder weather begins the mycelium in the partly diseased tubers falls into a dormant condition for the winter, though if such a Potato be unduly heated, as sometimes happens in a Potato-pit, it is at once able to resume its activity, and complete its destruction. I believe the disease to be mainly carried over the winter in this way, and when the Potatos are planted again next year numbers of these partially diseased ones are planted with them, and so soon as circumstances are favourable for the fungus it renews its operation. Spores are again produced, ready to take advantage of all favourable opportunities that may arise for their further life and the destruction of their hosts.

RESTING SPORES.—Now, I am afraid I may be accused of having omitted what is thought in some quarters to be a very important chapter in the life-history of this fungus. By fungi of this kind there are commonly produced round bodies called resting-spores which are formed as the result of an act of fertilisation, just as a seed is formed in a flower. Some seven years ago or more, Mr. Worthington Smith made a series of observations on bodies of this kind which are found in the Potato plant, and these he says are the resting-spores of the Potato fungus which carry it over the winter. I do not by any means wish to say that they are not so, and the last thing I wish to do is to disparage in any way the laborious researches of Mr. Worthington Smith ; but I have some hesitation in accepting this view of the matter since I think the evidence is not altogether conclusive. And I feel much confidence in asserting my belief that be they the resting-spores of the fungus or not, the disease hybernates mostly in the form of its mycelium dormant in the tubers. But allowing them to be the resting-spores of the disease, as they may very well be, it throws upon us the necessity of destroying the refuse of a diseased Potato-field—the decaying stems, leaves, &c.—which is best done by burning. And in any case this is a precaution which cannot be too strongly insisted upon.

Mr. Stephen Wilson has recently published an account of what he believed to be another resting state of the Potato fungus. Having expressed myself a sceptic in the matter, Mr. Wilson with much kindness placed in my hands the material for removing or confirming my doubts, and the result of my examination was reported only the other day to the Scientific Committee of the Royal Horticultural Society. The bodies in question I found to be merely masses of oxalate of lime, my friend Dr. Flight having been good enough to aid me with the chemical part of the investigation.

I would advise those who may wish to enquire further into the life-history and operations of this fungus to study Professor de Bary's and Mr. Carruthers' reports to the Royal Agricultural Society on the subject. In the former a very graphic account of the life-history will be found, while in Mr. Carruthers' reports a special feature of interest is his account of the results of experiments carried out under his advice in various parts of the country and on different varieties of Potatos. With regard to the precautions to be observed, I cannot do better than repeat Mr. Carruthers' advice as to the burning of the refuse of diseased Potato fields, and the sending of partially diseased tubers to the starch-mill, where the remaining starch can be utilised. He further recommends that Potatos to be used for food or starch be housed for the winter where a free circulation of air has access to them. By the raising of the temperature in pits disease is very apt to make farther progress. However, he says in his evidence before the Select Committee of the House of Commons on the Potato crop, "I think it would be an injurious thing to preserve the tubers to be used as seed so as to prevent the disease from showing itself to them ; I would rather see the disease in the tuber, and so prevent people from planting it." I am sure that all who know anything of the matter will agree most strongly in recommending this advice to those who are interested.

Experience has shown that a temporary and partial freedom from disease has been obtained by planting certain varieties of Potatos, such as the Champion, and by the production of such varieties the same thing may be repeated. There is, therefore, some hope in this direction. But experience also forces one to the conclusion that the search for and cultivation of substitutes for the Potato are matters to be seriously faced, since large classes of the people, such as the Irish peasants, depend to a very dangerous extent on this precarious crop. In the *Gardeners' Chronicle* of November 10 you will find accounts of a species of Potato (S. Commersoni), and of a root termed the Kumara root, from both of which promise of relief is given in this direction.

In certain similar diseases, such as mildew of corn, the fungus lives alternately on different hosts, and by the destruction of the less valuable host the disease may be kept in check. But there is nothing to encourage such a hope with regard to the Potato fungus, which passes—so far as we know and so far as all analogy leads us to believe—the whole of its life on the one host.

As in all cases of disease, there have come forward in this case certain persons, whose zeal outruns their knowledge, anxious to have their nostrums tried. It would be a mere waste of our time to examine into the nature of their advice, but before concluding I must notice two of these cases as typical. A Danish gentleman, Mr. Jensen, has recommended a plan of earthing-up Potato plants, under the belief that the spores fall from the diseased leaves on the ground, are washed into the soil, and there coming into contact with the tubers set up the disease. I have here a diagram made and kindly lent me by Mr. Worthington Smith, showing the relative size of very fine grains of sand and the spores of the disease, and I think you will agree with me that it shows small probability of this filtering action taking place. Secondly, The idea that the germ-tubes of spores could penetrate the skin of a potato is, so far as I am aware, unsupported by evidence. We know that they enter the stomata of leaves, and very rarely, if ever, penetrate even the epidermis.

I have here the report of the Select Committee of the House of Commons on the Potato crop, and in this document, among a vast amount of instructive information supplied by the witnesses, I find the evidence of Professor Baldwin, of the Agricultural Department of the National Board, Ireland. Professor Baldwin believed that it was possible to stamp out the disease, and he proposed to proceed to do this by way of an Act of Parliament ! He proposed

"in one year to enact that no Potato raised shall be planted the following year"—that they should all, every one of them, be consumed—and then fresh seed imported from some ideal land where Potatos grow, but where the disease is unknown! I think he forgets the fact that we should also have to get rid of several other plants which the disease attacks. It is necessary to mention that Professor Baldwin did not believe that infection was spread by the atmosphere—a matter of some importance to his case—and when he was asked his opinion of certain experiments of mine with glycerine—such as I have already described to you—he replied, that there are "many unforeseen human agencies" which might have interfered to transport the spores to the slides. Well, I am inclined to think that Professor Baldwin would find that many of his "unforeseen human agencies" would interfere with his Act of Parliament and replant a Potato or two.

Reports of Societies.

Liverpool Horticultural Association. — The fifth annual Chrysanthemum show in connection with the above flourishing Society was held in St. George's Hall, on the 27th and 28th ult., when a display was made alike creditable to the exhibitors and the Association. The spacious building was filled to overflowing, indeed it was with difficulty the committee found sufficient space for the numerous exhibits. To a great extent this was due to the large number of Apples brought together, which really constituted a show in themselves. Grapes also formed a very important feature as well as other fruits. Stove and greenhouse plants, both foliage and flowering, were shown in creditable numbers and specimens. A good competition was made in the few classes provided for Orchids, and although the specimens were not large, they were very attractive, and shared a good deal of public favour. But of course the Chrysanthemums were the chief centre of attraction, especially the cut blooms, and well they might be, for perhaps there were never a finer lot staged in this populous Lancashire city, and it is doubtful if even the Southern growers have this season produced finer flowers. Around Liverpool are many most enthusiastic growers of this favourite flower, and right well have they acquitted themselves. The specimen plants were not as a whole so good as we have seen them in the South, although, in some classes, fine examples were exhibited. The very limited space at our disposal will not admit of a detailed account of the classes, so we only enumerate the principal ones and prize winners.

CHRYSANTHEMUMS. — *Plants.* — Class 1. Six large-flowered varieties, distinct.—1st, H. McIver, Esq., Allerton (gr., Mr. John Hughes), with fine specimens of John Salter, Jardin des Plantes, Lady Slade, Beverley, Lady Hardinge, and Mrs. Rundle; 2d, C. H. Bishop, Esq., St. Helen's (gr., Mr. E. Gray); 3d, J. T. Cross, Esq., Aighburth (gr., Mr. T. Whitfield). Class 2. Four large-flowered varieties.—Mr. J. Hughes was again 1st, with good plants of the same varieties. Class 3. Six pompons, distinct.—1st, H. McIver, Esq., with excellent specimens of Maroon Model, St. Michael, Aurora Borealis, and the three varieties of Cedo Nulli; 2d, J. T. Cross, Esq., Aigburth; 3d, Major Pemberton, Fairfield (gr., Mr. S. Blackmore). Class 5. One standard.—1st, James Cunningham, Esq., Mossley Hill (gr., Mr. Thos. Gowan), with a fine grown plant of Mrs. Geo. Rundle; 2d, John Woolwright, Esq. (gr., Mr. Edwin Green), with Mrs. Dixon. In the class for six untrained specimens there was good competition, not less than seven entries, forming a very interesting and showy feature.—1st, John Woolwright, Esq.; 2d, R. Pilkington, Esq., St. Helen's (gr., Mr. G. Middleton); 3d, J. Lewis, Esq., Aigburth (gr., Mr. Jno. Bustard).

Cut Blooms.—Class 8. Eighteen incurved and eighteen Japanese varieties, distinct, the 1st prize being a tenguinea silver vase, offered by Messrs. J. Williams & Co., competitors having used their fertiliser.—1st, R. N. Dale, Esq., Bromborough Hall, Cheshire (gr., Mr. T. Leadbetter), who staged a most magnificent lot—indeed, finer blooms it would be impossible to see. The varieties were:—Incurved—Barbara, White Venus, Mr. Bunn, St. Patrick, Venus, Jardin des Plantes, Mrs. Heale, John Salter, Cherub, Princess Teck, Hero of Newington, Empress of India, Emily Dale, Queen of England, A. Salter, Golden Empress, and Princess of Wales. Japanese—La Nymphe, The Cossack, Cry Kang, L'Incomparable, Magnum Bonum, Flambeau, Peter the Great, Rosa Bonheur, Elaine, Ibn el Kaber, Fleur d'Hiver, Oracle, Criterion, Meg Merrilies, Madame C. Andiguier, Japonaise, Baron de Prailly, and Fair Maid of Guernsey. 2d, C. W. Neuman, Esq., Wyncote, Allerton (gr., Mr. W. Mease), whose collection also included some excellent blooms; 3d, W. D. Holt, Esq., West Derby (gr., Mr. F. Roberts). For twenty-four incurved varieties there were four entries.—1st, W. Nicol, Esq., St. Michael's Mount (gr., Mr. G. Mease), and a very fine lot, including grand flowers of Eve, Lord Wolseley, Beauty, Princess of Wales, Refulgence, Barbara, White Venus, &c; 2d, R. N. Dale, Esq., Bromborough Hall, was a close 2d, but some flowers were weak; 3d, Sir Thos. E. Moss, Bart., Otterspool, Aigburth. Eighteen incurved varieties, six entries.—1st, H. H. Nicholson, Esq., Spital Hall (gr., Mr. M. Playfair), with a very fine exhibit, grand flowers of the following being conspicuous:—Queen of England, Beauty, Emily Dale, Golden Empress, Mr. Howe, and Isabella. 2d, A. Tate, Esq., Roseleigh, Woolton (gr., Mr. R. Waterman), also a fine lot; 3d, W. H. Watts, Esq., Elm Hill, Wavertree (gr., Mr. A. R. Cox). In the class for twelve incurved varieties there were not less than seven lots staged, consequently there was keen competition.—1st, W. D. Holt, Esq., West Derby (gr., Mr. F. Roberts), with a magnificent tray of Queen of England, Empress of India, Golden Empress, A. Salter, Mrs. W. Shipman, Mrs. Bunn, Hero of Newington, Mrs. Heale, Empress Eugénie, Jardin des Plantes, Barbara, and Princess Teck; 2d, W. Nicol, Esq.; 3d, G. Blessig, Esq., Beechley, Allerton (gr., Mr. Jno. Fairhurst). Class 14, Twenty-four Japanese varieties, distinct.—1st, A. Tate, Esq., Woolton (gr., Mr. Waterman), magnificent blooms of the following being staged:—Bismarck, Gloire de Toulouse, The Cossack, Striatum, Fulton, La Nymphe, Boule d'Or, and Elaine; 2d, W. Nicol, Esq.; 3d, W. H. Watts, Esq. Eighteen Japanese varieties.—1st, H. Cunningham, Esq., Gateacre (gr., Mr. Wm. Wilson), a very excellent lot, including Rosa Bonheur, Album striatum, Japonaise, The Cossack, and The Sultan; 2d, F. Cossage, Woolton Esq., (gr., Mr. J. Jellico); 3d, Tyndall Bright, Esq., Aigburth Road, Liverpool (gr., Mr. J. Warrington). Class 17. Six Anemone and six reflexed varieties.—1st, W. H. Watts, Esq., Wavertree (gr., Mr. A. R. Cox), with a very fine stand, including Lady Margaret, Acquisition, Cherub, Mrs. Pethers, King of Crimsons, Golden Christine, &c.; 2d, F. Cossage, Esq., Woolton; 3d, H. Cunningham, Esq. Twelve pompons (eight entries).—1st, S. Smith, Esq., M.P. (gr., Mr. A. Collins), fine bunches of the following being shown:—Boule d'Or, Miss Wheeler, Mrs. Anstie, Acme of Perfection, Bob, Rosinante, President, &c.; 2d, W. H. Watts, Esq.; 3d, W. B. Bowring, Esq., Aigburth (gr., Mr. James Hurst).

MISCELLANEOUS PLANTS.—Six stove and greenhouse, not less than three in flower.—1st, C. W. Neuman, Esq., Allerton (gr., Mr. W. Mease), with splendid specimens of Croton Queen Victoria and C. Disraeli, very highly coloured; Pritchardia pacifica, Erica hyemalis, Azalea Mdme. Ambroise Verschaffelt, and a grand specimen of the old Centrapogon Lucyanus; 2d, W. H. Watts, Esq. Six stove or greenhouse Ferns, distinct.—1st, D. Walker, Esq., Forest Lawn, West Derby, (gr., Mr. Jos. Pythian), with fine examples of Adiantum farleyense, Blechnum corcovadense, Nephrolepis davallioides furcans, Adiantum Cunninghami, A. eximium, and Alsophila excelsa; 2d, Mrs. Horsfall, Cressington, Aigburth. Three Orchids, distinct.—1st, Walter Holland, Esq., Mossley Hill, Liverpool (gr., Mr. Wm. Moss), with nice examples of Angræcum sesquipedale, Burlingtonia fragrans, and Odontoglossum Hallii; 2d, J. E. Reynolds, Esq., West Derby (gr., Mr. Jno. Wilson), with Odontoglossum Alexandræ, O. maxillare, and Dendrobium heterocarpum; 3d, Shadwell Walker, Esq., M.D., Liverpool, whose lot included a good pan of Sophronites grandiflora. One Orchid.—1st, C. W. Neuman, Esq., Allerton, with a fine pan of Cypripedium insigne, an excellent variety. Two Calanthes.—W. B. Bowring, Esq., with very fine pots of C. vestita and Veitchii; 2d, W. Holland, Esq.

FRUIT.—This constituted a very important feature of the exhibition, but we can only notice the more important classes. Grapes, two bunches, black, with Muscat flavour.—1st, Alderman Raynes, Rock Ferry (gr., Mr. J. Bowker), with magnificent bunches of Madresfield Court Muscat; 2d, S. Smith, Esq., M.P., Princes' Park, Liverpool, with fine bunches of Mrs. Pince; 3d, Earl Harrington, Derby. Two bunches white, Muscat flavour.—1st, R. Pilkington, Esq., Romford Hall (gr., Mr. G. Middleton), with fine bunches of Muscat of Alexandria, splendidly finished off; 2d, W. B. Bowring, Esq., with the same variety; 3d, Mrs. Crossfield, Aigburth (gr., Mr. Jno. Bowdon). Four bunches, distinct (for which seven lots were staged).—1st, Joseph Evans, Esq., Huyton, Liverpool, with grand bunches of Barbarossa, Muscat of Alexandrria, Gros Colmar, and White Tokay; 2d, Rev. Watson Sneyd, Keele Hall; 3d, John Goldsworth, Esq., Windle Hall. Twelve dishes of fruit, distinct (three entries).—1st, R. C. Naylor, Esq., Hooton Hall, Cheshire (gr., Mr. Hannigan), with exquisite dishes of the following:—Apples: Golden Reinette, Beachamwell, and King of the Pippins. Pears: Beurré Clairgeau, Marie Louise, Glou Morceau. Grapes: Lady Downes, Muscat of Alexandria, Gros Colmar, Black Alicante. Melon Conqueror of Europe, and Queen Pine. 2d, the Earl of Harrington, Derby (gr., Mr. J. H. Goodacre); 3d, Hon. C. H. Wynn, Rhug Corwen, N. Wales (gr., Mr. J. Bennett), whose collection contained a very fine Smooth Cayenne Pine. Six dishes of fruit, Pines excluded (ten entries).—1st, R. C. Naylor, Esq.; 2d, W. B. Bowring, Esq.; 3d, C. W. Neuman, Esq.—Eight dishes of dessert Pears, open (seven entries).—1st, the Earl of Harrington, Elvaston Castle, Derby, with grand dishes of Beurré Diel, Marie Louise, Doyenné du Comice, Duchesse d'Angleterre, Glou Morceau, Gros Calebasse, &c.; 2d, R. C. Naylor, Esq.; 3d, R. Singlehurst, Esq., Aigburth (gr., Mr. J. Kelly). Six dishes of dessert Apples, open (there being not less than ten lots staged).—1st, J. T. Friend, Esq., Margate (gr., Mr. T. Miller), with splendid dishes of Fearn's Pippin, Worcester Pearmain, Adams' Pearmain, Scarlet Pearmain, Ribston Pippin, and Cox's Orange Pippin; 2d, R. C. Naylor, Esq.; 3d, Mr. C. Rylands, nurseryman, Ormskirk. Eight dishes of culinary Apples, open, there being again ten lots staged, the same exhibitor again taking 1st prize, with magnificent dishes, of good form and colour, of Emperor Alexander, Waltham Abbey Seedling, Golden Noble, Peasgood's Nonsuch, Lady Henniker, &c.; 2d, Thomas Johnson, Esq., Bebington; 3d, the Earl of Harrington, Derby—a very excellent series altogether.

MISCELLANEOUS EXHIBITS.—*Plants.*—Messrs. R. P. Ker & Son, Aigburth Nursery, Liverpool, staged a glorious bank of Cyclamens, showing a great diversity of colour in as good a strain as could be desired. The Liverpool Horticultural Company (John Cowan), Limited, also staged a very excellent lot of stove and greenhouse plants, well grown and clean young specimens. Especially noteworthy were the charming little Adiantum Pecottei, in quantity; and a very distinct form of Pteris serrulata named Cowani, with immense crests. Messrs. H. Cannell & Sons, of Swanley, staged a magnificent display of zonal Pelargoniums, both double and single, not less than twenty-four varieties of each, in extremely fine trusses, and quite a *furore* they created; also a nice tray of bright Salvias.

Apples were largely shown, not for competition. Messrs. James Dickson & Sons, Newton Nurseries, Chester, had a fine display of about seventy dishes; and we were informed the same firm had forty more dishes, for which space could not be provided. These constituted a good feature. Messrs. F. & A. Dickson, of Chester, also staged a nice lot. Messrs. R. Smith & Co., of Worcester, had about seventy dishes of very fine fruit, forming altogether a very fine display; and, lastly, though by no means least, Mr. C. Rylance, of Ormskirk, exhibited a very creditable lot.

The committee may be heartily congratulated upon the noble display, which we were happy to see the public were not slow to appreciate, and from what we gathered the exhibition is likely to be a decided success financially and otherwise. *Visitor.*

Scottish Horticultural Association.—The ordinary monthly meeting of this Association was held in the Hall, 5, St. Andrew Square, on the 6th inst., Mr. Robertson Monro, President, in the chair.

Mr. Geo. McKinlay, Kilconquhar Gardens, sent a paper to the meeting on the Kitchen Garden, which was communicated by the Secretary.

Mr. A. McIntosh, Payton House Gardens, exhibited two new seedling Potatos, named Rae's Kidney and Ravelston White. Mr. McLean, Winters' Park, exhibited a collection of fifty Apples. Mr. Dunn, Dalkeith Park Gardens, on behalf of a friend in England, exhibited a bunch of a new seedling Grape. Mr. Murray, Culzean Gardens, exhibited large specimens of Excelsior Onion.

Tunbridge Wells Chrysanthemum Exhibition.—The seventh annual exhibition of this Society was held in the skating rink at Tunbridge Wells, in the Grove Hill Road, on Thursday and Friday, the 22d and 23d ult. Taking into consideration the fact that this is a comparatively young society the progress made during the last few years is highly creditable to the gardening talent in the neighbourhood. Such a beautiful array of specimen plants, and well grown plants, too, would do credit to any exhibition, while the quantity of specimen plants was at least three times as large as that the "National Society," held at Westminster, have been able to muster hitherto at any of their exhibitions. We have attended all the principal exhibitions this year, but have not seen any plants so good as those which carried off the Tradesmen's Silver Cup at this show, exhibited from the gardens of Roger Cunliffe, Esq., Nevill Park (gr., Mr. A. Stringer.) The plants were of large size, and many of the incurved blooms were good enough to cut for an exhibition stand. Mr. Stringer was also the prize winner in the next two classes for specimen plants. W. H. Tindall, Esq., gr. to Mr. R. Beilby Hollyshaw, Camden Park, was also a successful exhibitor, coming in 2d for the eight specimens, and taking 1st prizes in other plant classes. The above plant classes were open to all exhibitors in Mid Kent and East Sussex.

The next division was for exhibitors within a radius of 14 miles of Tunbridge Wells, and, to their credit be it spoken, their productions were good enough for any exhibition. The best group of eight plants was from E. Roche, Esq., Sandfield, Neville Park (gr., Mr. Killick), and gained the Ladies' Silver Cup. There were some handsome pyramids in this group, and other meritorious plants trained in the usual way. The cut bloom classes yet afford considerable room for improvement, but this remark only applies to the incurved section, as the Japanese and Anemone pompons were very good indeed, the exhibits running very closely to each other, making the work very hard for the judges. Mr. Stringer exhibited the best blooms in the various sections, many of his incurved blooms being very good, but a number in the stand for twenty-four were wanting in finish. His Japanese blooms were very good. It is scarcely necessary to go into the names of the varieties either in the plant or cut bloom classes, they seemed to be very much the same as those already given in the *Gardeners' Chronicle*, and a bare list of exhibitors would fill a column. We seldom see Poinsettias so well grown as they are here, the plants being vigorous but sufficiently dwarf; they are grown in a cool greenhouse during the summer, and do not get too much heat even while the bracts are developing their colour. The best this year came from G. H. Field, Esq., Ashurst Park (gr., Mr. J. Allan); but many other exhibitors had plants not far behind them. A meed of praise also must be given to the Chinese Primroses exhibited by Mr. Allan, grown in 6-inch pots; the plants possessed great vigour, the flowers being rich in colour and finely developed. Berried plants and small plants for the dinner-table were well shown, and in quantity. There was also an exceedingly good exhibition of fruit—plenty of it and of excellent quality. C. Reilly, Esq., The Priory, Neville Park (Mr. H. Scamm P, gr.), gained the 1st prize for excellent Alicante Grapes, Mr. Allan being 2d with nearly as fine examples. For white Grapes the Rev. M. Boordman, Glen Andred (gr., Mr. Killick), was 1st with well coloured Muscat of Alexandria; J. J. Barron, Esq., Holmwood (gr., Mr. S. Pope), was a good 2d. Pears and Apples were remark-

ably fine, the principal prizetakers being the Marchioness Camden (Mr. W. Johnstone, gr.); Mrs. M. Williams, Hungershall Park (gr., Mr. J. McFeate), and P. C. Hardwicke, Esq. (Mr. G. H. Goldsmith, gr.) In collections of twelve dishes of fruit, J. Beacon, Esq., Mabledon, Tonbridge (gr., Mr. A. Henderson), was well 1st; while the contest for the 2d place between Mr. H. Scammell and Mr. W. Johnstone was very keen, the first-named ultimately gaining the 2d place. Such an excellent show as this was, could not have been initiated and maintained without energetic management; and the Honorary Secretary, Mr. E. Charlton, must certainly be complimented on the fruits of his skilful management.

Winchester Horticultural: *Nov. 19 and 20.*—On receiving the schedule announcing the first show of this newly established Society, we could not help wondering if such were really the case that historical Winchester had never previously mustered sufficient courage and capital to begin the good work. However, better late than never, as everybody must have thought that beheld the great display, that not only filled the large hall, but overflowed into the sessions room. The arrangements of exhibits and every detail as to cards, numbers, awards, &c., were done in such a methodical and expeditious manner, as to prove that the working committee are well up to their work, and have every reason to be highly satisfied with their first show, for it was far in advance of the shows of many societies that have been established for years. The great bulk of exhibits, as a matter of course, at this season was Chrysanthemums and fruit, and for which good prizes were offered, the competition being great in every class. Following the order of the schedule, plants, class 1, open, was a collection of Chrysanthemums grown in pots, arranged in a space of 8 by 6 feet, quality and general effect to be the leading feature, the 1st award going to Mr. Neville, gr. to F. W. Flight, Esq., Twyford, his blooms being good throughout, but the general effect not superior to the 2d award, which was made in favour of Mr. Goodchild, gr. to W. Colson, Esq., Colden Common, Winchester. There were three other competitors in this class, all of which were more or less meritorious. In the next open class for six plants in six distinct varieties, Mr. Wills, gr. to Mrs. Pearce, The Firs, Basset, Southampton, was well to the front with admirably trained specimens in rare vigour, the foliage being a deep green, and abundant; none of the plants could have been less than 4 feet in diameter; Mr. Wills always shows well, but none of his previous exhibits have ever excelled the plants he staged in this class. The 2d and 3d prizes went to Mr. Hunt, gr. to R. Moss, Esq., M.P., Weston, and to Mr. Joy, Shirley, Southampton. In the open class for a single specimen, Japanese, the 1st award was made to Mr. Wills, for a grand plant of La Nymphe; the 2d to Mr. Waretum, gr. to Mrs. Gunner, Winchester; and the 3d to Mr. Hunt. The amateurs' exhibits in the corresponding classes to the above were all wonderfully good, the prizes going to Messrs. Remsbury, Twyford, and General Sir A. Beecher, C.B., Winchester. Cut Blooms.—In this class, the gentleman we must "dub" the champion grower—seeing he won the challenge vase at Kingston on the 21st ult., and all the 1st prizes at the shows he has competed at during the present year—had it all his own way here also in every class he showed in. Mr. Molyneux, gr. to W. H. Myers, Esq., Swanmore Park, Bishops Waltham, is the gentleman in question, he took the lead for twenty-four cut blooms, distinct varieties; also for twenty-four in eighteen varieties, also for twelve incurved, and for twelve Japanese. To describe his flowers is an impossibility, they must be seen for their splendour to be realised, and we shall only say that the following were a few of his best flowers:—In the Japanese section, Madame C. Andiguier, Balmoreana, Meg Merrilies, Baron de Prailly, and Criterion; his other best kinds were, Jardin des Plantes, King of the Crimson, Empress of India, Princess of Wales, Barbara, and Mrs. Heales. The other prize winners in these classes, were Messrs. Dixon & Co., of Hackney, Mr. Wills, Mr. Neville, and Mr. Joy. In the corresponding classes for amateurs, the same exhibitors as for plants were again to the fore, all having remarkably good flowers.

FRUIT.—This was shown in greater quantity than the most sanguine of the committee expected, the competition being keen in every class, the leading exhibitor being Mr. Wildsmith, gr. to Viscount Eversley, Heckfield, Winchfield, who, in addition to entering the lists as competitor, put up a non-competition collection which included four Smooth Cayenne Pines that collectively weighed 25 lb.; nine bunches of Grapes, consisting of Alicante, Muscat of Alexandria, Gros Colmar, Mrs. Pearson, Barbarossa, and Golden Queen, all in admirable condition; six dishes of Pears, and six dishes of Apples, and for which the judges awarded a Cultural Certificate, and recommended the committee to award an extra prize. Mr. Wildsmith took the 1st prize for three bunches of Grapes in three distinct kinds, having good bunches of Gros Colmar, Muscat of Alexandria, and Black Alicante; the 2d prize going to Mr. Weaver, gr. to W. W. Beach, Esq., Oakley Hall, Basingstoke, who had fine Alicante, Muscat of Alexandria, and Lady Downe's; and the 3d to Mr. Cox, gr. to R. King Windham, Esq., Corhampton. In the class for two bunches of black Grapes, Mr. Wildsmith was again 1st with medium-sized well-finished bunches of Gros Colmar and Barbarossa; the 2d award going to Mr. Dauncey, gr. to J. B. Stone, Esq., Buckfield, Basingstoke, for good bunches of Lady Downe's and Alicante; and the 3d to Mr. Hellier, nurseryman, Winchester, who showed Gros Colmar and Alicante. For two bunches of white Grapes, Mr. Wildsmith won with well finished Muscats, Mr. Weaver being 2d with larger bunches, but unripe, or rather lacking colour. For the heaviest bunch Mr. Molyneux was 1st with Barbarossa, weighing about 6 lb.; and Mr. Dauncey 2d, with a 4½-lb. Alicante. Pears were shown in goodly numbers, but were generally of indifferent quality; by far the best were from Mr. Wildsmith, his prize dishes being Glou Morceau, Beurré Diel, and Beurré Gris d'Hiver; the 2d and 3d prizes were made in favour of W. T. Cordery, Esq., St. Cross, Winchester, and Mr. Wills. For dessert Apples, Mr. H. J. Fiford of Rownhams, was a good 1st, having magnificent fruit of Ribston Pippin, Blenheim, and Adam's Pearmain; Mr. Wildsmith, 2d, with King of Pippins, Ribston Pippin, and finely coloured Blenheims; Mr. Gandy, gr. to Lord Northbrook, Stratton Park, Winchester, being 3d. For kitchen Apples, Mr. Fiford was again 1st, the other winners being Mr. Wills and Mr. Wildsmith. Mr. Hillier put up a non-competitive collection of Apples, consisting of more than fifty varieties, the general excellence of the whole forcibly showing that Apples can be grown in Hampshire just as successfully as they can in what are called Apple-growing districts.

VEGETABLES.—These were not largely shown, but the good quality and evenness of every collection must have sorely puzzled the judges in their decision. The prize-takers were Mr. Cox, Mr. Dauncey, and Mr. Wildsmith.

MISCELLANEOUS.—The principal exhibits under this head were groups of plants arranged for effect, 8 by 8 feet; the plants were generally good, but taste in arrangement was lacking, the leading idea apparently being to fill out the allotted space as thickly as possible. Mr. W. Blackmore, nurseryman, Winchester, Mr. Hunt, and Mr. Hillier, were the successful competitors. Prizes were offered for table plants, Primulas, Poinsettias, and berried plants, but none were shown that call for special remark; but this does not apply to the class for ladies' prizes for vase arrangements of Chrysanthemums for the dinner-table, and a similar class for arrangement of hardy shrubs, Ferns, and grasses, both of which classes were well contested, the majority being every way excellent. The prize-takers were Mrs. Birch, Winchester; Mrs. Flight, the Misses Flight, Tyford; and Mrs. Chamberlain, Southamptoo. We learn that the show was well patronised, and trust, therefore, that the committee have scored that financial success which is but the due merit for a show so excellent in all its features.

The Manchester Horticultural Mutual Improvement Society.—The second meeting was held on Thursday evening, November 22, in one of the rooms of the Old Town Hall, King Street, when Mr. A. Stansfield read a paper on "The Mode of Reproduction in Ferns." Mr. B. S. Williams was voted to the chair, and the room was crowded with members. Mr. Stansfield stated at the outset that he had been requested to read a paper under very short notice, owing to Mr. Bruce Findlay having met with a serious accident, which had entirely prevented him taking part in any duty for several days; he (the reader) therefore came before them as an emergency man. The lecturer then proceeded with the paper, and by the aid of a large number of dried specimens and diagrams described in detail the mode of reproduction from the spores. Quoting from various authors, he showed the different opinions that were held respecting the functions of the prothallus, and stated that the secret of the reproduction was discovered by a Polish amateur. In some closing remarks, he said that the botanist and horticulturist were inseparably connected with each other, and no horticulturist without some knowledge of botany would proceed clearly in his work; on the other hand, a botanist could derive many hints from the horticulturist. A botanist was a man who had helped gardeners in their business. We knew what a Cabbage was, a Turnip, a Pear, an Apple, and a Gooseberry; but a botanist could tell us what they had been. He searched and ransacked the world for new species, and the gardener cultivated them. With regard to Ferns, the number of varieties, especially British, had multiplied amazingly; nothing like it was known, and he thought that one principle ought to be laid down with regard to naming new varieties, which was that the name given should be in some way descriptive of the plant, not a simple laudation of some individual. He urged upon his audience the importance of studying the different varieties of Ferns and how they were developed. At the close of the lecture, which was of a highly instructive character, a number of questions were asked and replied to, and considerable amount of discussion also took place, in which the Chairman, Mr. R. Astley, Mr. T. Lunt, Mr. W. Birkenhead, Mr. T. Rogers, and others took part. A vote of thanks was passed to Mr. Stansfield, who briefly replied, intimating that on some future occasion he would be most happy to meet the members and pursue the subject still further. The Hon. Sec. (W. Swan) announced that on December 6 Mr. R. Mackellar had promised to read a paper, the subject to be "Vines and Vine Culture." The Society has only been established six weeks, and there are now over a hundred members on the roll; and six gentlemen have promised to read papers on future evenings, so that the Society's programme is already nearly filled up.

Shropshire Gardeners' and Amateurs' Rose, Fruit, and Chrysanthemum Society. — The first exhibition of this Society was held on Thursday, November 22, and proved in every way a success. The show was held in the Music Hall, Shrewsbury. For six large flowering plants, Mr. Milner, Sandome, was 1st, with fair specimens of Mrs. J. Rundle, George Glenny, and others; and J. Watson, Esq., Berwick (gr., Mr. Purser), was 2d. Mrs. Burton, Longnor (gr., Mr. Thurtle), had the best three plants, and the Rev. J. D. Corbett (gr., Mr. Milner), the best pompons; while for three large-flowering specimens the 1st prize went to Mr. Thurtle, and the 2d to Mr. George Townsend. Cut blooms were very well shown. For twenty-four large-flowering sorts Mr. Lambert was 1st; J. Beatie, Esq., 2d; and Rev. J. D. Corbett 3d. The best twenty-four and twelve blooms of Japanese sorts came from Colonel Wingfield, Onslow; J. Beatie, Esq.; and the Rev. J. D. Corbett. For twelve blooms (amateurs).—1st, Mr. C. M. Campbell.

FRUIT, open to the county: three bunches black Grapes.—1st, Mr. Lambert, with Black Alicante, splendidly finished. Three bunches white.—1st, J. Watson, Esq., with grand bunches of Muscat of Alexandria, cut from Vines planted more than fifty years ago; 2d, Colonel Wingfield. Four bunches, four varieties.—1st, Rev. J. D. Corbett, with symmetrical and beautifully coloured bunches of Lady Downe's, Pearson's Golden Queen, Black Alicante, and Muscat of Alexandria; 2d, Colonel Wingfield. Two bunches black Grapes (amateurs).—1st, Mr. W. W. Humphreys; 2d, Dr. Burd, both showing remarkably well. In the class for two bunches of white Grapes the same exhibitors took the prizes. For the best collection of Apples and Pears three exhibitors entered, and put down about fifty dishes each, making a very fine display. 1st, Rev. J. D. Corbett; 2d, Colonel Wingfield. Twelve dishes Pears.—1st, Rev. J. D. Corbett, with a fine collection, but unnamed; 2d, Colonel Wingfield. Six dishes Pears.—1st, Mr. Purser, with a grand lot of Passe Colmar, Winter Nelis, Beurré Clairgeau, Doyenné Gris, and Marie Louise; 2d, Colonel Wingfield. Three dishes Pears.—1st, G. Harries, Esq.; 2d, C. M. Campbell, Esq. One dish of Pears.—1st, C. M. Campbell, Esq.; 2d, G. Harries, Esq. For twelve dishes of Apples Mr. Lambert showed grand samples for 1st place; 2d, Rev. J. D. Corbett. Six dishes of dessert Apples.—1st, J. Watson, Esq.; 2d, Colonel Wingfield. Three dishes of Apples (amateurs).—1st, Mr. T. Wood; 2d, Mr. Townsend. One dish of Apples.—1st, Mr. E. W. Pritchard; 2d, Colonel Wingfield.

A large quantity of plants, fruit, and flowers were sent for competition by Mrs. Burton, J. Watson, Esq., and others. Messrs. Jones & Son, nurserymen, exhibited a large group in the centre of the room, which proved a great attraction, also a large collection of fruit and flowers, a wreath and cross, and two beautiful bouquets of Chrysanthemums. The Treasurer, Mr. E. W. Pritchard, and Messrs. H. & S. Jones worked hard to make the show a success. The Society intends holding a two days' Rose show at the time of the Royal Agricultural Society's meeting at Shrewsbury next year, and are sanguine of success. (*From a Correspondent.*)

Obituary.

WITH much regret we have to announce the death, on the morning of November 24, of Mr. JAMES GRAY, horticultural builder, of Danvers Street, Chelsea. Mr. Gray had been in very delicate health for the last two or three years, so that the sad event was not quite unexpected. It seems that he attended a meeting of the committee of management of the Gardeners' Royal Benevolent Institution (of which he had been a member off and on for over twenty years) on the previous Thursday week, and caught a cold going home, which ended in an acute attack of bronchitis, from which he never recovered. Mr. Gray was born in East Lothian in 1810, and in early life followed the profession of a gardener, his last situation in that capacity being at Roehampton House, Putney. He left there to enter the works of the late Mr. John Weeks, and in 1846 he went into partnership with Mr. Brown and Mr. Henry Ormson. Under the title of Gray, Ormson & Brown, the business of horticultural builders was carried on by them until December, 1850, when Mr. Brown, who died the following year, retired from the firm, which from that time until the autumn of 1857 consisted of Messrs. Gray & Ormson only. Mr. Gray may be said to have been the father of the horticultural building trade, as he was certainly one of its most esteemed members—his work, which was always high-class, and the urbane, warm-hearted character of the man himself, combining to gain for him the respect of all who, in business or private life, became acquained with him. Perhaps the first and most important work carried out by the original firm was the erection of the fine range of houses for the late Earl of Kilmorey, at Orleans House, Twickenham, when Mr. F. R. Kinghorn, of the Sheen Nursery, Richmond, was gardener there. During the Gray and Ormson *régime* the firm built the magnificent winter garden at Enville for the late Earl of Stamford and Warrington, and which is 150 feet long and 70 feet broad, with a circular roof and dome, the latter of which is 50 feet high. The largest works carried out by Mr. Gray himself were the conservatory and range of houses at Busbridge Hall, Godalming, in 1860; the fine range of houses at Hamilton Palace, Lanark, in 1861; the fruit and forcing houses, &c., at Sandringham in 1864; a range

of houses at Hatfield in 1869; a set of houses for Lord Alington, at Crichel House, Wimborne, in 1870; the fine conservatory and range of plant-houses at Wimbledon House in 1869; the new block of fruit and plant houses at Cliveden in 1870-72; another grand range at Cobham Hall, Surrey, in 1878; and a complete set of houses, in 1880, for Lady de Rothschild, at Aston Clinton. In life the generosity of his disposition towards gardeners was a household word among his friends; in his death many will mourn the loss of a benefactor and true friend. Mr. Gray was buried on Thursday last in Brompton Cemetery. We are requested to state that the business will be carried on as usual by one of his sons—Mr. Alfred Gray.

—— We have also the sad duty of recording the death of another of our old friends in the person of Mr. John Fleming, of Cliveden. Twenty years ago Mr. Fleming's name rang through the gardens of England as the originator and most successful exponent of the system of winter and spring bedding which subsequently became a fashion in gardening, and one of the most charming of fashions too, but of late, owing to increasing years and severe lung disease, he has led a somewhat quiet and secluded life, and so had almost passed out of the minds of almost all but his most intimate friends. Of the early life of Mr. Fleming but little is known. His parents were Scotch; his father died in Canada a few years ago, and we believe he had no relatives left in this country. As a young man he served some time in the gardens at Newnham Paddocks, Lutterworth, and about the years 1850 and 1851 he was gardener at Harewood House, Leeds, and while there laid out the extensive pleasure grounds, and the terrace gardens, which are in the Italian style. About 1853 he left Harewood, to become gardener to Lord Southampton at Whittlebury Lodge, Towcester, where he stayed only about two years. In 1853 the noble Italian mansion erected at Cliveden, from the designs of Barry, was finished, and on Mr. Meredith, the then gardener (and afterwards noted Grape grower at Garston), leaving about 1855, Mr. Fleming became gardener to the late Duke of Sutherland. Between 1856 and 1858 he carried out many alterations in the pleasure grounds; in fact, completely altering the whole aspect of the place. In the laying-out of the flower garden he succeeded, under great difficulties (the beds having to be excavated out of the solid chalk), in working out a design of his own creation, which, though many have criticised, none have yet improved upon. It was in this garden that, encouraged by the late Dowager Duchess of Sutherland, he commenced the system of winter and spring bedding, which afterwards became so popular. It was in the spring of 1859, we think, when the spring garden was first seen to the greatest advantage, and so great was his success during the next few years that, with a view to meeting the strong demand that set in for information on the subject, he wrote his little book, *Spring and Winter Gardening*, which was published at the *Journal of Horticulture* office in 1864. On the death of the distinguished lady, to whose love for spring flowers he owed the opportunity he had had of developing that phase of gardening that was almost a passion with him, Cliveden passed into the hands of the Duke of Westminster, and Mr. Fleming may almost be said to have passed with it, for he resisted an offer of a position that others would have accepted in favour of the place he had made his home. In 1870, to meet the larger demands of the Westminster family, the glass department had to be reorganised, and he designed the new set of plant and fruit forcing structures that were erected by Mr. James Gray, of Chelsea, who went over to "the great majority," but a few hours before him. Mr. Fleming was a member of the committee which organised and so successfully carried out the great International Horticultural Exhibition of 1866, and previous to that had from 1862 to 1864 been a member of the Council of the Royal Horticultural Society. Besides his flower gardening, Mr. Fleming was an adept in the art of producing early fruits and flowers under glass, and in the kitchen garden never failed in producing vegetables in abundance and of the best quality. We do not know that he was the raiser of any novelties, but it will be remembered that a few years ago he was the means of bringing the merits of the Negro Largo Fig more prominently before the members of the craft. Though in a critical state of health, he kept up his correspondence with friends until a few days before his death, on the night of Monday last, an event which none will regret more than ourselves.

—— The death is announced of Mr. John Eliot Howard, the scientific chemist and quinine manufacturer. Mr. Howard probably inherited his love of scientific research from his father, Mr. Luke Howard, F.R.S., a well-known meteorologist in his day, and a correspondent of Goethe, who admired his works sufficiently to write a poem on their author. He was the great-grandson of an officer who lost his fortune and estate in the cause of James II., and his wife was descended from the Westons, Earls of Portland. Their son was born on December 11, 1807, and passed a long life of active usefulness. His diligent researches connected with the history of febrifuge alkaloids led, in 1858, to his purchase at Madrid of a manuscript by Pavon, and of a large collection of specimens of Peruvian Bark collected by that botanist in Peru. He also employed the botanical artist, Mr. Fitch, to proceed to Madrid and execute careful drawings from Pavon's specimens. The result was the publication, in 1862, of Mr. Howard's magnificent illustrated work, *Illustrations of the "Nueva Quinologia" of Pavon, and Observations on the Barks Described.* When Mr. Clements Markham introduced the cultivation of Cinchona plants, yielding the febrifuge alkaloids, from South America into India, he found in Mr. Howard a most valuable adviser, ever ready to take any trouble, and to help by all means in his power in furthering an undertaking which he believed to be of great public utility. Mr. Howard rendered his assistance in the most public-spirited way, and without a thought of recompense or remuneration. He undertook the laborious analysis of barks grown on the plantations in India, and furnished a series of reports, which have been invaluable as guides to the cultivators. In 1869 he embodied the results of his investigations in another costly work, entitled *Quinology of the East India Plantations*, which has also been of essential use to all who are engaged in Cinchona cultivation. Mr. Howard's aid has thus been of great value and importance, from the first, in securing the success of this great undertaking. His disinterested services were highly appreciated by the Government, and on October 17, 1873, the Duke of Argyll, then Secretary of State for India, caused a letter to be addressed to Mr. Howard, conveying the thanks of Her Majesty's Government to him for his valuable assistance in connection with Cinchona cultivation. Mr. Howard was the author of numerous pamphlets and papers in pharmaceutical journals, but his literary work was by no means confined to the subject of quinology. He took a deep interest in the general progress of science, he thought much on the questions which are occupying the minds of learned men, and on several occasions he gave the results of his meditations to the world. The high position he had gained as a man of science was recognised by his election as a Fellow of the Royal Society, and he was also a Fellow of the Linnean Society, corresponding member of the Société de Pharmacie de Paris, and of numerous other scientific societies on the Continent. There are many planters in India, scientific inquirers, and men in all ranks of life who will hear of Mr. Howard's death with sorrow, and will ever remember his kindliness and liberality, and the readiness with which he gave them aid and advice. He died, almost suddenly, on the 22d inst., aged 76.

To this notice, extracted from the *Times*, beyond fully endorsing all that is said as to the kindliness of the man and of his zeal in promoting his favourite studies, we have little to add. Mr. Howard took great pride in his garden, where his rockery gave evidence of his love for plants, and where a separate house was devoted to the culture of various Cinchonas, of which he had probably the largest collection anywhere in cultivation. His observations of the plants in growth, aided by his extensive dried collections, gave him a practical knowledge of these puzzling plants beyond that of any writer on the subject since his lamented friend Weddell.

Latterly Mr. Howard took great interest in the question of hybridisation, and specially as to the stability of hybrids—matters in which some controversy has been going on for some time among cultivators of Cinchonas in India and elsewhere. Without entering at this time upon disputed points, which are nevertheless of great interest to practical cultivators, we may still perform a melancholy duty by publishing a letter which we received from him so recently that from press of matter and considerations of space we had not been able to publish it, but which will now be read with special interest:—

"Your article on the dying out of the Lombardy Poplar in Germany interests me in connection with what I learn from Ceylon of the dying out of some sorts of Cinchona there and at Darjeeling.

"'A Java Proprietor' writes recently in the *Ceylon Observer*:—'Regarding Cinchona, I must confess I was not prepared to hear such gloomy accounts. . . . I think your want of success has been due chiefly to the quality of the soil; but I feel convinced that with more attention to your seed—being sure that the same is from mature trees, and more care with your nurseries—not being in too great a hurry to put out poor weakly plants, your failures would not come up to 66 per cent., as I am told they do all round.'

"It might be a great help to the planters if you would bring to bear on this subject the conclusions of your large experience. I suppose that I am right in saying that hybrids are, as a rule, unstable and untrustworthy; and this state of things prevails largely in our colonies. Then there are, however, one or more very valuable and stable sorts which are credited with being hybrid, and about which there has been much controversy, without any clearly defined result. An example of this is found in what is called the 'Jamaica hybrid,' of which a correspondent writes me that he has 30,000 in a new and promising plantation in South America.

"Of this I have excellent specimens of flower, leaf, and fruit, and cannot distinguish these from the C. officinalis as defined by Sir J. D. Hooker, which Dr. Trimen assures me are increasing in Ceylon. He says (April 16, 1883):—'Hybrids, both natural and artificial, are increasing, and it is easy to recognise now Ledgeriana and succirubra, calisaya and succirubra (clearly distinct), Ledgeriana, and officinalis. The second is, I believe, your anglica.' (?) Of course I am not in a position to try any experiments in this line, having only once been able to ripen the seed from my Cinchonæ, and I cannot learn of any reliable experiments in India. I have, it is true, the results of some by the late Mr. McIvor, but these were cut short by his premature death."

—— We have also to announce the death, on November 21, of Mr. William Youell, of Yarmouth. Years ago Mr. Youell carried on a good business as nurseryman and florist at Great Yarmouth, his speciality being Gladioli and hardy florists' flowers; and we believe he was, if not the first, one of the earliest who sent up plants from the country for sale at Stevens' Rooms. Late in life misfortunes came upon him; he lost his business, and in 1881 was elected a pensioner on the funds of the Gardeners' Royal Benevolent Institution.

Florists' Flowers.

Seasonable Notes: Auriculas.—The alpine Auriculas are being very much cultivated out-of-doors, and they are certainly very beautiful subjects for the adornment of the alpine or rock garden, and are well adapted to fit into nooks that are partially shaded from the sun. The noonday and early afternoon sun is too hot for them, but they delight in the morning sun; and in the rock garden it is generally easy enough to give them the position they want. We have spaces in our rock garden that hold about a dozen plants of the best varieties, and they have a much better effect in that way than they have as isolated specimens in the flower borders. The weather has been fine, and the ground in good condition, so we have planted a quantity out. Those that have been planted out and established require frequent looking over to destroy slugs and to remove dead and decaying leaves, which, if allowed to remain, may injure the stems of the plants, and cause decay to set in. All the alpines are adapted for out-of-doors culture. At present the general collection of show Auriculas merely require looking over to remove the decaying leaves. During damp frosty weather the outer leaves die off very rapidly at this season. The plants scarcely require any water except those that bloomed in the autumn, and are now making new hearts. These must have a little water in fine weather, to aid in maturing the incipient flower trusses. Remove the lights from the frames whenever it does not rain; the plants do not mind very cold weather.

Carnations and Picotees.—Like the Auriculas the more hardy varieties of these are grown out in the

open borders, in all the best gardens. Many of the growers for exhibition also cultivate the choice varieties out-of-doors in the open borders. They are planting them out at the present time in deeply trenched and well manured soil. Perhaps the best manure for the Carnation and Picotee is the sweepings of the cattle markets. There is a large market for cattle at Newcastle-on-Tyne, and the growers there can obtain a good supply; so well does it answer, that they take their blooms to Manchester and beat some of the best growers, who cultivate hundreds of pot plants. In heavy soils, manure swept from the streets and roadways, where it can be had, would beat anything else. A grand display of border Carnations may be had by putting out a dozen plants together in the border. They should be planted a foot apart; they can be layered in August where they are growing, and the plants may remain where they are for several seasons, merely thinning out the rooted layers if they are too close to each other. The plants in small pots in the frames will now need but little water through the winter; they will, however, require plenty of air. The plants must occasionally be looked over to remove any decaying leaves. There will be no danger of "spot" appearing if they are freely aired.

HOLLYHOCKS.—A large clump of seedlings produces a grand display in their season; and for all garden purposes they are as good as named varieties: they may be planted about 3 feet apart; by this time of course they are well established in the open ground. A mulching of stable manure, spread over the ground where they are growing will protect the plants from frost. We have a large stock of summer propagated plants this year, and they make a very handsome display early in the year. The plants are now in an unheated pit where they may remain all through the winter. The ground where they are to be planted should now be trenched and heavily manured, and it may be pointed over two or three times in fine weather during the winter. A sharp look-out must be kept for the first appearance of the disease, and as soon as the first trace of it is seen, pick the diseased leaves off, and dip the whole plant in soft-soapy water wherein a quantity of flowers of sulphur has been dissolved.

PANSIES AND PINKS.—Both out-of-doors and in pots these require very similar treatment at this season. If the plants are well established and strong, they will stand the winter well; if not, they will require more looking after. In the open ground the alternate frosts and thaws loosen the plants, so that it is necessary to look over them at least twice in a month, to stir the surface of the ground, and to make any plants firm that are loosened by frost. The Pansies may be pegged down to the ground, and any of the plants of Pinks that require support may have small sticks placed to them. The plants in pots protected by glass lights do not need much attention; they require looking over about once in a week to see that none of them suffer for want of water. The Pansies have been much attacked this year by a reddish coloured aphis; this pest is very troublesome, and does the plants much injury. It is best to destroy it by dipping the plants in tobacco or soapy water. The plants of the forcing type potted up for this purpose require all the same treatment—plenty of air and light in the cold frames.

TULIPS.—Our whole collection of named varieties was planted out about the middle of last month; they had started to grow considerably, and it would have been quite as well if they had been planted two weeks sooner. The ground was dug up just before planting, which gave us a dry medium to plant in, and some good maiden loam was placed over the bulbs. To do Tulips well they must have rich, deep, and loose soil. Heavy soils may be made lighter by working in plenty of stable manure and leaf-mould, sand, or cocoa-nut fibre refuse may also be used. *J. Douglas, Great Gearies, Ilford.*

BOXWOOD.—Considering the great demand there is for boxwood, and the various attempts that have been made of late years to find a substitute, it is but poor consolation to know that extensive groves of this valuable wood exist in Lazistan and in the canton of Genève, which last are described as being especially "extensive, but are turned into little account owing to their ownership being in contestation between the Government and the peasants. There seems, however, to be no intention to settle the question, which so long as it remains in suspense deprives both of them, as well as British trade—for this wood is especially sent to England—from the profits which might be derived from its exportation."

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, NOVEMBER 28, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 59 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall
Nov.	In.	In.	°	°	°	°	°				In.
22	29.57	−0.11	49.0	41.0	8.0	44.9	+ 3.2	39.9	83	S.W.	0.00
23	29.65	−0.03	44.2	35.0	9.2	39.7	− 2.0	36.3	88	S.W.	0.31
24	29.33	−0.36	50.7	36.5	14.2	45.8	+ 4.2	42.1	87	S.W.; W. S.W.	0.30
25	28.90	−0.79	54.0	47.0	7.0	50.3	+ 8.7	46.9	88	S.	0.59
26	29.13	−0.56	49.5	41.0	8.5	44.9	+ 3.3	40.6	86	S.W.	0.45
27	29.83	+0.18	49.5	36.0	13.5	43.8	+ 2.2	38.9	82	S.W.; W. S.W.	0.00
28	30.18	+0.37	55.5	45.0	10.5	50.1	+ 8.5	47.2	90	S.W.	0.00
Mean	29.52	−0.19	50.3	40.2	10.1	45.6	+ 4.0	41.7	85	S.W.	1.65

Nov. 22.—Dull day and night.
— 23.—Heavy rain in early morning. Fine from 9 A.M. Fine night; cloudless.
— 24.—Heavy rain in early morning. Fine day; sun shining faintly. Slight rain from 8 P.M. to midnight. The maximum temperature of this day took place at midnight.
— 25.—Very dull day; almost continual rain. Fine from 4 P.M. to 8 30 P.M. Rain till 9 P.M.
— 26.—Rain falling heavily in early morning. Fine day and night; cloudless.
— 27.—Fine bright day and night.
— 28.—Fine bright day. Aurora Borealis early in the evening.

LONDON: *Atmospheric Pressure.*—During the week ending November 24, the reading of the barometer at the level of the sea increased from 29.77 inches at the beginning of the week to 30.01 inches by 9 A.M. on the 18th, decreased to 29.92 inches by midnight on the same day, increased to 30.01 inches by midnight on the 19th, decreased to 29.92 inches by 9 A.M., and increased to 30.09 inches by midnight on the 20th, decreased to 29.90 inches by 3 P.M. on the 21st, increased to 29.98 inches by midnight on the same day, decreased to 29.70 inches by midnight on the 22d, increased to 29.86 inches by midnight on the 23d, and was 29.41 inches by the end of the week.

The mean reading for the week was 29.84 inches, being 0.07 inch lower than last week, and 0.03 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 51°.7, on the 21st; the highest reached on the 23d was 44°.2. The mean of the seven high day temperatures was 49°.

The lowest temperature was 33°.8, on the 18th; on the 22d the lowest temperature was 41°. The mean of the seven low night temperatures was 37°.4.

The greatest range of temperature in one day was 15°.8, on the 18th; and the smallest was 8°, on the 22d. The mean daily ranges was 11°.6.

The mean temperatures were—on November 18, 42°.4; on the 19th, 44°.5; on the 20th, 43°.1; on the 21st, 45°.5; on the 22d, 44°.9; on the 23d, 39°.7; and on the 24th, 45°.8; and these were all above (excepting the 23d, which was 20° below) by 0°.5, 2°.7, 1°.4, 3°.8, 3°.2, and 4°.2 respectively.

The mean temperature was 43°.7, being 4°.5 higher than last week, and 2° above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 90°.5, on the 24th. The mean of the seven readings was 78°.7.

The lowest reading of a thermometer with its bulb placed on short grass was 25°, on the 18th. The mean of the seven readings was 29°.2.

Rain.—Rain fell on five days to the amount of 0.67 inch.

ENGLAND: *Temperature.*—During the week ending November 24 the highest temperatures were 56° at Truro, 54° at Plymouth, and 53° at Bristol; the highest at Preston was 46°, at Bradford 46°.6, and at Bolton 46°.8. The general mean was 49°.9.

The lowest temperatures were 28°.9 at Wolverhampton, and 30°. at Nottingham and Hull; the lowest at Truro was 40°, at Liverpool 37°.5, and at Plymouth 37°. The general mean was 33°.9.

The greatest ranges were 19°.3 at Nottingham, 18°.6 at Wolverhampton, and 18°.3 at Cambridge; the smallest ranges were 11°. at Preston, 12°.5 at Sheffield, and 12°.6 at Bradford. The general mean was 16°.

The mean of the seven high day temperatures was highest at Truro, 53°.8, at Plymouth 52°.4, and at Brighton 50°.2; and were lowest at Bolton, 44°.6, at Hull 44°.8, and at Bradford and Preston 44°.9. The general mean was 47°.6.

The mean of the seven low night temperatures were highest at Truro, 42°.1, at Liverpool 40°.1, and at Plymouth 40°; and were lowest at Wolverhampton, 32°.1, at Nottingham 33°, and at Hull 33°.7. The general mean was 36°.6.

The mean daily range of temperature was greatest at Cambridge, 13°.9, at Wolverhampton 12°.9, and at Nottingham 12°.8; and were least at Preston, 6°.8, at Bradford 7°.8, and at Liverpool 8°.4. The general mean was 11°.

The mean temperature was highest at Truro, 47°.6, at Plymouth 45°.9, and at Brighton 44°.1; and was lowest at Wolverhampton, 38°.2, at Hull 38°.9, and at Bolton 39°. The general mean was 41°.8.

Rain.—The largest falls were — 2.36 inches at Bristol, 1.97 inch at Truro, and 1.32 inch at Brighton; the smallest falls were—0.40 inch at Hull, 0.47 inch at Cambridge, and 0.54 inch at Liverpool. The general mean fall was 1.03 inch. Rain fell on every day in the week at most places.

SCOTLAND: *Temperature.*—During the week ending November 24 the highest temperature was 53°, at Paisley; at Dundee the highest in the week was 45°.6. The general mean was 48°.2.

The lowest temperature in the week was 26°, at Perth; at Greenock the lowest temperature was 33°. The general mean was 30°.5.

The mean temperature was highest at Paisley, 40°.6; and lowest at Perth, 36°.7. The general mean was 38°.8.

Rain.—The largest fall was 5.85 inches at Greenock, and the smallest was 0.17 inch at Aberdeen. The general mean fall was 2.25 inches.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

"BOTANICAL MAGAZINE:" *Botany.* The *Botanical Magazine*, which contains five coloured plates, with scientific descriptions of new or rare plants, is published monthly by Lovell Reeve & Co. Price 3s. 6d.

CHICORY: *J. L. C.* Grow it in exactly the same way as you would Salsafy or Scorzonera. A good deep-tilled sandy loam suits it best.

CHRYSANTHEMUM SHOW AT THE AQUARIUM: *Erratum.* We are informed that Mr. R. E. Reeve, gardener to J. J. Elliott, Esq., Hadley Green, Barnet, was 1st for six trained pompons, and not Mr. G. Archer, as stated in our report.

EARLY MUSHROOMS: *J. P. L.* If the Mushrooms do not weigh more than from 4 oz. to 5½ oz., we do not see where their "enormous size and substance" comes in. Have you not made a mistake in recording the weights? If not, then your samples are but of an ordinary character.

GRAFTING—EFFECTS OF STOCK ON SCION: *X.* You will find a summary of the observations made on this point in an article by Dr. Masters in the *Popular Science Review*, April, 1871.

GROS COLMAR GRAPE: *A. B.* They were so badly packed, and in such a mess when they arrived, that we can say nothing about them.

INDIARUBBER WATER-BOTTLE: *Constant Reader.* Apply to Messrs. Corry, Soper, Fowler & Co., Finsbury Street, E.C.

KAY'S DENDROMETER: *Q.* will find this useful implement advertised by Messrs. Dicksons & Co., Waterloo Place, Edinburgh.

LARCH AND FIR PLANTING: *T. T.* As the ground has been cropped so many years with these kinds it should have either complete rest from tree cultivation for a long series of years, or if you must have a covert there, plant it with deciduous trees and underwood. Why not try Chestnut and Oak, if the soil and situation are suitable, or Beech, Hornbeam, and Maple; in the damp places Ash, Alder, Poplar in variety? As underwood there are the Hazel in variety, Acer campestre, Cornus mascula, Euonymus, Thorns in variety, the Privets, Snowberry, Rhus Cotinus, Ribes, Willow, or evergreens, such as Laurels, Daphne laureola, Cotoneaster Simonsi, Mahonia aquifolia, Yew, Rhododendron ponticum; and on the margins common Junipers. In all coverts it is desirable to introduce, on the outsides at least, fine-foliage trees, such as Copper Beech, the American Maples, Oaks, and Ashes, Golden Tulip trees, Schwedler's Sycamore, Catalpa, and such-like, to give variety in colouring in autumn tints.

LOMARIAS: *J. G. H.* We suspect that there has been something wrong with regard to the ventilation, but what that may be we have no means of knowing. We should not expect a moderately moist atmosphere to be the cause of the mischief.

NAMES OF FRUIT: *W. Stevens.* 1. Cat's-head; 2, Egg, or White Paradise; 3, Kerry Pippin. — *W. C. Leach.* New or Winter Hawthornden.—*Z. B. Fear:* Swan's Egg. — *M. T. M.* Fine specimen of Marie Louise. — *S. S. & B.* 2, Rymer; 3, Yorkshire Beauty; 4, Hambledon Deux-ans. Others unknown. —*A. R.* The variety named Russet Thorn appears

to be Yorkshire Beauty; Scotch Bridget is correctly so called. The others are local sorts we do not know.

NAMES OF PLANTS: *Enquirer.* 1, A large-leaved variety of Taxus baccata; 2, Tsuga canadensis; 3, Abies nobilis; 4, Picea excelsa var.; 5, Juniperus sp., which we cannot determine without better materials; 6, Abies Fraseri. — *T. B. T.* Datura Stramonium (the Thorn Apple).—*G. Heasman.* We cannot undertake to name Chrysanthemums. Take them to some nursery where Chrysanthemums are grown.—*R. C.* Gymnogramme tartarea.—*G. R.* 1, 2, and 6, material insufficient; 3, Adiantum cuneatum; 4, Cypripedium venustum; 5, Dendrobium bigibbum.—*W. Rogerson.* Zephyranthes Atamasco. — *R. C.* A, Davallia canariensis; C and D, Gymnogramme tartarea; F, Alocasia cuprea; and a letter we cannot make out, Gymnogramme calomelanos. — *W. J.* Vinca minor.—*W. J. D.* Schizostylis coccinea.

PAXTON'S "BOTANICAL DICTIONARY:" *A. C.* The last edition was published in 1868.

SEAKALE: *C. P.* After being forced the roots are no good for planting out again.

TEA, COFFEE, AND CINCHONA MERCHANTS: *Hortus.* Consult the *London Directory*, or apply to Messrs. T. Christy & Co., Fenchurch Street.

YEW HEDGES: *C. P.* Cut them in July or August.

CATALOGUES RECEIVED.

CLARK BROTHERS & Co., 65, Scotch Street, Carlisle—Forest and Ornamental Trees, Fruit Trees, &c.

W. P. LAIRD & SINCLAIR, Dundee—Trade List of Nursery Stock.

THOMAS IMRIE & SONS, Ayr—Forest Trees, Conifers, Fruit Trees, Roses, &c.

MARTIN GRASHOFF, Quedlinburg, Germany—Wholesale Trade Catalogue of Farm and Garden Seeds.

RICHARD DEAN, Ranelagh Road, Ealing—New and Choice Potatos.

HOGG & WOOD, Coldstream, N.B.—General Nursery Stock.

DICKSON & Co., 1, Waterloo Place, Edinburgh—Forest Trees, Ornamental Trees and Shrubs.

BEN REID & Co., Aberdeen—Forest Trees, Conifers, Shrubs, &c.

JOHN DOWNIE, 144, Princes Street, Edinburgh—Roses, Fruit Trees, Forest and Ornamental Trees, &c.

FREDERICK ROEMER, Quedlinburg, Germany—Extra Choice Flower Seeds.

LOUIS VAN HOUTTE, Ghent, Belgium—Hardy Herbaceous and Alpine Plants, Fruit Trees, &c.

COMMUNICATIONS RECEIVED.—Cucumus Melo (has not satisfied us that his enquiry is a genuine one).—R. C.—H. E.—L. H. G.—J. T.—J. P.—A. B.—J. R.—J. R. N.—R. D.—S. B.—A. D.—A. R.—G. L.—Dr Wallace.—W. B. H.—A. D'Haene (next week).—D. C. P. (many thanks)—B. A.—F. K.—H & S.—J. C. & Co.—H. E.—J. V. V.—P. F.—C. W. D.—A D. W.—H. J. V.

Markets.

COVENT GARDEN, November 29.

MARKET dull, with good supplies, more particularly in home-grown Grapes. Prices favourable to buyers. Kent Cobs dull. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 0- 4 0	Lemons, per case ..	15 0-25 0
Cobs, per 100 lb. ..	140 0-150 0	Pears, French, doz.	1 6- 4 0
Figs, per dozen ..	1 0- ..	Pine-apples Eng., lb.	2 0- ..
Grapes, per lb. ..	1 0- 3 0	— St. Michael's, each	5 0- 8 0

VEGETABLES—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz. ..	3 0- 5 0	Horse Radish, bund.	3 0- 4 0
— Jerusalem bush.	4 0- ..	Lettuces, Cabbage, per dozen ..	1 0- ..
Beans, French, lb. ..	1 0- ..	— Cos, per dozen ..	1 6- ..
Beet, per doz. ..	1 0- ..	Mint green, bunch ..	0 6- ..
Cabbages, per doz. ..	1 0- 2 0	Mushrooms, p. baskt.	1 0- 2 0
Carrots, per bun. ..	0 4- 0 6	Onions, per bushel ..	3 6- ..
Cauliflowers, English, dozen ..	2 0- 3 0	— Spring, per bun.	0 6- ..
Celeriac, per root ..	0 4- 0 6	Parsley, per bunch ..	0 4- ..
Celery per bundle ..	1 6- 2 6	Radishes, per doz. ..	1 6- ..
Cucumbers, each ..	0 4- 0 8	Salsaly, per bundle ..	0 8- ..
Endive, English, per dozen ..	1 0- ..	Seakale, per punnet	2 6- ..
Garlic, per lb. ..	0 6- ..	Small salading pun.	0 4- ..
Herbs, per bunch ..	0 2- 0 4	Spinach, per bushel	3 6- ..
		Tomatos, per lb ..	0 9- 1 0
		Turnips, new, bun.	0 4- ..

POTATOS—Kent Kidneys, £4 to £4 10s. per ton; do., Regents, £3 10s. to £4 10s.; Champions, £3 10s. to £3 15s. per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	12 0-24 0	Ferns, in variety, per dozen ..	4 0-18 0
Arbor-vitæ (golden), per dozen ..	6 0-18 0	Ficus elastica, each	1 6- 7 0
— (common), dozen	6 0-12 0	Foliage Plants, various, each ..	2 0-10 0
Azaleas each ..	1 6- 3 6	Fuchsias per dozen	4 0- 9 0
Begonias, per doz. ..	6 0-12 0	Hyacin., Rom., doz.	18 0-24 0
Bouvardias, doz. ..	12 0 18 0	Marguerite Daisy, per dozen ..	8 0-12 0
Chrysanth., per doz.	6 0 18 0	Myrtles, per doz. ..	6 0-12 0
Coleus, doz. ..	2 0- 6 0	Palms in variety, each ..	2 6-21 0
Cyclamen, per dozen	9 0 18 0	Pelargoniums, scarlet, per dozen ..	4 0 9 0
Dracæna term. doz.	30 0-60 0	Poinsettias, per doz.	18 0-24 0
— viridis, per doz.	12 0-24 0	Solanums, per dozen	8 0-15 0
Epiphyllum, per doz.	18 0 30 0	Tulips, per dozen ..	8 0-12 0
Erica, various, doz.	9 0-24 0		
Euonymus, various, per dozen ..	9 0-18 0		
Evergreens, in var., per dozen ..	6 0-24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0- 4 0	Marguerites, 12 bun.	4 0- 6 0
Arum Lilies, 12 blms.	4 0- 8 0	Mignonette, 12 bun.	2 0- 6 0
Azalea, white, 12 spr	1 0- 2 0	Narcissus (Paper-white) ..	2 0- 4 0
Bouvardias, per bun.	1 0- 1 6	Pelargoniums, 12 spr.	1 0- 2 0
Camellias, per doz. ..	2 0- 5 0	— zonal, 12 sprays	0 4- 0 9
Carnations, 12 blms.	1 0- 3 0	Poinsettia, 12 blooms	6 0-12 0
Chrysanth., 12 blms.	0 6- 2 0	Primula, double, bun.	1 0- 1 6
— 12 bunches ..	4 0- 9 0	— single, 12 bun ..	6 0- 9 0
Cyclamen, 12 blooms	0 3- 0 6	Roses (indoor), doz.	2 0- 6 0
Epiphyllum, 12 blms.	0 6- 1 0	— coloured, doz. ..	3 0- 8 6
Eucharis, per doz. ..	4 0- 6 0	Stephanotis, 12 spr.	9 0-12 0
Gardenias, 12 blms.	6 0- 9 0	Tropæolum, 12 bun.	1 0- 2 0
Gladioli, 12 spikes ..	1 0- 3 0	Tuberoses, per doz.	1 6- 3 0
Heliotropes, 12 sp. ..	0 6- 1 0	Tulips, 12 blooms ..	2 0- 3 0
Hyacinths (Roman), 12 sprays ..	1 6- 2 0	Violets, 12 bunches ..	1 0- 1 6
Lapageria, white, 12 blooms ..	3 0- 6 0	— French, per bun.	1 6- 2 0
— red, 12 blooms ..	1 0- 3 0	— Parme, per bun.	4 0- 5 0
Lilac, white Fr., bun.	8 0-10 0	Wallflower, 12 bun.	3 0- 4 0
Lily-of-Valley, spray	0 6- 1 0	White Jasmine, per bunch ..	0 6- 1 0
— 12 sprays ..	8 0-12 0		

SEEDS.

LONDON: *Nov.* 28.—Messrs. John Shaw & Sons, of 37, Mark Lane, E.C., report that the seed market to-day was poorly attended, and but little business was done. Red Clover seed is firm at Monday's rates; French holders are asking more money, and offers from America do not come to hand freely. There is a continued scarcity of fine white and Alsike. Choice samples of Trefoil command increased prices. For spring Tares the sale is slow. New Haricot Beans are good and cheap. The Canary seed market is weaker. Hemp seed is without alteration.

CORN.

At Mark Lane on Monday a flat tone prevailed. English Wheat was not pressed for sale, and quotations were nominal, but to have sold in quantity lower prices must have been taken, and the same may be said of foreign. Flour was dull, with drooping prices. Beans were very firm, with an upward tendency. Peas and Lentils were 1s. dearer on the week. The Barley trade slack, with prices of both malting and grinding descriptions, excepting the finest qualities of the former, in favour of buyers. Common Russian Oats ranged 3*d.* under the rates current on Monday se'nnight, other qualities remaining unaltered, and demand moderate. Flat Maize was rather dearer than at last report, but round corn was dull.—On Wednesday sales of Wheat were very difficult to effect, and easier rates were in some cases accepted. Flour was dull, with a drooping tendency. A quiet market for Barley at previous rates. Beans and Peas firm, the latter especially so. Flat Maize was held for 6*d.* advance, but business was checked by these terms. Oats were dull, but prices steady.—Average prices of corn for the week ending Nov. 24:—Wheat, 40*s.* 5*d.*; Barley, 32*s.* 10*d.*; Oats, 19*s.* 7*d.* For the corresponding week last year:—Wheat, 40*s.* 11*d.*; Barley, 34*s.* 4*d.*; Oats, 24*s.* 4*d.*

CATTLE.

At the Metropolitan Market on Monday the beast supplies were not heavy. The trade generally was dull, and prices barely supported. Sheep were not numerous, but were adequate to demand, and prices remained about as before. Our top quotations are for about 9-stone averages. Prime calves were scarce, and fairly firm in value; whilst pigs were a slow sale. Quotations:—Beasts, 4*s.* to 5*s.*, and 5*s.* 2*d.* to 6*s.*; calves, 5*s.* to 6*s.* 8*d.*; sheep, 5*s.* 4*d.* to 6*s.*, and 6*s.* 8*d.* to 7*s.* 4*d.*; pigs, 4*s.* to 4*s.* 8*d.*—Thursday's trade was quiet, without any special feature. Business throughout was limited, and prices for all qualities remain as on Monday.

HAY.

Tuesday's Whitechapel Market report states that supplies were not over-large, but trade very dull, and prices as follows:—Prime old Clover, 95*s.* to 102*s.* 6*d.*; inferior, 60*s.* to 75*s.*; prime second cut, 90*s.* to 105*s.*; best meadow hay, 80*s.* to 84*s.*; inferior, 40*s.* to 65*s.*; and straw, 30*s.* to 37*s.* per load.—On Thursday there was a moderate supply. Trade was very quiet, and prices unaltered. — Cumberland Market quotations: — Superior meadow hay, 78*s.* to 88*s.*; inferior, 60*s.* to 70*s.*; superior Clover, 105*s.* to 112*s.*; inferior, 70*s.* to 84*s.*; and straw, 34*s.* to 38*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that supplies continue fully adequate to the demand, which remains quiet, as follows:—Magnum Bonums, 100*s.* to 110*s.*; Regents, 100*s.* to 110*s.*; Champions, 80*s.* to 90*s.*; Roses, 80*s.* per ton.

COALS.

The following are the prices current at market during the week:—Bebside West Hartley, 15*s.* 3*d.*; Ravensworth West Hartley, 15*s.* 3*d.*; East Wylam, 17*s.*; Walls End—Hetton, 19*s.*; Hetton Lyons, 17*s.* 6*d.*; Lambton, 18*s.* 6*d.*; Wear, 17*s.* 6*d.*; Tunstall, 17*s.* 6*d.*; East Hartlepool, 18*s.* 9*d.*; South Hartlepool, 17*s.* 9*d.*; Thornley, 18*s.* and 18*s.* 6*d.*; Tees, 19*s.*

Government Stock.—Consols closed on Monday at 101½ to 101⅝ for both delivery and the account. Tuesday's final quotations were 101⅝ to 101¾ for both the account and delivery. Prices closed on Wednesday and Thursday at 101¾ to 101⅞ for both delivery and the account.

EARLY PEAS for MARKETING.

SUTTON & SONS

CAN SUPPLY

SUTTONS' IMPROVED EARLY CHAMPION,

SUTTONS' RINGLEADER,

EARLY SUNRISE, INVICTA, | FIRST AND BEST, DANIEL O'ROURKE.

For Present Sowing. For Earliest Crops.

Lowest price per bushel and quarter on application.

THE QUEEN'S SEEDSMEN, READING.

SEAKALE CROWNS.—50,000 very finest, for immediate sale.
T. ROSNAN, Norman Farm, Fulham, S.W.

SEEDLING POTATO, "EDGCOTE PURPLE KIDNEY."—The most noticeable of the season, which gained a First Prize, also a First-class Certificate in its class at the International Potato Exhibition. Will be sent out at 1s. per lb., 25s. per 28 lb., 45s. per 56 lb., cash with order.
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SPECIAL OFFER of PRIVET, &c.
50,000 EVERGREEN PRIVET, 2½ to 3½ feet, very bushy, 20s.; 3 to 4 feet, extra stout, 25s. per 1000.
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MANETTI STOCKS, very strong, 20s. and 25s. per 1000.
LIMES, extra large and stout, for avenue, &c., planting, recently transplanted. No reasonable offer refused.
SYCAMORE, 3 to 10 feet.
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PAMPAS PLUMES AND TUBEROSE BULBS.
J. C. VAUGHAN, Chicago, U.S.A., makes a speciality of the above items.
IN LARGE QUANTITIES AND BEST QUALITIES.
Correspondence solicited.

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COCOA-NUT FIBRE REFUSE.
4*d.* per bushel; 100 for 25s; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4*d.* each.
LIGHT BROWN FIBROUS PEAT, 5s. 6*d.* per sack; 5 sacks, 25s; sacks, 4*d.* each.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; sacks, 4*d.* each.
COARSE SILVER SAND, 1s. 9*d.* per bushel; 15s. per half ton, 26s per ton; in 2 bushel bags, 4*d.* each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD. 1s. per bushel.
SPHAGNUM MOSS, 8s. 6*d.* per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Free Price LIST.—H. G. SMYTH, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

COCOA NUT FIBRE REFUSE, newly made, as supplied to the Royal Horticultural Society and principal Nurserymen in England, in sacks at 1s. 3*d.* each, or 15 sacks, 18s.; 30 sacks, £1 5s., sacks included Truck-load, loose, 33s.; fifteen bags or more and truck-load free on to rail. Post-office order or cheque with all orders will oblige. Established 1872—J. STEVENS AND CO., "Greyhound" Yard, and 132, High Street, Battersea, S.W.

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PEAT, for Rhododendrons, &c., of excellent quality, also the finest Yellow Fibrous LOAM, Light or Close, from rich forest pasture land, in trucks of 4 tons, 48s. each Selected PEAT, 3s. per sack. SILVER SAND and LEAF MOULD, 8*d.* per bushel Sacks, 6*d.* each. Remittance with order.
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Thomson's Vine and Plant Manure.
Manufactured by the
LIVERPOOL HORTICULTURAL COMPANY
(JOHN COWAN), LIMITED,
The Vineyard and Nurseries, Garston, near Liverpool,
and Sold by them and all Nurserymen and Seedsmen.

This is the Manure used to produce the splendid Grapes grown by Messrs. WM. THOMSON & SON, Clovenfords.
For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

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Superior quality, at exceptionally low prices.

PEAT, best Black Fibrous, from 4*s.* 6*d.* per sack.
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LOAM, Yellow Fibrous, 1*s.* per bushel.
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RAFFIA FIBRE, best, 9*d.* per pound.
TOBACCO PAPER, CLOTH, and ROPE, from 6*d.* per pound.
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VIRGIN CORK, 18*s.* per cwt.

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To His Royal Highness the Prince of Wales.

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By CHUBB'S PATENT PROCESS,

As supplied to all the Royal Gardens and Principal Nurseries of Europe.

GUARANTEED ABSOLUTELY PURE. FREE FROM ANY FOREIGN INTERMIXTURE. Manufactured on the premises from the famous "Laguna" Cocoa-Nut Husks, and can only be obtained from us direct. This article is not to be confused with so-called Cocoa-Nut Fibre Refuse, sold by dealers and others at ridiculously low prices, and dear in the end. Amongst numerous Testimonials and extracts from scientific writers, to be seen at our works, we hold the following:—From Mr. CHARLES PENNY, Head Gardener to H.R.H. the Prince of Wales: "The Gardens, Sandringham, February 28, 1883.—I must say your Cocoa-Nut Fibre Refuse is far superior to any I have ever tried; in fact, it is simply perfection; and the use of your Fibre for so many purposes in Horticulture is a thorough boon. Make what use you like of this letter." Useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bulbs, Mushrooms, Bedding-out Plants, &c.

DESTROYS ALL SLUGS AND INSECTS.

An elegant Bordering to Flower Beds. Combines warmth and cleanliness with valuable antiseptic and deodorising properties.

MOISTENS IN HEAT. HOLDS HEAT IN COLD WEATHER.

Terms, strictly cash with order. Prices as follows:—Sacks, 1*s.* 6*d.* each; 10 sacks, 13*s.*; 15 sacks, 18*s.*; 20 sacks, 23*s.*; 30 sacks, 30*s.* (all sacks included). Truck-load, free on rail, £2. Limited quantities of SPECIAL QUALITY, Granulated, in sacks only, 2*s.* 6*d.* each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from the Manufacturers, **CHUBB, ROUND & CO.,**

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Quality **the Best** in the Market.

(All Sacks included.)

PEAT, best brown fibrous ..	4*s.* 6*d.* per sack; 5 sacks for 20*s.*
,, best black fibrous ..	3*s.* 6*d.* per sack; 5 sacks for 15*s.*
,, extra selected Orchid	5*s.* 0*d.* ,,
LOAM, best yellow fibrous	1*s.* per bushel (sacks included).
PREPARED COMPOST, best ..	
LEAF MOULD	
PEAT MOULD	
SILVER SAND (coarse)	1*s.* 3*d.* per bushel.
RAFFIA FIBRE, best only	10*d.* per lb.
TOBACCO CLOTH, finest imported ..	8*d.* per lb., 28 lb. 18*s.*
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SPHAGNUM MOSS, all selected, 2*s.* per bushel, 6*s.* per sack.
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Terms, strictly Cash with order.

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FINEST TOBACCO CLOTH and PAPER, at 8*d.* and 9*d.* per lb., 28 lb. 18*s.* Special quotations for the Trade.
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and all kinds of GARDEN POTTERY of the best quality.

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THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

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KENT PEATS or LOAM supplied at lowest rates to any quantities.

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N.B.—Orders promptly executed by Rail or to Wharves.

A liberal Discount to the Trade

In the "Gardeners' Chronicle" of Sept. 15 it says:—

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PULHAM of BROXBOURNE, HERTS;

also the picturesque home of the Emus, North African Rams, &c., for E. G. LOOER, Esq.

Our system is with the Rocks and Planting to produce Picturesque Scenery, pleasing all the year round.

Photo Illustrated Book sent to inspect for 12 stamps.

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BELGIAN GLASS for GREENHOUSES, &c.

Can be obtained in all sizes and qualties of

BETHAM & SON,

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B. & Son have always a large stock in London of 20 in. by 12 in, 20 in. by 14 in., 20 in. by 16 in., 20 in. by 18 in, in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200-ft. and 300-ft. cases.

SPECIALLY CHEAP GLASS.

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100 Squares, good Glass, at the following prices, in Leeds:—

15 oz.	21 oz.
13½ by 8 for 9*s.* 6*d.*	13½ by 8 for 12*s.* 6*d.*
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The least trouble of any for Small Conservatories, Greenhouses, Garden Frames, &c.

Will Burn from 12 to 15 hours without Smoke or Smell.

With 15 feet run of 1½ inch Piping, 40s.

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Larger Sizes to Order.

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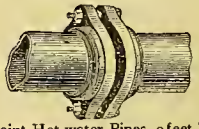
The "Expansion Joint."



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Pure and ample Heat 24 hours or longer for about 1*d.*, without attention. For Greenhouses, Bedrooms, or almost any purpose. Pamphlet and authenticated Testimonials sent. In use daily at Patentee's—THOMAS ROBERTS.

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Inventors and Sole Proprietors of the "ORIGINAL"

STOCK-BREEDERS' MEDICINE CHESTS,

For all Disorders in Horses, Cattle, Calves, Sheep and Lambs,

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Price of Chest complete, including "Key to Farriery," £2 16*s.* 6*d.*, sent carriage paid throughout Great Britain.

CAUTION.—Beware of imitations, and see that the name, DAY, SON & HEWITT, is on all Bottles and Packets.

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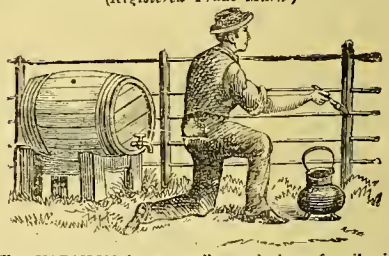
Oil Paint No Longer Necessary.

HILL AND SMITH'S BLACK VARNISH, for Preserving Ironwork, Wood, or Stone.

(*Registered Trade Mark*)



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Sold in Casks of about 30 gallons each, at 1*s.* 6*d.* per gallon at the Manufactory, or 1*s.* 8*d.* per gallon carriage paid to any Station in the Kingdom.

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"*Piercefield Park, June* 21, 1876.—Sirs.—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, WM. COX."

CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

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The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

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HORTICULTURAL BUILDERS AND HEATING ENGINEERS.

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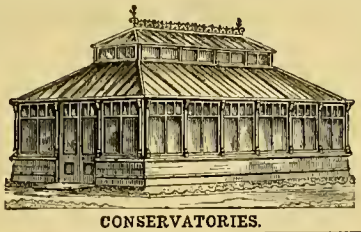
Erected in correct style by competent men.



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For all parts of the World of first-class materials.

GARDEN FRAMES OF EVERY VARIETY in Stock or Made to Order.

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CASH PRICES, CARRIAGE PAID.

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No. 3	12 feet long	6 feet wide	6 10 0
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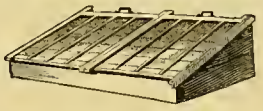
These Frames are 11 inches deep in front, 22 inches deep at back, and 32 inches in the centre. Front or back lights turn over. Sashes are provided for ventilating. All painted four coats of best oil colour, the lights glazed with best 21-oz. English glass.



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No. 2	8 feet long	6 feet wide	£3 7 6
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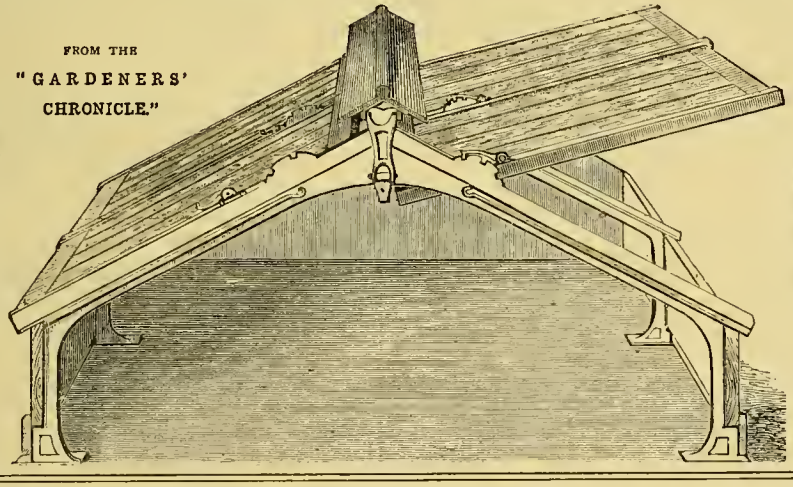

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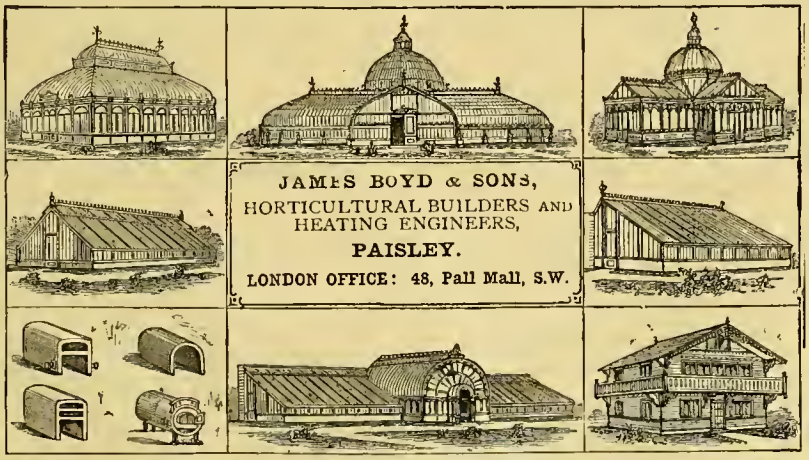

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HORTICULTURAL BUILDERS,
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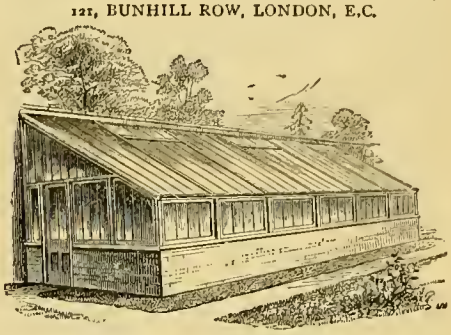

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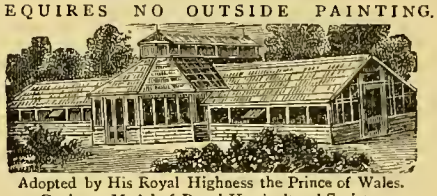

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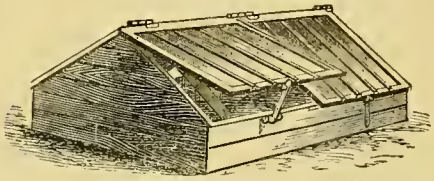

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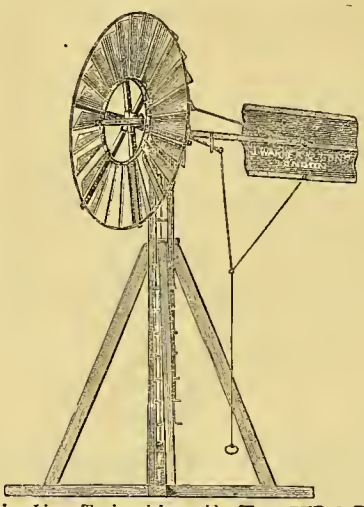

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EPPS'S COCOA.

BREAKFAST.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast-tables with a delicately flavoured beverage which may save us many heavy doctors's bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame." *Civil Service Gazette.*

Made simply with boiling water or milk. Sold only in Packets, labelled thus:—

JAMES EPPS & CO., Homœopathic Chemists, London, England

HOLLOWAY'S OINTMENT and PILLS.—In all outward complaints a desperate effort should be made to at once remove these annoying infirmities, and of establishing a cure. The remarkable remedies discovered by Professor Holloway will satisfactorily accomplish this desirable result, without any of those dangers or drawbacks which attend the old method of treating ulcerative inflammations, scrofulous affections, and scorbutic annoyances. The most timid invalids may use both the Ointment and Pills with the utmost safety with certain success, provided a moderate attention be bestowed on their accompanying "Directions." Both the preparations soothe, heal, and purify. The one assists the other most materially in effecting cures and renewing strength by helping exhausted Nature just when she needs such succour.

SPECIAL NOTICE.

THE

GARDENERS' CHRONICLE

FOR

SATURDAY, JANUARY 5, 1884,

WILL CONTAIN A BEAUTIFULLY

COLOURED ALMANAC

(18 inches by 13 inches),

FROM AN ORIGINAL DESIGN BY FITCH.

PRICE FIVEPENCE; POST-FREE, FIVEPENCE-HALFPENNY;

OR WITH

ALMANAC MOUNTED ON OAK ROLLERS,

READY TO BE HUNG UP, AND ENCLOSED IN CASE,

SEVENPENCE; POST-FREE, EIGHTPENCE-HALFPENNY.

Purchasers are specially recommended to order the Almanac in a Case,

TO PREVENT INJURY FROM FOLDING.

The Publisher cannot be responsible for injury to the Almanac unless it is so protected.

NOTICE TO ADVERTISERS.

As a large Extra Sale of this Number is guaranteed, it will be a very valuable medium for Advertisements.

APPLICATIONS FOR SPACE SHOULD BE SENT IN AS EARLY AS POSSIBLE.

W. RICHARDS, 41, WELLINGTON STREET, STRAND, W.C.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, December 1, 1883.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

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ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.
NOTICE!—COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M., in the Conservatory; SCIENTIFIC, at 1 P.M.; GENERAL MEETING for the Election of Fellows, at 3 P.M.; and LECTURE, by the Rev. GEO. HENSLOW, on TUESDAY NEXT, December 11.
PRIZES OFFERED BY MESSRS. JAMES CARTER & CO.,
To be competed for by Gentlemen's Gardeners and Amateurs only,
For NEW ONIONS, &c.,
For Collections of Vegetables, to include the three varieties of New Onions, named below, at the Royal Horticultural Society's Meeting, December 11, 1883, as follows:—
For the best TWELVE DISHES of VEGETABLES, to comprise 12 Onions, Golden Queen; 12 Onions, Silver Ball; 12 Onions, Golden Globe; 12 Turnips, any variety; 3 Cauliflowers, any variety; 3 Celery, any variety; 50 Brussels Sprouts, any variety; 12 Potatos, any variety; 6 Carrots, any variety; 6 Parsnips, any variety; 3 Red Beet, any variety; 6 Leeks, any variety:—

	£ s. d.		£ s. d.
1st Prize ..	.. 5 0 0	4th Prize ..	.. 1 0 0
2d " ..	.. 3 0 0	5th " ..	.. 0 10 0
3d " ..	.. 1 10 0	6th " ..	.. 0 7 6

IMPORTANT REGULATION.—To prevent misunderstanding Special Labels will be distributed with each packet of the above three varieties of Onions, and all dishes will be disqualified that are staged without this Special Label being attached. Further particulars on application (if needed).

INTERNATIONAL FORESTRY EXHIBITION.—EDINBURGH.
THIS EXHIBITION, which is under the Patronage of HER MAJESTY THE QUEEN, H.R.H. THE PRINCE OF WALES and the other MEMBERS of the ROYAL FAMILY, will be OPENED early in JULY NEXT, and will likely Remain Open for Three Months.
The Objects to be Exhibited embrace Everything Connected with or Illustrative of the Forest Products of the World.
For full particulars as to Classes, Space, &c., apply to
GEORGE CADELL, Secretary.
Offices:—3, George IV. Bridge, Edinburgh.

KINGSTON and SURBITON CHRYSANTHEMUM SOCIETY.
The EIGHTH ANNUAL EXHIBITION will be held on TUESDAY and WEDNESDAY, November 11 and 12, 1884. Schedules are in course of preparation, and will be forwarded when ready on application to
T. JACKSON, Hon. Sec.,
Fife Road, Kingston-on-Thames.

SURPLUS STOCK.—Handsome and Choice Evergreen and Deciduous TREES for Avenues, Parks, Gardens, Streets, &c. Very good and cheap. LIST free by post.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

LILIUM AURATUM.—Good, plump, sound bulbs, 4s., 6s., 9s., 12s., 18s., and 24s. per dozen; extra strong, 30s. and 42s. per dozen. All other good LILIES at equally low prices.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

Lilium auratum.—To the Trade.
JAMES CARTER, DUNNETT AND BEALE are prepared to offer Cases as imported—unopened and examined. Price on application. Also strong bulbs of L. LANCIFOLIUM ALBUM, RUBRUM, and ROSEUM.
237 and 238, High Holborn, London, W.C.

AFRICAN TUBEROSES, a second and very fine consignment, just arrived.
GLADIOLUS BRENCHLEYENSIS, unusually fine this year.
Price per 1000 and 100, to the Trade, on application to
JAMES CARTER, DUNNETT AND BEALE, 237 and 238, High Holborn, London, W.C.

LARCH FIR, extra strong, transplanted, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet. Extra strong transplanted SCOTCH FIR, 2 to 3 feet. Samples and prices on application to
J. SLATER AND SONS, The Nurseries, Malton, Yorks.

Orchids, Bulbs, Lilies.
THE NEW PLANT AND BULB COMPANY, Lion Walk, Colchester, have just published their AUTUMN LIST, No. 64, containing more novelties and rarities than ever.

DESCRIPTIVE CATALOGUE of Roses, Fruit Trees, Rhododendrons, Deciduous and Evergreen Trees and Shrubs, Forest Trees, Azaleas, Camellias, Grape Vines, &c., free by post.
H. LANE AND SON, Nurseries, Berkhamsted, Herts.

HOLLY for HEDGES.—12 to 15 inches, 25s.; 15 to 18 inches, 35s.; 18 to 24 inches, 50s. per 100. Forest LIST, containing heights and prices of well-grown transplanted Quick, Ash, Larch, Spruce, Pines, Oaks, Cover Plants, &c., free.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

FOR SALE, WEEKS' UPRIGHT TUBULAR BOILER and WATER BARS, in good condition. Also WANTED, Crown Bob GOOSEBERRY TREES, RASPBERRY CANES, ASPARAGUS for Forcing, Clumps of best sorts, CHRYSANTHEMUMS to name. Lowest Price to T. WOOD, Rudgeway House Nursery, Eastville, Bristol.

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

Notice to Senders.
WE HAVE NOW a good DEMAND for the undermentioned:—
GARDENIAS, STEPHANOTIS,
CHRYSANTHEMUMS of all kinds (in quantity),
TUBEROSES, White AZALEA, White CYCLAMEN,
GLADIOLUS, Roman HYACINTHS, ROSES,
ODONTOGLOSSUM and other ORCHIDS, &c.
Also GRAPES, TOMATOS, CUCUMBERS, &c.
WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, GARDENIAS, TUBEROSES, ORCHIDS, CHRYSANTHEMUMS, ROSES, White AZALEAS, CAMELLIAS, EUCHARIS, Arum LILIES, LILY of the VALLEY, and other CUT FLOWERS, for all of which there is now a good demand.
W. DENMAN, Salesman and Horticultural Agent, Covent Garden, W.C.

Calla æthiopica—Arum Lilies.
WANTED, the above, cut with long stalks, for December 17 and 21. Good prices for good blooms. Also strong flowering Bulbs of EUCHARIS AMAZONICA.—W. DENMAN, Salesman and Horticultural Agent, Covent Garden.

WANTED in quantities, CHRISTMAS ROSE BLOOM.
EDWARD CARR, Florist, Market Hall, Southport.

To Flower Growers.
CONSIGNMENTS RECEIVED for DISPOSAL at Market Prices.
WANTED, GARDENIAS, EUCHARIS, ARUMS, White AZALEAS, CAMELLIAS, ROSES, &c., in any quantity. Boxes supplied. Terms upon application.
HOOPER AND CO., Covent Garden, London, W.C.
Address—Flower Commission Department.

WANTED, EUCHARIS, Bulbs or Pots, in any quantity.
AMATEUR, Mr. Piller, Saint Thomas Nursery, Exeter.

WANTED, about 10,000 QUICK and 2000 small HOLLIES. Prices and particulars to Mr. COOPER, F.R.H.S., Calcot Gardens, Reading, Berks.

WANTED, 5000 EUONYMUS, AUCUBAS, LAURUSTINUS, Oval and Japanese PRIVET. Delivered free at West Brighton. Price and Samples,
W. WILLETT, Eaton Road, West Brighton.

WANTED, a large PALM, either a Seaforthia elegans, Areca lutescens, or a Kentia, about 6 to 9 feet. Quote low cash price, with full particulars, to
FRANCIS R. KINGHORN, Nurseryman, Richmond.

WANTED, AUSTRIAN PINE—4, 5, and 6 feet specimens, with balls.—Particulars to
JAMES DICKSON AND SONS, "Newton" Nurseries, Chester.

Amsterdam Exhibition, 1883.
The Diplôme d'Honneur.
SUTTONS' GRASS SEEDS were used for Sowing the whole of the Exhibition Grounds, and have been awarded the Highest Recompense, viz., the Diplôme d'Honneur.
SUTTON AND SONS, The Queen's Seedsmen, Reading, Berks.

Camellias Well Set with Flower Buds.
HUGH LOW AND CO. offer the above-named varieties at 175s. and 200s. per 100, excepting Whites. Clapton Nursery, London, E.

KELWAY AND SON'S CATALOGUE of GLADIOLI, describing all the varieties worth growing, and at prices as low as those of any other house, will be forwarded on application.
Langport, Somerset.

Hyacinths, Tulips, Narcissus, Lilies, &c.
BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland.
Wholesale CATALOGUE now ready, and will be sent post-free on application.

Lily of the Valley.
E. KRUIJFF, Sassenheim, near Haarlem, Holland, has to offer, to the Trade only, strong selected Buds of CONVALLARIA MAJALIS for Forcing, at 25. 6d. per 100, 22s. per 1000. Terms cash. Samples free on application.

CHAMÆROPS CHINENSIS.—To be SOLD or EXCHANGED for PLANTS, well-furnished plant of the above, 8 feet high.
WM. COCKBURN, Ettrickhaugh Gardens, Selkirk, N.B.

GORSE COVERT.—Well-rooted, 2-yr. old, twice lifted, 2s. 6d. per 1000, £7 10s. per 100 000.
S. SMITH, Tansley Nursery, Matlock, Derbyshire.

Daffodil, Daffodilly, Daffodowndillies.
A DESCRIPTIVE CATALOGUE of more than 200 sorts of DAFFODILS free on application.
BARR AND SON, 12, King Street, Covent Garden, W.C.

FRANCIS BELL, NURSERYMAN, Easingwold, offers for sale 2,000,000 LARCH, 2 to 5 feet, recently transplanted, with good leads and well rooted, at greatly reduced prices.

EIGHTY THOUSAND CLEMATIS, in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants.
Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

East Lothian Stock and Pansy Seed.
R. B. LAIRD AND SONS (sole Successors to DOWNIE & LAIRD) can offer the above. Particulars as to price, &c., on application.
R. B. LAIRD AND SONS, Seedsmen, 17, Frederick Street, Edinburgh.

CREEPERS for WALLS, TRELLISES, &c., in great variety. See Descriptive LIST. Most of these plants, being in pots, may be moved now.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

New White Neapolitan Violet.
COMTE BRAZZA.—Flowers perfectly double, delightfully fragrant, and purest white. First-class Certificate Floral Committee. Plants in small 60's, 1s. 6d. each, 15s. per dozen; large plants in 48's, 3s. 6d. each, 31s. 6d. per dozen.
BARR AND SON, 12, King Street, Covent Garden, W.C.

Grape Vines—Grape Vines.
B. S. WILLIAMS begs to announce that his stock of VINES this season is remarkably fine, and is now ready for sending out. A Descriptive LIST will be found in the Bulb Catalogue, post-free on application. Early Orders are solicited.
Victoria and Paradise Nurseries, Upper Holloway, N.

GRAPE VINES.—A fine stock in leading varieties, Planting and Fruiting Canes. Apply to
FRANCIS R. KINGHORN, Nurseryman, Richmond.

To the Trade.
CUCUMBER SEEDS.—We shall be glad to quote prices of Veitch's Tender and True and Kelling-son's Telegraph Cucumber Seeds in large or small quantities. Both are very superior stocks, of our own growth, and carefully selected.
GEO. COOLING AND SON, Seedsmen, Bath.

Now Ready.
THE GARDEN ANNUAL, ALMANAC, and ADDRESS BOOK for 1884. Price 1s., post-free 1s. 3d. The most complete and accurate Yearly Reference Book for the use of all interested in Gardens yet published.
Office:—37, Southampton Street, Covent Garden, London, W.C.

Firms in the Nursery and Seed Trade
wishing to publish their announcements in Ireland, will find
THE IRISH FARM, FOREST, and GARDEN, an excellent medium. Specimen Copies, Scale of Charges, &c., on application to
Mr. THOS. MOORE, Sole Proprietor, 39, Lower Ormond Quay, Dublin.

SALES BY AUCTION.

Monday Next.

FINAL SALE of DUTCH BULBS this Season.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY NEXT, at half-past 11 o'Clock precisely, an unusually fine lot of HYACINTHS, TULIPS, CROCUS, NARCISSUS, and other DUTCH FLOWER ROOTS, from one of the largest growers in Holland, lotted to suit both Wholesale and Retail Buyers.

On view morning of Sale. Catalogues at the Rooms and 8, New Broad Street, E.C.

Wednesday Next.

500 CAMELLIAS and AZALEAS, well set with bloom-buds, and other PLANTS from BELGIUM; 500 Standard and Dwarf ROSES from an English Nursery.

MESSRS. PROTHEROE AND MORRIS will include the above in their SALE on WEDNESDAY NEXT.

On view morning of Sale, and Catalogues had.

Wednesday Next.

7000 LILIUM AURATUM.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, at half-past 12 o'Clock precisely 7000 remarkably fine BULBS, just received from Japan. Some of the cases have been opened, and the roots are very fresh. Also a splendid assortment of Hardy English-grown LILIES, including extra fine roots of many varieties, and a miscellaneous lot of Hardy PLANTS and BULBS for the Garden.

On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Saturday Next.

500 Standard and Dwarf ROSES, a collection of hardy English-grown LILIES and BULBS, CARNATIONS and PICOTEES, and a variety of PLANTS and BULBS for the Garden.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., at half-past 11 o'Clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Special Sale of Orchids in Flower and in Bud.

MESSRS. PROTHEROE AND MORRIS beg to announce that their NEXT EXHIBITION and SALE of ORCHIDS in Flower and in Bud will take place at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, December 18, for which they have already entered many specially good varieties.

Gentlemen desirous of including Lots are requested to forward the LISTS by MONDAY NEXT, in time for printing in Catalogues.

Offices, 67 and 68, Cheapside, and 8, New Broad Street, E.C.

This Day.—(Sale No. 6537.)

HARDY PLANTS and BULBS.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., THIS DAY, SATURDAY, December 8, at half-past 12 o'Clock precisely, first-class Standard and Dwarf ROSES in all the leading varieties, from well-known English and French nurseries; FRUIT TREES, Hardy CONIFERS, Ornamental Flowering TREES and SHRUBS, &c.: Hardy Herbaceous BORDER PLANTS, and a consignment of choice named Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, LILIUMS, GLADIOLI, and other BULBS from Holland.

On view morning of Sale, and Catalogues had.

Monday Next.—(Sale No. 6538.)

BULBS from HOLLAND.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 10, at half-past 12 o'Clock precisely, a consignment of First-class Double and Single HYACINTHS, in all colours, for Glasses, Pots, and Borders; TULIPS, CROCUSES, NARCISSUS, SCILLAS, IRIS, ANEMONES, RANUNCULI, GLADIOLI, LILIUMS, and other BULBS, just received from well known farms in Holland, in lots to suit all buyers.

On view morning of Sale, and Catalogues had.

6000 Lilium auratum from Japan, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, December 11, at half-past 12 o'Clock precisely, an extensive importation of Bulbs from Japan, including 6000 L. AURATUM, THUNBERGIANUM, SPECIOSUM, ALBUM and ROSEUM, KRAMERI and LONGIFLORUM; also a choice collection of HOME-GROWN LILIES, comprising many of the finest sorts in cultivation; fine clumps of CYPRIPEDIUM SPECTABILE, BEGONIAS from Belgium, ROMAN HYACINTHS, in quantity, from France, and a consignment of Bulbs from Holland.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6540.)

FIRST-CLASS STANDARD and DWARF ROSES, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, December 12, at half-past 12 o'Clock precisely, first-class Standard, Half-Standard, and Dwarf ROSES from well-known English Nurseries, Dwarf-trained and Pyramid FRUIT TREES, Specimen Variegated HOLLIES and RHODODENDRONS, Golden YEWS, AUCUBAS, EUONYMUS of sorts, CARNATIONS, PICOTEES, PINKS, &c., Ornamental STOVE and GREENHOUSE PLANTS, and a consignment of Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other BULBS from Holland.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6541.)

3000 LILIUM AURATUM just received from Japan in very fine condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, December 13.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6541.)

CYPRIPEDIUM SP. BORNEO.

ODONTOGLOSSUM PESCATOREI, specially grand lot.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, December 13, at half-past 12 o'Clock precisely, by order of Messrs. Hugh Low & Co., a marvellously fine lot, both as to size and condition, of ODONTOGLOSSUM PESCATOREI, amongst them masses of altogether exceptional size and quality. They were collected in a new locality, and there is an excellent prospect of fine and distinct varieties being amongst them. One plant will be offered which was seen in flower by Collector producing flowers profusely marked with beautifully bright plum-coloured spots, reminding one of the finely marked varieties of which so much has been heard lately. At the same time will be offered fine plants of an entirely distinct looking CYPRIPEDIUM found by Mr. Boxall in Borneo, the leaves of which are beautifully marbled on the upper surface, and entirely red-purple on the under.

On view morning of Sale, and Catalogues had.

500 Camellias from America.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., EARLY THIS MONTH, by order of Messrs. Hovey & Co., of Boston, U.S.A., about 500 plants of the three Seedling CAMELLIAS—C. M. Hovey, C. H. Hovey, and Mrs. Anna Maria Hovey; also a few other PLANTS and BULBS.

On view morning of Sale, and Catalogues had.

Stove and Greenhouse Plants.

MR. J. C. STEVENS is instructed to offer for SALE by PRIVATE CONTRACT, a quantity of STOVE and GREENHOUSE PLANTS, comprising about 240 plants, the majority in tubs and pots, consisting of Camellias, Azaleas, Dracænas, Palms, Araucarias, Tree Ferns, &c., suitable for large Hotels, Halls, &c.

For Cards to view the above, which are at Birmingham, apply to Mr. J. C. STEVENS, 38, King Street, Covent Garden, London, W.C.

LAND.—WANTED to PURCHASE, or LEASE, 4 to 6 acres or more of good Land, suitable for a Nursery or Market Garden, facing a main road, and near a Railway Station, not more than 12 miles from Covent Garden. If with good house preferred.
Send particulars to R. OWEN, Mill End, Henley-on-Thames.

FOR SALE (S.E. London), the LEASE, GLASS, and STOCK of Small Nursery, with Residence attached, Stabling (let off), Sheds, ¾ acre of Land. Rent of whole, £48. Address
A. G. 566, Messrs. Deacon's, Leadenhall Street, E.C.

TO BE LET or SOLD, the NURSERY GARDENS, Dwelling House, Greenhouses, Outbuildings, and Premises at Penkhull, Stoke-on-Trent, now occupied by Mr. David Ffoulkes, and for many years previously by Messrs. Burgess & Kent, within easy distance of four markets, and well situated for the sale of flowers, &c.
Apply to GEORGE H. JONES, Sunnyside, Stoke-on-Trent.

PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 8, New Broad Street, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

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

TO PUBLISHERS, NURSERYMEN, and SEEDSMEN.—Will those who are willing to SELL or EXCHANGE ELECTRO BLOCKS of Flowers or Vegetables, please communicate, stating terms, with
B. L., 71, Victoria Road, Stroud Green, London, N.

NOTICE, to W. S. SQUIBB, late of 3, Brunswick Road, Holloway.—Please COMMUNICATE to J. D., 15, BRANSCOMBE STREET, LEWISHAM, S.E.

St. George the Martyr, Southwark.

TREES and TREE GUARDS, &c.

TENDERS are invited for Supplying TREES and keeping the whole of the Trees in the Parish in proper Order, and also the TREE GUARDS, for five years, according to Specification, to be obtained at the Vestry Clerk's Office, Vestry Hall, Borough Road, S.E. Each Tender must be accompanied by a Deposit of £5 in cash, and addressed to the Vestry Clerk, not later than 5 o'Clock on TUESDAY, December 18.
December 6, 1883. A. MILLER, Vestry Clerk.

Gentlemen having Waste or Unprofitable Land

Should apply for

PAMPHLET on NUT TREES, to
Mr. COOPER, F.R.H.S, Calcot Gardens, Reading, Berks.

Christmas Trees in Great Variety.

W. JACKSON AND CO., Nurseries, Bedale, have a large stock of the above, at reduced prices. CATALOGUES now ready.

Standard Roses.

H. LANE AND SON can supply fine Standards and Half-Standards, at 15s. to 18s. per dozen. Catalogue on application.
The Nurseries, Berkhampsted, Herts.

Erica hyemalis, in flower.

HUGH LOW AND CO. offer the above, in 48-pots, at 75s. per 100; can be supplied by the 1000.
Clapton Nursery, London, E.

Vines—Vines—Vines.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this season, as usual, a splendid stock of VINES, suitable for Fruiting in Pots and Planting Vineries. Also a fine stock of Maréchal Niel, Gloire de Dijon, and other TEA ROSES.
Descriptive Priced LIST on application.
The Vineyard, Garston, Liverpool.

STRAWBERRIES.—Capital planting roots, 4s. per 100 (free by parcels post, 4s. 6d.); plants in pots for forcing, 16s. per 100. Descriptive LIST on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE are prepared to make special offers of their fine selected stocks of SEED POTATOS, grown under their own superintendence expressly for seed purposes. Their LIST includes all the varieties worthy of cultivation, and the prices will be found very reasonable.
Seed Growing Establishment, Wisbech.

Gold Medal Begonias.

LAING'S CHOICE HYBRIDISED SEED, all new and of unequalled quality. Sealed packets, free by post—single, 1s., 2s 6d. and 5s.; double, 2s. 6d., 3s. 6d. and 5s. TUBERS, mixed seedlings, by Parcels Post, 4s., 6s., 9s. and upwards per dozen. The Trade supplied.
JOHN LAING AND CO., Seedsmen, Forest Hill, S.E.

LAXTON'S EARLIEST OF ALL PEA.

For the First Dish of Peas this is essentially the finest variety extant. Overwhelming testimonials about its superior qualities, splendid colour and great productiveness.
Price, per sealed quart, 3s. 6d.; per sealed pint, 2s.
To be had of all Seedsmen and
HOOPER AND CO., Covent Garden, London, W.C.

CLEARANCE SALE of CHRISTMAS TREES, 3 to 4 feet, at 10s. per 100; 4 to 5 feet, 15s. per 100, cash with order. All have been three times transplanted. Apply early to
R. CRUST AND SON, Nurserymen, Spalding.

POTATOS.—About 30 Tons Veitch's Ashleaf Kidney, and about 50 Tons Magnum Bonum, grown on early land after old lea in Perthshire.—First-class Seed and pure to varieties.—Apply,
W. S. HUNTER, Seed Merchant, Leith.

CUT LILY of the VALLEY. — The Advertisers are now booking orders for a regular supply of cut Lily of the Valley, commencing December 15 up to April. Orders should be sent in early to insure really fine blooms for Christmas. Price, &c., on application to
TURNER BROS., Florists, Green Hill Nursery, Allerton, Liverpool.

FRUIT TREES (74 acres).—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, &c., as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety. VINES, excellent canes, 3s. 6d. to 10s. 6d. ORCHARD HOUSE TREES in pots, from 5s. FIGS, from 3s. 6d. Descriptive LIST, containing a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also information as to Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., free by post.
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To the Trade.

MELON, BREADALBANE (New Hybrid).—A beautifully netted green-fleshed variety, weighing from 5 to 7 lb.; is a cross between High Cross Hybrid and Victory of Bath, possessing the hardy constitution of the former and the well-known fruitfulness and fine flavour of the latter. Was awarded 1st Prize and First-class Certificate at the Royal Caledonian Horticultural Society's Show in July last.
Per dozen packets 15s.

EAST LOTHIAN STOCK, Purple
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" " " White
" " " Crimson
} Prices on application.

The above Stocks are all saved from pot plants.
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To the Trade.

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H. AND F. SHARPE are prepared to make special offers of all the varieties of VEGETABLE and AGRICULTURAL SEEDS they have grown this season from choice selected stocks. The quality of the seeds is excellent, and the prices are very low.
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FRUIT TREES—FRUIT TREES in all the Best Cropping Varieties.
APPLES, PEARS and CHERRIES, Dwarf-trained, good trees, 15s. and 18s. per dozen.
PEARS, Pyramid, 40s. and 50s. per 100; good fruiting trees, 75s. and 100s. per 100; Maidens, 30s. per 100.
APPLES, Pyramid, 40s., 50s., and 75s. per 100.
CHERRIES, Dwarf-trained Morello and May Duke, 15s. and 18s. per dozen.
CURRANTS, Red and Black, of sorts to name, 8s., 10s. and 12s. per 100.
RASPBERRIES, Fillbasket, 6s. per 100.
ROSES, Dwarf H.P.'s, our selection, 30s. per 100.
CONIFERS, bushy, for pots, window boxes, &c., 9 to 15 in., 25s. per 100.
POPLARS, Lombardy and Ontario, from 5 to 10 feet, 8s. to 35s. per 100; 12 to 16 feet, extra fine, for screens, grown in single lines, 15s. per dozen, 100s. per 100.
SHRUBS, Deciduous, 12s. and 15s. per 100, good plants.
HEATHS, Hardy, of sorts to name, 15s. per 100.
THORNS, Double and Single, of sorts, Standards and Pyramids, 50s. and 75s. per 100.
SPIRÆA PALMATA, fine forcing clumps, 10s., 15s. and 20s. per 100.
AUCUBAS, well coloured, for boxes, pots, &c., 9 to 12 in., 16s. per 100; 12 to 15 inches, 20s. per 100.
WM. CLIBRAN AND SON, Oldfield Nurseries, Altrincham.

SPECIAL OFFER, for want of room, common LAURELS, 3 to 4 feet, 4 to 5 feet, Colchic LAURELS, 4 feet; LAURUSTINUS, 1 to 2 feet; THUIA LOBBII, 3 to 4 feet, 4 to 5 feet; AUCUBA JAPONICA, 1 to 2 feet, bushy; SHRUBS, for pots, from 6 to 18 inches; standard and dwarf ROSES, in all the leading varieties, by the dozen, 100, or 1000.
J. LEWIS, Newtown Nursery, Malvern.

PEACH and NECTARINE TREES.—A fine lot of well-grown, dwarf-trained, healthy trees. Apply to
Mr. COOPER, F.R.H.S., Calcot Gardens, Reading, Berks.

For Forcing.

ASPARAGUS—ASPARAGUS.—In consequence of ground being sold for building, and must be cleared, we have to offer several acres of very fine beds, strong plants, 5s. per 100, or 40s. per 1000. Reference required from unknown correspondents.
A. HART AND SONS, 152, High Street, Guildford.

BULBS.—Very long experience enables us to offer the best quality at a moderate price, as proved by hundreds of testimonials. Illustrated LIST, descriptive, select, and comprising important novelties, on application.
RICHARD SMITH AND CO., Seed Merchants and Nurserymen, Worcester.

HELLEBORUS NIGER (Christmas Rose), in unapproachable condition, 26s. per 1000 plants; weaker plants 18s. per 1000.
CYCLAMEN EUROPÆUS, 12s. and 22s. per 1000—for sale during the whole of the winter.
EDELWEIS, Alpine Flower, very fine, 80s. per 10,000, 9s. per 1000.
EDELWEIS SEED, genuine sound seed, 10s. per 10,000.
Flowers and Seed in Stock.
CH. STEINPOCK, Nurseryman, Alhlengbach, Lower Austria.

A Double First-class Certificate has only been awarded to one Rose in existence—that one Rose, an ENGLISH SEEDLING, raised at Bagshot, H.P. DUCHESS of CONNAUGHT (Noble). Fine healthy plants, 2s. 6d. each.
CHARLES NOBLE, Bagshot.
A large and important section of the Nursery (about 7 acres) is being cleared on expiration of lease. Rhododendron growers should visit this Nursery, which is only ten minutes' walk from Sunningdale Station, South-Western Railway.

Beautiful Flowers for Gardens.
POTENTILLAS, PYRETHRUMS, DELPHINIUMS, lovely hardy flowers for Cutting or Garden Bloom. Named, 5s. per dozen.
SPLENDID PHLOXES, Pentstemons, Pinks, Pansies, in the finest varieties, 3s. 6d. per dozen.
HARDY HERBACEOUS PLANTS, the most showy sorts, 3s. per dozen, 21s. per 100.
CARNATIONS and PICOTEES, good exhibition sorts, 6s. per dozen plants. Fine Clove and Border Self varieties, 4s. per dozen—all from layers.
LILIES, candidum, Orange, and Tiger Lilies, 3s. per dozen.
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Sharpe's Seeds.
CHARLES SHARPE AND CO., SEED GROWERS and SEED MERCHANTS, Sleaford, will be glad to forward, post-free on application, Special Wholesale quotations of their own selected stocks of Garden and Agricultural Seeds. Sleaford.—October, 1883.

Deutzia gracilis.
WILLIAM FLETCHER has many thousands to offer. Fifteen to thirty branches on each plant. Price on application.
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JOHNSTONE'S ST. MARTIN'S RHUBARB.
Strong Roots, 1s. each, 9s. per dozen.
We have tried all sorts of Rhubarb, and have found none to surpass, if even to equal "Johnstone's St. Martin's"—it is the paragon of excellence for forcing, or for outdoor culture. Trade Price, and Copy of TRADE NURSERY LIST, may be had on application.
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R. GILBERT begs to inform the Public he is now prepared to send post-free CHOU DE BURGHLEY, at 2s. 6d. per ¼ ounce Packet. BURGHLEY PET MELON, 2s. 6d. per Six Seeds.
R. G. regrets through a printer's error to be made say Chou de Burghley is sold in ½ ounce Packets, which should be in QUARTER-OUNCE PACKETS. See CIRCULAR.
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SPECIAL OFFER, for Cover Planting, &c. ASH, BIRCH, BEECH, Spanish CHESTNUT, OAK, PRIVET, LARCH, Scotch and Spruce FIR, OSIERS and WITHY; also a good selection of Ornamental TREES and SHRUBS, ROSE and FRUIT TREES of all sizes.
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STANDARD APPLES and PEARS, also PURPLE and WEEPING BEECH. Price per 100 on application to
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TO THE TRADE.
CHRISTMAS ROSES, extra fine stuff, well set with flower-buds, 42s. per 100.
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NARCISS, Paper-white, 7s. per 100.
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CROCUS, Yellow, 7s. per 1000.
SNOWDROPS, 16s. per 1000.
SCILLA SIBIRICA, 3s. 6d. per 100.
GLADIOLUS BRENCHLEYENSIS, 25s. per 1000.
SANDER AND CO., Seed Growers, St. Albans.

Forest and Ornamental Trees and Shrubs.
THE LAWSON SEED AND NURSERY COMPANY (Limited), Edinburgh, have an immense Stock of the leading kinds of Seedling and Transplanted FOREST TREES and SHRUBS, &c.—all in healthy condition and prices moderate. Special offers on application.

FRUIT TREES.
Fine healthy stock of
Horizontal and Dwarf-trained APPLES and PEARS,
and
Dwarf-trained APRICOTS, CHERRIES, PLUMS, PEACHES, and NECTARINES.
Price on application.
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Forest Trees.
WILLIAM FLETCHER has to offer:—LARCH, twice transplanted, 2 to 4 feet; HAZEL, 2 to 4 feet; CHESTNUT, Spanish, 2 to 4 feet. Prices on application. The Nurseries, Ottershaw, Chertsey.

CLEARANCE SALE of NURSERY STOCK.
The Proprietor is giving up business, and offers his Stock, consisting of Larch, Scotch and Spruce Fir, Austrian Pine, Oak, Elm, Ash, Beech, Birch, Thorn Quicks, Conifers of different ages and sizes, Standard and Dwarf Roses, Fruit Trees, Greenhouse Plants, &c., at VERY REDUCED PRICES.
Samples and Prices on application at Clonmel Nurseries, Ireland.

Special Culture of
FRUIT TREES and ROSES.—A large and select stock is now offered for sale. The Illustrated and Descriptive CATALOGUE of Fruits, post-free for threepence. The Descriptive CATALOGUE of Roses post-free.
THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

ABIES DOUGLASII GLAUCA.—An undoubted acquisition, having a great variety in habit and shade of colour. More hardy than the common Douglasii, having withstood the severe winter of 1880 unscathed. Fine healthy well-rooted plants, 12 to 18 inches, 12s. per dozen; 18 to 24 inches, 18s. per dozen; 2 to 3 feet, 24s. per dozen.

PICEA CONCOLOR, the most ornamental of the species, superior in habit and colour to lasiocarpa; 12 to 18 inches, 24s. per dozen.
Price LIST of Conifers on application.
MORRISON BROTHERS, Aberdeen.

Tea Roses—Tea Roses.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this year a splendid stock of Tea and other Roses in pots. Prices and full particulars on application to
The MANAGER, The Vineyard, Garston, Liverpool.

ASPARAGUS for Forcing.—Strong crowns, which will produce a quantity of capital heads, 2s. per dozen, 12s. 6d. per 100.
SEAKALE, famous forcing roots, 2s. 6d. per dozen, 16s. per 100.
RICHARD SMITH AND CO., Worcester.

Outdoor Flowers in Spring.
DAISIES, Red, White, Rose, &c.; POLYANTHUS, Single PRIMSOSES in variety of colours, WALLFLOWERS, CANTERBURY BELLS, 9d. per dozen, 4s. and 5s. per 100. PANSIES and VIOLAS (colours separate), ARABIS, ALYSSUM, SILENE COMPACTA, AUBRIETIAS, MYOSOTIS, 1s. 6d. per dozen, 8s. per 100. Or 500 assorted Spring-flowering Plants for 17s. 6d.; 1000 for 31s. 6d.
HEPATICAS, Blue and Red, Double PRIMROSES, White, Lilac, or Sulphur, 3s. 6d. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

HELLEBORUS NIGER MAXIMUS.—The large flowered Aberdeen variety, true, 1s. 9d. each, 18s. per dozen. Post-paid or carriage-free for Cash with order.
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Old Established.
Forest Trees,
ORNAMENTAL TREES,
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EVERGREENS & COVER PLANTS,
Roses,
AND ALL OTHER TREES & PLANTS
Dickson's
SPLENDID QUALITY.
Pronounced by everyone "Unequalled."
NURSERIES 200 ACRES.
Write for Catalogues.
Reliable always. *Address in full—*
F. & A. Dickson & Sons
THE QUEEN'S SEEDSMEN,
Chester.

CUPRESSUS LAWSONIANA, 3, 4 and 5 feet high.
CUPRESSUS ERECTA VIRIDIS, 2, 3, 4 to 6 feet high.
RETINOSPORA PLUMOSA, 2, 3, 4, 5, 6 to 10 feet high.
RETINOSPORA PLUMOSA AUREA, 2, 3, 4 to 5 feet high.
RETINOSPORA LEPTOCLADA, 2 to 2½ to 4 feet high.
RETINOSPORA OBTUSA NANA, a neat dark green variety and very pretty, from 1½ foot.
RHODODENDRON PONTICUM, 2 to 5 feet, bushes.
RHODODONDRON, named kinds, in great variety.
TEA ROSES, in pots, several sizes to offer.
For Prices and other Stock, see CATALOGUES, post-free on application to
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To Florists.—For Forcing this next Winter.
LILACS (Syringa) Charles X., Saugé, and ALBA VIRGINALIS.—Nice round plants cultivated in pots, plants from 1 foot 10 inches to 2 feet 10 inches, with six, ten, and fifteen branches, well set with flowers, price £6, £8, and £10 per 100.
STAPHYLEA COLCHICA.—Plants cultivated in pots, £6 per 100.
PRUNUS SINENSIS FLORE-PLENO.—Cultivated in pots, £6 per 100.
ROSES, Niphetos, Maréchal Niel, and other Teas, for Forcing.—Cultivated in pots, £4 per 100.
ROSES, Special Varieties, for Forcing.—Low-budded, fine plants, £20 to £24 per 1000.
SPIRÆA PALMATA.—Good clumps, £10 to £12 per 1000.
DEUTZIA GRACILIS.—Good young plants, six to twelve branches, £10 to £12 per 1000.
Direct Orders to
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NEW CHRYSANTHEMUM, "G. STEVENS."
First-class Certificate Royal Horticultural Society, South Kensington, November 13, 1883. A charming reflexed variety, compact blooms, flat florets, crimson-chocolate, slightly incurved in centre, showing the gold under-surface; quite distinct from any other variety. A limited quantity to send out in March next, at 1s. each, post-free 1s. 3d. Cash with order. See report in *Journal of Horticulture* of November 15. Orders now being booked, which will be sent out in strict rotation.
Chrysanthemum CATALOGUES on application.
G. STEVENS, F.R.H.S., St. John's Nursery, Putney, S.W.

A Gay Conservatory.
PRIMULAS, CINERARIAS, 4s. and 6s. per dozen, according to size.
HERBACEOUS CALCEOLARIAS, 1s. 6d. per dozen, from stores.
CYCLAMEN, BOUVARDIAS, TREE CARNATIONS, DEUTZIA GRACILIS, in pots for early blooming, 6s., 9s., and 12s. per dozen. Three at same rates.
Fine clumps SPIRÆA JAPONICA, DIELYTRA SPECTABILIS, 5s. per dozen.
AZALEAS, Ghent, mollis, Pontica, or indica, all with buds, for Forcing, 18s., 24s., and 36s. per dozen.
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Kent, The Garden of England.
300,000 FRUIT TREES in 600 varieties.
GEORGE BUNYARD AND CO. beg to intimate that their stock was never finer, and intending purchasers are invited to come, and see for themselves. The New Illustrated Descriptive CATALOGUE of Fruits for 3 stamps. Reference LIST free.
The Kent Roses do Live.
Extra well-rooted stuff, very good, very cheap.
Descriptive Rose CATALOGUE Free.
The Old Nurseries, Maidstone.—Established 1796.

HERBACEOUS, ALPINE, and ROCK PLANTS.
Collections of 100 choice varieties .. 30s.
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Packing free and extra plants sent to compensate for carriage.
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ROSES (20 acres).—Well-rooted, many shooted, truly named, of matured vigorous growth, and of the best kinds. Bushes, R. S. & Co.'s selection, 8s. per dozen, 60s. per 100; packing and carriage free for cash with order. Standards, 15s. per dozen, or 100 free for 120s. These world-famed Roses cannot fail to give the greatest satisfaction. Descriptive LIST free on application.
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ASPARAGUS.—A large Stock for Forcing and Planting.—Extra strong 3-yr. Giant; do. do. 3-yr. Connovers' Colossal, from imported seed; 2-yr. do. do. do. No charge for packing. Samples and price on application.
E. QUINCEY (late Christmas Quincey), Fulney, Spalding.

DWARF ROSES, splendidly rooted, the best sorts, 6s. per dozen, from ground; fifty for 21s.
TEA ROSES, in pots, 15s. per dozen, fifty for 50s.
FINE CLIMBING PLANTS, Hardy, for Walls, Trellises, Arbours, Rockeries, &c., in twelve varieties, 6s. and 9s.
FINE HARDY HEATHS and other Dwarf American Plants, in variety, 4s. and 6s. per dozen.
PRETTY DWARF SHRUBS of various kinds, for Pots, Boxes, Winter Bedding, &c., in variety, 4s. and 6s. per doz.
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Our Stock, which is one of the largest in Scotland, comprises FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, ROSES, GREENHOUSE PLANTS, &c.; also a splendid Stock of THORN QUICKS, for Hedging and for Filling up Gaps.
The Trees and Shrubs are of all ages and sizes, and are well adapted for extensive Planting or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c. Prices on application.
THOMAS KENNEDY AND CO., Seed and Nursery Establishment, Dumfries.

ANDRÉ LEROY'S Nurseries, at Angers, France, the largest and richest in Europe in Collections of FRUIT and ORNAMENTAL TREES, SHRUBS, CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT TREES, &c. CATALOGUES sent on application. Freight from Angers to London, *viâ* Honfleur, about 2s. 6d. per 100 lb. Medal of Honour at the Universal Exhibition at Paris in 1878.
Orders must be addressed to Messrs. WATSON AND SCULL, 90, Lower Thames Street, London, E.C.

MYATT'S KIDNEY POTATOS for SEED, in lots from 1 ton to 100 tons. Prices post-free.
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AQUILEGIA GLANDULOSA (GRIGOR'S, guaranteed true).
Twelve Plants of this beautiful Columbine, to bloom next season, free to any part of the United Kingdom, at 6s. per dozen. Cash with order.
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SEEDLING POTATO, "EDGCOTE PURPLE KIDNEY."—The most noticeable of the season, which gained a First Prize, also a First-class Certificate in its class at the International Potato Exhibition. Will be sent out at 1s. per lb., 25s. per 28 lb., 45s. per 56 lb., cash with order.
E. S. WILES, Edgcote Park, Banbury, Oxon.

TREES and SHRUBS.
100,000 Hardy HEATHS, nice plants, suitable for planting on banks and mounds. Can be supplied in 20 or 30 varieties, at 4s. per dozen, 25s. per 100, or £10 per 1000.
LARCH, 2 to 3 feet, 21s. per 1000; 2½ to 3½ feet, 23s. per 1000; 3 to 4 feet, 25s. per 1000; 3½ to 4½ feet, 30s. per 1000.
FIR, Scotch, 1 to 1½ foot, 18s. per 1000; 1½ to 2 feet, 27s. per 1000.
CEDRUS DEODARA, 2 to 2½ feet, 12s. per dozen, 90s. per 100; 2½ to 3 feet, 24s. per dozen, 160s. per 100; 3 to 4 feet, 30s. per dozen, 230s. per 100; 3½ to 4½ feet, 36s. per dozen, 275s. per 100—beautiful plants, having been recently transplanted.
RHODODENDRONS, Hybrids, 9 to 15 inches, 27s. per 100, or 250s. per 1000; 12 to 18 inches, 32s. per 100, or 300s. per 1000; 15 to 20 inches, 42s. per 100; 1½ to 2 feet, 50s. per 100.
CATALOGUES, containing other Evergreens and Flowering Shrubs, may be had on application to
JAMES SMITH AND SONS, Darley Dale Nurseries, near Matlock.

LARCH.—Fine, healthy, twice transplanted Plants, from native seed:—
18 to 24 inches at 15s. per 1000.
2 to 3 feet at 20s. per 1000.
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Invites attention to the following LIST of well-grown and properly rooted NURSERY STOCK :—

HOLLIES, Common Green, 3, 4, 5, 6, 7, 8 to 10 feet high.
,, laurifolia, ditto.
,, Hodgins', 3, 4, 5 to 8 feet.
,, myrtifolia, ditto.
,, Saw-leaved, ditto.
,, Scottica, 3 to 8 feet.
,, Yellow-berried, altaclarense and others.
} many thousands.
,, Variegated, of sorts, 3, 4, 5, 6, 8 to 10 ft.
,, Waterer's, splendid plants, 3, 4, 5 and 6 feet, 8 to 15 feet in circumference.
,, Golden Queen, 3, 4, 5, 6, 7, 8 to 10 feet, hundreds of beautiful specimens.
,, Perry's Weeping Holly, on straight stems, with beautiful heads, ten to fifteen years' growth, hundreds.
,, new Golden Weeping, a large number of very beautiful plants.
BOX, Green and Variegated, 3, 4, 5, 6, to 7 feet, many thousands.
YEWS, Common, 3, 4, 5, 6, to 10 feet, thousands.
,, Golden, of all sizes up to 10 feet. We have many thousands as Pyramids, Globes, Standards, in point of variety and size unequalled.
CUPRESSUS ERECTA VIRIDIS, 3, 4, 5, 6, to 8 feet, thousands.
,, Lawsoniana lutea, 3, 4, and 5 feet, hundreds of beautiful specimens.
THUIOPSIS DOLABRATA, 3, 4, and 5 feet, hundreds.
RHODODENDRONS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet. The plants are covered with buds.
AZALEAS, Hardy, the finest varieties known, 2, 3, 4, and 5 feet high, thousands.
JUNIPERS, Chinese, 7, 8, and 10 feet high.
PICEA PINSAPO, 6 to 8 feet.
,, NORDMANNIANA, 6, 7, and 8 feet.

Knap Hill Nursery, Woking Station, Surrey.

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LARGEST ROSE GROUNDS IN ENGLAND.

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SPECIALITIES:—

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including the leading varieties of Standard and Dwarf Hybrid Perpetuals, Tea-scented, Noisettes, &c.

FRUIT TREES,

Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, &c., grown in every variety of form.

FOREST TREES,

comprising hundreds of thousands of Larch, Scotch, Spruce, Ash, Thorns, &c., of various sizes.

CONIFERÆ, in great variety.

STANDARD and ORNAMENTAL TREES, FLOWERING SHRUBS, &c.

CATALOGUES FREE ON APPLICATION.

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(LIMITED),
KING'S ACRE, HEREFORD.

CRANSTON'S NURSERY & SEED COMPANY

Have many thousands of well-grown and good rooted

LARCH, SCOTCH, and HAWTHORN QUICK,

OF VARIOUS SIZES.

SAMPLES and PRICES on APPLICATION.

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(LIMITED).
KING'S ACRE, HEREFORD.

SPECIAL LOW OFFER

Of STANDARD and DWARF ROSES in all the leading varieties, also TEAS, MOSSES, and other varieties; EVERGREEN and DECIDUOUS SHRUBS, CLIMBING PLANTS in best sorts, &c.

LIST with Prices on application.

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

VIOLET, COUNT BRAZZI'S WHITE NEAPOLITAN.

Magnificent variety. Flowers large, double, pure white, deliciously scented. The finest of all Double White Violets. Splendid for bouquets. Awarded a First-class Certificate by the Royal Horticultural Society on November 13.

Good strong plants, from pots, 15*s.* per doz., 1*s.* 6*d.* each; extra strong, 24*s.* per doz., 2*s.* 6*d.* each. Carriage free.

DANIELS BROS.,
TOWN CLOSE NURSERIES, NORWICH.

Orchids a Speciality.

The stock at the Clapton Nursery is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent.

HUGH LOW & CO.

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

CLAPTON NURSERY, LONDON, E.

LEDSHAM'S "LATEST OF ALL" BROCCOLI.

Mr. S. Ledsham, the raiser of this unequalled Broccoli, "which was awarded a First-class Certificate by the Royal Horticultural Society, May 9, 1882"—see *Gardeners' Chronicle* for May 13, p. 645, has succeeded in harvesting this season a good supply of Seed of the above Broccoli, and is prepared to make Special Liberal Offers per pound or cwt., to the Trade. Also a quantity of BRUSSELS SPROUT SEED of a very superior strain, which will be sold at a low price. Terms on application to

S. LEDSHAM, Green Lane, Tarvin Road, Chester.

CHEAP OFFER of FORCING and other BULBS, including Calla æthiopica, Spiræas, Lily of the Valley, splendid clumps; Dielytra spectabilis, Pancratiums, Tuberoses; also the beautiful Ornithogalum gracilis and Milla biflora. LIST, with prices, on application to

THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

RASPBERRY CANES and CURRANT TREES for SALE.—The celebrated Carter's Prolific RASPBERRY CANES. Also, Dutch Red and Black Naples CURRANT TREES.—Apply to

A. AND E. BATH, Colgates Farm, Sevenoaks.

IMANTOPHYLLUMS. Fresh Seeds, hybridised from the sorts with large flowers: per dozen, 5*s.*; per 100, 30*s.*; per 1000, £10.

Forwarded free by post to all parts of the world for cash.

ED. PYNAERT, Ghent, Belgium.

To the Trade.

HUGH LOW AND CO. offer:—

ACACIA ARMATA, well budded, extra fine, 75*s.* and 100*s.* per 100.
ADIANTUM CUNEATUM, 75*s.* and 100*s.* per 100.
AZALEA INDICA, in variety, finely budded, £5, £6, and £7 10*s.* per 100.
BOUVARDIAS, in variety, bushy plants, in bud, £5 per 100.
CORYPHA AUSTRALIS, fine plants, £5 to £7 10*s.* per 100.
DEUTZIA GRACILIS, fine for potting for forcing, 25*s.* and 30*s.* per 100.
ERICA GRACILIS, extra strong, 15*s.* and 18*s.* per dozen.
ERICA COLORANS, in flower and bud, 9*s.* and 12*s.* per doz.
GARDENIA INTERMEDIA, extra fine, 150*s.* and 200*s.* per 100.
GENISTAS, fine bushy plants, 66*s.* 8*d.* and 100*s.* per 100.
LATANIA BORBONICA, well shaped sturdy plants, 150*s.* per 100.
SOLANUMS, berried, 50*s.* and 75*s.* per 100.
PRIMULA, Double White Chinese, in flower, 12*s.* and 18*s.* per dozen.

Clapton Nursery, London, E.

CARRIAGE PAID.—Strong autumn-sown CAULIFLOWER PLANTS, September sown samples, 60, 1*s.* 9*d.*; 120, 3*s.* CABBAGE, KALE, or BORECOLE, BRUSSELS SPROUTS, ONION, LETTUCE, ENDIVE, &c., 60, 9*d.*; 120, 1*s.* 3*d.* HERBS, twenty best varieties, 30, 2*s.* 6*d.*; 120, 7*s.* Any quantity supplied. Write for special quotations for large quantities, on rail, or carriage paid. LIST free.

EDWARD LEIGH, Wrotham Farm, Dunsfold, Godalming.

Dahlia Tubers.

THOMAS S. WARE has pleasure in announcing that his new offer of above is now ready, and may be had, post-free, upon application. It includes all the *Splendid Varieties* which constitute his *Premier Collection of Singles.* The leading *Show, Fancy, and Pompon* varieties.

The *Cactus* varieties, including *Juarezi*, the beautiful scarlet form, and many others, the whole of which are fully described in offer referred to.

Hale Farm Nurseries, Tottenham, London.

TO THE TRADE.—TROPÆOLUM SPECIOSUM, established in pots, 17*s.* 6*d.* per 100.—Offered by WILLIAM BAXTER, Nurseryman, Inverness.

THURSDAY NEXT.—(Sale No. 6541.)

CYPRIPEDIUM SP.—BORNEO.

ODONTOGLOSSUM PESCATOREI—Specially Grand Lot.

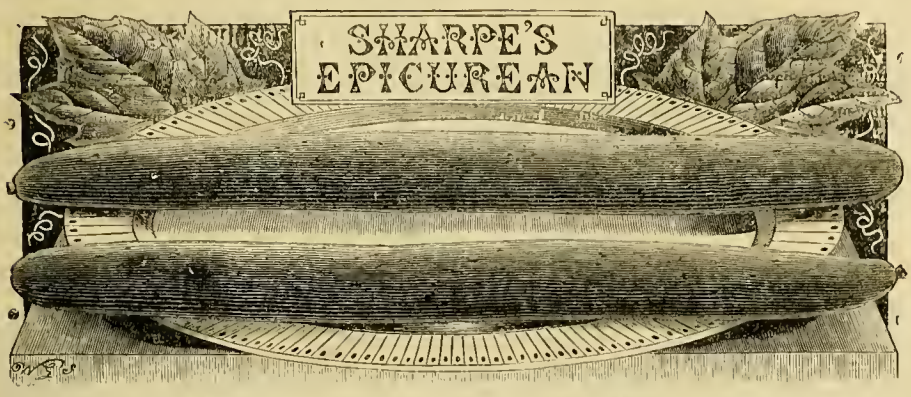
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, December 13, at half-past 12 o'Clock precisely, by order of Messrs. HUGH LOW & CO., a marvellously fine lot, both as to size and condition, of ODONTOGLOSSUM PESCATOREI, amongst them masses of altogether exceptional size and quality. They were collected in a new locality, and there is an excellent prospect of fine and distinct varieties being amongst them. One plant will be offered which was seen in flower by Collector, producing flowers profusely marked with beautifully bright, plum-coloured spots, reminding one of the finely marked varieties of which so much has been heard lately.

At the same time will be offered fine plants of an entirely distinct looking CYPRIPEDIUM, found by Mr. Boxall in Borneo, the leaves of which are beautifully marbled on the upper surface and entirely red-purple on the under.

On view morning of Sale, and Catalogues had.

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

THE PERFECTION OF CUCUMBERS.



CUCUMBERS ALL THE YEAR ROUND.

This variety is large, handsome in form, of a lovely colour, and of exquisite flavour. It is marvellously productive, as many as 400 fruit having been cut from 12 plants in a 3-light pit.

For succession it is unequalled, bearing as abundantly at CHRISTMAS as at *Midsummer*.

Price, 2s. 6d. per Packet.

CHARLES SHARPE & CO., SLEAFORD.

TO THE TRADE.

Dwarf-trained and Maiden Fruit Trees and Roses, of fine quality, grown on fresh land at Bush Hill.

APRICOTS, trained, 36s. per dozen.

CHERRIES, in variety, trained, except May Duke and Morello, 21s. and 24s. per dozen.

PEACHES and NECTARINES, trained, £12 10s. p. 100.

PEACHES, Dwarf Maiden, £3 15s. per 100.

PLUMS, trained, £7 10s., £8 15s., and £10 per 100.

PLUMS, Dwarf Maiden, £2 10s. per 100.

ROSES, Standard and Half-standard, £3 10s. to £4 per 100.

HUGH LOW & CO.,
CLAPTON NURSERY, LONDON, E.

FRUIT TREES,

ORNAMENTAL TREES and SHRUBS,

FOREST TREES,

Roses, Rhododendrons, Climbers, &c.

Large and Healthy Stock, in Prime Condition for Removal.

Catalogues free by Post, on application to

J. CHEAL & SONS,
Lowfield Nurseries,
CRAWLEY, SUSSEX.

NEW PEA, "ABUNDANCE."

We have much pleasure in introducing to your notice Messrs. BLISS & SON'S, of New York, NEW PEA, which bids fair to rival in popularity the "AMERICAN WONDER" introduced by the same firm. They thought so highly of this Pea, that they paid at the rate of £200, or 1000 dols., per bushel for the Stock Seed.

Height, 15 to 18 inches; large dark green foliage. Pods 3½ in. long, containing six to eight large Peas of excellent quality. Second early, ripening one week after the earliest kinds. The most striking feature is its remarkable tendency for branching directly from the roots, forming a veritable bush. Many plants throw out six and more branches, each of which becomes literally covered with blossoms and pods in such abundance that the quantity produced by each would be considered a bountiful yield for an entire plant of many of the older varieties. Owing to this habit it should not stand closer than 6 inches apart in the rows, requiring *only one-third the seed usually sown to produce the same result.*

HALF-PINTS, SEALED, 2s. 6d. each.

This sketch may appear exaggerated, but Messrs. Bliss have forwarded us a sample Vine, which, although damaged in transit, even now shows 67 pods, and they assure us that some have borne over 100. The Vine will be on exhibition at the stand of Messrs. Hall & Son, of Westbury (No. 77, Main Galleries), at the Cattle Show, Islington, from Dec. 10 to 14.

HOWCROFT & WATKINS, Sole Agents, 14, Tavistock Row, Covent Garden, London, W.C.

SHARPE'S GIANT MARROW.—DRAWN TO SCALE.

The Editor of the "JOURNAL of HORTICULTURE," in the Number for July 20, 1882, says:—

"Mr. MUIR has sent us a sample of GIANT MARROW PEA which he regards as the finest variety in cultivation. We have never seen finer Peas. The pods are of great size, 7 inches long and 1¼ inch wide, curved, dark green in colour, and crowded with fine Peas. Mr. Muir states it is a great cropper, and of the first quality when cooked. It is thus one of the most useful Peas as well as one of the best for exhibition purposes."

1 Pint Packets, 2s. 6d. each. ½ Pint Packets, 1s. 6d. each.

TRADE PRICE and GENERAL CATALOGUE of SPECIALITIES POST FREE.

CHARLES SHARPE & CO., Seed Merchants, SLEAFORD.

LILIES OF THE VALLEY.
A Speciality.

T. JANNOCH, the Lily Nursery, Dersingham, Norfolk, begs to inform his Customers and the Trade generally that arrangements are now being made for a regular supply of the above from now till June. They can either be sent as Cut Blooms, or with their Roots for making up pots, &c. Prices on application. 7000 Blooms can be cut weekly.

HERBACEOUS and ALPINE PLANTS.

CATALOGUE, of fifty pages, containing full information as to colour, height, situation, time of flowering, &c., free on application.

A CAPITAL COLLECTION for Rocks, Stumps, and Borders, from 25*s.* per 100, or 4*s.* per dozen.

Most of the plants being in pots may be despatched at any time, or by Parcels Post when fit.

RICHARD SMITH & CO.,
NURSERYMEN AND SEED MERCHANTS,
WORCESTER.

NEW EARLY RHUBARB,
Charles Kershaw's "Paragon."

This is unquestionably the finest variety of Rhubarb ever offered; in mild seasons it is ready to pull in February. The crowns and stalks are produced in such profusion that more than twice the weight can be pulled from this than from any other sort. The colour is a splendid red, flavour excellent, and it has this qualification over all others, IT NEVER SEEDS.

PRICE—per Plant, 1s. 6d.; per Dozen, 15s.

Price to the Trade on application.

For Testimonials and all other information, see back page of *Gardeners' Chronicle* for October 13. May be had of all the principal Nurserymen and Seed Merchants, or direct from

CHARLES KERSHAW,
THE SLEAD SYKE NURSERIES,
BRIGHOUSE.

PAMPAS PLUMES
AND TUBEROSE BULBS.

J. C. VAUGHAN, Chicago, U.S.A., makes a speciality of the above items, IN LARGE QUANTITIES AND BEST QUALITIES. Correspondence solicited.

THE RUIN OF NURSERYMEN

May be understood when circumstances lead to such Prices as the following:—

STANDARD RHODODENDRONS worth 5, 4, 3, and 2 guineas, are being sold at 21*s.*, 15*s.*, 10*s.* 6*d.* and 5*s.*
BUSH RHODODENDRONS, 7, 6, 5, 4, 3 and 2 guineas, sold at from 7*s.* 6*d.* to 1*s.*
ANDROMEDA FLORIBUNDA, and other kinds, 3*s.* 6*d.* to 1*s.*
SPIRÆA PALMATA, fine forcing clumps.
SPIRÆA JAPONICA, fine forcing clumps. The largest stock in Europe.
HODGINS' and other HOLLIES, perfect specimens, 7, 6, 5, 4, 3 and 2 feet, from 15*s.*, 10*s.* 6*d.*, to 1*s.*
AVENUE TREES, perfect specimens, 12 to 15 feet, at 5*s.*, 3*s.* 6*d.* and 2*s.* 6*d.*
COLLECTION of SHRUBS and TREES for general planting, 25*s.* to 75*s.* per 100.
Extra large FRUITING TREES of APPLES, PEARS, CHERRIES, &c., from 3*s.* 6*d.* to 1*s.*
Other Trees, Shrubs, &c., not enumerated in this Advertisement, will be supplied on the same liberal terms.
CHARLES NOBLE, Bagshot.

HELLEBORUS NIGER ANGUSTIFOLIUS
(BROCKHURST VARIETY).

See "Gardeners' Chronicle," Nov. 10, page 591.

Flowering Plants and Clumps of this splendid variety, the finest of the Hellebores and the true Christmas Rose, 1*s.* 6*d.*, 2*s.*, and 2*s.* 6*d.* each, for forcing and planting.

WM. CLIBRAN & SON,
OLDFIELD NURSERY, ALTRINCHAM, CHESHIRE.

ROSES IN POTS,

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

These World-famed ROSES cannot fail to give the greatest satisfaction.

DESCRIPTIVE LISTS on application.

RICHARD SMITH & CO.,
WORCESTER.

HURST & SON'S NOVELTIES for 1884.

PEA—DUKE OF ALBANY (Abbott's).

This splendid new Pea has proved to be the finest yet introduced, either for exhibition or for table, and unequalled as a main crop wrinkled variety. It is very productive, bearing a profusion of extra large, well-filled pods, borne in pairs, which, being dark green in colour, are very handsome, and contain from nine to twelve fine Peas each. The flavour and quality are also excellent. It grows about 5 feet high, is of a vigorous and branching habit, and should, therefore, be sown thinly. **In Sealed Half-pint Packets, 2s. each.**

WILTSHIRE GIANT SCARLET RUNNER.

A vigorous grower and heavy cropper. The pods are of a large size, very fleshy, deep green in colour, and of excellent quality. The best variety for exhibition.

Per Quart, 2s. 6d.; Per Pint, 1s. 6d.

SWEET PEA—PRINCESS BEATRICE.

Awarded a First-class Certificate by the Royal Horticultural Society as New Carmine Rose, August 14, 1883.

Since the introduction of the Invincible Scarlet nothing has been offered as a novelty in Sweet Peas equal in merit to this charming variety. The colour of the flower is a rich and beautiful carmine-rose, slightly shaded with lighter and darker tints, entirely distinct from any other kind. They are of remarkable substance, similar in this respect to Violet Queen, but the plant has a much more robust and free-blooming habit than the latter. It is perfectly constant, and the perfume is remarkably sweet, more so than in any other sort.

It will undoubtedly become one of the leading varieties of this useful and popular annual, and can be recommended as one of the very best of hardy flowers for cutting purposes.

Per Packet, 1s. 6d.

MYOSOTIS SYLVATICA COMPACTA AUREA.

The merit of the Old Cliveden Blue Forget-me-Not, particularly as a spring bedding plant, is so universally recognised, that this new golden-leaved variety cannot fail to become a popular favourite. It is similar in habit and colour of foliage to the Golden Pyrethrum; the flowers are of the same clear bright blue as its prototype, and their contrast to the golden-yellow of the foliage is one of its chief merits. As its name implies, it is of peculiarly dwarf compact habit, and as a spring bedder it is destined to occupy a most conspicuous place.

Per Packet, 1s. 6d.

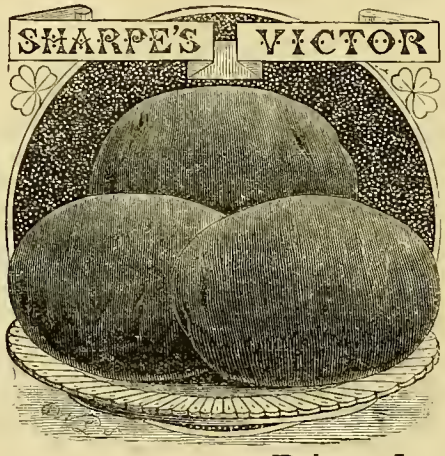
PRICE TO THE TRADE ON APPLICATION.

HURST & SON, 152, Houndsditch, LONDON, E.

NEW POTATOS ALL THE YEAR ROUND.

NEW POTATOS FOR CHRISTMAS

May be had without difficulty by planting now, in pots or frames,



THE
EARLIEST OF ALL POTATOS,
"SHARPE'S VICTOR."

Sharpe's Victor is a seedling raised from the Alma Kidney and the old early short-top round Potato. It is earlier than any present variety, and having a very short top is especially suitable for frame cultivation, and there is no difficulty in **securing new Potatos for the Table every day in the year.** Victor is a flattened roundish oval in shape, with a beautiful clear skin and extremely shallow eyes, being one of the handsomest as well as the heaviest croppers of any variety adapted for framework, or for a first early crop outdoors. It is dry and mealy when cooked, and the flavour and quality of the flesh are superior to nearly every other variety at present in use.

Messrs. J. & J. ELLETSON *write as follows, Sept.* 26, 1883:—"Mr. Usher, Gardener to C. H. Johnson, Esq., Thorgumbald Hall, planted Victor Potatos on January 26, and placed a dish on his employer's table on March 8, from planting to lifting being only SIX WEEKS."

Price, 1s. per Pound.

CHARLES SHARPE & CO., SLEAFORD.

DAFFODILS.—DAFFODILLIES.—DAFFODOWNDILLIES.
DESCRIPTIVE LIST FREE ON APPLICATION

Of more than 200 varieties of DAFFODILS, most of which are new, and many of them have been figured at various times in the *Garden.*

Selections for Flower Borders or to Naturalise in Grass, &c., 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, 21*s.*, 42*s.*, 63*s.*, 84*s.* and 105*s.*

Fine Mixed Varieties, for Wild Gardens, 42*s.* per 1000, 5*s.* 6*d.* per 100, 1*s.* per dozen.

Choice Mixed Varieties, for Wild Gardens, 63*s.* per 1000, 7*s.* 6*d.* per 100, 1*s.* 6*d.* per dozen.

IRIS BARBATA, for Naturalisation and surrounding Lakes and Ponds.

PLANTAIN LILIES, to Naturalise in Grass and to Grow in Shady Places.

WOOD HYACINTHS, for Wild Garden and Shady Walks.

HYACINTHS, TULIPS, CROCUS, WINTER ACONITES, SCILLAS, MUSCARI, DOG'S-TOOTH VIOLETS, HEPATICAS, ANEMONES, GLADIOLUS, LILIES, CHRISTMAS ROSES, LENTEN ROSES, &c.

☞ *The Catalogue, free on application, gives full particulars as to price, culture, &c.*

BARR & SON, 12, KING STREET, COVENT GARDEN, W.C.

SPECIAL NOTICE.

THE

GARDENERS' CHRONICLE

FOR

Saturday, January 5, 1884,

WILL CONTAIN A BEAUTIFULLY

COLOURED ALMANAC

(18 inches by 13 inches),

FROM AN ORIGINAL DESIGN BY FITCH.

PRICE:—FIVEPENCE;

POST-FREE, FIVEPENCE-HALFPENNY;

OR WITH

Almanac Mounted on Oak Rollers,

Ready to be hung up, and enclosed in Case,

SEVENPENCE;

POST-FREE, EIGHTPENCE-HALFPENNY.

Purchasers are specially recommended to order the Almanac in a Case,

TO PREVENT INJURY FROM FOLDING.

The Publisher cannot be responsible for injury to the Almanac unless it is so protected.

NOTICE TO ADVERTISERS.

As a LARGE EXTRA SALE of this Number is guaranteed, it will be a very valuable medium for Advertisements.

Application for Space should be sent in as early as possible.

W. RICHARDS,

41, Wellington Street, Strand, W.C.

TO THE TRADE.

SEASON 1884.

DICKSON, BROWN & TAIT,

SEED MERCHANTS,

43 and 45, Corporation Street, Manchester,

OFFER THE FOLLOWING

NEW and SELECT

VEGETABLE SEEDS, &c.

DICKSON, BROWN & TAIT'S
"KING OF TOMATOS."

DICKSON, BROWN & TAIT'S
"QUEEN OF TOMATOS."

DICKSON, BROWN & TAIT'S
"ECLIPSE" CAULIFLOWER.

DICKSON, BROWN & TAIT'S
"BEST OF ALL" MELONS.

DICKSON, BROWN & TAIT'S
"NE PLUS ULTRA" MELON.

DICKSON, BROWN & TAIT'S
"GIANT" CABBAGE LETTUCE.

DICKSON, BROWN & TAIT'S
"ALL THE YEAR ROUND" CABBAGE LETTUCE.

SUTTONS' VICTORY OF MANCHESTER CUCUMBER.

DICKSON'S EXQUISITE MELON.

CONQUEROR OF EUROPE MELON.

For full descriptions of the above Select Vegetables see our TRADE OFFER, free on application.

DICKSON, BROWN & TAIT,

SEED MERCHANTS,

MANCHESTER.

THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 8, 1883.

A VISIT TO SELBORNE.

THE name Selborne, which has been variously spelt—with and without an "e" at the end, with and without a "u"—Selburn, Selbourn, and Selebourne—is of Saxon derivation—Sel signifying great, and burn a brook or rivulet. The Saxons had a church and a village here, and a perennial spring, which attracted them, breaks out in a field on the slope of the chalk promontory, Nore Hill, at the south-east end of the village. Nore Hill sends forth two streams to the sea—one to the Arun, into the Channel, below Arundel, the other to the Wey and the Thames, by Godalming, Guildford, and Weybridge. This latter spring never fails. On September 14, 1781, after a hot summer and a preceding dry spring and winter, it produced 9 gallons of water a minute, or 216 hogsheads in one day of twenty-four hours.

There are some interesting names in the neighbourhood: Worldham, an adjoining parish—spelt Werildiham in *Domesday Book*—is derived by Professor Bell from Wer-ylde-ham, "the old man's village." The blessing of long life is secured to the neighbourhood by pure water, pure air, a well drained soil. White himself, speaking of the habits and employments of the population, which numbered 670 in his day, says:—"We abound with poor, many of them are sober and industrious, and live comfortably in good stone or brick cottages, which are glazed, and have chambers above stairs: mud buildings we have none. Besides the employment from husbandry the men work in Hop gardens, of which we have many; and fell and bark timber. In the spring and summer the women weed the corn, and enjoy a second harvest in September by Hop picking. The inhabitants enjoy a good share of health and longevity, and the parish swarms with children." This picture of the last century might have been drawn yesterday, the prosperity of Selborne being apparently as perennial as its spring. As to the age of the people, three persons, two men and a woman, died in Selborne in 1854-5 at the age of ninety. Professor Bell, who resided many years at "The Wakes," the house in the village street where Gilbert White lived and died, says that a Mrs. Gilman died at Selborne in 1860 in her hundredth year. At the age of ninety-eight she was missed at church one afternoon, and accordingly Mr. Bell called at her cottage. He found that she and her daughter, aged seventy, had been to church at Newton Valence, more than a mile distant, having climbed Selborne Hill, 300 feet high, and they had then gone half a mile further to dine with the old lady's brother. "Coming home," said the daughter, "I assure you she outran me across the common." The present population of the parish is 1100, the average number of deaths is twelve per annum, and recently there were eight persons living here whose average age was eighty-five and a half years.

In walking through the village street, from the lower end nearest Alton to that nearest Blackmoor and the Forest, a few characteristic changes may be noted since the time of Gilbert White. You enter the square-towered church;

it has been restored and much enlarged. The Plestor in the west side of the churchyard is unaltered, being still as it was in old times and even before the Conquest—a play-place which old and young have for a thousand years frequented on summer evenings; the church standing hard by, and houses on either side. The "vast Oak" mentioned by White, with short, squat body, surrounded by stone steps with seats above, and huge horizontal limbs reaching almost across the Plestor, was blown down in 1703, to the "infinite regret of the inhabitants and the vicar." A Sycamore replaces it. The house of the two naturalists—Gilbert White and Thomas Bell—is a little further up the street. Its character has been preserved. There is still the Ivy, the roadside fence, and the lawn and garden in the rear, where White kept his tortoise, and Bell rejoiced in his toads—common toads—Bufo vulgaris, and natterjacks, B. calamita, the former with its strong resonant voice and fondness for southern walls and dry, sunny situations being by far the most numerous. Further on a cottage, converted into a coffee-room for labourers, is a modern innovation, and at the end of the village you will find the spring-head, and you may hear the story of its new wall and spout. Some years since a lad named Mills was employed at a farm on the roadside opposite the spring. He left Selborne, as thousands of village lads have done in recent times, to seek and to find better fortune elsewhere, and he returned a short time since; and, for the sake of being remembered, as he said, he fenced the road with a substantial wall, and carried the water through a spout, adding his escutcheon to the work in the shape of two mills cast in iron. Few persons are aware probably how many such stories might be collected in the rural districts.

The traveller passing through Selborne with a knapsack, as hundreds do every year, will be chiefly struck with the physical aspect of the neighbourhood. Gilbert White says:—"The soils of this district are almost as various and diversified as the views and aspects." Hence the variety of the timber, the noble Oaks, the stately Elms, the dainty-looking Beech trees with smooth bark and glossy foliage, and the evergreen Firs of the forest. The hanger, or hanging-wood, on the steep chalk slope rising above the garden at "The Wakes," is covered with Beech, a zig-zag path running through it. On the very brow of the hill where the path terminates, a boulder is fixed deep in the earth, and the people in Selborne, with their warm social affections, visit this spot in small parties, very frequently in couples, and call the boulder the "wishing stone." In Bell's edition of the *Natural History of Selborne* this stone is not noticed either in the original text or the valuable notes and additions by the late accomplished Professor.

There are many such scattered, solitary stones of huge size in Surrey and Hants, remains of a hardened sandy formation which once overlaid the chalk. From this high point the prospect is wide and most engaging. The far-famed village, pretty as can be, but not more so than hundreds of its neighbours, lies below, with its tower and great Yew tree, one of the largest in the country. Casting the eye around there is a wide enchanting landscape of hill, dale, woodlands, heath, and water. White says:—"The prospect is bounded on the south-east and east by the vast range of mountains called the Sussex Downs by Guild-down, near Guildford, and by the downs round Dorking and Reigate in Surrey, to the north-east, which altogther, with the country beyond Alton and Farnham, form a noble and extensive outline."

The whole of this wide country is now ornamented with country seats, of which two of the nearest may be named—Blackmoor, the residence of Lord Selborne, and Bramshott, the home, in his long retirement, of the late Sir William Erle. The district abounds in timber, and in game when preserved. Three large ponds within the forest were named after three animals formerly hunted in the district, now extinct—Hogmer, after the wild boar; Cranmer, after the Crane; Wolmer, after the wolf.

In White's time the royal forest of Wolmer—three-fifths of it in the parish of Selborne—was covered with Heath and Fern, diversified with hills and dales, "without having one standing tree in the whole extent." Happily the taste for modern planting has crowned the heights of the forest with Fir trees, planted partly by Government, partly by private owners, especially Lord Selborne and the late Sir William Erle.

It has been already noticed that the trees at Selborne are as various as the soil. The great Yew now measures 23 feet in circumference, and has a symmetrical, tall, and spreading head, with four or five large limbs, and a great deal of foliage. A Wych Elm, Ulmus montana, stood in the court of Norton farmhouse, on the "white malm" north-west of the village. In 1703 it lost a leading bough equal to a moderate sized tree, and yet, when felled half a century later it contained eight loads of timber, and being too bulky for the timber-carriage, it was sawn through at 7 feet from the butt, where it measured 8 feet in diameter. Professor Bell reports an ancient Wych Elm on the same farm, a mere shell, which fell from the weight of foliage in June, 1857; and from its broken and hollow base young wood was produced which now forms a large and luxuriant tree, with branches extending 60 feet. The hollow trunk at its fall measured 6 feet in diameter. The age of this tree was estimated at three or four centuries.

Twenty Oak trees of remarkable size and value—the Raven tree among them—stood side by side in one of the groves of Selborne. Gilbert White tells the story of the felling of these famous trees in his own attractive language. A pair of ravens had built their nest in one of the Oaks of Losel's Wood for a series of years, and the residence of the birds had gained for this particular Oak the name of the Raven tree. The most adventurous youths of the neighbourhood were baulked in their attempts to climb this tree by a bulging excrescence which occurred about the middle of the tall trunk. The lads arrived at the Raven tree bent on climbing it, but when they reached the swelling half-way up the trunk, it jutted out so far beyond their grasp that the boldest quailed and came down, acknowledging their task to be too hazardous. So the ravens built on in security, till at length the builders of a bridge at Hampton Court required some trees 50 feet long, without bough and measuring not less than 12 inches in diameter at the little end. There were 20 such trees in Losel's Wood, some of them 60 feet in length, and still the required size at the smaller ends. The twenty trees were sold for the bridge at £20 each, and the Raven tree was felled with the rest.

All details connected with the produce of the soil are particularly interesting to country people, and one of the lessons of Gilbert White's life is the importance of such details and of all our home affairs even in a village. In more modern times what a geologist and scientist he would have become, and how useful his influence in promoting practical and outdoor studies in place of too much mere book knowledge and the learning by rote, which is now in vogue! It is pleasing to quote from his memorial tablet that which is strictly true, though it be an epitaph, that—"He was kind and beneficent to his relations, benevolent to the poor, and deservedly respected by all his friends and neighbours." *H. E.*

STRAWBERRIES IN DECEMBER.—The *Scotsman* of Monday notes the fact that there is at present to be seen in Bankhead Nursery, Eskbank, a plot of the Garibaldi Strawberry in every stage of growth, from the blossom to the full-grown ripe fruit. The same plants bore a prolific crop last summer.

New Garden Plants.

GALEANDRA HARVEYANA, *n. sp.**

A PRETTY new Galeandra which is stated to have the habit of the well known Galeandra Davoniana. The flowers are, however, much like those of Galeandra Stangeana, named in honour of my friend, Herr Stange, Hamburgh, 211 Wandsbecker Chaussée, who is so famous for growing Disa grandiflora as if it were a weed. Our plant has, however, not purplish, but sepia-brown sepals and petals, and a light yellow lip, with a tuft of hair over the anterior part of the disc. The blunt transverse tumour of the anther is mauve. There is a mauve border on each side of the column, and there are mauve angles at the base of the column. It was grown by Mr. T. Ireland, in the fine collection of Mr. E. Harvey, 12, Riverdale Road, Aighburth, Liverpool, whose name it justly bears. *H. G. Rchb. f.*

ADIANTUM CUNEATUM DEFLEXUM, *nov. var. vel. hyb.?*

Habit dwarf and stocky; fronds triangular, tri-quadri pinnate; pinnules or pinnulets cuneate, deflexed, lobate, the lobes crenate-dentate; sori obversely roundish-reniform in the open sinus between each pair of teeth.

This neat little evergreen Fern is one of the supposed hybrids raised by Mr. C. F. Bause, of Morland Nursery, Portland Road, South Norwood, and goes far to support the ideas of those who believe in the crossing of Ferns, whether the process is truly described by the term hybridisation or not. It was raised between A. cuneatum, which supplied the seeds or spores, and A. Bausei, the latter also a so-called hybrid Fern, named after the raiser. The characteristics of the two sorts are unmistakably blended in the new form, which has the densely fronded stocky growth of A. cuneatum, with its spreading or arching tripinnate or quadripinnate fronds, and its cuneate pinnules or pinnulets, combined with the singularly deflexed pinnules of A. Bausei. This hanging position of the pinnules gives the plant a very distinct appearance, and altogether it forms a pretty addition to the Maidenhair Ferns, not superior perhaps to its parent, A. cuneatum, as a decorative Fern, but affording diversity as well as novelty, both of which are said to have their charms. This useful species has indeed been very prolific of varieties during the last few years, but the typical form is even yet by no means superseded for ornamental purposes.

The plants which we have seen of this new form were about 4 inches high, with a spread of some 6 or 7 inches, dense and compact in growth, on which account they are well adapted for grouping in small baskets or jardinettes. Whether it will grow large we are not aware, but it has evidently been freely fertile since it was half the size above noted. The crenatures of the margin are obtusely-rounded in a very conspicuous manner, partly perhaps from being more strongly developed than in the type, and partly, no doubt, from their deflexed position, which brings them more fully into view, the surface rather than the margins of the pinnule being presented to the eye. The bright and cheerful green colour which it shares with its female parent adds very much to its value as a small decorative Fern. *T. Moore.*

CARAGUATA SANGUINEA.†

We are indebted to M. é for our illustration of this very remarkable Bromeliad (fig. 127), which was discovered by M. André himself in the Western Cordilleras between Tuquerrès and Barbacoas. The blood-red leaves are so bright in colour that the Indians, it appears, collect the plant and place it as a votive offering on a cross formed of two trunks of a Tree Fern—Alsophila. The plant was originally introduced with Aothurium Andreanum, but perished on the road. Since that time seeds have been procured, and a supply obtained. In the *Revue Horti-*

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* *Galeandra Harveyana*, n. sp.—"Habitu Galeandræ Devonianæ, Lindl.": Racemis paucifloris; floribus prope Galeandræ Stangeanæ, Rchb. f.; sepalis tepalisque cuneato oblongis acutis; labello antrorsum dilatato apice trilobo lobis obtusis; calcari a basi ampliori filiformi subcurvulo ovarium pedicellatum excedente pulvinari pilorum in disco antico laminæ; columna dorso apice apiculata; utrinque pone antheram ac sub fovea barbata; basi utrinque angulata antbera vertice umbonata retusa; caudicula glandulifera bippocrepica. *H. G. Rchb. f.*

† Caraguata sanguinea, Ed. André, in *Revue Horticole*, 1883, p. 468, c. ic. color. et xylog.

cole of October 16 last is a coloured figure and a full description of this brilliant novelty, to which we refer our botanical readers. The plant received a First-class Certificate from the National Horticultural Society of France, and was one of those which contributed to the award of a gold medal for foliage plants at the Great Exhibition in Paris in May last.

The whitish flowers nestle in a close rosette of oblong-lanceolate leaves of a red colour, shading off into orange, while near the base they are green. The plant, which will be sure to attract lovers of Bromeliads, is in the hands of M. Bruant, nurseryman, of Poitiers, France.

OPEN SPACES IN TOWNS.—III.

The Manchester Public Parks, four in number, may fairly claim, perhaps, to be considered the most remarkable anywhere in England, after those which pertain to the metropolis. The establishment of these admirable, not to say splendid, recreation grounds for the people was owing, in the first instance, to the public spirit and the liberality of the people themselves. The land was purchased, laid out, and adapted to the excellent purposes which it was designed to accomplish, in three cases out of the four, with money subscribed by the community in general. Government contributed, no doubt, to the original cost, but the fact remains, that to all practical intents and purposes the construction of these fine so-called "parks" came essentially of private sympathy with the idea. To attempt to supersede the appellation currently bestowed upon all such pleasure grounds would now be impracticable, even were it desirable; one cannot help noting, however, the curious change of meaning which this ancient and stately term has undergone. The "park" in the bygones was a glorious and almost illimitable expanse of turf, calm, silent, breezy, the home of some of Old England's most venerable and often historic trees, Oaks and Chestnuts that had outlived not only generations of men, but royal dynasties; the paradise at the same moment of a thousand dappled deer, whose movements, though all beside was so still and quiet, adorned it with animation that was the *beau-idéal* of the picturesque. To-day, though the primitive meaning has not been lost, thanks to the laws of entail and primogeniture, a "park" is fast becoming a place where there are no ancestral trees, where hart and roebuck are unknown, and where, instead of repose and solitude, the rule is hilarity and a crowd of people. Never mind. Let the dictionaries take care of the history of the word and its vicissitudes. It is ours to rejoice in the establishment of these modern "parks," since they represent one of the truest principles of all truly noble and exemplary human actions, which is the providing the largest amount possible of salutary enjoyment for the largest number of our fellow creatures at the lowest possible charge or expense. Public parks may be compared, not inappropriately, to great flower shows, where the maximum of delightful and satisfying beauty for the eye is supplied, albeit for only a few hours or days, at the minimum of cost to the visitor. Contemplating the noble features of our modern so-called public parks, we must take care not to regard the idea as one so entirely of our own day as to count with the electric telegraph and the telephone. As far back as February 21, 1833, Mr. Slaney, the M.P. at that time for Shrewsbury, influenced by what he had seen upon the Continent—the beautiful boulevards and green arcades provided for the enjoyment of the inhabitants of many of the great cities of France and other countries across the water—obtained a Select Committee for considering the desirableness of securing open grounds for use as pleasure places by the people dwelling in and near large towns, especially those distinguished as "manufacturing towns." A committee of twenty was appointed, and in the month of June, 1833, a report was presented eminently in favour of the idea, which may thus be considered exactly half a century old, though no action was taken for many years afterwards. Small grants of money were made by the House of Commons from time to time, but the "parks" themselves were still for the future. Those established for Manchester were started in the summer of 1844. A requisition to the Mayor to convene a public meeting to discuss the subject was signed by individuals and mercantile firms to the number of 111. The meeting came off in the Town Hall on August 8, and never perhaps, even in Manchester, was there one more enthusiastic. Unanimous at every point, it could not fail to be a brilliant success. The local gentry and clergy, the bankers, the merchants and traders of the town, all alike mustered in strength. The chair was occupied by that distinguished nobleman the late Earl of Ellesmere, then Lord Francis Egerton, father of the present earl, the former so well known in connection with the higher walks of literature, to say nothing of the horticultural fame of Worsley Hall. He put down his £1000; Sir Benjamin Heywood gave another £1000; Mr. Mark Philips and Sir Robert Peel each gave another; the opulent banking-house of Jones, Loyd & Co. gave another. Then came half a dozen £500 and £300, and after the same fashion, each one according to his means, the contributions went on, Parliament following with a grant of £3000, till the total amount rose to no less than £35,000. Thoroughly illustrating Lancashire ways and Lancashire liberality, one or two of the company present on that memorable occasion said that they must beg to be excused making a speech on the subject, and instead of one would subscribe £500.

It was distinctly understood that in providing these parks they were to be no mere walks or places for fashionable promenade, but healthful and enjoyable spaces for legitimate and intelligent recreation, open alike to rich and poor, to young and old, free all the year round, the sole condition of entrance being good behaviour. To a town with a population consisting in proportion so immense of the labouring classes, factory hands, men employed all day in foundries, dyeworks, and scores of other scenes of mechanical industry, more than the half of it implying an atmosphere charged with steam, smoke, or chemical vapours, and the most monotonous and unpoetical of scenery, engines, looms, and so forth, and in which, at the most moderate computation, 10,000 of the inhabitants live in cellars, the proffered boon was at once seen to be of value and importance absolutely inexpressible. That beyond the suburbs there were green fields and country lanes was altogether beside the argument. The obvious need was that of recreation-grounds, as pure and pretty as might be possible, and so near at hand that they might be literally said to lie at people's doors. The £35,000 allowed such places to be established. The wonderful expansion of the town during the last half century—bricks and mortar everywhere striding over the aforetime Buttercups and Daisies, had caused many handsome private residences, with beautiful gardens, to be forsaken by their owners. They had moved away from the bustle and discomforts in which their once elegant homes had become embedded, and looked for their summer Roses where factory chimneys were no longer in the ascendant. Many nice plots of land were thus in the market, and opportunity, most fortunately coincident with the desire, was given to purchase a couple of the most eligible for the end

Fig. 127.—Caraguata sanguinea. (see p. 716.)

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in view—one in Manchester proper, the other in Salford.

Manchester, it must be understood, is, in the broad sense of the name, like London, consisting in reality of two great halves, separated by a winding river, not of the cleanest. The river in question is the Irwell, an affluent of the Mersey, which it enters at a point some 5 or 6 miles beyond the borough boundary. Salford lays claim to a reputation anterior even to that of Manchester. It was the earliest of the two places to receive a Royal charter. It gives name to the local diocese of the Roman Catholic church, and sends its own members to the House of Commons. Upon the western bank of the Irwell, just where it makes a grand and picturesque curve—the last before entering upon its now dismal town existence—one of the most celebrated of the deserted mansions—with spacious grounds and gardens adjacent, above adverted to, lay waiting for a new tenant.

PEEL PARK, SALFORD.—The explorers with excellent judgment seized upon the place at once, and Lark Hill, previously, though some time back, the residence of a well-known Lancashire worthy, the late Mr. Wm. Garnett, became by degrees Peel Park, the most interesting and remarkable place of its kind in the North of England. The ground is charmingly broken, being upon the side which descends to the river almost precipitous, with a broad level below, and another next the high road, which last is the great thoroughfare to ancient Eccles, &c. The gardens and pleasure grounds originally comprised about 7 acres. Beyond them, by the river, was a broad expanse of green, some 25 acres, called the Walness Meadows. This was added shortly afterwards, and at a subsequent period the entire Walness estate was placed at the virtual command of the Park authorities, giving a new supplement of something like 80 acres—a plot of 1200 yards in length, by 200 to 330 yards broad. The mansion in due time was adapted to the inestimable purpose of a free Museum and Fine Arts Gallery. The Salford Public Free Library was subsequently located in the same building, immense enlargements of the original of course being indispensable. Under the superintendence of that most skilful and courteous of curators, Mr. John Plant, "Peel Park," as it is now simply and briefly styled—those two little words meaning museum, pictures, sculptures, gardens, playgrounds, all in one—has become synonymous with an afternoon's enjoyment of any kind that is cared for by rational beings. The "window gardening" flower shows are held in tents placed upon the spacious lawn. When, in 1851, the Queen first visited Manchester, the first spectacle presented to her was that of 80,000 Sunday school children marshalled in Peel Park. For those who love prospects there are, at favourable atmospheric times, agreeable views, extending to Kersal and Prestwich, and for the botanically-minded there is in the season a very creditable show of flowers and ornamental vegetation in general. A very pleasing fact is that the damage and mischief done during the year is almost *nil*. Boys and girls go in troops to their respective playgrounds and gymnasia, to which latter have been added archery butts and spaces for cricket, yet none upon their way ever give occasion for the presence, though very properly maintained, of rangers and police. With one more particular we must conclude. Just within the entrance gates are some very handsome statues, that one to Joseph Brotherton, formerly M.P. for Salford, bearing the inscription, words from his own lips, which many besides the visitors to Peel Park would be the better for constant observance of:—"My riches consist, not in the abundance of my possessions, but in the fewness of my wants." When the purchase of the grounds now constituting Peel Park was complete, and the laying-out was pretty well finished, the entire establishment was handed over to the Salford Corporation, in trust for the free use of the people for ever. This was done formally on September 5, 1846. Under their good management it has thriven every way, except, it must be confessed, as regards the condition of the trees. Incessant asssault by factory smoke and hurtful vapours of manifold kind and quality, few trees can be expected to withstand entirely and permanently. The Hawthorns do well, and in early summer are dappled sweetly with their odorous bloom; but the Oaks and other remanets of the original Lark Hill Gardens have a weary time of it, and before long all will probably disappear. Hence the inexpressible importance of ascertaining, by experiment, what species of ligneous and especially of arborescent plants will stand the corroding influences of life amid chimneys that have to be reckoned by the score. Another rather serious loss in Peel Park consists in the diminution in the number of the birds. Perhaps they could hardly be expected to stay. Never mind. Wise men, if they cannot always have what they like, adapt and accommodate themselves to a liking for what they have; and these in Peel Park find perennial pleasure. The laying-out, it should be added, was done by Messrs. Joshua Major & Sons, landscape gardeners, of Knosthorpe, near Leeds, whose design won the prize after a spirited competition. The throwing open of the gates to the public took place on August 22, 1846, with plenty of befitting ceremonial. The free museum and free library were opened January 9, 1850.

THE QUEEN'S PARK.—The same day—August 22, 1846—witnessed the ceremonial opening of the two first of the Manchester public parks, strictly so called, viz, the Queen's Park, near Harpurhey, 1½ mile from the Exchange, upon the northern side of the town; and the Philips Park, Bradford Road, at the same distance upon the north-east. The designs for these two were the production also of Messrs. Major & Sons. The ground now constituting the Queen's Park pertained originally to a fine private residence, occupied by the late Mr. Jonathan Andrew, and called Hendham Hall. Very agreeably sloping, it borders, as to the lower margin, on the little river Irk, a tributary of the Irwell, once upon a time clear, with plenty of fishes in it, now an illustration of what can be done for limpid water by the unstinted liberality of dyeworks. The area of the park is 30 acres. At one time it was pleasingly wooded. The trees are still very plentiful, and of good average character, but, as at Peel Park, the conflict with deleterious vapours is manifestly very trying to them. Being so near the town, no trees can of course ever be expected to attain magnitude. There is solace, nevertheless, in the intrinsic beauty of the place when once inside, in contrast with the ungraciousness of the streets which lead to it. At all seasons of the year the Queen's is a fairly cheerful and refreshing place of resort for people living in the vicinity. In summer there are flowers in plenty, common kinds no doubt, but none the less lovely to the poor creatures, hardworking girls and women especially, who never see flowers anywhere else, and who go to the Queen's in their leisure hours as to a little paradise. The moral service rendered to the girls by the flowers so freely scattered, is plainly quite on a par with the good done to the boys and youths who go there to sport in the playgrounds. They touch the heart with sweet consciousness that there are better things in the world than gossip and silly chat, and lead to aspirations which bear good fruit in after years. The original Hall has lately been taken down, in order that it shall be superseded by one better adapted to the requirements of a museum and picture-gallery.

THE PHILIPS PARK, so named in commemoration of Mr. Mark Philips, the first member for Manchester after the passing of the Reform Bill in 1831, is situated in a part of the suburbs, about 1½ mile from the centre, where, owing to the generally uninviting character of the locality, no gentleman's mansion with gardens similar to Lark Hill or Hendham Hall seems ever to have existed. Consequently there was no such chance for the Parks Committee as in Salford and at Harpurhey; and to choose the best piece of unoccupied land that could be found was their only course. An area of 31 acres in extent was discovered, the property of Lady Houghton, of whom it was purchased, and being much broken and diversified as to surface, though bare and very unpromising, it was not difficult, by means of skilful laying out, to produce a really pretty and attractive place of amusement. The Medlock, another little tributary of the Irwell, forms the northern boundary. The neighbourhood is one in which a public park was very specially demanded. Happily the perseverance of those who undertook the formation seems to have been rewarded; everything is done that a patient and energetic head-gardener, fighting against heavy odds, can accomplish. The wonder is, not that the best results of good gardening have yet to be attained, but that progress so good awaits our praise. Trees and shrubs cannot be made to grow faster and more luxuriantly than Nature herself ordains. The Philips Park is not a place to be judged of by the standard one would employ in estimating the merits of a private pleasaunce, on which money is lavished by handfuls. The question is, does it provide the immense crowds of working people who live close by with a cheerful and pretty promenade, and the innumerable boys and girls with opportunity of healthful recreation? And to this the reply is emphatically, "Yes." The Queen's was opened, like the others above described, on August 22, 1846, and then handed over to the Manchester Corporation, who undertook the conservancy, and spare no pains on its behalf. *Leo Grindon.*

(*To be continued.*)

NEW PLANTS CERTIFICATED

BY THE ROYAL BOTANIC SOCIETY, 1883.

*** *B.C., Botanical Certificate; F.C., Floral Certificate; either being equal to a First-class Certificate.*

Acanthophippium Curtisi ..	Veitch, May 16—B.C.
Acer crataægifolium variegatum	Veitch, June 13—B.C.
Adiantum novæ-caledoniæ ..	Birkenhead, June 13—B.C.
Amaryllis Adolphus Kent ..	Veitch, April 25—F.C.
,, Byron	Veitch, March 28—F.C.
,, Henry Little	Veitch, March 28—F.C.
,, Homer	Veitch, March 28—F.C.
,, Lady of the Lake ..	Veitch, March 28—F.C.
,, Meteor	Veitch, March 28—F.C.
,, Mrs. Burbidge	Veitch, April 25—F.C.
,, Queen of Holland ..	Veitch, April 25—F.C.
,, Queen Mab	Wiggins, March 28—F.C.
,, Southey	Veitch, March 28—F.C.
,, Star of India	Veitch, May 16—F.C.
,, Thomas Moore	Veitch, April 25—F.C.
,, Wordsworth	Veitch, March 28—F.C.
Andromeda japonica	A. Waterer, March 28—B.C.
Anthurium Ferrierense ..	Bergmann, March 28—B.C.
Athyrium filix-fœmina Kalothrix	Veitch, June 13—B.C.
Auricula (alpine) Dr. Hogg ..	Turner, April 25—F.C.
,, ,, John Brown	Turner, April 25—F.C.
,, ,, J. T. D. Llewellyn ..	Turner, April 25—F.C.
,, ,, Ouida	Turner, May 16—F.C.
,, ,, Resplendens	Turner, May 16—F.C.
,, ,, Richard Gorton ..	Turner, May 16—F.C.
,, ,, Rob Roy	Turner, May 16—F.C.
,, ,, William Comber ..	Turner, May 16—F.C.
,, (show) Conservative ..	Douglas, April 25—F.C.
,, ,, Mabel	Douglas, April 25—F.C.
Azalea Antigone	Turner, April 25—F.C.
,, Baron N. de Rothschild	Veitch, May 16—F.C.
,, Deutsche Perle	Turner, April 25—F.C.
,, Duchess of Albany ..	Todman, March 28—F.C.
,, Madame Van Houtte ..	Turner, May 16—F.C.
,, Mr. Cannell	Todman, March 28—F.C.
,, Souvenir de Prince Napoleon	Veitch, May 16—F.C.
Begonia Canary Bird	Laing & Co., May 16—F.C.
,, Clarioda	Laing & Co., May 16—F.C.
,, Dr. Duke..	Laing & Co., May 16—F.C.
,, gogoensis	Veitch, May 16—B.C.
,, H. Walter	Laing & Co., June 13—F.C.
,, Little Gem	Laing & Co., May 16—F.C.
,, Marchioness of Bute ..	Laing & Co., June 13—F.C.
,, Mrs. Foster	Laing & Co., June 13—F.C.
,, Novelty	Laing & Co., June 13—F.C.
,, Orange Boven	Laing & Co., June 13—F.C.
,, Prince of Wales	Laing & Co., May 16—F.C.
,, Queen of Doubles ..	Laing & Co., May 16—F.C.
,, Sir Garnet Wolseley ..	Laing & Co., May 16—F.C.
Caladium cardinale	Laing & Co., May 16—B.C.
,, Luddemanni	Laing & Co., May 16—B.C.
,, ornatum	Laing & Co., May 16—B.C.
,, Verdi	Laing & Co., May 16—B.C.
Cattleya gigas var. Sanderiana	Sander, June 13—B.C. H. James, June 13—B.C.
,, Mendelii Selbornensis ..	Salter, June 13—B.C.
,, nobilior	Vicary, June 13—B.C.
,, tricolor	Veitch, May 16—B.C.
,, Warneri Sudburyensis ..	Vicary, June 13—B.C.
Chrysanthemum coronarium Aurora	Cannell, June 13—F.C.
Cineraria (double) A. F. Barron	Cannell, March 28—F.C.
,, Albert Cocks	James, March 28—F.C.
,, Brightness	James, March 28—F.C.
,, Duke of Edinburgh ..	James, March 28—F.C.
,, Lord Beresford	James, March 28—F.C.
,, Lord Boston	James, April 25—F.C.
,, Lord Wolseley	James, March 28—F.C.
,, Mrs. Herrin	James, March 28—F.C.
,, Mrs. White	James, April 25—F.C.
,, Shirley Hibberd ..	James, April 25—F.C.
,, Sir P. Rose	James, March 28—F.C.
Clematis Krao	Noble, April 25—F.C.
Coleus Canary Bird	Laing & Co., May 16—F.C.
Corylopsis pauciflora	Veitch, March 28—B.C.
Crinum Kirkii	B. S. Williams, April 25—B.C.
Cyathea microphylla	Veitch, June 13—B.C.
Cyclamen Amethyst	Wiggins, March 28—F.C.
,, Mrs. H. Little	Wiggins, March 28—F.C.
,, persicum Mrs. H. Veitch	Wiggins, April 25—F.C.
Cypripedium recurvipetalum..	Veitch, May 16—B.C.
Davallia brachycarpa	Veitch, May 16—B.C.
Dendrobium Dearii	Wiggins, June 13—B.C.
,, leucolophotum	Veitch, May 16—B.C.
Epidendrum Frederici Guilielmi	B. S. Williams, May 16—B.C.
Gloxinia Daimio	Veitch, June 13—F.C.
,, Miranda	Veitch, June 13—F.C.
Gymnogramma calomelanos gracilis..	Veitch June 13—B.C.
Hyacinth Empress of India ..	Veitch, March 28—F.C.
,, Pink Perfection	Veitch, March 28—F.C.
,, Souvenir de J. H. Veen	Veitch, March 28—F.C.
Hydrangea rosea	Veitch, June 13—B.C.
Impatiens Sultani	Veitch, May 16—B.C.
Lobelia Swanley Blue ..	Cannell, June 13—F.C.
Masdevallia rosea	Veitch, June 13—B.C.
,, Shuttleworthii	B. S. Williams, March 28—B.C.
Maxillaria lutea alba	B. S. Williams, May 16—B.C.
Mimulus radicans	Veitch, June 13—B.C.
Narcissus bicolor J. B. M. Camm	Barr, April 25—F.C.
,, Leedsii Purity	Barr, April 25—F.C.
,, Incomparabilis Minnie Hume	Barr, April 25—F.C.
,, ,, palbdus Princess May	Barr, April 25—F.C. Patton, April 25—F.C.
Nepenthes Excelsior	B. S. Williams, June 13—B.C.
Ochna multiflora	B. S. Williams, May 16—B.C.

Odontoglossum Chestertoni ..	James, April 25—B.C.
,, crispum giganteum ..	B. S. Williams, April 25—B.C.
,, ,, purpureo punctatum	Sander, June 13—B.C.
,, ,, Thompsoni	Stevens, June 13—B.C.
Pansy Exoniensis	Coombes, March 25—F.C.
Phalænopsis speciosa	Berkeley, June 13—B.C.
Polystichum acrostichoides grandiceps	Birkenhead, June 13—B.C.
Pritchardia grandis	Veitch, June 13—B.C.
Prunus Pissardi.. . ..	Laing & Co., May 16—B.C.
Pyrethrum compactum ..	Hooper, June 13—F.C.
Rhododendron Greavesii ..	Staddon, May 16—F.C.
,, triumphans	Veitch, March 25—F.C.
Rosa polyantha Mignonette ..	Paul & Son, March 25—F.C.
Rose, Tea, Ann Maria Montravel	Bennet, March 25—F.C.
,, H.P., Mary Bennet ..	Bennet, March 25—F.C.
,, Merveille de Lyon ..	Turner, April 25—F.C.; Paul & Son, May 16—F.C.
,, W. F. Bennet	Bennet, March 25—F.C.
Scutticaria Dodgsoni	B. S. Williams, April 25—B.C.
Selaginella canaliculata ..	Veitch, June 13—B.C.
Wormia Burbidgei	Veitch, May 16—B.C.

THE JENSENIAN METHOD OF POTATO CULTURE.

For about a year Mr. C. B. Plowright has entered the arena as a champion of "heteræcism of the Uredines," and "the Jensenian method of Potato culture." I am equipped to accept his challenge for the first, and would have done so before now, if time, health, and space had permitted. As the Potato question, however, has more practical interest just now, will you allow me to point out one or two vulnerable points in Mr. Plowright's Jensenian position?

Mr. Plowright's advocacy of Mr. Jensen's views was published in the *Gardeners' Chronicle* for July 28, 1883, p. 103. After giving some "wondrous" results (to quote Dr. Jeffery Lang), Mr. Plowright, towards the bottom of third column, approaches the experiments.

He writes, "To demonstrate the power earth has of arresting and retaining the spores a cylindrical tube was taken, fitted at the bottom with a perforated plate." One would like to know something of the size and nature of this wonderful "tube," whether it was a glass test-tube, or a cast-iron tube. The "perforated plate," too, is very indefinite; plates and perforations vary greatly in size. Records of experiments really ought to be more precise. After earth was placed in this "tube" and pressed down, water containing spores of the Potato fungus was poured on the earth, and the number of the spores was estimated by counting the number of spores in a drop of water, and employing the requisite quantity to the number of 30,000.

This is indeed "wondrous." Has Mr. Plowright, in advocating Mr. Jensen's views, realised to himself what a drop of water is, and what a spore inside it is?

Readers of the *Gardeners' Chronicle* must be pretty familiar with Peronospora spores, as they have many times been illustrated in its columns. A Peronospora infestans spore enlarged 400 diameters, would be a little transparent body a quarter of an inch wide and three-eighths of an inch long, whereas a drop of water enlarged to the same scale, would be a great body of water more than 8 feet in diameter. But as Peronospora spores when they fall in water generally burst into eight portions, and each portion is itself a spore, it follows that these secondary spores would only be about one-sixteenth of an inch in diameter in a sphere of water more than 8 feet across, and water and spores equally transparent.

Who is the man who is prepared to count these inconceivably minute things. The slightest touch of the screw of the microscope sends them out of focus. The task of counting these small spores would be like counting the stars in the firmament. The 30,000, too, is so "wondrous."

But wonders on wonders thick accumulate, for when 30,000 spores were poured into a "tube," 28,000 spores were retained in the earth, and 2000 ran through. Of course a man who is equal to counting 30,000 spores in an unnamed quantity of water is equal to counting the 2000 which, it is said, ran out of the other end of the "tube." But this is not all, for the astounding "experiment was repeated," and water containing 30,000 other spores was again filtered through 4 inches of earth. The water which came out of the other end of the "tube" was again examined and (will it be believed?) only "one or two spores ran through." Where is the man who can find one or two transparent fungus spores in an indefinite quantity of dirty water?

Other experiments, if possible still more "wondrous," were carried out. "Six flower-pots were employed, in each of which sixteen Potatos were placed." These Potatos in the gigantic flower-pots were covered with from 1½ inch to 5 inches of earth, and the whole lot watered with water "containing spores." The number of spores used in these monstrous pots is not stated—no doubt a mere oversight—but the results are given, and the conclusion arrived at is that earth, coarse sand, and fine sand, have various spore-retaining powers. "Five inches of earth or sand," it is gravely said, "affords complete protection to the tubers."

I cannot say from experience or observation that such "complete protection" is not afforded, but to give the readers of the *Gardeners' Chronicle* some idea of the difference in size between the zoospores of the Potato fungus and fine sand I have measured four samples of fine sand for comparison with zoospores. Croydon sand is the finest I have ever seen; 340 zoospores could find room on one surface of an average grain; it would take about 6300 to make up the bulk of one grain. Reigate sand is extremely fine; 1250 zoospores could find room on one side of a single grain; it would take 45,000 to form the bulk of one grain. The sand of Gray's Thurrock is very fine; 1700 zoospores could repose on one side of a grain; it would take more than 70,000 to form the bulk of a grain. The sand where I live at Stoke Newington is so fine that it can hardly be seen as sand at all to the unaided eye, yet 7500 zoospores could be placed on one surface of a single average grain, and it would take 653,000 zoospores to make up the bulk of one such grain. Of course it may be possible to retain minute things between huge blocks of flint and quartz 600,000 or 700,000 times bigger than the things which are to be retained, but it seems at first sight hardly probable.

To my mind Mr. Jensen's experiments would be unworthy of remark were they not backed by Mr. Plowright. There is evidence all through the reputed experiments that the experimenter does not know the things he is dealing with. For instance, no word is mentioned of the spores bursting and leaving the zoospores behind. If Mr. Jensen really found spores in the water which ran through the monstrous flower-pots, what evidence is there that he did not merely see the empty conidia, and that the much smaller zoospores were free somewhere else?

In my own observations I have noticed that Peronospora spores are lighter than water, and always remain on the top. Did Mr. Jensen carefully skim his water before he began his prodigious feat of counting? If he took water from the bottom of his pots he would never see spores at all.

Surely the common-sense view of the case is this:—If Potatos are more or less exposed to the air they are subject to injury from wireworms, snails, insects, birds, rats, mice, rabbits, and many other animals. These animals, large and small, by injuring the skin of the Potato, expose its inner surface, and this inner surface at length gets attacked by the fungus. By well earthing-up, the animal depredators are kept in check, and so there are no exposed and vulnerable points in the tuber to be attacked by the fungus.

Mr. Plowright must not think that I am "ridiculing" the Jensenian method, for this is not the fact at all. As for "evolution," may I ask Mr. Plowright if evolution would have been in its present high and impregnable position if it had not been for disbelievers? No greater stumbling-block exists to the advancement of thought than credulity. It was because Mr. Darwin's views were attacked, disbelieved, sifted, and tested over and over again that they at length attained their present brilliant and dominating proportions.

If Mr. Plowright can fix Mr. Jensen's experiments and the "heteræcism of the Uredines" on a firm basis he will certainly merit congratulation. *W. G. Smith.*

Pernettyas at Kew.—Behind the Palmhouse at Kew, in the so-called American Garden, are two beds filled with a number of the beautiful seeding varieties of Pernettya mucronata, which have been raised by Mr. Davis, of the Ogle Grove Nursery, Hillsborough, Co. Down. The value of these exceedingly pretty and thoroughly hardy plants can hardly be over-estimated. The berries vary a good deal in size, and the colours range from deep crimson and purple almost to white. Several of these have been awarded First-class Certificates at South Kensington, and attention has been called to them in these columns. What fine objects they make for window decoration, or for cool conservatory work, during the long winter months!

THE FLORA OF SOCOTRA.

The flora of a continental island such as Socotra is in the main interesting in connection with the geographical distribution of plants and the working out of the history of their migrations over the face of the globe. But in the flora now under discussion there are a number of special features in individual plants well deserving of attention, and I may now notice some of them.

Of plants striking as having brilliant flowers may be noted the Adenium; a tuberous Begonia, which has been introduced into horticulture (Begonia socotrana) a fragrant Crinum, species of Exacum, Ruellia, Jasminum, &c. Few of the wild plants yield edible fruits. The Jujube is alone abundant.

On morphological grounds there falls to be noticed firstly Dendrosicyos socotrana, known to the inhabitants as the *camhane* tree, a new genus of Cucurbitaceæ. This plant differs from the ordinal characters in being a tree with a stem often 4 or 5 feet in diameter at the base, rapidly tapering, and forming a very soft juicy wood. Another plant of interest, on morphological grounds, is a small tree bearing a fruit like a Pomegranate, but instead of having the double row of carpels characteristic of the true Punica Granatum, there is but a single whorl. Can this be the primitive type of the Pomegranate? Another morphologically interesting plant is a Menisperm, a Cocculus, which differs from the ordinal type in being a hard erect undershrub, with cladodes and short spiny branches.

Of plants interesting for their products we have several in Socotra. Amongst them the first place is claimed by the Dragon's-blood tree, Dracæna Cinnabari. The dragon's-blood of commerce at the present time is, as is well known, the product of Calamus Draco of Sumatra. But the Socotran gum-resin is the old κινάβαρι mentioned by Dioscorides. It is known on the island as *edah*, amongst the Arabs it is *kâtir*. The plant is endemic, and nearly allied to the D. Draco of Teneriffe. From the other gum-resin-producing species, D. Ombet of Abyssinia and D. schizantha of Somali-land, of which we have as yet but imperfect knowledge, it is apparently quite distinct. The gum-resin exudes in tears from the stem of the tree, and is collected after the rains; the gatherer chipping off the tears into goat-skins. There are three forms in which the gum-resin is exported. Of these *edah amsello*—the tears as they exude from the tree—is the purest and most valuable form; 2½ lb. fetch 1 dol. The second best kind is called *edah dukkah*. It consists of the small chips and fragments of the tears which have been broken off in separating the gum-tears from the tree, or by attrition; it sells at 1 dol. for 4 lb. The cheapest is the *edah mukdehah*, which brings 1 dol. for 5 lb., and is very impure. It is in the form of small flat-sided masses, and consists of fragments of gum-resin and refuse of the gatherings melted together into a flat cake, and then broken up into smaller portions.

Of other gum-resin-producing trees on the island the Frankincense and Myrrh trees must be noticed. I have always referred to the discussion that has taken place regarding the incense country of the ancients. The Hadramant country is the incense region *par excellence*, and to its kings Socotra is said to have been subject. But Socotra is identified on ethnological grounds by Mariette as the "To Nuter" of the Theban monuments, the "Sacred Island" of Pliny, and the "Isles of the Sea" of the Old Testament. Now we find the genus Boswellia, which yields frankincense (olibanum), represented in Socotra by no less than three species, all of which are endemic, and possibly there is a fourth, and as there are only three other known species of the genus, all of which save one are Somali-land plants, the proportion occurring in Socotra is very large. The commonest frankincense in the island is the *ameero*, but it is not much exported.

Of Myrrh plants Socotra possesses no less a share. Besides the Balsamodendron Mukul, which yields the "Indian bdellium"—the *googul* or *mukul* of the Arabians—there are probably five other species of the genus on the island. Possibly one of these is the Arabian B. opobalsamum, the true Myrrh plant. The myrrh collected is termed *leggehen*, and is said to be exported.

Probably the most important plant of the island, so far as products are concerned, is the Aloe Perryi, which yields the "Socotrine aloes" of commerce. The gum is known as *tâyef* by the natives; the Arabs call it *sobr*. Although this kind of aloes has been so

long known, and has the reputation of being finer than either Barbadoes or Cape aloes, it is only within the past few years that the character of the plant has been made known. It grows abundantly on the island, especially on the limestone plateaux. The collection of the gum is a very simple process, and can be accomplished at any season. The collector scrapes a slight hollow on the surface of the ground in the vicinity of an Aloe plant, into which he depresses the centre of a small portion of goat-skin spread over the ground. The leaves of the Aloe are then cut and laid in a circle on the skin, with the cut ends projecting over the central hollow. Two or three layers are arranged. The juice, which is of a pale amber colour with a sweet, slightly mawkish odour and taste, flows from the leaves into the goat-skin. After about three hours the leaves are exhausted; the skin is removed from beneath them, and the contained juice transferred to a "mussock." Only the older leaves are used. The juice thus collected is of a thin watery character, and is known as *tâyef rhiho*, or watery aloes. In this condition it is exported to Muscat and Arabia, and sells for 3 dol. the skin of 30 lb. By keeping, however, the aloes change in character. After a month the juice gets, by loss of water, denser and more viscid; it is then known as *tâyef gesheeshah*, and is more valuable—a skin of 30 lb. fetching 5 dol.; whilst in about fifteen days more—that is, about six weeks after collection—it gets into a tolerably hard solid mass, and is then *tâyef kasahul*, and is worth 7 dol. a skin of 30 lb. In this last condition it is commonly exported.

There is, as I have said, no forest on the island, and yet there is one small tree, or large shrub, which may be of some value commercially. It is the *metayne*, a kind of Box tree, Buxus Hildebranti. It was first found by Hildebrandt on the Somali-land hills. It forms a hard, compact wood, and, I doubt not, might be used for many of the purposes for which Boxwood is so valuable at the present time. It is abundant on the island, and Hildebrandt reported it very common in Somali-land. I did not bring home sufficient specimens to allow of an experimental trial of this as a material for woodcuts or other purposes. I learn from Dr. Schweinfurth that he has sent some to Berlin to be tried in this way. Should the wood prove serviceable, it requires no special mention to indicate how valuable this product may become in view of the exhaustion of the Boxwood forests (of which we hear so much) in the south-east of Europe.

Many plants are used on the island for the purposes of dyeing, but of these the only one that need be here referred to is the Orchella weed (Roccella tinctoria). Occurring in abundance, it was formerly exported in great quantity. It is known as *shennah*.

To summarise the features presented by the Phænogamic flora of the island of Socotra, we may say:—

1. It is that of a continental island, and presents features of great antiquity.
2. Relative proportion of orders to genera, and of these to species is large.
3. There are few annuals.
4. It possesses much individuality, and further exhibits three distinct elements—(*a*), of a dry parched region; (*b*), of a moister tropical region; (*c*), of a cooler and more temperate region.
5. Its affinities are essentially Tropical African and Asian, but the African element predominates, and in the African element we find in great force the features of the flora of the mountainous region of Abyssinia, West Tropical Africa and South Africa, and also of Madagascar. This element of the flora too is that of the higher regions of the island (*c* of the last paragraph).
6. The flora of the dry region is the typical Arabo-Saharan.
7. The flora of the moister tropical region is that of the Old World tropics generally.
8. There are a few Indian and American types. *Extracted from a Lecture at the Royal Institution by Prof. Bayley-Balfour.*

FRUIT NOTES.

LIVE'S IMPERIAL APPLE.—In reply to Mr. Rolfe's enquiry (p. 624), we may say that we believe this to be a Nottinghamshire variety, as we have never met with it out of our own county. We have a number of trees in our orchards—in fact we gathered about 2 tons of fruit this season, from which we exhibited a sample at the Congress, which no doubt Mr. Rolfe overlooked in the crowd. We have no trees under forty or fifty years of age, and have no information as to its origin. It, however, with us fully bears out Mr. Rolfe's good opinion, the fruit being good in size and colour, and the tree a first-rate bearer. *J. R. Pearson & Sons, Chilwell.*

APPLE BARTHÉLEMY DU MORTIER.—A very handsome globular mid-sized Apple, with a stalk set in a deep russetty basin. Eye depressed; skin yellow, streaked and dotted with red on the sunny side. The flavour is sugary, and resembles that of the Calville. It keeps till the spring, and is very highly spoken of in the *Bulletin d'Arboriculture* for November.

BEGONIA OLBIA.

UNDER this name a new Begonia has been introduced from Brazil by M. Pynaert Van Geert, of Ghent (fig. 128). It is stated to resemble B. diadema in habit. The leaves are deeply and irregularly toothed above, blackish-green in colour, spotted with white, and thinly covered with small reddish hairs.

FIG. 128.—BEGONIA OLBIA.

The plant flowers freely, and produces an abundance of white flowers, and was so highly appreciated at the exhibition held at Ostend in August last by the Royal Flora Society of Brussels that it was awarded the 1st prize for new plants.

ROYAL BOTANIC GARDENS, REGENT'S PARK.

WHEN exhibitors and regular *habitués* of "the Botanic" shows find themselves in the Inner Circle in March next, they will discover that since the last show was held there the old corridor connecting the conservatory with the Circle Road has been removed, and in its stead has been erected a more imposing structure. The old corridor in which the spring shows had been held for some years was only 16 feet wide, and consequently too narrow either to exhibit the plants to the best advantage, or to allow of easy locomotion on a show day. The new structure, of which we give an illustration in fig. 129, is 25 feet wide and 200 feet long, including the entrance lodge. It is 12 feet high at the sides, and 20 feet at the ridge, having continuous ventilating sashes on both sides of the ridge, which open in lengths independently. Every alternate ornamental sash at the top of the glass side can also be opened, and both roof and side ventilators are worked by rod and lever gearing, with improved screw slides. The roof, which is supported by neat wrought-iron tie-rods, and the top side lights are glazed with Hartley's rolled plate glass, the side being glazed with 21-oz. sheet glass. Every spar and sashbar in the roof is guttered to carry off condensed moisture, and the house is heated by six rows of 4-inch piping along the front, worked by a new wrought-iron terminal-end saddle boiler. A great improvement made in the conservatory at the same time is the enlargement of the stove to the extent of a space about 40 feet by 30 feet, by shifting a glass partition. The works, which were carried out by Messrs. James Boyd & Sons, of Paisley and London, are now complete, and the corridor has already been made gay by Mr. Comber with a large collection of Chrysanthemums.

NOTES FROM KEELE HALL.

NOT far removed from some of the busy hives of industry which find a home in the county of Stafford, yet located where their smoke-belching shafts, so much more useful than ornamental, are out of sight, Keele is so far fortunate. Its garden has long been noted for fine fruit, and there is no lack of evidence that the future has nothing to fear. Those acquainted with the place know the large extent of glass devoted to the different kinds of fruit, Grapes and Peaches in particular, both of which are still forthcoming up to the mark in every way. In the old range the two large earliest Peach-houses, forced to come in about the middle of May, the old trees on the front trellis are still in vigour, with plenty of strong wood that shows they are not retrograding. The younger trees in these houses, that cover the second trellis over the pathway, are in fine condition. These wide houses, with their 18 feet high back walls, give plenty of room for the double rows of trees extending themselves sufficiently. The adjoining vinery, similar in width to the Peach-houses, is filled with several kinds, Hamburghs, Lady Downe's, and Gros Colmar, all bearing a good even crop—the late sorts nearly ripe when I saw them. The next is the earliest house, which comes in about the end of April; these are old Vines, reduced in strength through being long hard forced, and are all about to be replaced with young ones. The adjoining division, the last of the range, is wholly filled with late sorts, Gros Colmar, Black Alicante, Barbarossa, and Golden Queen; the latter is a favourite with Mr. Wallis, which is no wonder, seeing the way it succeeds with

him, the best evidence of which is afforded by the fact of his having taken 1st with it at Liverpool three or four years in succession in the class for any white variety not including Muscats. It is this season in equally fine condition to that which Mr. Wallis has usually had it, handsome bunches with large even berries beautifully coloured.

Eucharis amazonica is well managed here, a small house being filled with it, with climbers overhead for shade; the plants, large and small, are exceptionally strong, with very big leaves, generally flowering three times a year.

The first house in the range of four vineries, standing a short distance behind the front range, is filled with Lady Downe's and one or two Vines of Alnwick Seedling and Gros Maroc, all carrying a beautiful crop, good bunches, fine in berry, and quite black. The Gros Maroc has larger bunches than usually met with, and big berries perfect in finish; it is undoubtedly one of the handsomest of black Grapes in this respect, nearly equalling Alnwick Seedling. The next division, which was replanted four years since, are mostly Hamburghs in excellent condition; there is here another Vine of Golden Queen, bearing a splendid crop, equal in finish to those in the first range. Duke of Buccleuch is also here in faultless condition, good bunches, with very big berries coloured up to the mark without trace of so much as a single cracked berry. The adjoining house is forced to come in second; the crop was nearly cleared at the time of my visit—the end of August. The Vines have made good use of the time they have been planted; they are mostly Black Hamburghs, with one or two Golden Queens, here again the colour of perfectly finished Muscats. The last of this range is the principal Muscat-house, carrying a full crop of fine bunches, which promised to have the right colour when fully ripe. A Vine of Mrs. Pearson here was bearing a nice lot of bunches.

Near these is a moderate-sized house, filled with Gardenias and some healthy Orchids, amongst which was Lælia harpophylla, and some recently imported plants of Cattleya, such as C. Trianæ and C. Mossiæ, growing very well. In the hip-roofed stove there is now a nice lot of Orchids, heat-requiring sorts, doing well. The lean-to Fern-house, facing north, up against the western portion of the back wall of this range, looks very pretty, interspersed with Begonias; the plants, all turned out, having got well established, give a plentiful supply for cutting.

In the bottom garden, facing north, there has recently been built a lean-to house 100 feet long, divided, the eastern end for cool Orchids; a path runs down the middle, with a broad slate shelf between it and the front glass; this is filled with Odontoglossums, which include most of the favourite kinds, in considerable numbers, and which, along with the Masdevallias and other species that thrive with cool treatment, give evidence that the house and management suit them: the opposite side of the path is occupied by decorative stock of the usual description, with a space for the roots of climbers on the back wall. The adjoining division is filled with miscellaneous flowering and fine-leaved plants, and is further used to accommodate such Orchids as are in bloom. These houses have a nice appearance, being well finished, with a much greater depth of glass in front than usual, giving plenty of light to the plants; a tank under the floor for soft water runs the entire length, affording a constant supply always chilled. To the south of the wall against which these new houses have been placed, is the long, narrow, late Peach-house, in which the trees look well, collectively carrying a good crop. The large lean-to vinery in continuation from this Peach-house has lately been turned into a Fig-house; two rows of trees are planted, one in front and another nearer the path; they are carrying a beautiful crop of fruit—the sorts are Brown Turkey, Negro Largo, White Ischia, and Osborn's Prolific.

In the roomy conservatory adjoining, the Camellias and other principal occupants are in excellent order. The roof climbers, including an unusually large example of Plumbago capensis, with Bougainvillea glabra, the white and red Lapageria, and Tacsonias, furnish the house nicely. The large lean-to house on the opposite side of the conservatory to the Fig-house is now used as a greenhouse, and is filled with a general collection; the back wall is furnished with Lapagerias, and on the roof is the largest example of Clematis indivisa lobata I have seen; it covers a large space. The late Peaches in the narrow house corresponding to that at the opposite end of this range had a nice crop of fruit on them. Stood out-of-doors here are a collection of the best sorts of greenhouse Rhododendrons, so effective for conservatory decoration. The long lean-to house running to the back of this range was filled with plants of a miscellaneous description, including the useful autumn-flowering bulb, Tritonia aurea, and a quantity of Celosia pyramidalis, very well grown and a first-rate strain. The habit of the plants and their beautiful shades of colour were much out of the ordinary run.

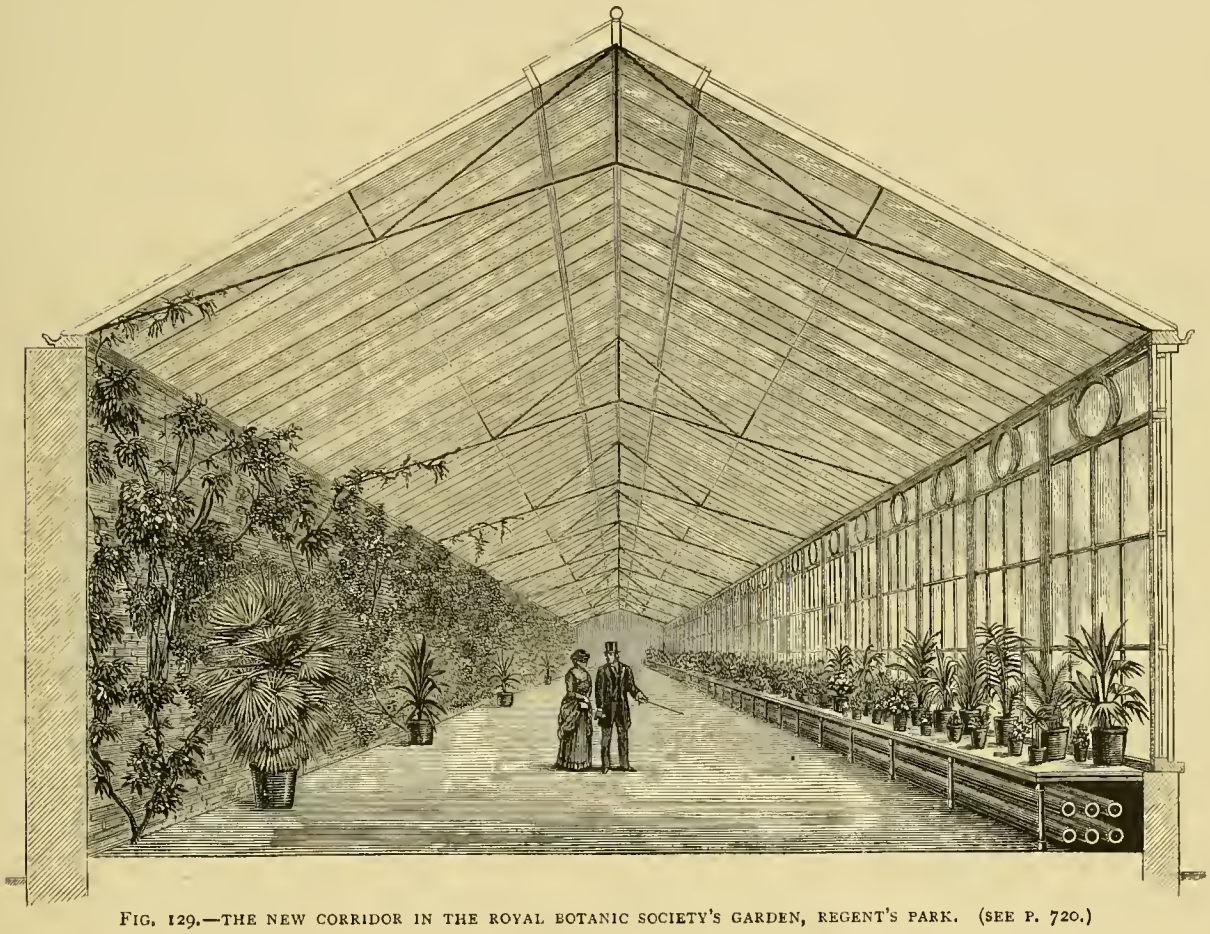

Fig. 129.—The new corridor in the Royal Botanic Society's Garden, Regent's Park. (see p. 720.)

In the long range on the higher part of the garden, 170 feet of which is filled with Peaches, the trees are in beautiful condition—the crop all cleared; in the corresponding part, occupied by Apricots and Plums, the Apricots along the front of this long stretch of glass were bearing a nice crop. The Plums also had a good crop on them, doubly acceptable in a season like this, when this fruit was a complete failure out-of-doors in most places. Amongst the sorts which answer best are Kirke's, Coe's Golden Drop, McLaughlin's Gage, Green Gage, and Transparent Gage. At the eastern end of this range one house has been planted with Roses—mostly Tea varieties—which yield quantities of flowers for cutting.

Pines are not grown in such quantities comparatively as other fruits. A moderate sized pit is filled with them, including a nice lot of fruiting and succession plants in good order.

The flower garden department was in good condition, gay with masses of flowers presented by the numerous beds distributed about the grounds with less formality than usually met with, and which is quite a refreshing change from the conventional style so

generally adopted. The borders flanking the long grass walk leading westwards from the kitchen garden had a very lively appearance; the back rows on each side were composed of Sunflowers and Dahlias, double and single, with rows in front of Dactylis glomerata varigata, scarlet and pink Pelargoniums, Blue Perfection Pansy, and Polemonium variegatum. The borders on each side, as a matter of course, match.

Rhododendrons and Hollies are a feature at Keele, the pink and scarlet varieties of the former having attained unusual size, growing in closely packed masses with stems almost as thick as scaffold-poles; the heads, forming dense banks 20 feet high, are thickly set with flower-buds that cannot fail to have a brilliant effect when in bloom. Of Hollies the large leaved green variety Shepherdii has been planted here all over the grounds in quantity, and has now reached a large size, scores of them being from 25 to 30 feet in height, densely feathered down to the ground.

Of the fine old Spanish Chestnut trees, which form an avenue to the north of the walled garden, every possible care is being taken by supporting such limbs as may be in danger from the wind, and by the use of sheet-lead and cement to prevent the spread of decay where needful, for although the ancient trees are likely to weather many generations, still assistance such as above-named is a well-directed attention.

From the reputation which Keele has for its fruit many who visit the garden not unlikely go away after having seen through the houses where such quantities of fine Grapes, Peaches, Apricots, Figs, Plums, &c., are grown, and in doing so miss one of the chief attractions of the place, which consists in its beautiful walks, some miles in extent, that wind their way through the grounds, alternately skirting the sheets of ornamental water which have been formed of a brook that follows the densely wooded valley, at other times taking the higher ground under the close shade of the old trees, under which luxuriate Ferns innumerable. In one place I noticed that Polypodium vulgare had taken possession of the trunk of an old Oak, clothing it with its pretty green fronds to a height of over 30 feet. The brook has been turned to the best account from an ornamental as well as a useful point of view; as already mentioned, in places it has been fashioned into miniature lake-like sheets of water, in others it is tumbling over grey rocks in the form of a cascade, and again it is made to do duty in driving a good-sized water-wheel that works a pump to supply the establishment From the front of the Hall, across the well-kept lawn, standing high above the dense masses of wood that fill the valley, the different colours of the foliage, from the black-green of the Firs to the pale shades of the deciduous kinds, with their branches dipping down to the water, collectively present a beautiful bit of landscape. *T. B.*

Orchid Notes and Gleanings.

Calanthe veratrifolia.—Mr. C. F. Cresswell, of Sydney, states that this Orchid requires a rich, deep, somewhat moist soil. In its natural state it luxuriates in decayed vegetable matter of so open a texture that the plant may be pulled from the soil without digging. It is usually found near the banks of running water.

Cyrtopera squalida, *Lindl.*—This curious Orchid flowered as early as 1841 with Messrs. Loddiges at Hackney, having been brought home by Mr. Hugh Cuming: it has leaves like those of a Bletia. The stiff, erect peduncle bears flowers equalling those of Bletia hyacinthina. Sepals triangular, lateral ones spreading, light green. Petals oblong, revolute, with margins white. Lip three lobed, side lobes rounded, anterior lobe oblong, wavy, bordered with light sepals, disc light yellow, base light purple. Column marked in front with numerous purple lines, and with brown lines at the base. The lip's base is conical and retrorse. The bulb makes a tumid mass, comparable to a depressed Fig. I had fine fresh materials in August from Mons. Adolphe d'Haene, Ghent. I should think the plant would just now prove exceedingly desirable for all who are occupied in Orchidology. Cyrtoperas have a lip embracing the base of the column, transverse pollinia with a transverse incision behind, a ligulate well developed caudicule, a transverse (often crescent-shaped) glandular plate. Cyrtopodia have neatly unguiculate lips, pyriform erect pollinia slit longitudinally, and a triangular lacinia with adherent glandula. Impossible to know, and to combine the genera. *Sic vos non vobis! H. G. Rehb. f.*

Phalænopsis amabilis and P. grandiflora.—We have now over a hundred flowers open of these varieties on plants that have been flowering since the end of September, and which will continue flowering till the end of March. Phalænopsis Schilleriana commences opening its flowers about Christmas and keeps on into April. As a winter-flowering Orchid of easy culture, for arranging with Poinsettias and Calanthes, this is not easily surpassed, it makes such a grand display. I send a spike for your approval. *G. W. E., Henham.* [A very charming spike too. Ed.]

Burlingtonia decora picta. — This pretty Orchid, otherwise known as Rodriguezia decora picta, may be seen in the cool division of the Orchid-house at Kew. The typical form is figured in Paxton's *Flower Garden*, iii., 99, 278, and has white flowers, spotted with rose on the sepals and petals, which colouring in the present variety is intensified or deepened to a dark purple. The labellum is large, prominent, and white, with the exception of a few faint spots. All the species, which, moreover, are not very numerous, are extremely neat habited plants of small dimensions, generally cultivated on blocks of wood with a little moss attached, but may also be successfully managed in small pans, as in this instance. The manner of growth in this plant is likewise peculiar, in that it produces slender, erect rhizomes, throwing out aërial roots at intervals, and successional pseudobulbs in the same manner. A plant of several years' growth after this fashion presents a loose bundle of fibrous roots, supported on stronger ones, and surmounted by the 3—5-flowered racemes. The effect, if at first sight strange, by no means detracts from its simple beauty.

Cattleya labiata (Autumn-flowering).—Either large importations have brought chance plants in the same way as the old and still unrivalled autumn-flowering labiata is supposed to have been obtained, or eager collectors have brought them from obscurity, but several forms of this plant distinct from the old form are now in collections. Last autumn we saw two in Mr. William Lee's grand new Cattleya-house at Downside, and now a flower comes from Major Lendy's collection at Sunbury House. The variety, which always flowers with Major Lendy at the same time as the old autumn-flowering labiata, while having all the characteristics of growth of a true Brazilian labiata, differs much from the old form in habit, and also in the distribution of the crimson marking on the labellum. Major Lendy's variety, like Mr. Lee's, has a pure white ray up the lower portion of the segments from the column.

Australian Orchids.—Mr. C. F. Cresswell, of Sydney, states that in experimenting with their culture he found Dendrobium gracicaule and D. speciosum to be the least affected by much watering, while D. Kingianum and the Sarcochile have perished if kept damp.

Cattleya superba.—Seeing your note in reply to an inquirer as to the growth of Cattleya superba, I thought an alternative plan would be useful to "J. L." I have tried block and rack, but find they do not establish so well as in pans suspended near the glass of the Cattleya-house. I had a few imported plants in the spring of this year, and succeeded in blooming some of them twice, as well as doubling the size of the first home-made bulb, and it is carrying a larger number of blooms (five) than the first spike (three). The plants rooted at once into the peat, and could not be doing better. I have also some on cork, but, though they are strong and fine, they are more troublesome, as they dry up faster, and require so much more labour. *De B. Crawshay, Rosefield, Sevenoaks.*

Cypripedium caudatum.—I have always been astonished to find in the different works on Orchids this Central American plant indicated as being terrestrial, whereas at home it grows exclusively on the top of the highest trees, at 60—100 feet and more above the earth! Therefore this Cypripedium should be grown as every other epiphyte should be—in peat, with charcoal and sphagnum. An addition of loam or sand in very small proportion will do, without doubt, no harm, but most probably is quite superfluous. In my houses at Chiswick they seemed to do best in baskets, perhaps because I cultivated the best and strongest specimens in that way. They are to be found in the deep valleys between the several high chains of the Cordilleras, where the atmosphere is always very damp; therefore, they want all the year round a good deal of moisture to the roots, although their locality is still on the Pacific side, and has a dry season of five months—from December to April. As to temperature, considering that in its native place it grows at an altitude of 5000 feet, a cool treatment is the most natural. *R. Pfau, Chiswick.*

Cypripedium longifolium. — This is an old species, but has the merit in its native country (Central America), as well as in the European collections, of flowering almost all the year round, the same spike producing a continuous series of flowers which follow one after the other. Its culture, being easy, requires no further explanation. I may remark only that this species is terrestrial, grows on the surface of the earth, the roots spreading horizontally between the moss. Over them closes the vault of the forest, therefore this plant requires for its perfect development complete shading and plenty of moisture. *R. Pfau, Chiswick.*

ORCHID PORTRAITS.

Aërides Vandarum, Rchb. f.; Moore, in *Orchid Album*, t. 116.—A singular species with terete leaves like those of Vanda teres, and white flowers, each about 2 inches across, segments oblong obtuse, wavy, lip prolonged at the base into a long spur.

Cattleya Whitei, Rchb. f.; Moore, in Williams' *Orchid Album*, t. 115.—A Brazilian species, described by Prof. Reichenbach in *Gard. Chron.*, n. s., xviii., 586. The flowers are magenta-coloured, the lip with a roundish crenulate anterior lobe of a richer colour than the other segments, and with dark veins, throat yellow.

Dendrobium Wardianum giganteum, Williams and Moore, in *Orchid Album*, t. 113 —A grand variety of this noble Burmese Orchid.

Epidendrum rhizophorum, *Garden*, Nov. 3.—Flowers orange-red. Guatemala.

Odontoglossum citrosmum album and citrosmum roseum.—*Garden*, Nov. 10.

Trichosma suavis, Lindley; Moore, in *Orchid Album*, t. 114.—A peculiar species with erect cylindrical stems, bearing near the top a pair of oblong, lanceolate leaves and an erect raceme of white flowers, each about 1¼ inch across, segments oblong-acute, lip not exceeding the segments, 3-lobed, lateral lobes erect with magenta stripes, central lobes tongue-shaped, recurved, with numerous longitudinal raised yellow ridges. Khasya Hills.

Notices of Books.

Monographiæ Phanerogamarum.

The fifth volume of this series of monographs, published, like its predecessor, the well-known *Prodromus*, under the editorship of MM. de Candolle, has just been issued. It contains the description of the Cyrtandreæ, a tribe of Gesneraceæ, by Mr. C. B. Clarke. The work is executed with the precision for which the author is well known, but it is to be regretted that, owing to his absence in India, he was not enabled to see the proofs. The Cyrtandreæ differ from Gesnerads proper in their free ovary, and generally by their aperispermic seeds. They are natives of the warmer regions of the Old World, with few exceptions, while the Gesnerads are mostly American. Among the genera now monographed are several of interest to gardeners from the beauty of their flowers, such as Æschynanthus, Didymocarpus, Streptocarpus, Ramondia, Haberlea, &c. Some of these plants have but a single leaf, like Streptocarpus, Monophyllea, and a new African genus, Trachystigma, in which last two the plant, according to the figure, looks as if it were composed of a single leaf, from one side of the stalk of which proceed the roots, while, above, the stalk is prolonged into the inflorescence. Properly speaking, what appears to be the stalk of the leaf is the stem, the solitary leaf being sessile. A copious

index and thirty lithographic illustrations render this monograph one of a most serviceable character.

Publications Received. — *Wright's Book of Poultry*, popular edition. Part 1.—*The History of Protestantism*, by Rev. J. Wylie. Part 1.—*The Illustrated Book of the Dog*, by Vero Shaw. Part 1. All from Messrs. Cassell. — *Suggestions Regarding Forest Administration in the Central Provinces*, by W. Schlich, Ph.D., Inspector-General of Forests.—*Report of the Punjab Agri-Horticultural Gardens, Lahore*, 1882-83.—*The City Diary*, 1884 (Collingridge).—*Ceylon in* 1883, by John Ferguson (Sampson Low & Co.).

The Kitchen Garden.

This is the month when the gardener requires to look around the garden and arrange where the various crops shall be sown and planted during the coming season, and prepare the ground accordingly. As a rule, all kinds of vegetables require a liberal supply of half rotten manure, but should the soil be light and the subsoil gravelly, that from the cow-house is best; but if of a cold retentive nature, manure from the stables is preferable. Of late we have been using the sweepings of the poultry-house with the best results, but even half decayed leaves or spent tan have a most beneficial influence. The ground where roots are to be grown next year must form an exception to this general manuring, and for that reason we make a point of following up Celery with Parsnips, Beet, Carrots, Salsafy, &c. The ground has of necessity been well sweetened by sun and frost, and the roots come clean and free from spot or blemish and well flavoured.

This open and rather damp weather will have somewhat hindered the carting and wheeling on of manure, but as soon as opportunity offers, take advantage of it promptly. When a piece of ground has been trenched, get several strong stumps of wood, and drive in at the four corners. This is a capital guide in the next or in succeeding years to indicate the boundary lines; by this arrangement the garden can be methodically trenched over in six or eight years. But little can be done during this and the next month in planting, so that the preparation of the soil, which is of primary importance, should be undertaken, and during this time of the year steel forks will be found in stiff soil much superior to spades for digging. Always reserve sundry jobs for wet days, such as tying mats, making Heath and Birch brooms, making labels of large size for the future crops, making rough boxes for pricking out seedlings, looking over the Onion-loft once a month at least, and the root-room, spreading out the early seed Potatos to keep them robust and ready for spring planting.

Forcing.—If the heat of Asparagus pits is declining, increase the temperature either by linings or any other means at command, and keep the lights well covered up till the heads are fairly up, when it ought to be uncovered daily. Seakale requires close watching, as too much heat will injure the roots, and when ready a batch may be taken out and stored away in a little water in a cellar, or some such place, excluding the light; it will keep perfectly good for a week thus. Rhubarb also requires a brisk top-heat, and but little at the root. The earliest planting of Potatos may now be made, and with careful and diligent attention they should be ready for use in March. In forcing all kinds of vegetables, it should always be borne in mind that nothing in the shape of a violent hurrying on should be attempted, but simply a lukewarm steady temperature. A one, two, or a three-light box of Lettuces may be sown, according to the requirements of the household. Sift the soil fine, sow the seed, and do not give them any water till March, when they will be ready to plant out in April. See that there is Mint and Tarragon ready by Christmas, and by all means keep up the daily supply of Mushrooms. *J. Rust, Eridge Castle.*

Cucumbers.

The continued unusually mild weather for the time of year has reduced the use of fire-heat to a minimum, with a proportionate decrease in the atmospheric moisture of the house, otherwise mildew would ensue. In this event the usual remedy—flowers of sulphur—would have to be applied to the affected leaves while damp, and a somewhat dry atmosphere must be maintained until every vestige of the disease has vanished. After which the usual growing atmosphere—neither too humid nor too arid—may be resumed. Should fly become troublesome fumigate with tobacco-paper a couple of evenings in succession when the foliage is dry, which will be better and safer than filling the house too full at one time. Place some quicklime and fresh soot around the collars of the plants as a preventive to canker, and rub the same into the stems of those already affected with the disease, which will arrest its progress. Some fermenting material, consisting of two parts Oak or Chestnut leaves and one of stable-manure (including the horse-droppings) should be thrown together in the course of a few days, with which to make a hot-bed at the end of the present or beginning of next month. Turn over the material a couple of times during the interval, to allow the rank heat to escape. No better means exist to raise young Melon and Cucumber plants, and no better place to subsequently plant them in. *H. W. Ward, Longford Castle.*

Peaches and Nectarines.

During the unusually mild weather we have had the past fortnight the early house has required but very little fire-heat to keep up the desired temperature except on dull wet days. A little heat may now be turned on every day, and when the temperature rises to 55° give a nice circulation of air; the heat may, however, be turned off early in the evening, as that given off by the pipes in the daytime will be quite sufficient for the present, unless we get very cold frosty weather, when a little may be kept on all night, increasing it early in the morning until the desired temperature is attained. Examine the borders, and if at all approaching dryness give a thorough watering with water warmed to about 85°. The temperatures given in my last Calendar will be quite high enough for the present. If not already done, get the second house cleaned and trained so as to be ready for starting by the end of the present month. If at all dry give trees in succession and late houses bountiful supplies of water at the roots. Watering is very often overlooked in such houses in winter time, and the borders allowed to get dry as dust, the result often being, when the houses are started, that many of the buds fall off; and it is then a cause of surprise and annoyance as to why they should do so. As I have before stated, if the borders are thoroughly well drained it is not an easy task to over-water them. Keep succession and late houses as cool as possible for the present. *J. Wallis, Keele Gardens, Dec.* 4.

Plants and their Culture.

Stoves.—We are getting a good display now with the brilliant bracts of the Poinsettias; and the Euphorbias are also advancing into flower. In a mixed collection of stove plants it is not an easy matter to adapt the atmospheric moisture to suit the requirements of all the subjects that have to be grown. Our stove is (on the whole) kept somewhat too damp to suit such as those just named; but by striking a medium course we succeed fairly well. If we had Pine-stoves instead of pits, these would be just the places, in our opinion, wherein to properly develope both Poinsettias and Euphorbias at this season of the year. The best of the latter that we ever saw were grown in such places, the drier condition of the atmosphere being just suited to their wants. Ipomœa Horsfalliæ is now flowering freely on the roof of our stove; it is a showy plant for this season of the year, and unique both in character and colour. It should be more grown than is frequently the case. It thrives well at the dampest end of our house, enjoying a freedom from insects, scale alone excepted. Thyrsacanthus rutilans is beginning to make a show with its pendent racemes. It has struck us that this would be an excellent plant to train up rafters in a light stove, as in such a manner it would display its flowers to perfection. Eranthemum pulchellum is also beginning to be useful, Blue flowers are somewhat scarce now, and this easily grown plant supplies us well at this season and onwards, thriving, as it does, under rather adverse circumstances; plenty of water at the root, however, is necessary. The flowers drop rather quickly, but hang on longer if not allowed to suffer for want of water.

Some plants of Gardenia intermedia that we kept in a cool vinery during the summer and on into October were introduced into the stove about the middle of the latter month. They had been, in fact, crowded out of the stove, and had to shift the best they could in a house open day and night. The sudden change into the stove has given them an impetus beyond our anticipations being now pushing up a good crop of flowers that promise to last well into the New Year. Those plants that were kept the summer through in the stove are now apparently at rest, whilst their neighbours are making a better use of their time. Begonia insignis is now coming in useful. We have some old plants in an intermediate-house that are now gay with bloom. The young stock at present in pits is also advancing, and will be in good form in a few weeks. B. metallica is also an excellent kind, not so floriferous at this time of the year certainly, but the metallic lustre of its foliage causes the same to be valuable in floral decorations, with light coloured flowers especially. In both the stove proper and the intermediate or cool stove it is a matter of great importance at this time to remove all decaying flowers and foliage as they fade. This can easily be done as the watering is being done from day to day. Should cold winds or frosty weather ensue the night temperature could be dropped with advantage 3° to 4° below the figures given in a previous Calendar.

Forcing Plants and Bulbs.—This is a department that will now require more attention, although we sometimes think it is carried to excess in many instances. Disappointment is often caused by forced flowers so quickly fading; which may be caused by the flowers having been developed too rapidly in an unduly high temperature and consequently have a lack of durability about them. Forced plants should not be exposed to cold draughts when in bloom, although many are hardy when under natural treatment, yet when forced greater care is necessary for their well-being. For early forcing, those species and varieties of each genera should be chosen which flower the earliest in a natural way. Of the Indian Azaleas—A. narcissæflora, A. indica alba, and A. Borsig, are three of the best whites. With striped flowers A. punctulata, A. Roi Leopold alba and A. vittata elegans are all good; whilst of those with self-coloured flowers, A. Roi Leopold, A. Stella, and A. amœna with A. obtusa, are all valuable varieties. Any of these, if well forward in bud will soon make a start when placed in heat and moisture. Ours are in a vinery at work, where also are Deutzia gracilis and Tea Roses for early bloom. Had we a good supply of Oak leaves and the convenience also, we would use them as a gentle incentive to the Roses, also for early Lilac and Spiræa (Astilbe) japonica. Cocoa-nut fibre refuse is the best plunging medium for Lily of the Valley where the temperature can be maintained by hot-water pipes. Of the latter plant use crowns yet awhile in preference to clumps, covering the pots with the "refuse" to aid the flower-spikes in getting the start of the leaf-growth.

For early forcing Staphylea colchica is a plant that can be depended upon, so also is Rhododendron Early Gem. Azalea mollis and the larger types of Rhododendron had better be brought on very steadily at this season. Helleborus niger should also be advanced rather slowly, and then be had in bloom by Christmas without much trouble. Amongst bulbous plants that have been brought into prominent notice of late years, none, we think, surpass the Roman Hyacinth for early forcing. In fact, it scarcely requires forcing to be had in bloom during November and December if procured and potted up as soon as the first importations arrive. Having had plenty of flowers from other sources ours have been retarded a bit, to have the main part in good order by the end of the month. Tulips of the Duc Van Thol varieties should now be advanced in heat and be kept as near the glass as possible, in order to have them in good condition by the same time. Paper-white and the Roman Narcissus are both useful now; the first-named is in our opinion the more valuable of the two. Gladiolus Colvillii alba is another bulbous plant that has rapidly gained favour. These should be obtained and potted up without delay. Six strong bulbs in a 6-inch pot will give a gay display when in bloom. In potting use good mellow loam and well decomposed leaf-soil or spent Mushroom manure, placing them afterwards in a cold frame from which the frost is excluded. When growth is well advanced they can be brought on for flowering in succession. *James Hudson, Gunnersbury House Gardens, Acton, W., Dec.* 4.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Dec. 10	Smithfield Club Show opens. Final Sale of Dutch Bulbs, at Protheroe & Morris' Rooms. Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Dec. 11	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M. Sale of Dutch Bulbs, Home-grown and Japanese Lilies, at Stevens' Rooms.
WEDNESDAY,	Dec. 12	Sale of Lily Bulbs, Camellias, Azaleas, &c., at Protheroe & Morris' Rooms. Sale of Plants and Bulbs, at Stevens' Rooms.
THURSDAY,	Dec. 13	Sale of Imported Orchids, at Stevens' Rooms.
SATURDAY,	Dec. 15	Sale of Roses, Fruit Trees, Hardy Plants and Bulbs, at Stevens' Rooms. Sale of Roses and Bulbs, at Protheroe & Morris' Rooms.

IN nothing is the skill of the real gardener better shown than in his fertility of resource under apparently disadvantageous circumstances. A practical man, properly so-called, will know how to produce results with limited means, and how to avail himself of unconsidered opportunities. By their aid he places himself on a level with the man who has the choice of the best means and appliances, and we need not say which of the two is most likely to gain and retain the confidence of his employer. Let us take a familiar illustration. We all know the supreme convenience and efficiency of the modern horticultural heating and ventilating apparatus, the ease with which they may be managed, the certainty with which, with due care, a proper temperature may be kept up at will—high in this compartment, low in that; and we are familiar, too, with the cost of construction of such arrangements, and are not insensible to the not altogether pleasant features presented by the coal merchant's bill. There must, moreover, be a great many places where the method cannot be used, either because of its cost, or from want of knowledge, or other cogent reasons. Here, then, the dung-bed becomes particularly useful, and it is just one of those adjuncts to successful gardening everywhere which our young men are least skilled in the use of. They see the evils resulting from an escape of hot steam from a heating apparatus into the air of a glasshouse, but they fail to discover that the steam from fermenting dung and leaves, or from either alone, is still more injurious to all vegetation.

How often have we had a two-light box full of cuttings, Melons and Cucumber plants, totally destroyed between night and morning because the men who did the covering up left no air on at the back of the frame, or let the mats hang over when air had been given, and so prevented the escape of the ammonia-laden vapour, or let the steam get in from the linings by allowing the bottom end of the lights to project at all. These seem trifling details of management, and are doubtless thought to be of little moment; but their omission costs us valuable time and much vexation. The various operations carried on in these frames, that require such careful watching in the first few weeks after making, are, of course, much safer performed in properly constructed propagating pits; but plants do not make such rapid progress and healthy growth at the same time in them as in the dung-frame; and for the propagation of bedding plants, stove shrubs, and herbs, no better medium can be found, providing they receive requisite attention.

We found a steady night temperature of 70° Fahr., with a 10° rise in early winter during the day, or less in the day if the weather were cloudy, quite enough for good results—anything higher than these figures leading to spindling in young plants and cuttings. As the days lengthened the day warmth was slightly increased, but not the night temperature, and shading was given, with the twofold reason of aiding in keeping down the warmth to about 80°—85°, and so doing away with the need of giving much ventilation, and of preventing flagging. This matter of shading and ventilating requires careful watching at all times during the day, especially in cloudy weather with occasional bursts of strong sunshine; in perfectly bright weather, or in cloudy, the attention demanded is very much less. It is always best to have the frames as handy as possible to the potting-shed, and not to have too many of them in going order at any one time if accidents are to be avoided.

The bottom-heat of a well made hotbed will vary from 80°—95°, being usually hottest in the middle at the first; but as the heat declines, it must be kept up by linings of well sweetened manure, when the renewals by linings will be found to make the sides the warmest, and it is here that great caution must be used in sinking cutting pots, &c. The hotbed material inside the frame is usually covered with thin boards or large roofing slates, and on this about 8 inches of finely sifted leaf-mould is placed in which to plunge anything. Tan, or sifted coal-ashes, are sometimes made use of; but for pleasant handling, and as a material that plants take kindly to, and which retains warmth very well, and keeps sweet and free from fungoid growths, the former will find most advocates. In tan grows that filthy slimy fungus growth, Æthalium—so extremely interesting to botanists, so detestable to gardeners—that will overrun plants and cuttings in a night, and generally to their total destruction; for this, next to a thorough clearing out of the tan, salt and sulphur strewed about are the best remedies. Weak carbolic acid would answer the purpose as well. Besides the subjects already mentioned that do well in dung-beds, Poinsettia eyes, Vine eyes in turf squares or in pots, varieties of Ficus, Rhophalas, Dracæna tubers and stem cuttings—those also of Dieffenbachias and tree-like Caladiums, such as C. violaceum, C. nymphæfolium; Epiphyllum cuttings and grafts. Seeds of hardy things, such as saladings, Celery, Cauliflowers, Cabbages, seeds of herbs, can be well raised in them, as well as those of half-hardy and tender annuals; but the greatest attention must be paid to seedling plants of all kinds that are raised with their aid, that they do not remain an hour longer than is necessary to germinate them in the case of the hardier things, and but little longer if tender, or the seeds of warm-house plants—the first being gradually inured to a temperate mildness, and the latter to a less warm one with more copious ventilation than had been given in the dung-frame.

As a hotbed cools down, and the greatest pressure of spring work approaches an end, it can be utilised for the propagation of Selaginellas, young seedling Ferns, and for Balsams, Primulas, growing young stove stuff, and a great variety of purposes, in which genial warmth, with a mild bottom-heat, is essential to or promotes healthy growth.

After the hotbeds have been so far utilised for the purposes mentioned above their usefulness is by no means exhausted, inasmuch as they will serve the needs of propagation of a class of subjects requiring but a very mild warmth to induce the formation of roots. But still, before they can be put to this use, the whole of the material should get a thorough turning over, and have its failing warmth renewed by the addition of a few fresh leaves, if these are procurable, or some sweetened stable manure if not, but the leaves are the most to be preferred. This bed will be ready for use almost immediately after making, but the same careful watchfulness, with regard to ventilation, and guarding against the dangers from heated vapour, as in the early winter hotbed. Some ammoniacal vapour will be certain to arise, but it will usually disappear in a few days, unless the proportion of new material was in excess of what was needed. Such beds are capital places in which to propagate China Roses, Fairy Roses, Fellenberg Noisette, in June or early in July, from half-ripened wood; Coronilla glauca, Fabiana imbricata, Cassia, Myrtus, Phlox decussata, Carnations, Camellia stocks for grafting purposes; and last, Aucubas of all sorts, the Weigelas, Deutzias, and the woody Spiræas. The stem cuttings of Bamboos, Yuccas, and Arundo can also be inserted in such lukewarm beds with great advantage. By the time these last have had their roots tacked on them the old hotbed will be about worn out, and the materials almost rotten enough to wheel on to the kitchen garden quarters. And no better material exists for the production of succulent vegetables than these decayed old beds. The heat and complete mixing of the dung and leaves that has taken place will have destroyed all weed seeds and noxious insects and their eggs. A great many hundred plants will have been propagated or got a start in it, and beyond the manual labour required and the watchful attention bestowed on it—and which in itself is a good useful chapter on gardening—it will not have cost a farthing in fuel, and is still of value as a manure wherewith to raise other vegetable productions.

—— THE WEEK.—We have been taken to task, as we expected we should be, for the size of the Hellebore blooms figured in our last issue. The artist did not choose the smallest, but he certainly did not exaggerate those he drew. Some that we have seen from Mr. TYERMAN are scarcely equal in size to those figured. The nectaries given below are yellowish at the tip, the yellow colour becoming deeper and more diffused as the flowers get older. Many of them, moreover, show minute purplish spots.—Professor HUXLEY's inaugural address as President of the Royal Society was marked by dignity, large-heartedness, impartiality, and eloquence, which augurs well for the destinies of the distinguished Society over which he is called to preside. This sentence should be laid to heart by "*Cui bono*" people:—"The history of natural knowledge has shown that, as in the moral world those who seek happiness from well-doing are less likely to obtain that reward than those who try to do well without thinking what may come of it; so in the world of science, those whose vision is fixed on useful ends are often left poor and bare, while those who strive only after the advancement of knowledge scatter riches along their path for the whole world to pick up." Some will say that they want to pick them up for themselves, and will turn with more sympathy to those passages in which the President spoke of the speedy completion of the great technical college established by the well-directed munificence of the City and Guilds of London—a college wherein masters, managers, and foremen of works will be enabled to obtain thorough instruction, not only in scientific theory, but in the essential principles of practice, and the poorest working lad in a manufacturing town, if he have ability and perseverance, may be brought within reach of the best technical education that is to be had.—The Rev. M. J. BERKELEY has been elected an Honorary Fellow of Christ's College, Cambridge. Mr. BERKELEY was a Senior Optimist in 1825, in which year he took his degree. The College has been rather a long time in paying this honour to one of the most distinguished of their body.—Miss HERSCHEL calls attention in *Nature* to a practice that it seems humble-bees have of piercing the calyx and upper end of the corolla-tube of the blue-flowered Salvia patens on its right hand side, *i.e.*, the right side of the flower as it looks straight out from the stem, whatever the aspect in which the plant was growing, or from whatever direction the insect arrived at the flower. It is too late in the season now to verify this, or attempt to ascertain the reason.—A correspondent of the *Agricultural Gazette* speaks in glowing terms of the Red Millet, Digitaria sanguinalis, for cultivation on dry sandy soil. The grain affords excellent food, and the whole account is so "rosy" that we hope it may be tried here. We fear, however, that it may be found that our summers are not hot enough for it. Still even for forage it ought to be useful, growing, as we are assured it does, where every other kind of farm plant fails to give a crop.—M. LUCIEN LINDEN has, we are informed, been nominated by the Emperor of BRAZIL, Knight of the Imperial Order of the Rose—a very appropriate

recognition. There is perhaps a chance for some of our Chrysanthemum growers being honoured by admission into the Japanese Order of the Chrysanthemum.—Mr. Harrison Weir has published a birthday book entitled *Every Day in the Country*, on which we shall have more to say another time. For the present we merely say, Buy it.—It is but too clear that we have not got to the bottom or anything like it of the Potato disease. No sooner is an assertion made by one competent authority than another equally competent refutes it. Here is ample field for the "endowment of research." To expect people to devote their lives to such minute research, demanding the utmost skill and patience of a trained observer for nothing but the privilege of being criticised is not reasonable. Meanwhile one practical outcome, whatever view be taken, is that we bring our punishment upon us by our neglect and want of care in destroying sources of infection.—The first number of *Woods and Forests* has been issued, devoted to the interests of the planter for timber or for ornamental purposes. The contents are varied and interesting.

—— Picea pungens (the Blue Spruce).—One of the very handsomest, if not the handsomest of all the Spruces, is that generally known in this country as Picea Engelmanni glauca, or sometimes as P. Parryana. As Dr. Engelmann has himself pointed out in our columns (February 4, 1882, p. 145), this latter name is a misnomer. The beautiful Blue Spruce of the Rocky Mountains never occurs in forests, but is scattered along the banks of mountain streams. "Old trees become bare and unsightly, but the large pale cones in their tops are a very conspicuous feature." When young, as all the plants in this country are necessarily, there is no more beautiful object for symmetry or colour. Miss Bird, in her *Lady's Life in the Rocky Mountains*, speaks of it as the most attractive tree she had seen, beautiful alike in shape and colour. "It looks," she continues, "as if a soft blue silver powder had fallen upon its deep green needles, or as if a bluish hoar frost, which must melt at noon, were resting upon it." The true Engelmanni forms extensive forests at elevations of from 9000 to 11,000 feet and upwards, and has pubescent, not glabrous, branchlets, blunter leaves, cinnamon coloured, not greyish bark, and smaller cones. Messrs. Veitch speak of it in their *Manual* "as the most ornamental of all the American Spruces; its remarkable colour and beautiful outline render it one of the best of Conifers for the lawn." We have, of course, only seen small specimens, but have now observed it in many places, and can quite confirm everything that has been said as to its singular beauty. Our illustration (fig. 130) was taken from a specimen growing in Professor Sargent's garden at Brookline. The tree in question measures 16 feet 7 inches in height, and was raised from seed collected in Colorado by Dr. C. S. Parry in 1862.

—— Herr Max Leichtlin. — Sir Joseph Hooker dedicates the current volume of the *Botanical Magazine* to Herr Max Leichtlin, of Baden-Baden, in recognition of his eminent services to horticulture, and the esteem which the intelligent gardening world of Europe entertain for his knowledge, skill, and enthusiasm, and the liberality with which the treasures of his garden are distributed among his fellow horticulturists.

—— A New Double Abutilon. — This is announced by Messrs. Peter Henderson & Co., seedsmen, of New York. It is a sport from the well known variegated form Thompsoni, and while retaining the handsome mottled yellow and green foliage of the type, it bears perfectly double flowers, so double, indeed, as to resemble in form a double Hollyhock. The drawing represents an ordinary Abutilon flower, with the whole of the inner portion completely filled up with a mass of small petals. The broad segments forming the circumference of the flower are similar to those of Thompsoni. It is to bear the name of Thompsoni plena.

—— Cyphomandra betacea.—This is a Brazilian Solanaceous plant, of considerable value from a decorative standpoint, particularly in large structures where the plant can be allowed to form a tall stem. The noble foliage and the long stalked pendulous clusters of large reddish egg-shaped fruits form a striking combination, and the species is well worth growing for the decoration during the winter months of the conservatory. It is easily grown, and is probably all the better for being placed in the open air during the summer. A plant in fruit is now to be seen in the Temperate-house at Kew. The fruits are sometimes to be met with in Covent Garden under the erroneous name of Granadillas.

—— New Tea Rose, Sunset. — This is announced by Messrs. Peter Henderson & Co., and it is said to have originated in the winter of 1880 in the form of a shoot from a plant of Perle des Jardins. But one cutting was secured, and all the plants obtained from it have since held its distinctive character without any variation. It is identical in every respect with the variety from which it has sported, only that the colour, instead of being of a canary-yellow, is of a rich tawny shade of saffron and orange, similar, but deeper than the colouring of Safrano or Madame Falcot. It has all the vigour and freedom of Perle des Jardins, but the colour of the young foliage is of a deep crimson, much deeper than in the case of the type.

—— International Health Exhibition.—A circular has been issued respecting the International Health Exhibition which it is proposed to hold during next year in the buildings at South Kensington erected for the International Fisheries Exhibition. The object of the exhibition will be to illustrate as vividly, and in as practical a manner as possible, food, dress, the dwelling, the school, and the workshop, as affecting the conditions of healthful life, and also to bring into public notice the most recent appliances for elementary school teaching and instruction in applied science, art, and handicrafts. The influence of modern sanitary knowledge and intellectual progress upon the welfare of the people of all classes and all nations will thus be practically demonstrated, and an attempt will be made to display the most valuable and recent advances which have been attained in these

Fig. 130.—the blue spruce (picea pungens) in prof. sargent's garden at brookline.

important subjects. The exhibition will be divided into two main sections—division I., Health; division II., Education; and will be further subdivided into six principal groups. In the first group it is intended specially to illustrate the food resources of the world, and the best and most economical methods of utilising them. In the second group dress, chiefly in its relation to health, will be displayed. In the third, fourth, and fifth groups will be comprised all that pertains to the healthful construction and fitting of the dwelling, the school, and the workshop; not only as respects the needful arrangements for sanitation, but also the fittings and furniture generally in their effect on the health of the inmates. The sixth group will comprise all that relates to primary, technical, and art education, and will include designs and models for school buildings, apparatus and appliances for teaching, diagrams, text-books, &c.

—— WINTER-FLOWERING PLANTS.—We have heard it said that Primulas, Cyclamens, Cinerarias, and other plants that come into flower in late autumn and early winter, are much later than usual; and inquiries are made for the reason for this. Surely there is no need to seek far for it. In consequence of the unusually mild open weather which prevailed through a good portion of October and November, only just enough fire-heat was necessary to keep out damp from plant houses; there were no antagonistic influences of frost, wintry winds, and a low temperature beating against the glass, and requiring fire-heat to keep them at bay. Now that the weather is cooler more fire-heat is required, and houses are becoming gay with blossom. The head of bloom will not be less fine or numerous in consequence of this retardation. Primulas, Cinerarias, Cyclamen appear this season to be very healthy, robust, and clean, and they will be aglow with blossom by the time the Christmas bells are ringing in that festive season.

—— MELON SEEDS.—To few persons will it occur that Melon seeds have any other use but to produce plants, and failing that desideratum then to be thrown to the fowls or the rubbish heap. Some cynics will perhaps suggest that dead seeds may still be useful in helping to swell the bulk of a good live sample, and if thus reducing the percentage of growth for the purchaser, at least renders them to the vendor not absolutely profitless. But that is the relic of a legendary age, when seedsmen were regarded as a species of brigands or swindlers, and when, if popular report was true, the fire and faggot were hardly good enough reward for all their misdeeds. Those, however, were in ante-pure trade days; but the Seeds Adulteration Bill has changed all that as by a stroke of a Harlequin's wand, and where dishonesty once reigned supreme now all is virtuous, upright, and correct. Clearly, therefore, Melon seeds could not be employed for mixing, and nothing remains but to throw dead seed away. We have, however, but just recently seen some exceedingly pretty imitation gold ornaments for ladies' wear in the making of which Melon seeds play an important part. The conception is, like so many of our insular notions, borrowed, and in this case from the Cape, where knick-nacks of this kind are largely manufactured, Melon seeds being there very abundant. Necklets, bracelets, eardrops, and other pretty ornaments, are made in various pleasing patterns, the seeds being deftly pierced at either end, and then, in combination with gold beads and other mountings, united into various forms by means of fine wire. The seeds thus used are all of even size, clean, and free from blemish, but have a golden hue furnished by dipping them in saffron-water. By daylight the golden imitation is good, by artificial light it is perfect. The ornaments are made by a lady as a means to a livelihood, and exhibit in a singular way how useful articles may be made out of material that we have esteemed valueless.

—— PHILAGERIA VEITCHII.—Since this pretty plant was described and figured in the *Gardeners' Chronicle* in 1872, p. 358, nothing much has been heard of it. Probably this is because, in spite of its beauty and the great interest attaching to it, not many cultivators have had the good luck to flower it. A plant at Kew is now bearing a single bloom. In colour this is a bright rose—that is, the overlapping slightly unequal petals are of that shade, but the glaucous, fleshy, boat-shaped sepals are of a rosy-purple hue. Whilst the foliage is nearer to that of the Pepino, Philesia buxifolia—which, by the way, was the pollen parent—the climbing habit approaches more to the seed-bearing parent, Lapageria rosea. This very interesting hybrid—one of a comparatively small number which can claim to be crosses between distinct genera—was raised in the establishment of Messrs. VEITCH, and the name of Philageria was given to it in order to indicate its hybrid origin. If only some means could be found to force this pretty plant to flower as freely as either of its parent, sit would doubtless be pretty generally grown.

—— EUGENIA APICULATA. — When grown in pots, and properly managed, this makes a very good cool conservatory plant, in the summer being clothed with rather large white Myrtle-shaped flowers, and during the winter months laden with glossy black fruits somewhat less than those of the common Myrtle. There are nice plants now in fruit in the Winter Garden at Kew.

—— OXALIS CRENATA.—When this plant was introduced from Peru more than half a century ago, it was expected it would become an object of cultivation in this country for its tubers, and also for the stalks of its leaves. It was for a time cultivated as a culinary plant, but the tubers were small, though of a mealy consistency, and at that day considered by some as a good substitute for the Potato. It may be supposed, owing to its cultivation having declined, that it was not found either advantageous or profitable to devote any attention to their culture as a vegetable. The tubers are described as being yellow, of the size and shape of small Potatos, farinaceous, and with a slight and pleasantly acid flavour. In vol. i. of *The Gardeners' and Foresters' Record*, an illustrated monthly periodical, devoted mainly to fruit culture, and conducted by JOSEPH HARRISON, there is an account of a method of culture of Oxalis crenata carried out by a Mr. J. MANNINGTON, of Uckfield. He had but one bulb, which was planted in the open air, and produced 362 bulbs, but they were small, and weighed but a few pounds. Mr. MANNINGTON stated that he found the leaves to be most excellent in a salad, and the stems made tarts of a better quality than Rhubarb. O. Deppei, which was introduced a little later, was also cultivated in gardens as a culinary vegetable, the root like a small Parsnip, but free from the acidity found in that of O. crenata. Now that there is so great a rage for novelties it is not improbable that O. crenata may be re-introduced. Old things in flowers are found coming to the fore, and being taken up with something like enthusiasm, and who knows but what there may be a great future in store for the Oxalis.

—— NORTH QUEENSLAND.—In conjunction with Baron F. VON MUELLER, Mr. C. F. CRESSWELL, of Sydney, proposes during the coming season to send an experienced botanical traveller to the far north of Queenland (the Johnson and Daintree Rivers), a locality hitherto almost unexplored, but which is known to be one of the richest districts of tropical Australia. New Orchids, Palms, Cycads, and Tree Ferns are expected to be found.

—— CHINESE PRIMULAS.—Mr. HENRY LITTLE, whose success with the Amaryllis, Pelargoniums, Cyclamens, &c., is so well known, has now in bloom at Hillingdon Place, Uxbridge, a number of plants of two of the most brilliant and high-coloured varieties of Primula sinensis probably ever raised. The lighter is vivid dark carmine in colour, and the darker purplish crimson. In view of the many weedy varieties of P. sinensis we constantly see in gardens, the idea naturally suggests itself that their places would be much better occupied by such lovely things as these.

—— ERYTHROCHITON HYPOPHYLLANTHUS. — The flowers of this species present a curious anomaly in appearing to spring from the underside of the midrib of the leaf. This is explained by the axillary peduncle being wholly adnate to the rib of the leaf, for a distance of a foot or more. This peculiarity is merely a morphological one, but owing to the irregularity of the parts of the flower REGEL altered the name to Hypophyllanthus Lindeni, thus separating it from Erythrochiton, as named by PLANCHON and LINDEN. The large leaves have double-jointed petioles, thus revealing their compound nature so generally characteristic of the Ruewort order, of which it forms part of a very distinct tribe. The flowers are white, and the calyx nearly so, contrary to that of E. brasiliensis, the original type having a red calyx, and giving rise to the generic name. A large plant which has been grown at Kew for many years, keeps opening its flowers at intervals during the winter and spring months, and may be seen in the Palm-house.

—— EUCOMIS BICOLOR. — That plants may be attractive without being associated with glaring colours is often evidenced, and the one under notice is an instance. The species generally have their flowers more or less of a green tinge, but E. bicolor scarcely deserves to be described as such, seeing that the flowers are nearly white with a lively violet margin bounding the segments as well as the dilated bases of the stamens. The flowers are also of a thick and waxy consistency, and under cool treatment, which they ought to have at all seasons, they will last in good condition for some considerable time. The foliage is ample, of a lively green, and, together with the crown of small ones terminating the stem, offers a feature that is by no means a common one amongst plants. It is comparatively new, having been introduced from Natal only about five years ago. A neat flowering specimen may be seen in the Cape-house at Kew.

—— SCUTELLARIA LEHMANNI.—The species of this genus requiring stove or greenhouse temperature are all more or less highly coloured, while some of them are of first class ornamental value. As a rule those from warm countries have flowers of some shade of red, scarlet or crimson, while the hardy ones are white or some shade of blue. S. Lehmanni, a new species from Ecuador, produces its flowers in a close terminal raceme or head, and the corolla, of a rich crimson, shading off into a deep magenta at the base, ultimately fades to that colour before dropping. Some young specimens in the stove at Kew commence to show what they are, but it would be premature at present to judge of their fixed habit by recognisable value for general decorative purposes. However, as far as mere inflorescence goes, it is decidedly ornamental, and if those racemens are at all freely produced the plant will be an acquisition to any stove. Seeds were obtained through the medium of St. Petersburg Botanic Garden early in the current year.

—— COOKED POTATOS. — We have ere now alluded to that particularly interesting feature of the Ealing autumn show, found in the judging of dishes of cooked Potatos. So much stress is laid by the promoters of the show upon this competition that it is continued yearly with the aid of several liberal prizes, which are competed for by the cottagers only, or rather by their wives, for just about noon these good ladies may be seen trotting in with their dishes of the floury comestible, well swathed in cloths, so that the cooked specimens may be presented to the judges steaming warm. Contrary to the doctrine of one whose opinion on Potato cooking is always to be regarded with respect, it is found that though thus encased in earthenware and cloth, for, perchance ten or fifteen minutes, the tubers do not seem to have suffered, or to be any way less dry or floury in consequence. Good cooking has of course something to do with the awards, but the most skilful of cooks could not turn out in the form of tempting dry floury balls a thoroughly bad Potato, and therefore both innate quality and flavour constitute points of the first importance. Fortunately for the judges there are two classes, one for kidney kinds and one for rounds, and as there are some nine or ten dishes in each class, the work is helped by the fact that some of the kinds turn out indifferently, and these set aside reduce the number to be tasted. Sometimes the elements of good cooking, flavour and general quality, are so evenly balanced that even the addition of a pinch of salt may turn the scale. The salt may be an important element in good cooking, but it hardly aids to the discovery of innate flavour, and therefore it is best in this case when absent. At the recent show, it was interesting to find that one of those much decried pretty smooth show Potatos, Radstock Beauty, with its touch of yellow in the flesh, was the best in the round class, but that of the kidneys, not all were named, and the designation of the first prize dish in that class was not forthcoming.

—— CYCLAMEN PERSICUM MRS. HENRY LITTLE. —This, the perfection of all high-coloured Cyclamens, is now sending up its flowers at Hillingdon Place, Uxbridge, where by high culture and careful seeding so much has been done to improve this class of plants. The flowers of the variety in question are

very large and broad petalled, in colour bright carmine-maroon, the very dark eye seeming to run through the whole of the flower, there being no defined limit between the colour of the eye and that of the petals. The fine collection of Cyclamens are being kept cool until the turn of the year, and they will no doubt put in an appearance and be much admired at the spring exhibitions.

—— BOROUGH OF HACKNEY CHRYSANTHEMUM SOCIETY.—The thirty-seventh annual dinner of this, the oldest Chrysanthemum Society, was held at the "Old Four Swans" Hotel, Bishopsgate Street, on Friday evening last, the President of the Society, E. SANDERSON, Esq., in the chair. No less than seventy members and friends were present. Silver cups were presented to the winners of various prizes at the recent exhibition at the Royal Aquarium, Westminster, and the cash prizes were also distributed to those of the successful exhibitors who were present. The Hon. Sec. afterwards announced that the sum of £155 18*s.* 6*d.* had been paid as prize-money for the year 1883. As an indication of the continued progress and success of the Society during the past year it was stated that over fifty new members had recently been enrolled, and that they came from all parts of the country. The Secretary also stated that the names of the Baroness ROTHSCHILD and of Mr. LEOPOLD DE ROTHSCHILD had been added to the list of patrons. An appeal was made for donations to the prize fund for the ensuing year, with the result that nearly £40 was subscribed. Votes of thanks to the officers for their services during the past year brought the meeting to a close.

—— WHITE LINSEED.—The *Monthly Magazine of Pharmacy* draws attention to an exhibit of "white Nugpur linseed," and oil expressed from it, in the Indian section of the Amsterdam Exhibition. This linseed is of a lightish yellow colour rather than a white, and the following account is given of it in the catalogue of the Indian exhibits:—"Prof. A. H. CHURCH, in a report on a series of experiments on this seed, states that the proportion of oil which it contained was found to be 45 per cent.—an extraordinarily high proportion. No record of so large a percentage in any kind of linseed is accessible, the range being from 32 to 43 per cent, and the average about 36. He considers that this oil will be found peculiarly suitable for the purposes of the artist in oil painting, and in grinding with the highest qualities of white house paints, and thus it will secure a ready market, and fetch a high price." Commenting on the supply of this Linseed, and the price likely to be realised for the oil, our contemporary points out that the seed as harvested is not all white, but that it has a large percentage of the ordinary brown seed mixed with it, from which it can be freed only by careful overhauling and picking, which labour must entail an increase in the first value of the seed. By carefully sowing the white seed only, a crop might be raised which would perhaps yield entirely white seed, in which case a profitable variety of Linseed would be established.

—— GUZMANNIA MELINONI.—The two or three species ascribed to this genus of Bromeliads are neat habited and moderate sized plants allied to Nidularium and Canistrum. As a rule, the flowers of the order are showy, often gorgeous, but of short duration, and the Guzmannias are no exception to this common inheritance, but the inflorescence is rendered highly attractive by a mass of scarlet bracts that imbricate in a close club-shaped head, and persist for some considerable time. The yellow flowers are showy enough in themselves, but being shortly tubular and partly hidden by the bracts their ornamental value is of secondary importance. The plant was obtained this year from the "Compagnie Continentale d'Horticulture" of Ghent, and is to be seen in the stove at Kew. It forms a pretty companion to G. tricolor, which latter presents a peculiar combination of colours. The lower bracts are green, with dull purple longitudinal stripes and markings along the centre, while the upper ones are bright scarlet. The perianth itself is white.

—— SAXIFRAGA CORTUSÆFOLIA.—Every plant that adds to the freshness or interest of the outdoor garden at this season is more or less welcomed, according to the individual enthusiasm of the proprietor or cultivator of such garden. The more these can be led to appreciate the simple beauty of the majority of hardy plants, and take an active interest in them, the more freely will these plants be circulated and distributed over the island. The Saxifrage under notice was introduced a year or two ago by Messrs. VEITCH & SONS from Japan, and a short acquaintance with it will suffice to discover its relationship with some others from that quarter of Eastern Asia. These are S. Fortunei, S. sarmentosa, and S. cuscutiformis; and all four are notable in the genus by the irregularity both in the shape and size of their petals. The leaves in all are more or less round, or reniform and lobed, differing, however, in minor particulars, while S. cortusæfolia is distinguished from S. Fortunei by the entire petals, which in the latter are somewhat serrate or toothed, and broader. Both flower at the same time—that is, during October and November—and are in every way desirable for the rock-garden. S. cortusæfolia was recently figured in the *Botanical Magazine*, t. 6680, and at present is flowering on the old rockery at Kew.

—— THE MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY'S Spring Exhibitions for 1884 are fixed for March 18 and 19, and April 29, at the Town Hall. The Grand Annual National Exhibition will be opened at the Old Trafford Gardens on May 30; and the National Rose Society will hold an exhibition there on July 19. The usual autumn Chrysanthemum show will be held in the Town Hall on November 25.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Dec. 3, issued by the Meteorological Office, London:—The weather, with the exception of a few brief clearances, has been cloudy or dull, with rather frequent falls of rain in most places, and of hail or sleet in the north and north-east. A brilliant appearance of the sky at the time of sunrise or sunset has again been general. The temperature has been very high for the season in all districts, the excess over the East and South of England being 4°, and elsewhere 5° or 6°. The maxima, which were registered on November 28, varied from 56° in "Scotland, W.," to 58° in most other districts, and 59° in "Ireland, S." The minima were recorded at the commencement or towards the end of the period, and ranged from 31° over eastern and central England to 36° in the north of Ireland. On November 29 the temperature in "Scotland, E.," did not fall below 50°. The rainfall has been slightly more than the mean in "England, E.," "England, N.W.," and "Ireland, N.," and about equal to it in the "Midland Counties," but a little less in all other districts. Bright sunshine has been very deficient in all places, the percentages of possible duration varying from 24 in the "Midland Counties" and 22 in "England, E.," to only 6 in "Ireland, N." Depressions observed:—During the earlier parts of the period pressure was highest in the south-eastern part of our area, while depressions continued to travel eastwards or north-eastwards off our extreme western coasts, but towards the close of the period the highest pressure was transferred to the south-westward of our islands, and depressions began to move south-eastwards over Scandinavia and Denmark. The wind, which was at first generally moderate or fresh from between S.W. and S., subsequently shifted to the W. or N.W., and, though at first moderate in force, gradually increased, until on the night of December 3 it blew a fresh to strong gale on nearly all our coasts.

—— GARDENING APPOINTMENTS.—Mr. ELLAM has been engaged to succeed the late Mr. FLEMING at Cliveden.—Mr. RINTOUL, lately Gardener at Dover House, Roehampton, as Gardener and Bailiff to C. A. HANBURY, Esq., Belmont, East Barnet, Herts; and Mr. SAMUEL HICKS as Gardener to the Rev. G. B. MOORE, Tunstall Rectory, Kent.—Mr. G. BREWER, late of the Royal Horticultural Society's Garden, Chiswick, as Gardener to ARTHUR USSHER, Esq., Villa Selvosa, Cannes, France.—Mr. F. COOKE, lately Stove Plant Grower to Messrs. IRELAND & THOMSON, as Gardener to Sir ALEXANDER JARDINE, Bart., Jardine Hall, Lockerbie, N.B.—Mr. GEORGE MCELROY, for the last three years Foreman to Mr. MCPHAIL, at Markree Gardens, Sligo, as Gardener to the Earl of KINGSTOWN, Kilronan Castle, Co. Kildare.

HOME CORRESPONDENCE.

Muscat of Alexandria and Mrs. Pince's Black Muscat Grapes.—Recently a friend of mine, Mr. R. Ellis, of Valding, brought me some bunches of the above. The Muscats were very rich, both in colour and flavour, though somewhat smaller, as were also the berries of Mrs. Pince, but this latter was extremely good in colour, being an even very dark purple, without the green that is usually seen at the base of the fruit, and there was also more than the ordinary amount of bloom, which was of a bluish tint. On inquiry, I learn that both had been grafted on the Sweetwater, which I should say most likely caused the variation. The foliage was good, the leaves being large and leathery. I am thinking of grafting the Muscat of Alexandria on the Duke of Buccleuch, the Champion Muscat, Venn's Black Muscat, and the Madresfield Court, with the view of ascertaining whether the stocks will have any effect on the scions, as is the case in the Apples and Pears. As they are all in one house and one border, with the same temperature, I am inclined to think this will be a fair test. The Vines are about six years old: will any one kindly tell me the best time to graft them? [In spring, when the stock is in growth, and the buds of the scion just on the move. ED.] I intend having the scions all from one Vine. I have the Trentham Black grafted on the Mill Hill Hamburgh, without there being any perceptible difference between it and the one on its own roots in the same house. I think the Trentham Black a delicious Grape, and I am much surprised it is not more grown. Certainly it does not set well, unless kept warm and dry at the blooming time; still it colours well, is a good shape, and the flavour is distinct. *Harrison Weir, Weirleigh, Brenchley, Kent.*

Chrysanthemum Show Schedules.—Now the Chrysanthemum shows are over, I would suggest that in the preparation of next year's schedules prizes should be given for cut blooms shown with foliage as grown, say with stems 6 inches above the boards, and shown in variety; say the back row of Japanese varieties, the middle row of incurved, and the front row of large Anemone-flowered sorts. These would have a splendid effect when arranged on the exhibition table, and a class of this character would give all good Chrysanthemum growers the same chance of winning, whereas, as the prizes are given now, those who can dress their blooms the best have a great deal the best chance of winning. Besides, it would look much more natural to see the flowers shown with their foliage, and without cups or collars to hold them together. *G. Stevens, F.R.H.S., St. John's Nursery, Putney.*
There can be no objection to classes being made on the lines suggested by Mr. Stevens, but that such classes will have the effect he anticipates we beg leave to doubt. The growers who can produce the largest and best filled blooms will win the prizes then, as they do now, independent of any dressing. ED.]

Pinguicula hirtifolia.—I enclose a flower of Pinguicula hirtifolia, plants of which have kindly been sent from the south of Italy by Mr. Neville Reid. It promises to be one of the prettiest as yet introduced, as the plant from which the flower was gathered was sent by post from Italy but a few weeks ago. It is probably not so large as the blossoms of plants well-established. The blossoms sent from Italy seemed much larger. *C. M. Owen.*

Glazing.—I was rather surprised upon looking over your last number to find that no one had anything to say respecting Mr. Baines' letter on glazing, a subject that I am very much interested in. I should like to know the opinions of those who have adopted dry or semi-dry glazing as recommended by Mr. Baines. If dry glazing answers so well, it would be of great advantage to know whose system is the best for the various horticultural buildings. As I am about to erect some glass houses, I would very much like to glaze them without much or with no putty. I think builders of greenhouses would derive great advantage from knowing how many houses have been glazed upon the dry system during the last few years if the information could be given. I am inclined towards half-dry glazing at present, but would very much like to know the opinion of others. *Hortus.*

Lapageria alba.—Too much cannot well be said in praise of this extremely beautiful conservatory climber. As I write there are in the conservtory here twenty-three fully expanded flowers on the point of a young shoot and within a space of 15 inches. These bell-shaped, pearly-white flowers when contrasted with the crimson flowers of Tacsonia Van Volxemi depending gracefully from the roof of our conservatory, are very effective. The flowers, which are produced from the axils of the leaves, are also very useful and suitable for bouquet-making as they wear well, and flowering shoots keep fresh a long time after being cut with their ends in water. Our plants, together with L.

rosea (which is also flowering freely), Jasminum grandiflorum, and Tacsonias exoniensis and Van Volxemi, is growing in a narrow well-drained border composed of peat and sandy loam in about equal parts. *H. W. Ward, Longford Castle, Dec.* 4.

Chou de Burghley.—I am sorry to find so many different opinions existing about this new vegetable. This is the third season I have grown it, and am quite satisfied with it as a winter green or as a Cabbage. I have tasted it in every stage of growth up till the end of April, but don't think it improves by allowing the head to burst through. It should not be sown too early in the southern districts, and should be thoroughly boiled. I have had some small ones cooked to-day (December 3), and after an hour's boiling can say that I want nothing better in the shape of Cabbage or greens. I feel bound to make this statement in justice to myself as well as Mr. Gilbert, as with others I gave a testimonial in its favour, which I now confirm. I did not come to that conclusion till after growing it two seasons, and also seeing a large breadth growing for seed at Burghley, where vegetables, as well as other produce can, and do, grow to perfection. *W. Divers, Wierton, Maidstone.*

—— I think Mr. Gilbert (p. 696) has put "a settler" on his favourite Chou by telling us that, to have it tender, it must be boiled "one hour and twenty minutes," It ought to be good after the expending of such an amount for fuel in cooking it; at any rate, this cost will prove prohibitory to any but wealthy folks undertaking its cultivation, and it is quite possible that even wealthy folks' cooks will soon tire of a Cabbage that takes eighty minutes to boil, and so there will be an end of the Chou de Burghley. Cabbage, Sprouts, and Coleworts, that are very little, if any, inferior, and that take less than the odd twenty minutes to cook, will certainly be preferred by *W. W.*

—— I have only had one season's experience of this vegetable, but I am so favourably impressed with its good qualities that I shall in future grow it more extensively. It has, in my opinion, few equals amongst Cabbages, and certainly no Savoy with which I am acquainted is worthy to be compared with it, as Savoys are invariably strong in flavour, whilst Chou de Burghley is mild and delicate; and I have heard it pronounced by excellent cooks as delicious. Independent of any qualities it may possess as a Broccoli, I think it will always hold its own as a Cabbage. *B. Ashton, Kirkham Abbey Gardens, York.* [We sent seeds to a friend in Wales, who is wholly disinterested, and the verdict was "superb." We can ourselves corroborate everything that has been said as to the delicate flavour of this vegetable, of which we entertain a high opinion. Ed.]

Fuchsia corallina and F. exoniensis.—Several correspondents have recognised the variety of Fuchsia figured at p. 565, under the name of F. exoniensis, as the true F. corallina. Mr. Lynch mentioned the latter name in connection with this variety, and I promised to see whether I could find any authentic records of the raising a variety so named. I did not find any such record, yet I ought to have mentioned the name, because, as I now see, I some years ago received the same variety from Mr. Ellacombe, Mr. W. W. Saunders, and others, under that name. My opinion was, that F. exoniensis and F. corallina were the same, or very closely allied; but there seems to be good evidence that I was wrong. In addition to the letters from "North Norfolk" and Mr. Wolley Dod, I have received through the Editor a communication from Mr. W. Divers, Wierton, Maidstone, together with specimens of what he has cultivated for between thirty and forty years as F. corallina. I think, therefore, this name is the correct one for the variety under consideration. Mr. Divers states that he has the true F. exoniensis still, but it is not in flower at the present time. I hope he will send a piece to the *Gardeners' Chronicle* when it flowers next season. Fuchsia corallina is included in a list of varieties published in the *Gardeners' Chronicle* for 1847, where, however, there is no description of it, and no record of who raised it. *W. B. Hemsley.*

—— If your correspondents can refer to the reports of the Chiswick or Regent's Park flower shows about the years 1843 or 1844 they will find that the late Mr. Pince exhibited Fuchsia corallina at one of those exhibitions, I forget which it was. I remember that Dr. Lindley, who was then Editor of the *Gardeners' Chronicle*, was so much struck with it that he begged a flower, and wore it in his coat. Fuchsia exoniensis was also raised by the same gentleman, I think in 1841 or 1842. I was for some years at the Exeter Nursery, but forget the exact time when either of the above Fuchsias were sent out. Your correspondent "North Norfolk," at p. 632, gives a correct account of the habit and colour of exoniensis. *J. Parr, Ledbury, Herefordshire.*

—— Some twenty-seven years ago, when I first took charge here, there were two tall standards of this fine old Fuchsia, trained on iron frames the shape of an umbrella, and very graceful and showy they looked; but as they were so top-heavy as to be fixtures and took up so much room they were done away with, and plants propagated from them planted out in the open. One of these is alive and in leaf and flower now, and I shall have great pleasure in sending Mr. Lynch cuttings, or I may be able to divide the root and forward him a plant, as it has several stems from the crown. *J. S.*

—— Fuchsia corallina has been grown in the York Nurseries for many years. I believe Mr. Backhouse originally brought cuttings of it from Wales. It is, indeed, a highly ornamental border plant. It frequently gets cut down by the frosts, but comes up again strong in late spring. *R. P.*

Plumbago capensis.—I send you a few sprays of Plumbago capensis cut from a plant growing on the back wall of a vinery here. It was planted four years ago, and has never since lost its foliage, but continued growing on through winter and summer, ignoring the usual period of rest. It has been continually blooming since last May, and will continue until about January. I find it one of the most useful things to cut from, especially at this dull time of the year, when such flowers are scarce. *Alfred Bishop, The Gardens, Wannock House, near Polegate.*

Root-growth.—Every now and then we meet with two Carrots or other roots entwined the one around the other. How this happened was not very obvious till Darwin's papers on root-growth made the matter clear. So soon as the young root protrudes from the seed-coat it begins to gyrate, or twist round and round, as probably all the growing tips of plants do wherever they are situate, provided circumstances

Fig. 131.—Spiral growth of carrot.

permit. Moreover, it appears from his researches, summarised by us at the time of publication, that the extreme tips of growing roots are sensitive to touch, and that the upper part bends away from the touching object. By a series of experiments carefully devised for the purpose, the roots were made to curve, form loops and spiral coils. This being so, it is easy to see how the appearance represented in our cut (fig. 131) is produced. Those who are interested in these very marvellous facts relating to the sensibility and power of movement of the roots, should consult Darwin's work on the *Power of Movement of Plants*, or the chapter on "Sensitiveness" in Dr. Masters' *Plant Life*. Our illustration was prepared from a perfect specimen sent to us by Mr. W. Cunliffe Brooks, M.P.

The Produce of One Potato.—I had one tuber of the White Elephant, about ½ lb. in weight, given to me last March, and I had it put in a pot and covered over to the depth of 2 or 3 inches and placed in a vinery in which there was no fire-heat. It sent up some shoots, which we took off and potted, putting the Potato back again in the pot, and it sent up other "spears," which we potted off in the same way, till we had four lots in all, or thirty-five plants. When fit we planted them out in two rows 4 feet apart, and 18 inches apart in the rows. The produce from this single tuber was 78 lb. Four tubers, weighed by themselves, turned the scale at 3 lb. 14 oz. *G. L., Oakwood, Chichester.*

Nuphar advena.—"Why called *advena* is a question for some of our American friends to answer." No; it is for our English friends to answer, for the name was given in England [by Aiton]. It would be strange if the Americans had called one of their common native plants "a foreigner." The leaves are not erect by being "squeezed out of their horizontal position." They grow so, usually, when the plant is strong and the water shallow. *A. Gray.*

Chrysanthemum Triomphe de la Rue de Chatelets.—Having grown this variety, I can inform Mr. Fraser that it is a most useful Chrysanthemum, especially where cut flowers are in demand, not only on account of its distinct and pleasing colour (salmon tinted rose), which blends well with other colours, but it is also a free bloomer and more dwarf-growing than many of the Japanese sorts—two strong points in its favour. *E. Morgan, The Butts, Harrow-on-the-Hill.*

Late Peas.—Although much has been said and written about the merits of new Peas, there are few, if any, equal to the Ne Plus Ultra and British Queen for late work, the last-named being specially valuable, as it withstands mildew better than any sort with which I am acquainted, and keeps branching and bearing freely and continually till the weather becomes cold and bad in the autumn. This has been my experience of it for many years past, and besides being so constantly enduring and prolific, it is one of the largest and finest of Marrows, and the Peas rich and melting in flavour. For these last-named qualities and colour Ne Plus Ultra is quite unsurpassed, and no one need wish for a better. *J. Sheppard.*

Narcissus viridiflorus.—It may be interesting to some of those to whom Mr. G. Maw has lately distributed bulbs of this rare plant to know under what conditions it grows near Gibraltar. The ground is fully exposed and low, covered in parts with stunted scrub and Gorse, amongst which the largest bulbs are found. The soil appears stiff, and contains a large mixture of limestone *débris*, with stones, which often make it difficult to get up the bulbs, which grow about 6 inches deep, without crushing them. In one place some healthy and vigorous bulbs were found flowering in the dry bed of a winter water-course. But experienced gardeners know that the natural conditions under which a plant grows are often misleading, as regards the treatment it requires in cultivation, and that when their climate is changed plants often thrive best under entirely different conditions of soil and situation from those which are found to prevail in their native habitat. I would suggest that the treatment which is found to suit the white Hoop Petticoat Narcissus of Algeria is likely to suit N. viridiflorus in ordinary English gardens—namely, to pot the bulbs with abundance of drainage, and to let the pot stand all summer on a shelf close to the glass on the south side of a greenhouse, without giving any water. The more baking the bulbs and soil get from the sun the better they seem to do. It seems probable that these bulbs require sun-heat during the time that they appear quite dormant. *C. Wolley Dod, Llandudno, Dec.* 3.

Galanthus.—Very few are aware of the number of species and varieties of Galanthus in cultivation or the value of them as decorative plants. A succession of bloom can be obtained from the beginning of October to the end of April or beginning of May without the application of heat or protection of any kind, at the same time a cold pit ensures finer blooms. The "Fair Maids of February," as the Galanthus nivalis are called in some parts of the country, are now out of time, as G. octobrensis has been out of flower for some weeks, and G. corcynensis is now in full beauty. These again will be followed by recurvus poculiformis, lutescens, and the extraordinary virescens. The type, G. nivalis, and the double variety now come in. I may state the above are all varieties of G. nivalis, and come naturally in the open ground. G. Imperati follows, then G. Elwesii, with its beautiful globular flowers, like a white Fuchsia globosa. G. Redoutii, with its broad dark shining leaves and small flowers, is succeeded by G. plicatus, the largest and latest of the genus, G. nivalis serotinus keeping it company. There are several other distinct varieties in cultivation besides the above which I am not sufficiently acquainted with to give their time of flowering. Among the above octobrensis is the earliest, plicatus the largest, tallest, and latest, Redoutii the smallest, and virescens the rarest and most curious. I have never seen this variety in flower, but hope to do so very shortly. *T. Shortt.*

Violet Marie Louise.—I can fully endorse all that Mr. Garnett (p. 697) says in favour of this fine Violet, as unquestionably it is the best of all the doubles, for it excels in size and colour the old favourite Neapolitan, which used to be thought so much of for winter. We have both growing side by side in a pit, where they were put on the same day, and have been treated exactly alike, and the Marie Louise were in flower fully a fortnight before the other, and have all along given us many more blooms. These are not only larger and of a deeper, richer blue, but they have longer and stouter stems, which is another great recommendation, as they bunch up better and are

more easily arranged in bouquets or glasses. The plants, too, are hardier, and their growth and habit stronger, as may readily be seen on looking at them, and so distinct are they that they may readily be picked out and their difference noted some way from the bed. *J. Sheppard.*

Single Chrysanthemums.—The mildew has settled nearly all the ordinary double-flowering Chrysanthemums, and many are saying, "My conservatory is looking miserable; the weather has been such that we could not put much heat on, and Chrysanthemums being earlier than usual, I have nothing in flower." To these we would say, "Grow 'singles.'" They are now beautiful, no damp having touched them. They flower naturally late, and spring out from the side branches. We are full of flowers. *Henry Cannell & Sons.* [The Messrs. Cannell send us a bouquet of singles, and pretty they are. Ed.]

Protecting Plants.—The very mild weather we are having is apt to lull us into a feeling of security and make us forgetful of the time of year, and that we may have a sharp frost any night, which, when it does come [As it has done since this was written], will find plants ill-prepared to meet the cold, as they have been growing up to the present, or are in a tender state, and may be expected to suffer accordingly. To prevent injury, covering will have to be resorted to, and the best to keep away frost is that of leaves, which are capital non-conductors, and preserve the crowns of plants in a more satisfactory way than anything else that can be used. To be of the greatest service they should be collected dry, as then they are light and puffy, and may, on a still day, be placed in position without being pressed over close. To keep them where they are wanted to remain, a few dry brakes are of great service, and to hide any unsightliness they might cause, evergreen branches should be stuck in neatly around. The plants this kind of covering is best adapted to protect are the Pampas-grass, Kniphofias, Hydrangeas, and all half-hardy shrubs, which, if they have their collars or the lower parts of their stems sheltered will endure very hard frosts, proofs of which I have seen repeatedly in the way the subjects mentioned have passed through severe winters. Tea and other dwarf Roses may be made perfectly safe in the same manner, but the leaves with these should lie lightly on the ground, or they harbour wet too much, which then injures the bark and buds; but if air can pass through there is no fear of this, as the winds dry up any excess of moisture, and leave the plants comfortable and warm in their beds. Where leaves cannot be got bracken is the next best protector to use, as it remains loose and hollow, and yet affords much shelter, owing to its non-conducting nature and the quick way it dries. Clean straw answers fairly well, but it looks objectionable, and therefore long, coarse hay is preferable, which may be kept from blowing about by having a few twiggy Pea-sticks laid over the top. For herbaceous and bulbous or tuberous-rooted plants that need protection, nothing does better than half-rotten leaf-soil, which may either be spread over the surface of the bed as a mulching, or piled round the crowns, or over the tops of any plants that require it. To ward off birds, and keep them from disturbing it, branches of Whin or Holly should be used, the spines on which they are afraid to go near. *J. S.*

Mr. Murray's Lecture on the Potato Disease.—In the abstract of Mr. Murray's lecture upon the Potato disease delivered at the Parkes Museum of Hygiene, which is given in last week's *Gardeners' Chronicle*, the following passage occurs:—"As in all cases of disease, there have come forward in this case certain persons whose zeal outruns their knowledge, anxious to have their nostrums tried. It would be a mere waste of our time to examine into the nature of their advice (*sic*), but before concluding I must notice two of these cases as typical. A Danish gentleman, Mr. Jensen, has recommended a plan of earthing up Potato plants, under the belief that the spores fall from the diseased leaves on the ground, are washed into the soil, and there coming into contact with the tubers, set up the disease." Considering, as I do, Mr. Jensen's system to be a most valuable means of combating the Potato disease, I hope Mr. Murray will excuse me when I say that I do not like to see it spoken of as a "nostrum." This term was applied to it by a writer in the *Gardeners' Chronicle* some time ago; but if either of these gentlemen will look out the meaning of the word nostrum in Webster and Worcester's *Dictionary*, they will, I think, find that it means "a quack medicine kept for profit in the hands of the inventor or his assignees"—a description which does not apply to Mr. Jensen. Speaking of his system as a nostrum implies that Mr. Jensen derives some pecuniary benefit from it, whereas, on the contrary, his only desire is that mankind at large should profit by his suggestions. The belief that spores of the Peronospora fall from the diseased leaves on the ground, and are washed into the soil to the tubers is not, by any means, an original idea of Mr. Jensen's. The one man who has taught us us more than all the rest about the life-history of the Potato disease is, of course, as everybody knows, Professor de Bary, of Strasburg; he showed twenty years ago this is not a mere belief, but a positive fact. He says* when the soil under diseased Potato tops is examined conidia are easily found to a considerable depth. The illustrious author also says if healthy tubers be placed in the ground and covered by a layer of earth 1 to 2 centimetres in thickness, or even more, they will become diseased within eight or ten days after conidia have been sown upon the surface of the soil above them and watered, not necessarily excessively, from time to time. When so eminent an authority as De Bary says this we must be very sure of our facts before we venture to call him in question. Mr. Murray further says:—"The idea that the germ-tubes of spores could penetrate the skin of a Potato is, as far as I am aware, unsupported by evidence; we know that they enter the stomata of leaves, and very rarely, if ever, penetrate even the epidermis." Here again I must refer him to De Bary, who says † that while the germ-tubes of the Peronosporæ generally enter through the stomata those of P. infestans and P. parasitica are exceptions to this rule: their germ-tubes easily perforate the epidermis, although if they do accidentally encounter a stoma they enter it. De Bary gives no less than four figures‡ of the germ-tubes in the act of boring through the epidermis of the stem of Potato plants; but he gives no figure of them entering through the stomata as he

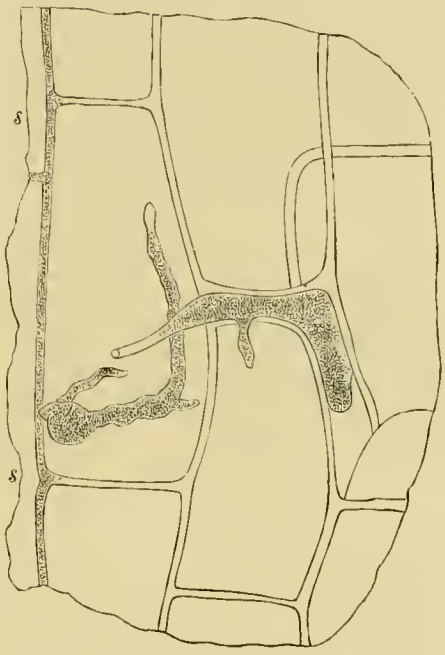

Fig. 132.—Thin vertical section of a Potato on the surface (s, s) of which spores of Peronospora infestans have been sown. Two germ-tubes have perforated the walls of the superficial cells at the edge; one has entered an intracellular space of the subjacent parenchyma, the other has not yet quitted the cavity of the superficial cell: × 390. De Bary.

does in the other species of Peronospora. But can the germ-tubes penetrate the skin of the tubers? is the crucial question. If they cannot do so the whole of the vaunted Jensenian system falls to pieces like a house of cards. Here again I must refer to De Bary, who says § when the spores of the Peronospora are sown upon healthy tubers their germ-tubes penetrate the superficial cells, enter the peripheral parenchyma, and produce the disease. That this is no figment of the imagination on the part of the author, but what he has actually seen, is shown by the figure‖ he gives of a germ-tube which has pierced the epidermis of a tuber and is growing in the subjacent cell. Personally I have no doubt whatever of the truth of De Bary's statements, but if Mr. Murray does not feel disposed to accept them without confirmation I would advise him to try the very simple experiment of applying some fresh conidia to the cuticle of a recently dug Potato, keeping it moist for a few hours to give the conidia time to germinate and to penetrate the cuticle, and in eight days he will have ocular demonstration that the tuber has become the host of the parasite. If he will perform this simple culture he must not take a Potato that has been dug up some time, the cuticle of which has become dry and hard, for through this the germ-tubes will fail to penetrate; nor should he select (unless it be a very young tuber) such known disease-resisting varieties as the Champion or the Magnum Bonum, for their cuticle is too tough for the majority of the germ-tubes to pierce and unless a very great number of spores be applied the experiment will not succeed. That the disease-resisting faculty of these varieties resides in the skin is shown by the fact that if you scrape a part of the cuticle off and apply the spores there, these Potatos succumb to the disease as speedily as any others. Respecting the depth to which the spores of the Peronospora descend into the ground, De Bary seems to have encountered them* more than a decimeter below the surface (*i.e.*, about 4 inches), and adds that these facts prove that the conidia are carried to the tubers by the water which penetrates into the soil. De Bary goes on to say that it might be supposed the mycelium contained in the tops travelled down the stem to the tubers; this supposition is very probable, "but I have never been able to verify it with certainty." It is possible that I may have misunderstood some of De Bary's remarks, but the paper in question is easily accessible, and if I have done so I am quite open to correction. Published so many years ago, and with a title not indicating any reference to the Potato disease, it is quite possible it may have escaped Mr. Murray's notice, and I hope he will pardon my drawing his attention to it, and the attention of others who doubt the value of Mr. Jensen's system. *Charles B. Plowright*, 7, *King Street, King's Lynn, Dec.* 3.

—— In Mr. George Murray's lecture on this subject (p. 698), he says:—"In certain similar diseases, such as mildew of corn, the fungus lives alternately on different hosts, and by the destruction of the less valuable host the disease may be kept in check. But there is nothing to encourage such a hope with regard to the Potato fungus, which passes, so far as we know, and so far as all analogy leads us to believe, the whole of its life on one host." A few lines before this sentence occurs, students are advised to study the "life history and operations" of this fungus, in the writings of Professor De Bary and Mr. Carruthers. Now let us see what these two gentlemen have said on the subject. At the meeting of the British Association for 1874, Mr. Carruthers expounded Professor De Bary's views, and in the printed report Mr. Carruthers says, "Professor De Bary's recent researches seem to point to the possibility that we have in the Peronospora an instance of 'alternation of generations,' one generation only being at present known, the other generation possibly presenting an altogether different appearance and germinating upon some totally different plant." *W. G. Smith.*

Tuber æstivum.—The note of "W. G. S." on p. 686 might convey the impression that Tuber æstivum is not found or not used as an article of food in France. One of the French masters at Eton who had been accustomed to hunt for them and eat them in his native country (Normandy) used to find them plentifully in Windsor Great Park under Beeches, and I think under Oaks, too, and to call them white Truffles. He seemed to know by instinct in what spots they would be found, and would clear away the dead leaves and loose soil with the side of his hands till the surface of the tuber could be felt and seen. He told me that French cooks could make them palatable, though they were far inferior to the black Truffle. However, neither he nor I succeeded in finding any way of making them good in England. *C. Wolley Dod, Llandudno, Dec.* 3.

Graft-changed Fruits: The Winter King Grape.—Your editorial request at the end of my note on Winter King Grape, at p. 667, seems to imply a belief that graft-changed hybrids are of a permanent nature—*i.e.*, that the change remains the same, even if a scion from the graft hybrid were grafted on to a stock of another variety. If my surmise that this is your meaning be correct, I most respectfully beg to differ from you. [We expressed no opinion, but only a desire for information. Does not Cytisus Adami remain constant when grafted on the Laburnum? We think so. Ed.] The scion of Gros Colmar that has been so changed by the stock of Raisin de Calabre, if again propagated from eyes, would be nothing but Gros Colmar still. I have repeatedly proved the correctness of this assertion. I give one instance:—Buckland Sweetwater Grape not being to my employer's taste, and the Vine being an extra strong one, I grafted on it Pearson's Golden Queen. The fruit is so changed in appearance that visitors have often expressed their surprise when told it was Golden

* De Bary, *Sur le developpement de quelques Champignons parasites*, in *Annales des Sciences Naturelles* (*Bot.*), series 4, vol. xx. (1863), p. 68.

† De Bary, *loc. cit.*, p. 44.

‡ De Bary, *loc. cit.*, pl. 6, figs. 5, 6, 7, and 8. Fig. 7 is reproduced in Sachs' *Botany*, new edition, translated by Dr. Vines, p. 276, f. 180 H.

§ De Bary, *loc. cit.*, p. 64. ‖ De Bary, *loc. cit.*, t. 5, f. 5.

* De Bary, *loc. cit.*, p. 65.

Queen, the berries being very long and pointed, and the quality much improved. I propagated from this Vine because, in my simplicity, I thought it still to be nothing else but Golden Queen; and the Vine, now two years old, has borne Golden Queen fruit in its virgin purity. This "grain of fact," I contend, puts an end to all theorising on the subject. That there may be exceptions, and that some kinds of fruit may have that characteristic, I grant, but I have never yet come across an example, and I fear that neither Winter King Grape nor Backhouse's Beurré Pear (p. 569) will prove to be exceptions to the general rule. I only hope they may. *W. W.*

Truffles and Truffle-hunters were not extinct at Hambledon, in Hampshire, a few years ago, for I could always procure some by sending to an old dame who lived in the village, and who kept two ugly mongrel dogs, which she had trained to find these singular vegetables. Hambledon is surrounded by Beech hangers, and the soil is rather chalky. They were not particularly fine, and had a peculiar smell. I remember placing some of them in a store-room at the top of the house, on the floor, and, forgetting to tell cook about them, in a few weeks a most disagreeable odour pervaded the place, and we discovered that it proceeded from the Truffles; they were perfectly sound, but so powerfully scented. A servant I had called them "Pig-nuts," and said her brother had a pig who would find them. I was not then aware that hogs are trained abroad to hunt Truffles; the Hampshire hog alluded to always devoured all he found. *H. G. Watney, Liss.*

Tenants' Fixtures.—Those interested in the question of tenants' fixtures must feel obliged to your correpondent, Mr. Crossling, for his few remarks on the subject in last week's *Gardeners' Chronicle*. One constantly meets with hothouses for the million and tenants' fixture houses, which undoubtedly are very nice structures, and well adapted for a few hardy greenhouse plants; but I would like to know what would become of the wooden sides or base of such houses if you tried to use them as stoves, or really as hothouses. I scarcely think they would stand the moisture. The only other thing is brick, the most convenient and most serviceable, and which can be used without the walls being built into the ground, and which is therefore removable. As regards heating, perhaps Mr. Crossling would kindly give your readers the benefit of his experience respecting the several forms of joints now in use that allow of the removal of piping, and will he also say if it is necessary all joints should be made with these portable joints, or only the joint on the flow and return immediately next to the boiler? though my private opinion is, piping is removable, no matter what joint is used. *R. P.*

Seakale Forcing.—In your issue for November 24 Mr. Sheppard has an excellent article on Seakale forcing. May I add an item which may be of use to some? Three years ago into a piece of ground 10 feet wide and 32 feet long I laid three 3-inch hot-water pipes attached to the nearest point in connection with one of the boilers; the three rows of pipes were arranged to work in three divisions; the soil was made good, and the rows planted from front to back, consequently across the rows of pipes. The plants had a summer's growth, and as soon as the leaves were cleared away one of the divisions was covered with earth, and a fortnight after the heat was turned on, with the expectation that in a month or so we should see the effects; but, to my surprise, in fourteen days the ground began to crack, which was an evidence that the Kale was on the move, and sure enough it was, and nearly ready to cut. The heat was at once turned off, and in a few days we had the first dish. A much smaller supply of heat was then turned on to the second division, and from the three divisions we had a large supply. The original idea was to force only the crop grown on the ground, but the second year we filled in between the rows with lifted crowns, and the crop was enormous. It may be asked, What are the advantages? They are many, but the most important is the quality. No Seakale forced in any other way that I have tasted has equalled it in flavour. It possessed no earthy taste, such as is generally the case when forced in pans under dung, or even in Mushroom-houses, or indeed under any other circumstances. Its firm, crisp, plump condition I attribute to the uniform quantity of moisture in the soil, and the heat being in the right place, round the roots, decreasing towards the tops. I find that when getting too forward, if the heat is turned off and the soil allowed to cool, which it takes five or six days to do, then the crop will keep good for over a fortnight: in a Mushroom-house, or under the stages of houses kept at a uniform temperature, this cannot be done. There are no brickbats or any other kind of rubble over the pipes, for when such is used double the amount of piping is required to give off the same amount of heat. I made provision for running water along the pipes, but it was quite unnecessary. Owing to the small quantity of heat, and the short time it is required, the soil does not become dry, and we have not watered on the top; fine soil is necessary, rough clods cripple the growth. As the soil cracks with the growth of the plants it must be raked to keep the light out. I tried an Asparagus bed with a flow and return under it, but it did not answer; it did very well the first season it was forced, and we had a fine lot of heads from it, but the plants failed to make any growth through the following summer, and when such became evident it was too late to plant. The bed has since been planted with young plants, but they will not be strong enough to force the coming spring. I believe, however, if plants were got ready, say to within one year of good forcing stuff, and as soon as the crop was done with the exhausted plants were turned out and the bed replanted, the plants would have a summer's growth, and do well the coming season. But, alas! alas! how much here is cut in twain: our great and good master [Sir William Siemens] has fallen before the reaper's hand, and we shall see his beaming face no more. At the present time the *débris* of experiments intended for the world's good lie around—a sad sight. *D. Buchanan, Sherwood Park, Tunbridge Wells.*

COLONIAL NOTES.

Punjab Agri-Horticultural Gardens, Lahore.—The cultivation of the Eucalyptus was successfully prosecuted during the year, and about 1000 trees were supplied to various disticts, principally to Kohát, Ludhiána, and Lahore. Observations are now being recorded to test the rate of growth of various species of this tree, and the age at which development practically ceases. The experiments made with the Minnesota early amber cane were continued, but no very definite results have yet been obtained. The opinion of experts in America as to the value of this variety appears to be less high than in 1879. There can be no question, however, that the crop, if successful, will be very valuable in the Punjab, and the trials are therefore well worth continuing. It is to be noted that fair results were obtained with this crop in the Bombay Presidency without any artificial irrigation whatever. The Reana luxurians has proved to be less useful as a fodder plant than ordinary Jowár. This is in agreement with the results of the experiments made by the officers of the Irrigation Department on the Bári Doáb Canal, and there seems to be little use in continuing the trials. The canal officers are about to make experiments with Guinea-grass, and it might be possible to arrange for a series of parallel trials in the Agro-Horticultural Gardens.

The Arboretum.

Pinus latisquama.—In a list of plants from South-Western Texas and Northern Mexico collected by Dr. Palmer, Mr. Sereno Watson states that the figure of the foliage figured in *Gardeners' Chronicle*, 1882, vol. xviii., p. 713, belongs, not to this species, but to Pinus Ayacahuite, some mistake having been made in the specimens sent to Dr. Engelmann. Pinus Ayacahuite occurs in the same region, where it is known as the White Pine—another White Pine! and the wood is stated to be soft and easily worked.

The Amorphas.—These graceful-looking shrubs, with Acacia-like foliage and generally handsome dark blossoms displayed on slender branches, are very suitable objects to plant singly or in large groups on a lawn. The plant is not fastidious as to soil, growing well in any that is fairly good. The most satisfactory method of growing them is for their foliage effects; that is, to cut them down to a stool—as basket Osiers are grown; in fact, to make pollards of them every spring, whether the winter's frost has killed the last season's growth or not. When so managed the growth that springs out from the stock is very rapid up to July. A. fruticosa and A. f. crispa are the kinds most commonly met with. A plaot of either of these will in five or six years measure 5 feet in height and 8 feet in diameter in full summer growth. A. Lewisi and A. Lewisi nana are similar to the first-named, but smaller growers. The sorts less known are A. canescens, having greyish flowers; A. crocea lanata, yellow; and A. alata. *M.*

Hamamelis virginica. — Although introduced as early as 1736, the cultivation of this shrub has been very much neglected. Possibly a reaction in its favour is setting in, as we occasionally hear of it, and plants are to be seen in the pleasure-grounds, Kew, as well as at a few other places in the vicinity of London. As it has few flowering competitors out-of-doors at this season, it deserves to be better known, and more widely disseminated. The yellow flowers are produced in dense clusters, and notwithstanding the narrowness of the linear petals they present a lively star-like appearance, the ornamental value of which is by no means despicable. They commence to open in October or November, and if the winter is a moderately severe one they will continue to flower more or less till spring. It may be grown in association with other deciduous subjects, but a backing of evergreens shows it off to greater advantage. It is figured in Duhamel's *Treatise of Trees and Shrubs*, i., t. 114. In breadth of petal and size of flower, however, it is exceeded by the species figured in the *Gardeners' Chronicle*, and which, when it can be obtained, should have the preference.

The Golden Austrian Pine. — In the Kew Pinetum are a couple of plants bearing the name of Pinus austriaca var. aurea. Though perhaps at present hardly of so golden a colour as that assumed in midwinter by the golden form of the common Scotch Fir, the younger growths of this variety of the Austrian Pine are a decided yellow-green; judging, too, from the appearance of the Kew plants, it seems to be a vigorous grower. It will no doubt be planted as a choice ornamental Conifer by many who have parks or pleasure-grounds, and as far as one can form an opinion from plants in a young state it will afford a striking contrast to the deep sombre green of the type, and prove valuable for planting for effect. No mention is made of this variety in Knight and Perry's *Coniferous Plants Grown in Great Britain*, nor in Veitch's *Manual*; neither was it known to Loudon or other later authors whose works we have consulted. Where and when did the Golden Austrian Pine originate, and what is its history? Can any of our readers answer these questions?

Tints of Forest Trees at Sunrise and Sunset. —Having had but little frost in this neighbourhood as yet, the leaves of the trees have been gradually ripened off, and consequently those tints—"the hectic flush of death"—which frost so rudely dispels, by sending the leaves unripened to the ground, are preserved. At sunrise and sunset some beautiful pictures are seen. At any other part of the day one would scarcely believe such a change in appearance possible. The trees are lit up with a lustre, especially these last few mornings when the sun has arisen "red," which is seldom seen in one's lifetime. To say nothing of the various decorative foliage trees of the Liquidambar type and the various deciduous shrubs which grow here to a good size, one can see the Cornish Elms in the valleys on the hedgerows like immense pillars of gold. This variety keeps its leaves longer than the common Elm. Beeches are past their best, but a few remain; the foliage (under the circumstances and at the time above stated) is like a new creation. When Beech and Elm are planted together, the background a Fir plantation, the sight was grand. The peculiar brown of the old English Oak leaves added to the loveliness. I never saw leaves of so many things so beautifully blotched as I have this year. *H. M., Enys, Cornwall.*

FORESTRY.

Forest Work for December: Planting. — The continuance of warm open weather during the greater part of November has been most propitious for planting operations, and allowed those who chose to avail themselves of the opportunities afforded for early transplanting to make considerable progress with the work. Every forester ought to lay it down as a rule to have the principal part of his planting finished by the middle of the present month, as in most soils and situations plants so treated will be found to root and take a hold of the ground before the winter and hard weather sets in. Forest trees, owing to the long growing season, are rather later than usual in completing their growth, which, to some extent at least, prevented an early start at planting being made; but now, with everything favourable, the work should be carried on with despatch until frost sets in. The workmen may during frosty weather be advantageously employed in trenching, draining, pitting, and fencing such wet heavy soils as are intended for planting in spring. Be careful to avoid inserting plants in any soil containing particles of frost, or in ground supersaturated with water, always selecting the drier portions of the ground for the earliest operations.

Nursery.—The present will be a busy time in the home nursery in supplying the wants of the planter. As plots become vacant they should receive a liberal supply of thoroughly rotted manure, and be dug, trenched, or ridged, being careful to expose as much as possible of the ground to the beneficial influences

of the winter frosts. Collect cones of the Scotch Pine, Spruce, and Silver Firs, and allow the seeds to remain in the cones until wanted for sowing. The cones of Abies nobilis, Nordmanniana, Webbiana, and cephalonica, should be collected at once, for if left on the trees after becoming ripe the seeds fall to the ground and are lost. With regard to the yield of berries—Holly, Yew, Cotoneaster, Haw, Mountain Ash, and Cratægus pyracantha—we have seldom seen it excelled. Where any of these are required they should at once be collected, mixed up with sand, or pitted in sandy soil, and in a position where they may be readily attended to in the way of turning over every two or three months.

Thinning.—All hedgerow and park trees intended for removal should be cut down and conveyed to some suitable place of sale during the present or next month, so as not to interfere with farming operations in spring. In grubbing park or pleasure-ground trees extra care and labour should be expended on the work, so as to have it completed in as tidy a manner as possible. Before starting to work the turf around the stem of the tree should be carefully removed, and again replaced when the work of grubbing is completed. It is also well, before beginning at the root, to lop off a few of the heaviest branches from the side opposite to that in which it is wished the tree to fall. This throws more weight on one side, and greatly helps to direct the fall to the proper place. The general thinning of plantations may now proceed, and during dry or frosty weather advantage should be taken to have the produce removed and disposed of to the best advantage.

Hedging.—Hedges should not only receive an annual switching, but thorough cleaning of the ground in their vicinity. This is a point that is too often lost sight of, but is one of the utmost importance for the welfare of all kinds of fences, especially such as have been recently planted. Fill up vacant places in hedgerows with strong well-rooted Hawthorns, Beech, Privet, or other plants suitable to the soil. In filling gaps in hedges great care is necessary to avoid injury to the roots of the fence. The soil should be carefully picked, and other of better quality substituted previous to inserting the plants.

Fencing.—Special attention should be given to the repairing of all plantation fences, tree-guards, and rabbit-proof wire fences, previous to hard weather setting in. During the continuance of frosty weather the damage done to young trees by hares and rabbits might to some extent be arrested by strewing the branches of newly felled trees upon the ground for these pests to feed upon. In this district hares (more especially those that have been imported from the Sister Isle) are especially destructive to plants, and, as if out of malicious spite to the forester, they have already, ere half-a-dozen degrees of frost have been registered, commenced their depredations. It may not generally be known that Irish hares are—at least when brought to this country—ten times more destructive than our native species, and have barked trees and shrubs which previous to their introduction were never known to be injured, even during the most severe weather.

Roads.—All roads and drives should now be put into thorough repair, when they will become consolidated before spring. The properties of a well-made carriage drive are firmness, dryness, smoothness, and durability; and to obtain these much depends on the quality of the material used, which we need hardly add should be of the very best quality procurable in the district. The surface of the road should be very nearly level across, leaving it but slightly raised in the middle; and the utmost care must be taken not to level it longitudinally, but gradually and almost imperceptibly undulating, so that no surface-water may lie, particular care being taken that it be drained off into the turf at every dip or depression. Such a road should not have elevated edges; the turf should almost fade off into the gravel without any very visible cutting line; and if anything the gravel should be rather lower than the turf, in order that it may not be seen in looking across it from different parts of the park. Collect leaves, and have them at once carted to the *dépôt*, along with road-scrapings and other refuse. After mixing with lime this will soon form a good top-dressing for grassland or the nursery border.

Draining and General Work.—Groundwork improvements of all kinds—such as lawn-levelling, turf-laying, as well as the grubbing out of dead or otherwise worthless trees and shrubs—should be prosecuted during dry weather. Plantation drains will require frequent examination during the winter months, so that all surface-water may be speedily removed; for although a certain quantity of moisture is essential to vegetation, still, on the other hand, an excess of it is highly detrimental. During the prevalence of snowstorms be careful to look over ornamental plantations, and shake down the snow from branches that may be overburdened. *A. D. Webster, Penrhyn Castle, North Wales.*

The Rosery.

Planting and Manuring Roses.—There were some statements put forward by "Wild Rose" in the *Gardeners' Chronicle* for November 3, in his paper on Rose planting and manuring, which will scarcely meet with unqualified approval from practical men who have been engaged in Rose growing, more or less, all their lifetime. One cannot but take exception to his remarks and directions concerning the application of manures to Roses at the time of planting. He says that none should be given, because the Rose roots imbibe [?] the fungus growths with which the manure is full, and so suffer injury. Is it a matter of fact that the Rose does anything of the kind—or, that injury has ever been traced to such indiscreet feeding? Do not fungous growths always accompany all decaying matter? and equally, or perhaps more generally in spring than in autumn, so that that which would be wrong in practice in the latter could hardly be permissible at the former season—*ergo*, if the manure is deleterious in its action at the one time it is equally so at the other. But what do we find? Roses suffer somewhat if their roots come into contact with perfectly green, undecayed manures, such as pig-dung, bird's-dung from a large dovecote where it has lain dry for a year or longer, or fresh horse-droppings. These matters are apt, or rather they are certain to cause injury, more or less, if given in excessive quantities and are not intimately mixed up with the soil. When such materials have caused harm it is generally through the chemical action of the excess of ammonia, or of the contained salts and other crudities in them, which thorough or even partial decay would have lessened or eliminated. All gardeners who have planted Roses in the autumn have applied manures in some form or other, and as a mulch after planting was finished, and also to Roses not recently planted, with excellent results. When losses have arisen they could usually be traced to badly rooted plants, rough wet soil, or planting when the soil was in that condition, or to want of protection during severe weather. I think all autumn planted Roses should be wrapped up in hay-bands, taking care especially to protect the point of union between stock and scion; the dwarfs to be covered round with fresh fallen leaves, that can be kept in their place with a few spadefuls of soil. Roses, dwarf and standard, that may suffer in their immature growths during winter and spring, if newly planted, should get a severe pruning back into perfectly sound wood and to quite dormant eyes. These will always break strongly if the plants have any vigour, and, breaking rather later than those not cut-in so hardly, will usually escape injury by late frosts. Last spring, between the months of February and May, some 2000 Roses, both dwarf worked and standard, were planted in freshly prepared beds, the soil of which contained fully one quarter of rotten manure to three of loam. The site was a perfectly exposed one on a treeless hillside, the new plantations and shrubberies affording no shelter worth mentioning. The major part of these plants were exposed to the freezing winds of early March, that were particularly piercing and injurious to much tall planted stuff. The half ripened wood of last season had broken out into growth several inches long in February, and this and the greater part of the ripened wood of the shoots was quite blackened by the frosty blasts, so that it was necessary that the whole of the Roses should be cut back to a very few quite dormant eyes. These broke late but well, and were succeeded in due time with an abundant crop of bloom. The losses during the year have not amounted to 3 per cent. among the standards and half-standards, nor above 5 per cent. amongst dwarfs. One fact was conspicuous, namely, that own-rooted Roses supplied the greater portion of the losses in dwarf Roses, and among the weaker growing dwarf Mosses those on the Brier stock, White Bath dying clean out. Mulching, for certain reasons, was not adopted, but watering received much attention. *M.*

Standard of Joan of Arc (*Journal des Roses*, October, 1883). — A newly introduced Tea Rose, raised at Rouen by M. Garçon. The stock was sold to M. Jules Margottin, but the severe winter of 1879 destroyed the whole stock with the exception of one plant, which was preserved with special care, so that now a sufficient stock has again been obtained. It is a seedling from Gloire de Dijon, with large full creamy-white flowers passing to pure white.

Reports of Societies.

Ealing, Acton, and Hanwell: *Nov.* 21.—Held in the large Drill Hall, Ealing, under excellent weather auspices, this show proved to be one not only of exceeding beauty, but also of great interest, the varied classes in the schedule, and not least those for cottagers, assisting to promote the presence of many pleasing exhibits not usually found at Chrysanthemum shows. Groups of plants staged in a miscellaneous class, and not for competition, proved to be exceedingly attractive. Of these the premier place must be given to a truly grand lot of plants sent and grown by Mr. Cannon, local manager to Messrs. C. Lee & Sons—certainly one of the finest groups we have seen this season, and though the blooms were a little past their best, yet in fine form. Barbara we have never seen finer than it was on several plants in the group. A prominent table was filled with a selected lot of Mr. H. B. Smith's superb Cyclamens, a grand lot of red and white forms that could not be excelled. Mr. J. Blundell, a local florist, had a small but charming group of decorative plants, including good ones in bloom, of Messrs. Hooper & Co.'s new Tree Carnations. Mr. R. Dean put up a fine collection of Apples, and twelve dishes of his new Potatos, including Prime Minister, The Dean, Cardinal, Midsummer Kidney, all newly certificated and other fine novelties; also backing the table with bunches of cut pompon Chrysanthemum blooms in variety, making up a charming arrangement. Mr. Meredith, a local floral decorator, sent some wonderfully pretty imitated wreaths and baskets of artificial flowers, everlastings, and grasses; and Mr. G. Weedon, Ealing, a fine cross of white Eucharis, and other flowers, laid on a black ground. A singularly interesting exhibit was seen in a large box of cut stove and greenhouse flowers that contained fifty distinct sorts, sent by Mr. Hudson, gr. to H. J. Atkinson, Esq., Gunnersbury House, thus showing how great a wealth of bloom might be found in any well appointed place even at this time of the year. A truly superb lot of fifty-four blooms of Chrysanthemums was sent, not in competition, by Mr. Harman, gr. to F. A. Capps, Esq., Crown Point, Ealing, and included F. A. Davis, Boule d'Or, Striatum, Grandiflorum, Meg Merrilies, Japanese; the beautiful white Anemone, Lady Margaret, very fine, and other kinds; Christine, Antonelli, Guernsey Nugget, Mrs. Cunningham, Duchess of Manchester, &c., all excellent. Some very effective groups in the miscellaneous class added greatly to the beauty of the show; the one placed 1st came from Mr. Chadwick, gr. to E. M. Nelson, Esq., Hanger Hill, the Chrysanthemums and foliage plants being very effectively arranged. Mr. Fountain, gr. to Miss Wood, Hanger Hill, took 2d place, with a group composed entirely of Ferns and mosses, all singularly fresh and clean, and charmingly grouped; Mr. G. Weedon came 3d, with a lot of flowering plants, in which a fine Eucharis amazonica figured prominently. The trained Chrysanthemum plants shown were generally excellent, showing considerable advance upon preceding years. The best four large-flowered kinds came from Mr. Smith, gr. to T. Nye, Esq., Ealing, consisting of Mrs. G. Rundle, George Glenny, Prince of Wales, and Dido, all well grown and flowered; Mr. Chadwick came 2d, with good specimens of Mrs. G. Rundle, Hereward, Prince of Wales, and James Salter. Mr. Smith was 1st with a single specimen, a first-rate Peter the Great; and Mr. Chadwick came 2d, with a very fine Fair Maid of Guernsey. There were several other competitors in these classes. Trained pompons were excellent; indeed, we have not of late seen better than were some of the plants staged by Mr. Chadwick, who had Prince Victor, Mr. Astie, Aigle d'Or, and President; whilst Mr. Smith was 2d, with good examples of Alexander Beal, St. Thais, Adèle Presette, and Mr. Astie. Mr. Chadwick's single pompon was a finely flowered white Cedo Nulli; Mr. Wright, gr. to G. T. Greenfield, Esq., Hanwell, coming 2d, with the same variety, and Mr. Smith following with Adele Presette. Amongst other plants in competition were good Solanums, dwarf, and full of berry; Chinese Primroses, Cyclamens, and miscellaneous flowering plants, all adding materially to the decoration of the show. The special interest amongst cut blooms centred in the open class for twenty-four kinds, sixteen to be incurved, and eight Japanese; this brought five competitors, Mr. Strong, gr., Wellington College, and Mr. Herrin, gr. to J. N. Hibbert, Esq., Chalfont Park, running each other hard, but the former had rather the greatest size in his incurved blooms, and these, as is inevitable, were thought to outweigh quality in the Japanese blooms. Mr. Strong had very fine Queen of England, Empress of India, Emily Dale, Alfred Salter, Lady Slade, Angelina M. Delaux, Meg Merrilies, Oracle, Fulton, and The Sultan. Mr. Herrin showed good blooms of Jardin des Plantes, Prince Alfred, Queen of England, Barbara, Princess Teck, Cherub, Golden Eagle, The Daimio, Madame Andiguier, Garnet, and Fanny Boucharlet. Mr. Baird, gr. to C. A. Daw, Esq., Ealing, came 3d; Mr. Smith, 4th; and Mr. Fulford, Bexley, Kent, 5th, all having good flowers. With twelve cut blooms Mr. Beasley, gr. to A. Fraser, Esq., Ealing, was 1st; Mr. Smith following, and the latter had the best single bloom in a huge Queen of England. Mr. Baird had the best six blooms of any one kind in good samples of Golden Empress; and Mr. Collyer, gr. to Mrs. Murrell, Ealing, had the best six Japanese. Pompon kinds were set up in first-rate form; better seldom have been seen than the forty-eight blooms in twelve kinds set up by Mr. Smith, who had Prince Victor, Marabout, Alexandre Beal, Adèle Presette, Rose Trevenna, Salamon, Mdlle. Marthe, Charles Dickens, Madame Montels,

Queen of Anemones, and Marguerite de Coi. Mr. Chadwick, who came 2d, had some very perfect flowers, including St. Michael, Rose d'Amour, President, &c. In the class for thirty-six blooms, twelve kinds, these growers held the same positions. A further class for six kinds brought many beautiful flowers.

The classes for Pears and Apples were well filled, Mr. Grainger, gr. to W. Clark, Esq., Ealing, having the best six dishes of the former in Napoleon, Vicar of Winkfield, Beurré d'Aremberg, Chaumontel, Beurré Diel, and Passe Colmar. Capital kitchen Apples were staged, the best three dishes coming from Mr. Chadwick, who had Hollandbury, Hanwell Souring, and Emperor Alexander; and Mr. Walton, gr. to C. Curwen, Esq., Twyford Abbey, had good kinds in Tower of Glamis, Kentish Fillbasket, and Northern Greening. Mr. Chadwick was 1st with medium-sized handsome samples of Cox's Orange Pippin, Margil, and King of the Pippins in the dessert class, and many other good kinds were shown.

The best six kinds of vegetables came from Mr. Chadwick, though there was a large competition. He had good Cauliflowers, Mushrooms, Tomatos, Brussels Sprouts, Onions, and Queen of the Valley Potatos. Some very liberal prizes, offered by the Messrs. Sutton & Sons, of Reading, for four dishes of Potatos, brought a capital competition, fourteen lots being put up. A cottager, Charles Sargood, took 1st place, with good clean samples of Snowflake, Vicar of Laleham, Schoolmaster, and Beauty of Hebron; Mr. Chadwick coming 2d with Cosmopolitan, Duke of Albany, Beauty of Hebron, and Bresee's Prolific. In other lots Fillbasket, Magnum Bonum, and Woodstock Kidney were well shown. In the other open class for three dishes John Wilkes, Jun., a cottager, was 1st, with Vicar of Laleham, Cosmopolitan, and Mr. Bresee; and in other lots International, Schoolmaster, Adirondack, and Beauty of Hebron were well shown. In the single dish classes Magnum Bonum was the best white, and Vicar of Laleham the best coloured kinds. The cottagers' vegetables were all first-rate.

Amongst miscellaneous fruits there were shown by Mr. Wildsmith, gr. to J. Keith, Esq., Ealing, six bunches of good Gros Colmar Grapes. Mr. Fountain put up eighteen dishes of good kinds of Apples, and Mr. W. Garland, gr. to C. B. Bingley, Esq., Greenford, staged twenty-four grand fruits of Beurré Bachelier Pear from a wall; also a dish of remarkably fine Belle Angevine and good Swan's Egg Pears, and amongst Apples some first-rate samples of Calville Blanc.

Nottingham and Nottinghamshire Horticultural and Botanical.—On November 21 and 22 this Society held its first Chrysanthemum and fruit show, in the Mechanics' Large Hall. I may state that the members of the Society meet in a hired room in the Mechanics' Hall once a month, when a paper is read on some subject bearing on horticulture, the paper being discussed afterwards by any of the members present who choose to do so. As there had not been a flower show of any pretensions in Nottingham for five years past, the above committee decided early in the present year to hold one, and having secured the promise of part of Mapperly Park as a site for holding it on, they went to work with a will, and it proved fairly successful. It brought together a first-rate lot of plants, &c., and the balance, though small, was on the right side; and this being our first autumn venture likewise proved a great success so far as the exhibition was concerned. The hall was filled with plants, fruits, and Potatos, the orchestra and gallery being decorated with fine-foliaged plants kindly lent by members of the Society. Of Apples alone there were not less than 400 dishes staged. From Belvoir Castle Mr. Ingram sent 100 dishes of Apples and Pears, and Mr. Goodacre sent from Elvaston something like the same quantity, and in addition some splendid samples of Grapes; and the Messrs. Pearson, of Chilwell Nurseries, sent an equal number. From Mr. H. Frettingham, Beeston, came a few dishes of very fine Apples, noticeable amongst which was Bramley's Seedling, a sort which was certificated at the late Apple Congress at Chiswick. All the above mentioned fruits were sent not for competition. In the competitive classes for Apples and Pears there were some very good examples put up in the classes for six dishes and also in those for single ones. Grapes, too, were splendidly shown in the competitive classes, Alicantes being placed both 1st and 2d amongst black sorts. In the class for white Grapes Pearson's Golden Queen took first honours, beating some really good examples of Trebbiano and Muscat of Alexandria. Of Potatos there was a fine lot. Mr. Bellis, gr. at Newstead Abbey, staged a number of dishes not for competion, which were very good indeed. There was also a lot of fine tubers staged in classes for six dishes and single ones. Of Chrysanthemums, arranged in groups 10 feet in diameter, there were four very good lots. In classes for six, four, and single specimens there were no trained examples shown, but still the plants were very meritorious. Coming to the cut blooms, which were certainly the leading features of the show so far as the Chrysanthemum was concerned, the amateur growers were seen to have by far the best blooms. In the class for twenty-four incurved varieties a gardener was placed 1st, but a Nottingham amateur was very close after him; and in the class for twelve (open) an amateur took the lead. But it was in the closed classes in sixes, fours, and threes that the best blooms were staged. It was rather remarkable how certain sorts ran through all the collections in these classes. Lady Slade, Mr. Bunn, and Barbara appear to be really favourite sorts with the Nottingham artisans. It was rather too late in the month for the Rundle section. One noteworthy feature of the show was that the 1st, 2d, and 3d prizes for the premier blooms in the show were awarded to three blooms picked out of one stand of six, which gained 1st in its respective class.

I am sorry I cannot say that financially it was a success, but I hope that as a committee we shall not lose heart, but pull together well and make it a success next year in both ways. *J. R. M.*

Norfolk and Norwich Horticultural.—This old-established Society has, after the lapse of several years, ventured again to hold a show for autumn products, and more especially for the Chrysanthemum. The gathering was held in the spacious St. Andrew's Hall, a locality peculiarly suited to winter or autumn shows, being admirably lighted, and furnished with an efficient means of warming—no small consideration when the well-being of tender plants and the comfort of the visitors have to be thought of. The attendance at the show was very large, as besides the legitimate attractions of a floral gathering, a string band discoursed sweet music from the orchestra. The competition for the best twelve Japanese varieties of Chrysanthemum brought some excellent flowers forward, the 1st prize being awarded to Mr. John Rose, gr., Brook House, Norwich; equal 2d being awarded to Mr. Oclee, gr. to the Marchioness of Lothian, and to Mr. Allan, gr. to Lord Suffield. In the class for twelve incurved sorts Mr. J. Rose was again 1st. This successful cultivator comes from the neighbourhood of Liverpool, a locality rather famous for producing gardeners who astonish the natives of many a "sleepy hollow" in our southern shires—as was very apparent at the show now under notice. The competition for the best hand bouquets, brought forward six exhibitors, 1st being Mr. G. Woodhouse, gr. to H. Trevor, Esq., Norwich. Mr. Allan received a well deserved extra prize for a beautiful boxful of Violets, consisting of the sorts Marie Louise, Comte Brazza, a fine new white of the Neapolitan type, and the well known Neapolitan. The delicious fragrance and beauty of this collection made it the centre of attraction. In the collections composed of six varieties of fruit Mr. Oclee was 1st and Mr. Rose 2d. Mr. Allan was awarded the 1st prize for black Grapes, and Mr. Rutland, gr. to T. Theobald, Esq., the 2d; and for white Grapes Mr. Rose was 1st, and Mr. Baker, gr. to B. Fletcher, Esq., 2d. Apples and Pears were shown in considerable quantities, the winners of prizes being Mr. Rose, S. J. Buxton, Esq., Mr. Morris, and Mr. F. Woodhouse. Mr. Oclee was 1st for the best collection of vegetables; 2d, Mr. Chettleburgh, gr. to Col. Rouse. In addition to the attractions of the competitive groups and collections of fruits and flowers, Messrs. Daniels Brothers, Norwich, had arranged a miscellaneous assortment of plants in bloom, and fine-foliage plants. (*From a Correspondent*).

Scottish Horticultural Association. — The ordinary monthly meeting of this Association was held in the Hall, 5, St. Andrew Square, Edinburgh, on Tuesday, the 4th inst., Mr. Robertson Munro, President, in the chair. Dr. J. M. Macfarlane, of the Royal Botanic Garden, delivered the second of a course of lectures on botany as applid to horticulture. He chose for his subject, "Cell Thickening, Wood and Bast Fibre, Cell-fusion Vessels, sieve and laticiferous." Mr. J. Dow, Newbyth Gardens, read a paper on "Strawberry Culture," and the Secretary read one sent by Mr. J. Muir, Margam Park, "On Vegetables for Exhibition." Mr. John Brunton, Gilmerton Gardens, Drem, exhibited a large collection of Apples—some fifty sorts; also a collection of Pears, and a bunch of Muscat Hamburgh Grapes. Mr. Edward Tate, Balcarres Gardens, exhibited a stand of twelve Chrysanthemum blooms; and Mr. G. Chapman, Easter Duddingstone Lodge, exhibited Primula MacNabiana in flower.

Colnbrook Chrysanthemum Show.—An exhibition of Chrysanthemums and fruit, chiefly Apples, was held in the Public Rooms, Colnbrook, on the 21st and 22d ult., which was attended with so much success that it will probably induce those who organised it to promote a similar show next year, if not to establish it as an annual affair in connection with that flourishing institution—the Colnbrook Horticultural Society. That the season had been a favourable one for Chrysanthemums was evident from the fine specimens staged by the local growers, albeit two or three competitors had matters pretty much to themselves. The most successful was Mr. Godfrey, gr. to Dr. Meadows, Manor House, Poyle, who showed some capital specimens in pots of the newer Japanese hybrids, viz., Tendresse, Comte de Germiny, Peter the Great, Jardin des Plantes, The Cossack, and Julie Lagravère. In this class Mr. Aitkin, gr. to Mrs. Meeking, was 2d, Mr. Godfrey was also successful with a single specimen, the sort shown being Peter the Great, which was run very close by Mr. Fletcher, gr. to J. E. Taylor, Esq., The Coppins, Iver, with Mrs. Sharpe. Mr. Aitkin was fortunate in securing the highest award for eighteen cut blooms, his collection being a remarkably good one; Mr. Godfrey obtained the 2d place in this class, and Mr. Fletcher making an excellent 3d.

In the fruit classes but few entries were made, and only one in that for Grapes — Mr. Godfrey's Lady Downe's Seedling, Black Alicante, and Muscat of Alexandria, which were very good samples. Mr. Taylor came prominently forward in the classes for Apples, securing 1st prizes for both dessert and culinary kinds. Mr. Goodenough, who obtained the 2d prize for dessert Apples, was even more fortunate with his exhibits of dessert Pears, which were held to be the best in the show. The prize for the premier Chrysanthemum bloom in the show was awarded to Mr. Fletcher for Prince Alfred.

Dr. Meadows, in the course of some pleasant remarks made at the opening of the show, said he considered, with regard to the plants and fruit, that it was one of the most successful shows he had seen out of London, and he was told the judges thought so much of the Apples that they expressed the opinion that there was nothing in the great Apple Congress at Chiswick that excelled these local productions. That he thought a very great meed of praise. He hoped that this was only the first of a series of successful exhibitions of a similar character—that they would, in fact, find the show repeated year by year with added success. The announcement had been made that Her Majesty had one of the largest and finest collections of Chrysanthemums this year. He did not know whether it was too much to hope that the royal plants would find their way to Colnbrook next season, but if they did he trusted that the gardeners in the district would show that they were able to compete successfully against Her Majesty. (*From a Correspondent.*)

York Ancient Florists' Chrysanthemum Exhibition. — The fifth annual Chrysanthemum show held under the auspices of the above-named Society took place on November 29 and 30 and December 1, in the building belonging to the York Fine Art Committee, and was, taking all points into consideration, a decided advance on any previous exhibition. As mentioned in previous reports, the place in which the exhibition is usually held is particularly well adapted for the purpose. There is a quantity of statuary and other artistic subjects permanently in the building; this year these were supplemented by several large glass cases containing loan exhibits of various artistic subjects from South Kensington. Many exhibitors and others who are in a position to know, say that no similar building exists for holding spring and summer exhibitions of plants and fruits in the North of England. On the whole the show was fairly well patronised, and the committee hope another year to offer such prizes as may induce exhibitors to come from a wider field, especially with cut blooms and fruits. Following the schedule, we find that prizes were offered first for groups of miscellaneous plants arranged for effect, in two sizes, viz., 80 feet by 36 feet. The 1st prize in the larger group was taken by J. T. Hingston, Esq., Clifton, York (gr., Mr. Macintosh), with a very nicely arranged group, some well grown and well placed Poinsettias helping the general effect much; the Rev. G. E. Gardner (gr., Mr. Lazenby), 2d; Mr. Key, florist, Bootham, 3d.

In the smaller groups Miss Steward, Bishopthorpe (gr., Mr. Vere), was 1st; 2d, Dr. Baker (gr., Mr. Doe); 3d, J. T. Hingston, Esq. There was considerable difference of opinion as to the merits of these groups, the general opinion being that the 3d and 1st prize lots should have changed positions. For a group of Chrysanthemums 8 feet in diameter there were four competitors, all showing good lots. Mrs. Gutch, Holgate Lodge (gr., Mr. Everard), was 1st; J. Buckle, Esq. (gr., Mr. Scott), 2d. For eighteen specimen Chrysanthemums a Silver Cup, value £5, was offered. There was a fine bank of plants put up for it. Mr. T. Smith was 1st, J. Bellerby, Esq. (gr., Mr. Stevenson), 2d; H. W. Cooper, Esq., Bishopthorpe, 3d. The 1st prize lot were grown by a working mechanic. They were well bloomed, but several of them were evidently two-year-old plants, consequently the blooms were not so fine as others of the lots were. For nine plants, large flowered, Japanese excluded, Miss Steward was 1st; 2d, Mr. T. Smith. Six ditto: Dr. Baker 1st. Three ditto: Dr. Baker 1st, J. Bellerby, Esq., 2d; the City Sheriff, 3d. For six and nine pompons Mr. T. Smith was 1st. In the class for six Japanese Miss Steward was 1st, with nice plants, Lady Selborne, Fair Maid of Guernsey, and James Forsyth being very good; Mr. T. Smith 2d. Occupying a prominent position in front of the orchestra there was a splendid group of plants arranged. They were exhibited by the Lord Mayor of York, A. B. Richardson, Esq., not for competition. There were from six to twelve fine flowers, one each, of the large flowered and Japanese varieties. They certainly did his lordship's gr., Mr. Falcard, great credit, and were he to exhibit in the competitive classes it is evident he would be at the top of the tree. The varieties included Golden Jardin des Plantes, Nil Desperandum, Souvenir François Maroc, Empress of India, White and Golden Peter the Great, Diamond, Prince of Wales, Baron Beust, Red Dragon, Fleur de Marie, &c. There were some fifty plants in all.

Cut Blooms.—For twenty-four large flowering varieties a Cup, value £3, was offered, and was won by Mrs. T. Hague Cook, Mirfield (gr., Mr. Daniel); a splendid flower of John Salter was in this lot. The same exhibitor was 1st in the class for twelve similar varieties; 2d, A. J. Cholmley, Esq., Malton (gr., Mr. Hemming); 3d, J. T. Hingston, Esq. For six ditto, T. Reynard, Esq., Sunderlandwick, was 1st. In the class for twelve and six Japanese varieties Mrs. T. Hague Cook was 1st, with, amongst others, fine blooms of Diamond, Meg Merrilies, Elaine, and Agrément de la Nature. A fine collection of cut blooms, not for competition, was exhibited by Mr. T. B. Morton, Mowden Bridge Nurseries, Darlington. Like the Lord Mayor's group of plants, this collection would have decidedly been 1st, if it had been broken up and exhibited in the different classes of cut blooms. They certainly were a fine lot, and were a capital "copy" for the local exhibitors to work up to. There was about a hundred of them in all. The best of the incurved varieties were Prince and Princess of Wales, Prince Alfred, John Salter, Lady Harding, Golden Empress of India, Golden Jardin des Plantes, Mr. Bunn, Mrs. Heales, Princess Beatrice, Cherub, White Beverley, Miss Mary Morgan. Of reflexed varieties, King of Crimsons, Golden Christine, Phidias, Jewess, Chevalier Domage, and Pink Christine, were very good. Amongst the Japanese varieties there were some really splendid blooms

many of them fully 8 inches in diameter—Criterion, Soleil Levant, Peter the Great, Rubrum Striatum, Fleur d'Hiver, Album Plenum, Rosa Bonheur, Red Dragon, and Meg Merrilies, being amongst the best. Classes were provided for Chinese Primulas, double and single varieties, bouquets for coats, ball-rooms; and for Chrysanthemums, also Roman Hyacinths, Cyclamens, and stands of twelve varieties of stove and greenhouse plants, cut blooms, in all of which there was fair competition, but none of them call for any special remarks.

There was a decided falling off in the fruit classes, which, it is to be hoped, another year will remedy, as fine fruit adds very much to the general interest of late autumn or early winter exhibitions. Last year, as reported, there was good competition and fine produce. For two bunches of black Grapes, G. H. Shaw, Esq., Howden (gr., Mr. Bearpark), was well 1st, with really fine clusters of Black Alicante, splendidly finished. Amongst the exhibitors in the Apple and Pear classes, A. Pease, Esq. M.P., Darlington (gr., Mr. Shortt), occupied a prominent position: considering how far north Darlington is, this gentleman's fruit did him great credit. Amongst other exhibits he had a collection of forty varieties correctly named.

In the vegetable classes there was some really good produce and good competition. Lord Wenlock, Escrick Park, York (gr., Mr. Mitchell), was 1st, for a collection of eight dishes. Amongst this collection there was a really fine dozen specimens of an Onion called Rousham Park, apparently a strain of the white Spanish. *H. J. C.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, DECEMBER 5, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Nov.	In.	In.	°	°	°	°	°	°	°		In.
29	30.14	+0.42	48.5	39.0	9.5	43.7	+ 2.0	40.4	88	S.E. : E.S.E.	0.00
30	29.98	+0.26	50.7	33.5	17.2	44.4	+ 2.7	41.0	88	W. : W.S.W.	0.18
Dec. 1	30.13	+0.40	47.0	39.0	8.0	43.0	+ 1.3	36.6	79	N.W.	0.00
2	30.11	+0.37	45.0	36.5	8.5	42.3	+ 0.5	33.6	70	N.W.	0.00
3	29.59	−0.17	51.5	37.5	14.0	46.2	+ 4.4	39.8	79	WNW	0.05
4	29.67	−0.09	41.5	36.5	5.0	39.2	− 2.6	30.4	71	N.W.	0.00
5	29.94	+0.18	40.0	33.0	7.0	36.7	− 5.0	29.5	76	N.W.	0.00
Mean	29.94	+0.20	46.3	36.4	9.9	42.2	+ 0.5	35.9	79	N.W.	0.23

Nov. 29.—Fog in early morning; fine bright day and night.
— 30.—Bright in early morning; dull day and night: heavy rain from 7 P.M.
Dec. 1.—Fine day; very dull; cloudless at night.
— 2.—Dull day; cloudless at night.
— 3.—Slight rain at 7 A.M.; dull day; very boisterous night.
— 4.—Fine bright day and night; gale of wind.
— 5.—Few flakes of snow in morning; fine cold day and night.

LONDON: *Atmospheric Pressure.*—During the week ending December 1, the reading of the barometer at the level of the sea decreased from 29.41 inches at the beginning of the week to 29.06 inches by 3 P.M. on the 25th, increased to 30.43 inches by midnight on the 28th, decreased to 30.03 inches by midnight on the 30th, and was 30.38 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.94 inches, being 0.10 inch higher than last week, and 0.04 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 55°.5, on the 28th; the highest reached on the 1st was 47°. The mean of the seven high day temperatures was 50°.7.

The lowest temperature was 33°.5, on the 30th; on the 25th the lowest was 47°. The mean of the seven low night temperatures was 40°.1.

The greatest range of temperature in one day was 17°.2, on November 30; and the smallest was 7°, on the 25th. The mean of the seven daily ranges was 10°.6.

The mean temperatures were—on November 25, 50°.3; on the 26th, 44°.9; on the 27th, 43°.8; on the 28th, 50°.1; on the 29th, 43°.7; on the 30th, 44°.4; and on December 1, 43°; and these were all above their averages by 8°.7, 3°.3, 2°.2, 8°.5, 2°, 2°.7, and 1°.3 respectively.

The mean temperature was 45°.6, being 1°.9 higher than last week, and 4°.1 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 87°, on the 28th. The mean of the seven readings was 73°.

The lowest reading of a minimum thermometer with its bulb on short grass was 28°.5, on the 27th. The mean of the seven readings was 32°.5.

Rain.—Rain fell on November 25, 26, and 30, to the amount of 1.22 inch, of which 0.59 inch fell on the 25th, 0.45 inch on the 26th, and 0.18 inch on the 30th.

ENGLAND: *Temperature.*—During the week ending December 1 the highest temperatures were 58°.5 at Cambridge, 58°.1 at Liverpool, and 58° at Truro and Leeds; the highest at Hull was 55°, at Bolton 55°.1, and at Brighton 55°.3. The general mean was 56°.6.

The lowest temperatures were 30°.5 at Wolverhampton, 33°.5 at Blackheath, and 33°.8 at Nottingham; the lowest at Liverpool was 40°.5, and at Bradford and Leeds 40°. The general mean was 36°.1.

The greatest ranges in the week were 25°.4 at Wolverhampton, 24° at Cambridge, and 23° at Truro; the smallest ranges were 16°.2 at Bradford, 17°.5 at Brighton, and 17°.6 at Liverpool. The general mean was 20°.5.

The mean of the seven high day temperatures was highest at Truro, 55°.1, at Plymouth 54°.1, and at Leeds 53°.1; and were lowest at Bolton, 48°.8, at Hull 49°.3, and at Wolverhampton 50°.4. The general mean was 51°.5.

The mean of the seven low night temperatures were highest at Truro, 45°.1, and at Brighton, Liverpool, Bradford, and Leeds, 42°.6; and were lowest at Wolverhampton, 36°.8, and at Nottingham 38°.2, and at Cambridge 39°.5. The general mean was 40°.8.

The mean daily range of temperature was greatest at Wolverhampton, 13°.6, at Nottingham 13°.3, and at Bristol 12°.5; and were least at Brighton and Bradford, 8°.4, and at Liverpool 8°.8. The general mean was 10°.7.

The mean temperature was highest at Truro, 49°.9, at Plymouth and Leeds 47°.7; and was lowest at Wolverhampton, 43°.4, at Bolton 44°, and at Hull 44°.2. The general mean was 46°.

Rain.—The largest falls were—1.22 inch at Blackheath, 0.95 inch at Bolton, and 0.82 inch at Liverpool; the smallest falls were—0.48 inch at Cambridge, 0.53 inch at Wolverhampton, and 0.54 inch at Bristol. The general mean fall was 0.69 inch.

SCOTLAND: *Temperature.*—During the week ending December 1 the highest temperature was 58°.2, at Leith; at Greenock the highest in the week was 54°. The general mean was 56°.5.

The lowest temperature in the week was 33°, at Glasgow; at Leith the lowest temperature was 39°.3. The general mean was 36°.3.

The mean temperature was highest at Paisley, 47°.8; and lowest at Perth, 44°.3. The general mean was 45°.9.

Rain.—The largest fall was 1.93 inch at Greenock; and the smallest was 0.08 inch at Leith. The general mean fall was 0.92 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

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

CHRYSANTHEMUM ANTONIUS.—Can you or any of your readers oblige me with information as to the small yellow Anemone Chrysanthemum Antonius? Is it a seedling or a sport? and, if so, from what plant, and where, when, and by whom was it produced? Any information as to this plant will be highly appreciated. *Samuel Learoyd.* [It is included in the list published by Mr. Salter in 1865, and may have been raised by him. ED.].

Answers to Correspondents.

AILANTUS GLANDULOSA: *R. B. E.* It does grow to the height of 60 feet, but not in this country. From 30 to 40 feet is about the height to which it will grow in Britain.

AMERICAN PAPERS: *A. Meredith.* 1, The paper you mention is not obtainable in London. It should be ordered through an agent. 2, The *American Gardeners' Monthly*, Chestnut Street, Philadelphia; and the *American Agriculturist*, Broadway, New York.

APPRENTICE: *G. O. M.* Your best plan would be to get the youth employment in a good garden, and say nothing about a fee unless it is asked for.

CHRYSANTHEMUM SPORT: *G. McG.* The dark orange-coloured sport from Aureum floribundum would, we think, be worth further trial, but not the other one. Send the Indian plant when in flower.

CUPRESSUS MACROCARPA.—Thanks to Mr. Webster for pointing out a clerical error in my measurement of Cupressus macrocarpa at p. 603. Read "girth" instead of "diameter." *A. Fowler.*

DOUBLE SPATHED ARUM: *Mrs. B.* Not uncommon; much finer specimens have been figured in these columns.

DR. SIEMENS' EXPERIMENTS: *C. N. H.* 1, We do not know; should think not. 2, Yes, if you send word to the publisher what numbers you want.

FUNGUS: *W. L.* We have no doubt the fungus which appeared in your garden is the common Stinkhorn (Phallus impudicus), an intolerable nuisance in some places.—*C. M. O.* The name of the fungus from under the Scotch Fir is Clavaria rugosa. It belongs to the edible class. Where there is enough of it, gather, wash, dry, tie in small bundles, and cook with butter, pepper, Onions, &c., to taste.

FUNGUS SPORES ON BROWN PAPER: *T. R. J., Ledbury.* You appear to be right in considering the spores sent to belong to the fungus of Dry Rot (Merulius lacrymans). As to whether they are "prejudicial to health in a dwelling-house," all we can say is the fungus could not exist in a dry house. A damp house and fungus spores in the air are not generally esteemed as adjuncts to health. Many of the spores were germinating on the paper—a common phenomenon.

LAPAGERIAS: *G. O. M.* We should prefer Standen's or Clay's manure in preference to the manure you mention; and a mixture of rough peat, loam, and sand in preference to any manure whatever.

NAMES OF FRUIT: *Dr. Wallace.* 15, Barcelona Pear-main; 30, probably Mère de Ménage. Others not recognised.—*E. M.* Grape, Syrian.

NAMES OF PLANTS: *H. C.* No. 3 is the common Sphagnum Moss; 1 and 2, send better specimens.—*A. Re.* Pinus pinea, probably. What is the habit of the tree?—*J. H. Porteus Oakes.* 1, Elodea canadensis; 2, Myriophyllum alterniflorum?—*A. J.* The light-coloured flower is the true Cypripedium Spicerianum; and the dark one C. Spicerianum magnificum, hort. Sander, which is by no means common.—*E. S. B.* The freckled Mormodes lentiginosa, we believe.

RASPBERRIES: *J. W.* We do not know the variety La Belle Rose, but Belle de Fontenay belongs to the autumn bearing section. Treat them the same as the others.

RHODODENDRONS: *A Florist.* All the hardy hybrid varieties will force well; the light-coloured sorts, perhaps, better than the dark ones.

TRUFFLES: *Errata.* At p. 685, col. *c*, for "Tuber melanogaster," read "melanosporum;" and for "T. æstivus" read "æstivum."

ZEPHYRANTHES ATAMASCO: *W. Rogerson.* The Atamasco Lily is a native of the Southern United States of America, and has been cultivated in this country at least 200 years. Give it the same treatment as a Vallota.

INTELLIGENT READERS, PLEASE NOTE:—*Letters relating to* ADVERTISEMENTS, *or to the supply of the Paper, should be addressed to the Publisher, and* NOT *to the Editor.*

CATALOGUES RECEIVED.

WILLIAM FELL & CO., Hexham, Northumberland—Forest and Ornamental Trees, Roses, Fruit Trees, &c.

R. B. LAIRD & SONS, 17, South Frederick Street, Edinburgh—Hardy Trees and Shrubs, Roses, Fruit Trees.

DIPPE BROTHERS, Quedlinburg, Germany—Trade Catalogue of Flower and Garden Seeds.

PUTZ & ROES, Erfurt, Germany—Annual Trade Seed List.

C. F. CRESWELL, 474, George Street, Sydney, New South Wales—Australian Orchids, Cycad, and Tree Fern Trunks, Seeds of Palms, &c.

COMMUNICATIONS RECEIVED.—T. M., Morpeth.—Mrs. B.—A. E.—C. T. D—M. J. B.—J. B. (crowded out last week, with some others).—D. T.—E. J.—R. J. L.—G. P., junr. (many thanks).—I. O. W.—T. M.—E. Morgan (Penarth, S. Wales).—J. D. D.—J. J.—E. V. B.—J. D.—W. H. D.—H. Cannell.—J. M.—T. H. A.—M. J. B.—Haage & Schmidt.—E. W. B.—P. F.—C. T. D.—T. S.—R. W.—E. W.—J. R. J.—T. A. T.

Markets.

COVENT GARDEN, December 6.

TRADE has been quiet during the week, and there have been no alterations in prices worth quoting. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 0– 4 0	Lemons, per case ..	15 0–25 0
Cobs, per 100 lb. ..	140 0–150 0	Pears, French, doz.	1 6– 4 0
Figs, per dozen ..	1 0– ..	Pine-apples, Eng., lb.	2 0– ..
Grapes, per lb. ..	1 0– 3 0	—St. Michael's, each	5 0– 8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz. ..	3 0– 5 0	Horse Radish, bund.	3 0– 4 0
—Jerusalem bush.	4 0– ..	Lettuces, Cabbage, per dozen ..	1 0– ..
Beans, French, lb. ..	1 0– ..	Mint, green, bunch ..	0 6– ..
Beet, per doz. ..	1 0– ..	Mushrooms, p. baskt.	1 0– 2 0
Cabbages, per doz. ..	1 0– 2 0	Onions, per bushel ..	4 0– ..
Carrots, per bun. ..	0 4– 0 6	— Spring, per bun.	0 6– ..
Cauliflowers, English, dozen ..	2 0– 3 0	Parsley, per bunch ..	0 4– ..
Celeriac, per root ..	0 4– 0 6	Radishes, per doz. ..	1 6– ..
Celery, per bundle ..	1 6– 2 6	Salsafy, per bundle ..	0 8– ..
Cucumbers, each ..	0 4– 0 8	Seakale, per punnet	2 6– ..
Endive, English, per dozen ..	1 0– ..	Small salading, pun.	0 4– ..
Garlic, per lb. ..	0 6– ..	Spinach, per bushel	3 6– ..
Herbs, per bunch ..	0 2– 0 4	Tomatos, per lb. ..	0 9– 1 0
		Turnips, new, bun.	0 4– ..

POTATOS.—Kent Kidneys, £4 to £4 10s. per ton; do., Regents, £3 10s. to £4 10s.; Champions, £3 10s. to £3 15s. per ton.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	12 0-24 0	Ferns, in variety, per dozen	4 0-18 0
Arbor-vitæ (golden), per dozen	6 0-18 0	Ficus elastica, each	1 6- 7 0
— (common), dozen	6 0-12 0	Foliage Plants, various, each	2 0-10 0
Azaleas, each ..	1 6- 3 6	Fuchsias, per dozen	4 0- 9 0
Begonias, per doz. ..	6 0-12 0	Hyacin., Rom., doz.	18 0-24 0
Bouvardias, doz. ..	12 0-18 0	Marguerite Daisy, per dozen	8 0-12 0
Chrysanth., per doz.	6 0-18 0	Myrtles, per doz. ..	6 0-12 0
Coleus, doz.	2 0- 6 0	Palms in variety, each..	2 6-21 0
Cyclamen, per dozen	9 0-18 0	Pelargoniums, scarlet, per dozen ..	4 0- 9 0
Dracæna term. doz.	30 0-60 0	Poinsettias, per doz.	18 0-24 0
— viridis, per doz.	12 0-24 0	Solanums, per dozen	8 0-15 0
Epiphyllum, per doz.	18 0-30 0	Tulips, per dozen ..	8 0-12 0
Erica, various, doz.	9 0-24 0		
Euonymus, various, per dozen	9 0-18 0		
Evergreens, in var., per dozen	6 0-24 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutiloo, 12 bunches	2 0- 4 0	Marguerites, 12 bun.	4 0- 6 0
Arum Lilies, 12 blms.	4 0- 8 0	Mignonette, 12 bun.	2 0- 6 0
Azalea, white, 12 spr.	1 0- 2 0	Narcissus (Paper-white)	2 0- 4 0
Bouvardias, per bun.	1 0- 1 6	Pelargoniums, 12 spr.	1 0- 2 0
Camellias, per doz...	2 0- 5 0	— zonal, 12 sprays	0 4- 0 9
Carnations, 12 blms.	1 0- 3 0	Poinsettia, 12 blooms	6 0-12 0
Chrysanth., 12 blms.	0 6- 2 0	Primula, double, bun.	1 0- 1 6
— 12 bunches ..	4 0- 9 0	— single, 12 bun...	6 0- 9 0
Cyclamen, 12 blooms	0 3- 0 6	Roses (indoor), doz.	2 0- 6 0
Epiphyllum, 12 blms.	0 6- 1 0	— coloured, doz. ..	3 0- 8 6
Eucharis, per doz. ..	4 0- 6 0	Stephanotis, 12 spr.	9 0-12 0
Gardenias, 12 blms..	6 0- 9 0	Tropæolum, 12 bun.	1 0- 2 0
Gladioli, 12 spikes..	1 0- 3 0	Tuberoses, per doz..	1 6- 3 0
Heliotropes, 12 sp. ..	0 6- 1 0	Tulips, 12 blooms ..	2 0- 3 0
Hyacinths (Roman), 12 sprays	1 6- 2 0	Violets, 12 bunches..	1 0- 1 6
Lapageria, white, 12 blooms	3 0- 6 0	— French, per bun.	1 6- 2 0
— red, 12 blooms..	1 0- 3 0	— Parme, per bun.	4 0- 5 0
Lilac, white Fr., bun.	8 0-10 0	Wallflower, 12 bun..	3 0- 4 0
Lily-of-Valley, spray	0 6- 1 0	White Jasmine, per bunch	0 6- 1 0
— 12 sprays ..	8 0-12 0		

SEEDS.

LONDON: *Dec.* 5.—Messrs. John Shaw & Sons, of 37, Mark Lane, report that there was but a poor attendance on the seed market to-day, and the business passing was limited. The Continental and American markets for red Clover seed keep firm, and in England the deliveries continue small. Rather less money is asked for Alsike. There is no change in Trefoil and white Clover. Italian Rye-grass moves off slowly at former rates. The tendency in Canary seed is still downwards. Hemp does not offer freely. Blue boiling Peas and Haricot Beans are steady.

CORN.

At Mark Lane on Monday both English and foreign Wheats were purchasable at cheaper rates than last reported, though current nominal quotations were not altered. The little inquiry for flour was confined to the finest qualities, and the market was flat. Malting Barley was dull at about late values, and foreign grinding descriptions 3*d.* lower on the week. Beans supported late value. Peas were rather easier. Flat Maize was steady but quiet: round corn was dull of sale. Oats met only a limited inquiry, with a tendency in buyers' favour.—On Wednesday business in Wheat was too meagre to test general quotations, which must be written as nominally unaltered from Monday. Flour was in much the same position as Wheat. Maize was firmly held at previous rates. Spring Corn generally was quiet, and Oats dull. Average prices of Corn for the week ending Dec. 1:—Wheat, 40*s.* 2*d.*; Barley, 32*s.* 6*d.*; Oats, 19*s.* 5*d.* For the corresponding period last year:—Wheat, 41*s.* 5*d.*; Barley, 34*s.*; Oats, 20*s.* 7*d.*

HAY.

Tuesday's Whitechapel Market report states that the supplies were large, especially of hay, which met with a very dull sale. Quotations:—Prime old Clover, 95*s.* to 102*s.*; inferior, 60*s.* to 75*s.*; prime second cut, 90*s.* to 105*s.*; best meadow hay, 80*s.* to 84*s.*; inferior, 40*s.* to 65*s.*; and straw, 30*s.* to 37*s.* per load.—On Thursday a fair supply was offered, and the trade was somewhat better—best Clover rather dearer than on Tuesday.—Cumberland Market quotations:—Superior meadow hay, 80*s.* to 90*s.*; inferior, 60*s.* to 70*s.*; superior Clover, 98*s.* to 110*s.*; inferior, 70*s.* to 84*s.*; and straw, 33*s.* to 36*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that good supplies were on offer, and met with a fair demand as follows:—Magnum Bonums, 100*s.* to 110*s.*; Regents, 100*s.* to 110*s.*; Champions, 80*s.* to 90*s.*; and Roses, 80*s.* per ton.—The imports into London last week consisted of 29,892 bags from Hamburgh, 506 Antwerp, 3000 Bremen, 10 Amsterdam, 6 Ostend, 127 Boulogne, 20 Danzig, 50 Charente, 14,299 Stettin, 5 Bruges, 8 Rotterdam, 1015 bags 24 baskets Harlingen, 199 tons Pontrieux, 192 tons Dabonet, 40 half-boxes Cadiz, and 17 barrels from New York.

COALS.

The following are the prices current at market during the week:—Bebside West Hartley, 15*s.* 6*d.*; Ravensworth West Hartley, 15*s.* 6*d.*; Walls End—Hetton, 19*s.*; Hetton Lyons, 17*s.* 6*d.* and 17*s.* 8*d.*; Lambton, 18*s.* 6*d.*; Wear, 17*s.* 6*d.*; East Hartlepool, 18*s.* 3*d.*; South Hartlepool, 17*s.* 9*d.*; Tees, 19*s.*; Harton, 17*s.* 6*d.*; Whitburn, 17*s.* 6*d.*; Thornley, 18*s.* 6*d.*; Original, 16*s.* 9*d.*

CARNATION, "MARY MORRIS."

Plants now ready for delivery.

First-class Certificate was awarded at Kensington, Aug. 22, 1882. A beautiful Rose-coloured Self, very highly scented, of great size, very full, and of perfect shape; does not burst the calyx, a very free bloomer and vigorous grower, and perfectly hardy. See *Gardeners' Chronicle*, August 4, 1883, page 146. Price and all particulars on application to

H. G. SMYTH, 21, Goldsmith Street, Drury Lane, W.C.

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

SPECIAL OFFERS

of Transplanted	Per 100. s. d.	Per 1000. £ s.
BROOM, Common, 1½ to 2 feet ..	2 6	0 15
,, White, 3 to 4 feet	10 0	4 0
COTONEASTER MICROPHYLLA, 1 to 1½ foot	8 0	3 0
DECIDUOUS SHRUBS, sorts, 1½ by 2 feet	8 0	2 10
FIR, Silver, 9 to 12 inches	..	0 8
GUELDRES ROSE, double, 1½ to 3 ft.	10 0	..
LAUREL, Common, 9 by 18 in., bushy	6 0	2 10
HARDY PERENNIALS, in 100 distinct named sorts..	16/8 to 25*s.*	£6 to £8

The same collection of Perennials, in small plants, at half these prices.

SEEDLINGS, &c.

	Per 1000 s. d.	Per 100,000 £ s.
FIR, Scotch, 2-yr..	1 0	4 0
,, ,, 3-yr.	1 6	5 0
,, ,, 1-yr., bedded	2 0	7 10
FIR, Spruce, 2-yr...	1 0	4 0
,, ,, 3-yr.	2 0	7 10
FIR, Silver, 3-yr.	3 0	10 0
PINUS AUSTRIACA, 2-yr.	1 6	5 0
,, ,, 3-yr.	2 6	7 10
,, ,, 1-yr., bedded	3 0	10 0
,, LARICIO, 2-yr.	2 6	7 10
,, ,, 1-yr., bedded	4 0	15 0
,, MARITIMA, 2-yr.	2 6	7 10
WHIN, or GORSE (good roots) ..	2 6	7 10

S. SMITH,

Tansley Nursery, near Matlock, Derbyshire.

SCOTCH FIR.

True Native Transplanted SCOTCH FIR in quantity, 1½ to 2 feet, 2 to 2½ feet, and 2½ to 3 feet. Seed collected in the Forests of Braemar.

LARCH, SPRUCE and SILVER FIRS, HARDWOODS, &c. Prices on application to

HOGG & WOOD, Coldstream-on-Tweed.

HARRISONS' NEW EARLY "ECLIPSE" PEA.

A grand new Early Pea, introduced by us last season.

The haulm is of a peculiar light green colour, only 2 feet in height, the pods of a lively green and well filled, and is the heaviest cropper for an early variety we have ever seen. The seed is blue and similar in appearance to the "Kentish Invicta," but it is hardier and even earlier than that excellent variety.

Retail Price—Per Pint, 1s. 6d.; per Quart, 2s. 6d.
Trade Price—Per doz. Pints, 12s.; per doz Quarts, 21s.

TESTIMONIALS.

From Mr. John Swift, Manchester.

"*October* 24, 1883.—I consider your New Early Eclipse Pea to be the best early Pea I have ever grown, both for earliness, size of pods, and appearance."

From Messrs. Taber & Cullen, Rivenhall.

"*October* 25, 1883.—The New Pea, 'Early Eclipse,' we had from you last season is a good early blue, and valuable for podding, all coming in together."

From Mr. Samuel Taylor, Pershore.

"*October* 23, 1883.—I found your New Early Eclipse Pea very early and prolific. Sown by the side of Kentish Invicta, they were ready to pick nearly a week before that variety, and I picked nearly 4 pots (40 lb. per pot) off the little patch of ground, and had 8*s.* per pot for them; when the other early ones were ready the price had dropped to 5*s.* I hope you will be able to spare the 4 bushels I spoke for in the summer."

From Mr. W. Hill, Evesham.

"*October* 28, 1883.—Your New Early Eclipse Pea is the best early Pea I ever had; it is a good cropper, very early, and gave me every satisfaction. I hope those you have sent me will prove as good."

From Mr. I. Lake, Jun., Ilford, Essex.

"*July* 5, 1883.—I find your new 'Early Eclipse' Pea an early and good cropping variety. When you are quoting the price per bushel for the coming year, I should like 2 quarters of the same stock of Pea."

The above Testimonials are only a few from the large number we have received.

Trade LIST Free on application.

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SPECIAL CASH OFFER OF OVER 20,000 PALMS,

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ORCHIDS.

	s. d.
12 choice free flowering sorts for	21 0
12 ,, ,, extra size	30 0
12 ,, ,, very choice selected ..	42 0
100 in 50 sorts for	200 0
100 in 100 sorts for	400 0

Special Cheap Price LIST of NEW PLANTS on application.

STOVE and GREENHOUSE PLANTS,

Including the most useful and beautiful foliaged and flowering plants and climbers, carefully selected.

12 fine young healthy plants, distinct, 6*s.* to 12*s.*
100 in 100 varieties, forming an unequalled collection, 42*s.*
12 Ferns, very choice and pretty, 6*s.* and 9*s.*; 100 Ferns, 42*s.*
GREENHOUSE RHODODENDRONS, charming varieties, beautifully scented, 12 varieties, 18*s.*, 36*s.*, and 42*s.*
12 AZALEAS, full of flower buds, 12*s.*, 18*s.*, to 30*s.*
12 CAMELLIAS, strong healthy plants, 21*s.* and 42*s.*
12 Tree Carnations, strong in pots, winter bloom, 21*s.* and 30*s.*
12 Epacris and Ericas, 12*s.* and 18*s.*
Beautiful hardy herbaceous flowering plants for the garden, selected from nearly 4000 varieties and species.
12 choice and most desirable kinds, 4*s.* and 6*s.*
100 ,, ,, ,, in 50 varieties, 21*s.*
100 ,, ,, ,, in 100 varieties, 30*s.* and 42*s.*

AMERICAN SEEDS.

2½*d.* Postage on a Letter of Inquiry will secure you by return Mail our PRICES—Wholesale or Retail.

SEEDS of MAIZE for Field or Garden, PEAS, BEANS, CUCUMBERS, PUMPKINS, SQUASH, CANTALOUPES, WATER MELONS, TOMATOS, OKRA or GUMBO, COTTON SEED, TOBACCO, OSAGE ORANGE or MACLURA, TREE SEEDS, AMERICAN GARDEN TOOLS, BOOKS, &c.

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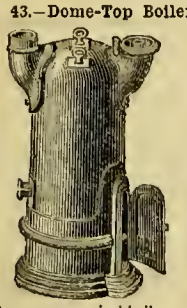
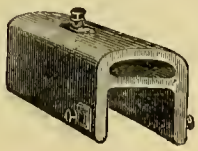
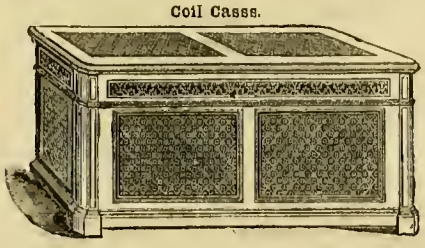


A very economical boiler.

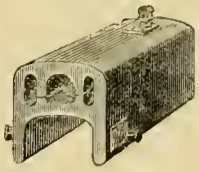
No. 28.—Terminal End Boiler.



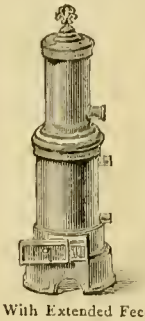
Coil Cases.



No. 18.—Gold Medal Boiler.



No. 52.—Star Boiler.



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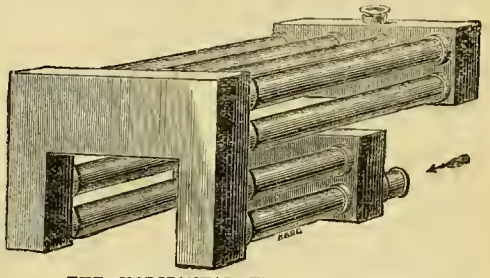

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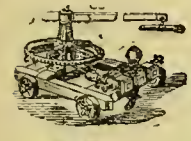

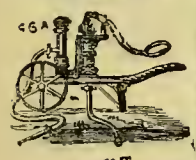

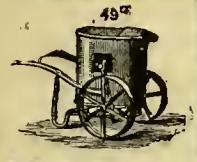

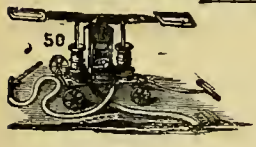

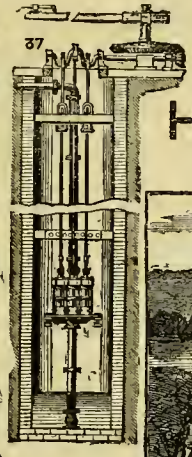

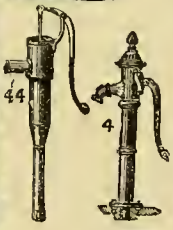

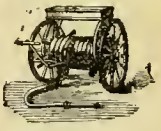

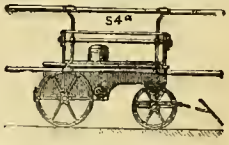

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FOR SALE, Large PEACH and NECTARINE TREES.—A good selection of the above, covering a trellis 70 feet by 12 feet, all young, in perfect health and full bearing condition. For particulars apply to
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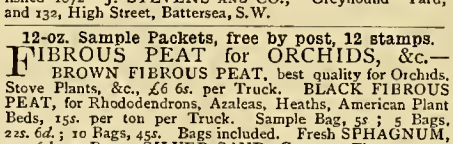

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Terms, strictly cash with order. Prices as follows:—Sacks, 1s. 6d. each; 10 sacks, 13s.; 15 sacks, 18s.; 20 sacks, 23s.; 30 sacks, 30s. (all sacks included). Truck-load, free on rail, £2. Limited quantities of SPECIAL QUALITY, Granulated, in sacks only, 2s. 6d. each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from the Manufacturers,
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Sold in Casks of about 30 gallons each, at 1s. 6d. per gallon at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

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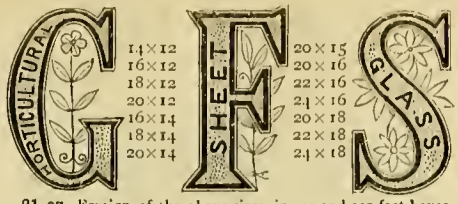

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Price List Free.
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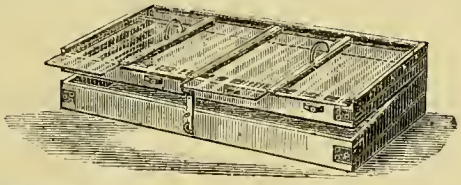

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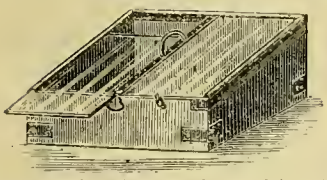

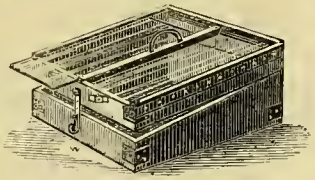

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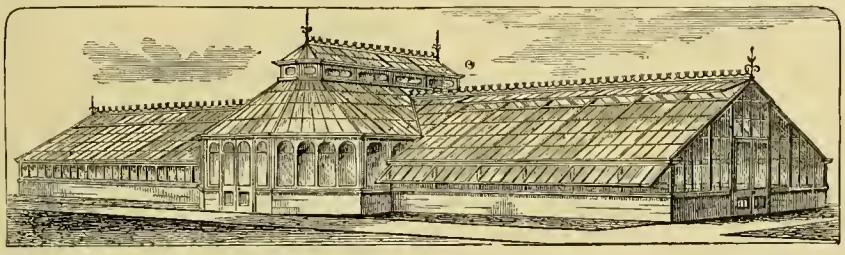

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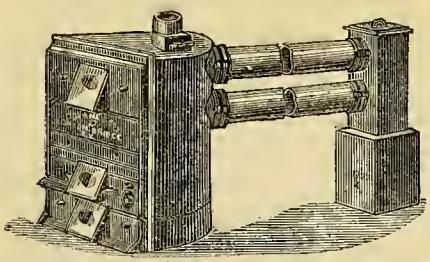

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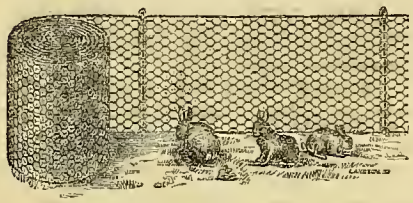

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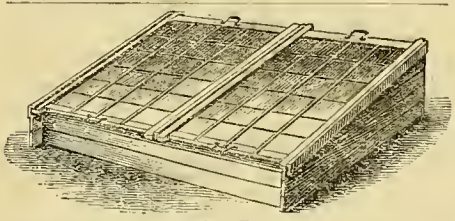

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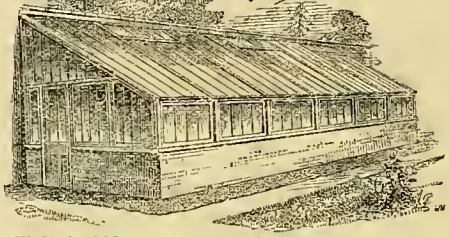

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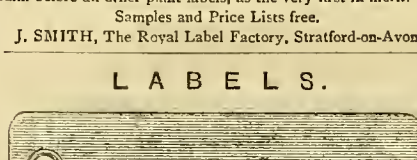

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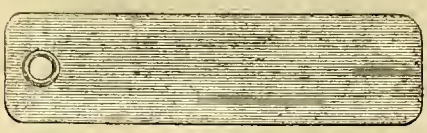

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From ARTHUR PERRY, Esq., *Timaru, Canterbury, New Zealand, July* 4, 1883.—"The Primulas raised from the Seed I had from you last year are now in flower, and they are without exception the finest lot I have ever seen. Your Single Cinerarias are also very good."

From W. P. SIMMONS & Co., *Geneva, O., U.S.A., July* 30, 1883.—"In spite of the hot weather, the last lot of plants you so kindly mailed me came through in fine shape."

From JOHN PATTERSON, Esq., *Solicitor and Notary Public, Tamworth, N. S. Wales, May* 26, 1883.—"I am glad to inform you that the Pelargoniums you sent me by post arrived in excellent condition; not only did they survive their incarceration by post (about forty-six days), but they had actually made several strong shoots."

From Mr. N. RONALDS, *Brighton Nursery, New Street, Melbourne, Victoria, September* 25, 1882.—"I beg to acknowledge the receipt of two packages of Seeds by the August mail, also one case with Narcissus Bulbs by the September mail, which arrived in splendid condition, as sound as when you packed them in dear old England. The steamer made a splendid trip (forty-two days)."

From Mr. J. L. BRIERLEY, 209, *Union Street, Worcester, Mass., U.S.A., September* 3, 1883.—"I received your two packages of Plants all right. Many thanks for your prompt and very liberal dealing. I like your mode of packing very much."

From Mrs. J. PHILLIPS, *Matakana, New Zealand, November* 28, 1882.—"I was very much surprised as well as pleased at receiving a rooted cutting of Lapageria rosea; it is doing remarkably well, for which accept my best thanks. The Seeds were nicely selected, and are all growing well; it is a great pleasure for me to watch them, knowing they will turn out good. Thank you for your liberal supply."

From J. NEWLAND, Esq., *Ngaroto, Waikato, Auckland, New Zealand, December* 28, 1882.—"Your Seeds are good. Sweet Williams are the finest collection I ever saw, really magnificent. Digitalis, Pansies, and Antirrhinum fine."

From Mr. H. MATTOCK, *Gardener to* E. J. PRICE, Esq., *Wolfesfield, Quebec, Canada, January*, 1882.—"I am very pleased to inform you that I took two First Prizes with the Dahlias you sent me last year, and also with your Zonal Geraniums at the Quebec Horticultural Show last year."

From J. EVERAERTS, Esq., *Antwerp, Belgium, April* 2, 1883.—"Plants and Seeds received in excellent condition."

From A. K. MOORSON, Esq., *West Maitland, viâ Sydney, February* 2, 1883.—"Your Geraniums have all done well, and thrive in this climate magnificently."

From Mr. F. J. BARKER, *Arahura Nursery, Hokitika, New Zealand, February* 22, 1883.—"The Plants by post came to hand in grand condition, and I have now a nice little stock of many of them."

From Miss J. CLARK, *Villa Melzi, Bellagio, Lac de Côme, Italy.*—"Sir,—I am desired by the Duchess Melzi d'Eril to inform you that the flowers have reached us all safe, and are all doing well."

From C. HEISTERFELD, *Zehlendorf, Teltow, near Berlin, February* 9.—"The Chrysanthemum cuttings you sent me arrived in perfectly good condition. They looked as if they had just come off the plants."

From H. WILLES, *Teltow, near Berlin, February* 9.—"The Chrysanthemum cuttings you sent to Mr. C. Heisterfeld, and which I happened to see on their arrival, caused me to ask you for one of your *Floral Guides*, that I might order some things I want."

From E. S. DIXON, *Guines, Pas de Calais, France, February* 24, 1883.—"The Pelargoniums, &c., reached me in capital condition. Please accept best thanks for your welcome addition to my trifling order. The plants themselves are all the gainers by your economical and expeditious mode of sending them."

From H. T. KLEINSTARINK, *Utrecht, Holland, January* 1, 1883.—"Dear Sirs,—We have received the Roses in good order and the Chrysanthemums too."

From H. P. WALCOTT, Esq., *Cambridge, Mass, U.S.A., May* 28, 1883.—"The last plants arrived in excellent order; so good that I think not one of them will be lost."

From Mr. WILLIAM FALCONER, *Botanic Gardens, Cambridge, Mass., U.S.A., January* 15, 1883.—"I had a packet of Swanley Red Primula last spring. They are now in bloom, and very fine."

From the DIRECTOR OF THE IMPERIAL GARDENS, *Vienna, Austria, July* 5, 1883.—"The plants you sent arrived in perfect condition."

From Mr. E. M. MITCHELL, *Florist, Port Hope, Ontario, Canada, November* 22, 1883.—"Your shipment of August 4 arrived here in splendid order."

"*Dunedin News*," *New Zealand*.—"We were shown today, by Mr. T. Ireland, an interesting object in the way of a package of Pelargonium plants which he has just received through the post per San Francisco mail. They were sent out to order by Messrs. H. Cannell & Sons, of Swanley, Kent, who have perfected a process for sending living plants to any distance without their growth being checked to any great extent. The plants were packed in an ingenious way so as to prevent them being injured, and were delivered in first-class condition. An interesting feature of the affair, and a sure proof of the success of the experiment, lies in the fact that Mr. Ireland's plants have thrown out young shoots during the passage out. This should encourage our floriculturists to procure new or rare plants from Home."

From "*The Industrial Press*," CUMMINGS & SCOTT, *Galena, Illinois, U.S.A., March* 20, 1883.—"This morning's post brought us one of the handsomest and complete Catalogues we ever saw, and we see them all, as we presume there is hardly a Catalogue published but we have the pleasure of possessing one; but we must award you the palm. It seems almost like being in fairyland to think of such immense blossoms—Begonia flowers 6 inches across! What must it be to behold them? We are great lovers of flowers, and cultivate a great many, but have nothing which compares with yours."

From Mrs. J. MANCHE, *Valletta, Malta, September* 16, 1883.—"I beg to acknowledge, with thanks, the receipt of three boxes of Coleus cuttings."

From H. EDWD. ADAMS, Esq., *Patea, Taranaki, New Zealand, February* 22, 1883.—"I duly received the bulbs by post, and I am glad to say they are growing well. The seeds I received from you have done exceedingly well, and some of the plants obtained from them have been very much admired."

From Official Description of the Great Flower Show at

Ghent, *April* 15 to 22, 1883.—"First let us say something about the English Horticulture. The Double Cinerarias of Messrs Cannell & Sons, Swanley, exc ted the astonishment of all amateurs. It was very easy to decide these plants to be first-rate novelties. Their elegant double blooms are of a dark purple colour, and charming to gaze upon. They formed in the large Exhibition Hall a splendid group, together with the Double Mignonettes, a curiosity, with blooms of a whitish colour."

From Mr. WALTER COLES, *Belvidere, New Jersey, U.S.A., September* 3.—"The plants you sent me about four months ago have given perfect satisfaction. Your mode of packing is certainly grand. You may send plants all over the United States, and be received in fine condition. I am delighted with some of your plants, which are now in bloom."

From Mons. J. SISLEY, *Monplaisir, Lyon, France, May* 28.—"I received yesterday three boxes, which arrived in perfect condition, containing twenty-one plants, for which accept my sincere thanks."

From Mr. THOS. MCMURRAY, 134, *Church Street, New York, June* 28, 1883.—"The Geraniums you forwarded have just arrived, and although they must have been a considerable time on the way, I found them all in good order; but this is easily accounted for, from the careful manner in which you packed them."

From J. C. JAMES, Esq., *Charlottetown, P. E. Island, Canada, September* 12, 1883.—"The Auriculas reached me in splendid order."

From Mr. C. ORCHARD, *Patea, New Zealand, August* 9, 1883.—"I received the Pelargoniums and Fuchsias by the last mail in good condition; most of them had made growth on the voyage, and are now looking well. As I am so pleased with the others, I send you another order."

From Messrs. THOLEN & SON, *Florists, Leavenworth, Kansas, U.S.A., June* 30, 1883.—"The Nicotiana you sent us is splendid, and well named after the gracious Queen."

From R. TRIGGS, Esq., *Loco. Superintendent's Office, Canterbury, New Zealand, August* 14, 1883.—"The Flower Seeds ordered from your firm duly came to hand on May 31, and in excellent condition. I am much obliged for the close attention given to the order, and the prompt dispatch it received at your hands."

From Mr. E. B. JORDAN, 583, *Market Street, San Francisco, California, U.S.A., September* 20, 1883.—"I received your 10 packets by mail on September 10. The Plants were in first-class order. I am very well satisfied with the shipment."

From the "*Gardeners' Magazine*," *September* 1, 1883.—"Messrs. CANNELL & SONS, of Swanley, made a sensation at the recent Exhibition of the Linnéenne Society of Brussels by showing cut flowers of Dahlias and Pelargoniums in the same effective manner in which they had often presented them at South Kensington, the Crystal Palace, and other centres of horticultural activity. The flowers were still fresh, and in their fullest beauty, after their long journey in hot dry weather, and the surprise and delight they created may be measured by the fact that the King sent for Messrs. Cannell to congratulate them on the novelty and splendour of the display. Another result was the Medal of the City of Brussels was awarded to Messrs. Cannell by acclamation."

From Messrs. MUNGER & MANCEL, *Botany Nursery, King Street, Botany, New South Wales.*—"We are well satisfied with the Seeds you last sent us, and hope those now ordered will prove as good."

From H. A. ROLT, Esq., *P. and O. Steam Navigation Company*, 122, *Leadenhall Street, E.C., October* 2, 1883.—"Many thanks for the plants, which are much admired. They will be on their way to China to-morrow, and I will let you know how they are after their 10,000 miles trip."

From Dr. BLANCHARD, *Prov. de Jaen, Linares, Andalusia, Spain, February* 13.—"The plants arrived very fine, well, and healthy, and I see in your Catalogue of 1882 that you notice my receipt of the Coleus, bonny little plants. I am glad to see this or anything else in favour of the great pleasure of receiving choice varieties—from one's native land."

From W. A. HARRIS, Esq., *New York.*—"Many thanks for the plants sent me. Their receipt was especially gratifying for two reasons—one, that it was entirely unexpected; the other, that I perceive the plants to be from your most recent introductions. They are in good condition, and will undoubtedly do well."

From T. J. WAFFORN, Esq., *Christchurch, New Zealand, December* 31.—"I received the twelve Plants by post on December 8, in good condition, and at the present time I have got eleven of them nicely in leaf. I also beg to inform you that the Auricula, Begonia, Cyclamen, Cineraria, and Primula seeds I had from you have germinated splendidly."

From C. M. ATKINSON, Esq., *Brooklyn, Boston, Mass, U.S. America, July* 19.—"The six packages came safe to hand by post all right. For ingenious simplicity and almost positive safety your system for conveying plants deserves all praise. The United States issue series of patents that for general utility are comparatively worthless—whereas you deserve much patronage."

From JEREMIAH LYON & Co., 4, *Lombard Court, Gracechurch Street, London, E.C., May* 5.—"We have received the following from our friend in India, for whom we sent you an order on Tuesday last:—'I enclose a small fresh order for Messrs. Cannell. I prefer them to others, as their packing is so superior. In the last case you sent from them not a single Fuchsia had died.'"

From Gardeners' Chronicle, August 25, 1883.—"Exposition d'Horticulture de la Société Royale Linnéenne de Bruxelles.—At the Exhibition of this Society at Brussels, on Sunday last, Messrs. Cannell, of Swanley, received the City of Brussels Medal for their superb collection of cut flowers of Dahlias and Zonal Pelargoniums, and His Majesty, who was present on the occasion, expressed admiration for the manner in which this fine collection had travelled so far in so fresh and life-like a condition. There was nothing in the Show in the Cut Flower way equal to this collection, and Messrs. Cannell may be congratulated on their success in this special florist business, to which they are so devoted."

From W. TUCKER, Esq., *Quebec, Canada, February* 13, 1882.—"I received the packages of seeds twenty-six days from date of order. I also received your *Floral Guide*. It contains a vast amount of practical information, and I look forward for it every season with anxious pleasure. I had the best show of Dahlias in Quebec last season from roots supplied by you."

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THE

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February 12.	June 10 and 24.
March 11 and 25.	July 8 and 22.
April 8 and 22.	November 11.

December 9.

FRUIT AND FLORAL COMMITTEES.

January 8.	July 8 and 22.
February 12.	August 12 and 26.
March 11 and 25.	September 9.
April 8 and 22.	October 14.
May 13 and 27.	November 11.
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J. SLATER AND SONS, The Nurseries, Malton, Yorks.

SURPLUS STOCK.—Handsome and Choice Evergreen and Deciduous TREES for Avenues, Parks, Gardens, Streets, &c. Very good and cheap. LIST free by post.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

East Lothian Stock and Pansy Seed.
R. B. LAIRD AND SONS (sole Successors to DOWNIE & LAIRD) can offer the above. Particulars as to price, &c., on application.
R. B. LAIRD AND SONS, Seedsmen, 17, Frederick Street Edinburgh.

White Flowers—White Flowers.
WHITE CLOVE PINK, Mrs. Sinkins, extra extra strong, 18 months old, for 32's and 24's pots, 6s., 9s., and 12s. per dozen, 40s. and 50s. per 100.
W. WEALE, Taplow, Bucks.

East Lothian Intermediate Stocks.
THOMAS METHVEN AND SONS now offer their Choice Strain of above, Scarlet, Purple, White and Crimson, in packets, 1s., 2s. 6d. and 5s. each colour.
Snow-white Wall-leaved, in packets, 2s. 6d. and 5s. each.
Price to the Trade on application.
15, Princes Street, Edinburgh.

PICEA PUNGENS.—The Blue Spruce of Colorado: see *Gardeners' Chronicle*, Dec. 8, page 725.
Fine plants of the true glaucus variety, with bluish tint, 12 to 18 inches, 5s. each. Fine plants of the green variety, 12 to 18 inches, 1s. 6d. each. Priced LISTS of Californian Conifers sent free on application.
MORRISON BROTHERS, Aberdeen.

LILY of the VALLEY CROWNS, for planting, 7s. 6d. per bushel, of about 1000 crowns. SEAKALE and LILIUM AURATUM, extra fine. Price on application. Special price to the Trade.
COLLINS BROS. AND GABRIEL, 39, Waterloo Road, London, S.E.

BEAUTIFUL CHRISTMAS TREES.—A fine lot, from 3 to 8 feet; also AUSTRIAN PINES, from 3 to 4 feet.
J. M. JEFFREY, Denham Road Nursery, Uxbridge.

Christmas Trees.
CHRISTMAS TREES, bushy, well grown, and good colour, from 1½ to 2 feet, 10s. per 100; 2 to 3 feet, 20s. per 100; 3 to 5 feet, 40s. per 100. Cash with order.
J. W. COLE, Holly Nursery Hundleby, Spilsby, Lincolnshire.

Grape Vines—Grape Vines.
B. S. WILLIAMS begs to announce that his stock of VINES this season is remarkably fine, and is now ready for sending out. A Descriptive LIST will be found in the Bulb Catalogue, post-free on application. Early Orders are solicited.
Victoria and Paradise Nurseries, Upper Holloway, N.

SALES BY AUCTION.

Sale this Day.—(No. 6543.)
PLANTS and BULBS from HOLLAND.

MR. J. H. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., this day, SATURDAY, December 15, at half-past 12 o'Clock precisely, a consignment of new and choice Hardy CONIFERS, of sorts; AZALEA MOLLIS, full of flower-buds, and other PLANTS from Holland; First-class Standard and Dwarf ROSES; Dwarf-trained and Pyramid FRUIT TREES; HARDY HERBACEOUS BORDER PLANTS; and a variety of DUTCH BULBS.
On view morning of Sale, and Catalogues had.

Monday Next.—(Sale No. 6544.)
HOME-GROWN LILIES, MEXICAN BULBS, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY NEXT, December 17, at half-past 12 o'Clock precisely, a great variety of HOME-GROWN LILIES, including extra fine bulbs of Lilium Humboldtii, L. giganteum, L. Brownii, L. philippinense, L. album Krætzerii, and many others; 500 MILLA BIFLORA, with large pure white flowers; CYCLOBOTHRA FLAVA, PANCRATIUM species, and other rare MEXICAN BULBS; 3000 TIGRIDIA GRANDIFLORA, BULBS from Holland, &c.
On view morning of Sale, and Catalogues had.

Monday Next.—(Sale No. 6544.)
Importation from Japan.
50 LILIUM KRAMERI, 250 L. LONGIFLORUM, 250 L. THUNBERGIANUM, 150 L. SPECIOSUM ROSEUM, and 3000 L. AURATUM, all in fine condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY NEXT, December 17.
On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6546.)
HARDY PLANTS and BULBS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, December 19, at half-past 12 o'Clock precisely, first-class Standard and Dwarf ROSES, in all the finest varieties; Pyramid and Dwarf-trained FRUIT TREES, Hardy CONIFERS, RHODODENDRONS, Portugal and Common LAURELS, Variegated and Green HOLLIES, ORNAMENTAL FLOWERING TREES and SHRUBS, HARDY HERBACEOUS BORDER PLANTS, DUTCH BULBS, &c.
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6547.)
CATTLEYA ACKLANDIÆ.
CYPRIPEDIUM ROBELENI, Rchb. f.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, December 20, at half-past 12 o'Clock precisely, CATTLEYA ACKLANDIÆ—an extra fine lot of this beautiful Cattleya. A healthier batch could not be seen; the plants have sound eyes, which is so rarely found in imported plants of this Cattleya. CYPRIPEDIUM ROBELENI, Rchb. f.: a grand importation of this fine new Cypripedium, embracing splendid masses, in superb health and condition, having sound roots and thoroughly furnished with green leaves. Also a fine lot of ODONTOGLOSSUM ALEXANDRÆ and other ORCHIDS.
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6547.)
3000 LILIUM AURATUM, just received from Japan in fine condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, December 20.
On view morning of Sale, and Catalogues had.

Monday Next.
FINAL SALE of DUTCH BULBS this Season. A grand consignment, forming the surplus stock of two of the most eminent growers in Holland.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY NEXT, at half-past 11 o'Clock precisely, 700 lots of first-class HYACINTHS, TULIPS, CROCUS, NARCISSUS, LILY of the VALLEY, GLADIOLUS, SCILLAS, JONQUILS, and other ROOTS, from Holland, in lots to suit both Wholesale and Retail Buyers.
On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Tuesday Next.
SPECIAL SALE of ORCHIDS in Flower and in Bud.

MESSRS. PROTHEROE AND MORRIS beg to announce that their NEXT SPECIAL SALE and EXHIBITION of ORCHIDS in Flower and in Bud will take place at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, at half-past 12 o'Clock precisely, and will comprise plants from some of the best and largest collections in the country. A very grand assortment is anticipated on this occasion.
On view after 11 o'Clock on the morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Tuesday Next.

MESSRS. PROTHEROE AND MORRIS beg to call attention to the following plants included in their SPECIAL SALE of ORCHIDS in Flower on TUESDAY NEXT:—

Odontoglossum Pescatorei, six splendid specimens.	Phalænopsis amabilis Dayana.
,, Alexandræ, several extra fine varieties.	Odontoglossum faveolum.
Cattleya Trianæ alba, very fine plant.	,, pretty hybrid, in the way of Horsmanni.
Phalænopsis Sanderiana.	Oncidium macranthum.
	Lælia albida.
	Saccolabium giganteum.

Thursday Next.
SPECIAL UNRESERVED SALE of CHOICE PLANTS in flower for Christmas Decorations.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on THURSDAY NEXT, at half-past 12 o'Clock precisely, a splendid assortment of beautifully grown STOVE and GREENHOUSE PLANTS in flower, choice FERNS and PALMS, and other DECORATIVE PLANTS.
On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Friday Next.
CATTLEYA AMETHYSTOGLOSSA (true.)
VANDA LAMELLATA BOXALLI.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, at half-past 12 o'Clock precisely, a superb consignment of the magnificent CATTLEYA AMETHYSTOGLOSSA (true), hitherto very rare. The plants consist of the true type, with the large dark spotted flowers, and it will be seen that up to twenty blooms have been carried on the spikes. Also a splendid importation of VANDA LAMELLATA BOXALLI, which have arrived in superb order, and other importations.
On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

Saturday Next.
500 Standard and Dwarf ROSES, a collection of hardy English-grown LILIES and BULBS, CARNATIONS and PICOTEES, and a variety of PLANTS and BULBS for the Garden.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., at half-past 11 o'Clock precisely.
On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

West Hill, Wandsworth, S.W.
To Nurserymen, Market Gardeners, and Others.
Clearance Sale, for Building Purposes. About 11,000 ft. super. of GLASS, and a large quantity of IRON FENCING.

MR. W. H. COLLIER is instructed by the British Land Company (Limited) to SELL by AUCTION, on the Premises, Putney Lodge, West Hill, Wandsworth, S.W. (late the residence of Sigismund Rucker, Esq.), on MONDAY NEXT, December 17, at 11 for 12 o'Clock, in lots, about 11,000 superficial feet of GLASS, comprising Orchid, Stove, Peach, and Heath Houses, lofty and handsome Conservatory, 2 Vineries, and several Forcing Pits; also a quantity of Iron Fencing, Hurdles, Gates, and Wire Fencing, a large Wire Aviary, 3 Iron Tanks, Wooden Yard Gates, &c., and a Copper Pump.
A description of the Fencing may be seen at the Office, and be viewed any time previous to the Sale, and Catalogues obtained on the Premises, and of the Auctioneer, 25, Moorgate Street, London, E.C.

South Hants.
To Market Gardeners, Fruit Growers, Capitalists, and Others.
Estate of Mr. John Thomas, deceased.

MR. RICHARD AUSTIN is instructed to SELL by AUCTION, at Woodman's Farm, near Botley and Bishop's Waltham Railway Stations (L. & S. W. R.) on MONDAY, December 17, at 1 o'Clock, P.M., the valuable MARKET GARDEN, FRUIT, and VEGETABLE MERCHANT'S STOCK and PLANT on Woodman's and part of Nation's Farms.

Lot 1. The Interest and Rights under Agreement for Lease of Woodman's Farm of 55 Acres, with Residence, Buildings, and two Cottages, for residue of term of twenty-one years from Michaelmas, 1880 (determinable at end of first fourteen years), together with the Stock and Plant, and six Span-roofed Greenhouses, 100 feet by 12. The whole of the Implements and Tools necessary for Management.

Lot 2. The Interest and Rights under Agreement in 26 Acres of Land, with Buildings, part of Nation's Farm, near Lot 1, with Stock thereon.

Also in convenient Lots, the residue of the Plant, a few items of Furniture, and useful Lots.

This presents a favourable opportunity to enterprising Market Gardeners and Fruit Growers, the arrangements having been made by the late Mr. John Thomas, who had the reputation of being a very skilful and careful Market Gardener, and is sold in consequence of his sudden decease. The property is near Southampton, and within easy railway distance of London.

Particulars and Conditions of Sale may be obtained of Messrs. TRYTHALL AND BODILLY, Solicitors, Penzance; of Mr. NICHOLAS DONNITHORNE, Solicitor, Fareham; and of the Auctioneer, Bishop's Waltham, and St. Michael Street, Southampton.

LAND.—WANTED to PURCHASE, or LEASE, 4 to 6 acres or more of good Land, suitable for a Nursery or Market Garden, facing a main road, and near a Railway Station, not more than 12 miles from Covent Garden. If with good house preferred.
Send particulars to R. OWEN, Mill End, Henley-on-Thames.

Surrey, near Station.

TO BE SOLD, a NURSERY BUSINESS, with 2 Greenhouses, Potting and other Sheds—¼ acre in all; on lease, low rent. Further particulars, apply to W. R. MANNING, House Agent, Red Hill.

TO BE SOLD, a Small compact NURSERY, within a mile of a large manufacturing and market town in the North of Ireland. The Nursery comprises 2 acres of Ground, with 4 fine Conservatories, Greenhouses, Stoves, Frames, &c. A large trade is done in Stove and Greenhouse and Bedding Plants, of which there is a large and fine collection. A 10-roomed Dwelling-house, with Stabling, Coach-house, &c., stands apart from the Nursery, and can be let for the rent of the whole. There is an unexpired lease of 24 years. The proprietor is only giving it up in consequence of not being able to devote the time to it which he must give to his Seed Business. For an enterprising person with a knowledge of the Nursery Business, this is an opportunity not often met with.
For particulars, apply to Z., Hurst & Son, Seedsmen, 152, Houndsditch, London, E.

Florist and Nursery.—The Goodwill, &c.

TO BE SOLD, handsome SHOP, with good Dwelling-house, and most prominently situated, with every convenience for doing a large trade. Death the reason for disposal.
Messrs. PROTHEROE AND MORRIS, 8, New Broad Street, E.C.

TO BE LET or SOLD, the NURSERY GARDENS, Dwelling House, Greenhouses, Outbuildings, and Premises at Penkhull, Stoke-on-Trent, now occupied by Mr. David Ffoulkes, and for many years previously by Messrs. Burgess & Kent; within easy distance of four markets, and well situated for the sale of flowers, &c.
Apply to GEORGE H. JONES, Sunnyside, Stoke-on-Trent.

A SPLENDID OPPORTUNITY is offered to any enterprising party or parties, in the Nursery Trade for the acquisition, either by RENTAL or PURCHASE, of a well-known and long established NURSERY in the central part of England. Both soil and situation are admirably adapted for the purpose, producing clean, well-grown stuff, splendidly rooted, and for which it has a high reputation in the trade. The stock is all young and healthy, and embraces a general collection of Nursery Stuff, with unique selection of Conifers, Ornamental Trees and Shrubs, and Fruit Trees. It is a sound going concern, with a good Retail Connection, in addition to a large Wholesale Trade, both of which, in capable hands, might be greatly extended. Advanced age of the proprietor is the sole reason of this eligible business being offered. Principals only will be negociated with, and fuller particulars may be obtained on application to
G. B. C., Mr. John Downie, 144, Princes Street, Edinburgh.

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

Suitable Christmas Presents for Country Friends,
per Parcels Post.

WILLIAM GORDON, of 10, Cullum Street, London, E.C., offers the following HARDY LILIES, at very low prices, as suitable for Presents to Friends:—

LILIUM AURATUM.—This splendid golden-rayed Lily, from Japan, is offered in exceptionally fine bulbs, at 6d., 9d., 1s. and 1s. 6d. each. Many of my Customers wrote last year that they had over forty flowers on one stem.

LANCIFOLIUM (SPECIOSUM) LILIES. — These old favourites are offered in very much improved form, the result of hybridising by those clever gardeners, the Japanese. All Lilies are carefully packed, package and packing free.

	Each.	Per doz.
SPECIOSUM RUBRUM CRUENTUM.—These Lilies are a great improvement on the roseum and rubrum of Dutch gardens, and throw lovely flowers, colours more distinct, and flowers are larger and more beautiful. They are the original variety from Japan again introduced	s. d. 1 0	s. d. 10 0
SPECIOSUM ALBUM KRÆTZERI.—The most lovely of the speciosum type, having large flowers with a well defined band up each petal of a pea-green colour. This Lily is a very strong grower, and is offered at the low price of	1 0	10 0
BATEMANÆ.—New Japanese Lily, growing from 3 to 4 feet, flowers Apricot-coloured and unspotted. A lovely and rare Lily ..	1 0	10 0

CATALOGUES free on application, containing List of all the best Lilies.

CHOICEST CONIFERÆ.—Abies Douglasii, 1 to 1½ foot, 24s. per 100; 1½ to 2½ feet, 30s. per 100; 6 to 8 feet, 36s. per dozen. Abies taxifolius, 2 to 2½ feet, 20s. per dozen. Araucaria imbricata, 2 to 2½ feet, 40s. per dozen. Cedrus Deodara, 4 to 5 feet, 18s. per dozen; 6 to 7 feet, 36s.; 8 to 9 feet, 60s. per dozen. Cryptomeria elegans, 1½ foot, 30s. per 100; 4 feet, fine, 12s. per dozen. Cupressus Lawsoniana, 2 to 2½ feet, fine, 25s. per 100. Cupressus Lawsoniana striata, the finest of all, 2 to 2½ feet, 75s. per 100; 3 to 4 feet, 15s. per dozen; C. L. erecta viridis, 2 to 2½ feet, 50s. per 100; C. L. elegans, 1½ to 2 feet, 6s. per dozen. Cupressus macrocarpa, 1½ to 2 feet, 50s. per 100. Picea Nordmanniana, 8 to 9 inches, 16s. per 100; 12 to 18 inches, 30s. per 100; 4 to 5 feet, 36s. per dozen; 5 to 6 feet, 60s. per dozen. Picea lasiocarpa, 4 to 4½ feet, 60s. per dozen. Pinus excelsa, 2 feet, 50s.; 5 feet, 18s. per dozen. Thuia Lobbii, 3 feet, 50s. per 100; 4 feet, 75s. per 100; 5 feet, 100s. per 100. Thuiopsis dolobrata, 2 feet, 15s. per dozen; 3 to 4 feet, 36s. per dozen; Thuiopsis borealis, 2 feet, 50s. per 100.
GARLIES MITCHELL, Nurseryman, Stranraer.

FRUIT TREES—FRUIT TREES in all the Best Cropping Varieties.
APPLES, PEARS and CHERRIES, Dwarf-trained, good trees, 15s. and 18s. per dozen.
PEARS, Pyramid, 40s. and 50s. per 100; good fruiting trees, 75s. and 100s. per 100; Maidens, 30s. per 100.
APPLES, Pyramid, 40s., 50s., and 75s. per 100.
CHERRIES, Dwarf-trained Morello and May Duke, 15s. and 18s. per dozen.
CURRANTS, Red and Black, of sorts to name, 8s., 10s. and 12s. per 100.
RASPBERRIES, Fillbasket, 6s. per 100.
ROSES, Dwarf H.P.'s, our selection, 30s. per 100.
CONIFERS, bushy, for pots, window boxes, &c., 9 to 15 in., 25s. per 100.
POPLARS, Lombardy and Ontario, from 5 to 10 feet, 8s. to 35s. per 100; 12 to 16 feet, extra fine, for screens, grown in single lines, 15s. per dozen, 100s. per 100.
SHRUBS, Deciduous, 12s. and 15s. per 100, good plants.
HEATHS, Hardy, of sorts to name, 15s. per 100.
THORNS, Double and Single, of sorts, Standards and Pyramids, 50s. and 75s. per 100.
SPIRÆA PALMATA, fine forcing clumps, 10s., 15s. and 20s. per 100.
AUCUBAS, well coloured, for boxes, pots, &c., 9 to 12 in., 16s. per 100; 12 to 15 inches, 20s. per 100.
WM. CLIBRAN AND SON, Oldfield Nurseries, Altrincham.

To the Trade.
HOME GROWN VEGETABLE and FIELD SEEDS.

H. AND F. SHARPE are prepared to make special offers of all the varieties of VEGETABLE and AGRICULTURAL SEEDS they have grown this season from choice selected stocks. The quality of the seeds is excellent, and the prices are very low.
Seed Growing Establishment, Wisbech.

FRUIT TREES (74 acres).—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, &c., as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety. VINES, excellent canes, 3s. 6d. to 10s. 6d. ORCHARD HOUSE TREES in pots, from 5s. FIGS, from 3s. 6d. Descriptive LIST, containing a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also information as to Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., free by post.
RICHARD SMITH AND CO., Worcester.

Standard Roses.

H. LANE AND SON can supply fine Standards and Half-Standards, at 15s. to 18s. per dozen Catalogue on application.
The Nurseries, Berkhampsted, Herts.

A Gay Conservatory.

PRIMULAS, CINERARIAS, 4s. and 6s. per dozen, according to size.
HERBACEOUS CALCEOLARIAS, 1s. 6d. per dozen, from stores.
CYCLAMEN, BOUVARDIAS, TREE CARNATIONS, DEUTZIA GRACILIS, in pots for early blooming, 6s., 9s., and 12s. per dozen. Three at same rates.
Fine clumps SPIRÆA JAPONICA, DIELYTRA SPECTABILIS, 5s. per dozen.
AZALEAS, Ghent, mollis, Pontica, or indica, all with buds, for Forcing, 18s., 24s., and 30s. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

NEW CHRYSANTHEMUM, "G. STEVENS."
First-class Certificate Royal Horticultural Society, South Kensington, November 13, 1883. A charming reflexed variety, compact blooms, flat florets, crimson-chocolate, slightly incurved in centre, showing the gold under-surface; quite distinct from any other variety. A limited quantity to send out in March next, at 1s. each, post-free 1s. 3d. Cash with order. See report in *Journal of Horticulture* of November 15. Orders now being booked, which will be sent out in strict rotation.
Chrysanthemum CATALOGUES on application.
G. STEVENS, F.R.H.S., St. John's Nursery, Putney, S.W.

Tea Roses—Tea Roses.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this year a splendid stock of Tea and other Roses in pots. Prices and full particulars on application to
The MANAGER, The Vineyard, Garston, Liverpool.

Special Culture of

FRUIT TREES and ROSES.—A large and select stock is now offered for sale. The Illustrated and Descriptive CATALOGUE of Fruits, post-free for threepence. The Descriptive CATALOGUE of Roses post-free.
THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

CLEARANCE SALE of NURSERY STOCK.
The Proprietor is giving up business, and offers his Stock, consisting of Larch, Scotch and Spruce Fir, Austrian Pine, Oak, Elm, Ash, Beech, Birch, Thorn Quicks, Conifers of different ages and sizes, Standard and Dwarf Roses, Fruit Trees, Greenhouse Plants, &c., at VERY REDUCED PRICES.
Samples and Prices on application at Clonmel Nurseries, Ireland.

Forest Trees.

WILLIAM FLETCHER has to offer:—LARCH, twice transplanted, 2 to 4 feet; HAZEL, 2 to 4 feet; CHESTNUT, Spanish, 2 to 4 feet. Prices on application. The Nurseries, Ottershaw, Chertsey.

FRUIT TREES.
Fine healthy stock of
Horizontal and Dwarf-trained APPLES and PEARS,
and
Dwarf-trained APRICOTS, CHERRIES, PLUMS, PEACHES, and NECTARINES.
Price on application.
D. S. THOMSON, The Nurseries, Wimbledon.

Forest and Ornamental Trees and Shrubs.

THE LAWSON SEED AND NURSERY COMPANY (Limited), Edinburgh, have an immense Stock of the leading kinds of Seedling and Transplanted FOREST TREES and SHRUBS, &c.—all in healthy condition and prices moderate. Special offers on application.

Fruit Trees to Offer.

STANDARD APPLES and PEARS, also PURPLE and WEEPING BEECH. Price per 100 on application to
WILLIAM FLETCHER, Ottershaw Nursery, Chertsey, Surrey.

SPECIAL OFFER, for Cover Planting, &c. ASH, BIRCH, BEECH, Spanish CHESTNUT, OAK, PRIVET, LARCH, Scotch and Spruce FIR, OSIERS and WITHY; also a good selection of Ornamental TREES and SHRUBS, ROSE and FRUIT TREES of all sizes.
CATALOGUES and samples on application.
W. VIRGO, Wonersh Nurseries, near Guildford.

R. GILBERT begs to inform the Public he is now prepared to send post-free CHOU DE BURGHLEY, at 2s. 6d. per ¼ ounce Packet. BURGHLEY PET MELON, 2s. 6d. per Six Seeds.
R. G. regrets through a printer's error to be made say Chou de Burghley is sold in ¼ ounce Packets, which should be in QUARTER-OUNCE PACKETS. See CIRCULAR.
High Park Gardens, Stamford.

JOHNSTONE'S ST. MARTIN'S RHUBARB.
Strong Roots, 1s. each, 9s. per dozen.
We have tried all sorts of Rhubarb, and have found none to surpass, if even to equal "Johnstone's St. Martin's"—it is the paragon of excellence for forcing, or for outdoor culture. Trade Price, and Copy of TRADE NURSERY LIST, may be had on application.
W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

Deutzia gracilis.

WILLIAM FLETCHER has many thousands to offer. Fifteen to thirty branches on each plant. Price on application.
The Nurseries, Ottershaw, Chertsey.

Sharpe's Seeds.

CHARLES SHARPE AND CO., SEED GROWERS and SEED MERCHANTS, Sleaford, will be glad to forward, post-free on application, Special Wholesale quotations of their own selected stocks of Garden and Agricultural Seeds. Sleaford.—October, 1883.

Beautiful Flowers for Gardens.

POTENTILLAS, PYRETHRUMS, DELPHINIUMS, lovely hardy flowers for Cutting or Garden Bloom. Named, 5s. per dozen.
SPLENDID PHLOXES, Pentstemons, Pinks, Pansies, in the finest varieties, 3s. 6d. per dozen.
HARDY HERBACEOUS PLANTS, the most showy sorts, 3s. per dozen, 21s. per 100.
CARNATIONS and PICOTEES, good exhibition sorts, 6s. per dozen plants. Fine Clove and Border Self varieties, 4s. per dozen—all from layers.
LILIES, candidum, Orange, and Tiger Lilies, 3s. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

FRUIT TREES,
ORNAMENTAL TREES and SHRUBS,
FOREST TREES,
Roses, Rhododendrons, Climbers, &c.
Large and Healthy Stock, in Prime Condition for Removal.

Catalogues free by Post, on application to
J. CHEAL & SONS,
Lowfield Nurseries,
CRAWLEY, SUSSEX.

CHAS. KERSHAW'S
NEW EARLY RHUBARB, "PARAGON,"
May be had of the following Firms:—
Messrs. HURST AND SON, 152, Houndsditch, London, E.
Messrs. SUTTON AND SONS, Reading.
Messrs. WATKINS AND SIMPSON, Strand, W.C.
Messrs. JACOB WRENCH AND SONS, London Bridge, E.C.
Mr. ALFRED LEGERTON, 5, Aldgate, London, E.C.
Messrs. JAS. FARRAR AND CO., 36, Primrose Street, Bishopsgate, E.C.
Messrs. TOOLE AND CO., Dublin.
Messrs. HOOPER AND CO., Covent Garden, W.C.
Messrs. NUTTING AND SONS, 60, Barbican, London, E.C.
Messrs. RCHD. SMITH AND CO., Worcester.
Messrs. JAS. BACKHOUSE AND SON, York.
THE LIVERPOOL HORTICULTURAL COMPANY.
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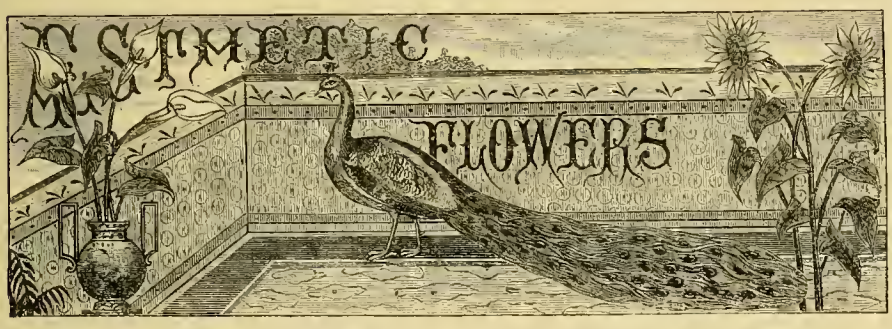

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FIR, Silver, 9 to 12 inches	..	0 8
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THE

GARDENERS' CHRONICLE

FOR

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Vines—Vines—Vines.
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Descriptive Priced LIST on application.
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SPECIAL NOTICE. SUTTON AND SONS desire particularly to call attention to the fact that they are scrupulously careful not to introduce anything as a Novelty until they have satisfied themselves that it is in advance of other kinds in cultivation. Their Trial Grounds are admitted, not only by well-known authorities at home, but by the leading seedsmen in Europe and America, to be the most extensive and complete in the world; and here, under Messrs. Sutton' own personal supervision, some 8000 trials of Vegetable Seeds, Flower Seeds and Potatos are annually made in a most complete and exhaustive manner.

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New Bean. The largest podded Bean ever introduced, and unequalled for exhibition. The pods often reach the enormous length of 14 to 16 inches. Of excellent flavour.

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New Carrot. A great improvement on the old Intermediate for garden work. Of handsome appearance, excellent quality, and a good cropper.

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New Celery. By far the most valuable and distinct variety yet offered. Dwarf and compact, pure white stems, very solid, heavy, and of a delicious nutty flavour. Awarded 1st Prize, Reading, 1883.

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New Cucumber. A cross between Suttons' Improved Telegraph and Model. Exceedingly handsome, dark green in colour, and possesses a rich bloom. Length, 18 to 20 inches.

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Lettuce. A great novelty. Heads large and firm, outer leaves of golden-yellow colour. Tender and delicately flavoured.

SUTTONS' SCARLET INVINCIBLE.
New Melon. First-class Certificate R.H.S., June 26, 1883. A splendid Melon, globular in form, skin orange-red, finely and evenly netted. Flesh thick, bright scarlet, and of exquisite flavour.

NEW BLOOD-RED VESUVIUS.
Onion. Handsome, oval shaped, white flesh, good quality. Keeps sound for a long time.

SUTTONS' RINGLEADER (Kidney).
New Potato. Really distinct and first-class. Haulm moderate in height and robust for an early variety. Flesh white and delicious in flavour.

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New Potato. An excellent variety. Tuber round, and of first-rate quality. Haulm dwarf. An excellent cropper and very free from disease.

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Radish. Very early. Bright purple colour tipped with white. Handsome, quick, and of good flavour.

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New Savoy. From ten to fifteen days earlier than any other. Heads conical in shape, close and compact, particularly tender and sweet. Strongly recommended.

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Turnip. Awarded First-class Certificate by the R.H.S. Flesh white and flavour excellent. The best Turnip for early work.

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New Aster. The most brilliant scarlet Aster yet introduced. Not more than 12 inches in height, with large beautifully incurved flowers.

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Mignonette. Perfectly distinct, and specially suited for pot culture. Very strongly recommended.

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New Primula. The deepest blue Primula yet introduced, and is distinct alike in origin and character from other blue varieties. The stock of seed is very limited, and early orders are recommended.

SUTTONS' PRINCESS BEATRICE.
New Primula. A very attractive variety, with delicate rosy-pink flowers tinted with violet; yellow eyes bordered with white.

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SUTTONS' SNOWDRIFT (Fern-leaved).
New Primula. A valuable, new and distinct variety, with pure white flowers.

SUTTONS' SNOWBALL
New Ten-week Stock. Valuable for bedding, as the plants do not attain a height of more than 10 or 12 inches, and freely produce large, double, pure white flowers.

SUTTONS' SPECIAL LIST of NOVELTIES, containing PRICES and FULL PARTICULARS of the foregoing and other Choice Varieties of
VEGETABLES, FLOWERS and POTATOS
Gratis and Post-free on application.

SUTTON & SONS, The Queen's Seedsmen,
READING, BERKS.

THE
Gardeners' Chronicle.
SATURDAY, DECEMBER 15, 1883.

GARDENING AND THE POOR.

IT may seem difficult to find what direct connection there may be between gardening and the exciting and, indeed, pressing question of the hour, viz., the overcrowding of the masses in our large towns. 'Tis true a popular writer has found in one of his widely read dissertations upon "Horrible London" singularly appropriate metaphors in flowers and weeds as descriptive of the abundant virtues of the poor as found amongst their many vices, but such metaphorical allusions have no practical association with gardening, or with the solution of a great social problem. In seeking for this solution from our point of view we must rather look first to the fact that myriads of these now urban dwellers have been driven by the force of circumstances, such as the gradual expansion of small farm holdings into large ones, from their native rural habitat into the more artificial life and existence of towns, where they but serve to swell a population already far too dense, and thus create evils that have at last attracted the attention of the governing bodies of the nation. That such migration of our rural population is no myth statistics of undoubted accuracy show, and whilst we have been marvelling at the enormous growth of our large towns—the metropolis especially — and have wondered again and again what would be the end of it, we have been unconsciously adding to the evil by driving the people from oft the land, the prime source of our wealth and prosperity, to herd like swine in foul habitations where they do but become sources of danger and weakness rather than of happiness and prosperity.

If anything is to be done, in the first place, we must endeavour to check this constant migration, and in the second place to re-attract many of the crowded and starving denizens of our large towns back into rural life and happiness; we can hardly too soon set about such a change in our modes of holding and cultivating the land as shall render that cultivation a source of attraction to myriads and of wealth to the nation. In what other way can we hope to obtain this desideratum than by breaking up many of our huge and now unprofitable farms into small holdings, and myriads of fields now producing from shallow horse cultivation poor crops of corn into gardens which, cultivated by the hand of man, in reality and in earnest, shall create for the nation vast quantities of food for consumers and of wealth for the workers. We have heard a good deal of sentiment from time to time as to the benefits conferred on the nation by him who makes two blades of grass to grow where but one grew before; but, assuming that feat to have been accomplished—and recent harvests throw some doubt upon it—it becomes a questionable gain when in the process a number of our sturdy peasantry are, as it were, driven from the soil in search of other sources of labour. So far from our land producing double the food or wealth it formerly did it is open to doubt whether, acre for acre in cultivation, it is producing so much as it did twenty years since.

We are often reproached by economists with the undoubted fact, that we have to purchase from other countries vast quantities of food that we should grow or raise at home. We must admit that the reproach is not unmerited, because it is too true. There are many food products we must fain purchase if we would have them, because we cannot produce them profitably, or at all, in this country; but of meat, poultry, eggs, butter, fruits, and vegetables —all costly and most important articles of food —we might produce far more than we do did we but set to work for that purpose in the right way. Our difficulty lies, first, in hardly knowing how or where to begin. We cannot settle the people, the workers of the soil and producers of food and of wealth, upon the land, whilst to it they are aliens. The land is neither theirs to purchase nor to occupy, except it be in the case of those vast farms that need much capital to work them, and which capital fades away as does the snow under the sunshine, only less pleasantly. We cannot advocate a vast Socialistic act which shall take the land from those who now own it, and let or sell it to all who may wish to cultivate. We can hardly now do other than appeal to landowners to do away with the system of big holdings, and split their huge farms of 600 or 800 acres into fifty or more small farms, each of which may support its owner's family, and a well paid labourer or two, so that where the 800 acres shall now give employment and life to twenty people, the same acreage, divided into many small holdings, shall provide labour, food, and a livelihood for 200 souls. By a system of small holdings not only do we repeople the land, but by it, and by it alone, shall we ever be able to raise those vast quantities of eggs, poultry, and other farming products that would be so wondrously profitable to us did we but prefer to produce rather than to purchase them. Then, too, should we find every occupant of a holding keeping his few cows and pigs — all marvellous sources of wealth, if rightly cared for; and then we should further find immense aids to the production of these arbiters of food, as well as of fruits and vegetables, did we farm our small holdings less and garden more.

The percentage of valuable produce obtained in any private garden compares with marvellous force when placed against the produce of a similar extent of land in some arable field, but the comparison would not be for many reasons a just one. It is different, however, when we come to market gardening, even where it is conducted so crudely that it is but intermediate between farming and gardening. Then do we see the produce of the land enormously increased, but also, and what is to the point, so much more human labour employed; and, still farther, that labour is so much better remunerated than is the work of the perhaps less skilled but still laborious toiler of the farm. We can tell of districts around London where the farm labourer gets his 14*s.* or 15*s.* all the year round, whilst the market garden labourer receives 18*s.* even in the winter, and can easily earn 5*s.* per week more in the summer, and his wife and family may also during the season earn their £20 to £30, or perhaps more, all of which signifies for the labourer on the land comparative wealth and comfort such as his strictly agricultural compeer would sigh for in vain. Where the market gardener's rate of pay rules there is ample labour and plenty of able-bodied people to meet the demand. There is in such case no process of depopulation, no alienation of the peasantry from the soil, and no force driving them to seek for better wages in already overcrowded towns. We find, in fact, under garden culture, that the land is well and profitably cultivated, that it furnishes to myriads of people ample employment, and that again and again it is giving higher rents to the owners, and safe and proper profits to the tenants, whilst our food supplies are being materially added to.

We have less need of beating our swords into ploughshares and our rifles into reaping-hooks than into spades, hoes, and digging forks. These are indeed, in the hands of a robust and industrious labouring population, the greatest factors we can look for in rural prosperity. Britons never should be slaves, but at least they should all be workers, earners, and spenders. We find our trade and commerce failing in many directions, and naturally such must be the case when the land is giving to the peasantry so little to spend. Increase its productive power, and in so doing increase its human working power, and at once a splendid impetus is given to trade in other directions. The problem is one for statesmen and landowners to solve rather than theorists and philanthropists, but no solution will ever prove sound or satisfactory that does not aim at making the soil for the people, and returning the people to the soil.

New Garden Plants.

ADIANTUM WEIGANDII, *sp. nov.*

FRONDS triangular in outline, tripinnate, glabrous; pinnæ stalked, alternate, ovate, the basal one oblong-pyramidate; pinnules stalked, the basal ones distant, ovate from a broad base, with two or three deep narrow sinuses on each side, each separating a rather large cuneate two or three-lobed segment, the upper part divided into several similar lobate segments, forming a series of broadly rounded lobes on the margin of the pinnule, which consequently appears to be but little divided in the centre but to have deep distant marginal lobes; upper pinnules crowded; veins free, flabellately forked, rather prominent beneath when dry; sori seated at the base of marginal clefts 1—2 on the end of each lobe, rather large, roundish reniform, often nearly circular; indusium glabrous; stipes elongated, and as well as the rachides and pedicels ebeneous, glossy.

A very pretty and novel Maidenhair Fern, which was exhibited by Messrs. Veitch & Sons, of Chelsea, at the Floral meeting of the Royal Horticultural Society on October 9, when it received a well-deserved First-class Certificate. It is of American origin—American gardens, we presume—and was obtained for Messrs. Veitch from Mr. Weigand, of Astoria, Long Island, N.Y., by their traveller, Mr. Court, who saw cultivated plants of it 2 feet in diameter. As shown it was something over 1 foot in height, neat in habit, and having the compact bunchy style of growth characteristic of A. decorum, but differing altogether in the form of the pinnules. The frond before us, cut from the specimen above referred to, has the stipe 8½ inches long, and the lamina about 6 inches long and 5 inches broad. The central portion of the frond appears to be very open, owing to the length of the stalks by which the pinnæ and the pinnules are respectively attached. The pinnules have a peculiar aspect, being very freely and conspicuously lobate at the edge, and yet appearing to be but little divided on account of the very narrow sinuses between the lobes. The lobes are large and few, and in consequence the pinnules in some instances have very much the cutting to be observed in the leaves of the Hawthorn. The apical portions of the frond and of the pinnæ are crowded. The sori, which are large and nearly circular, are numerous, one or two being produced on each lobe over the whole surface of the frond.

We regard this as a very distinct plant, one of a pleasing character, likely to be useful for decorative purposes. As shown, the plant was suggestive of the useful A. decorum, the fronds being of about the same size and outline, and the habit similar, but the pinnules in A. decorum are quite different, being much smaller and more evenly distributed, as well as more obviously inclined to the cuneate or cuneate-trapezoid form. This latter plant, A. decorum, Mr. Baker has referred to the A. Wagneri of Kuhn, but though no doubt allied to it, A. Wagneri differs, according to Kuhn's description, in having the lamina "ovate lanceolate," while that of A. decorum is "triangular." *T. Moore.*

DESMODIUM PENDULIFLORUM.*

DURING the last autumn Messrs. Veitch were good enough to send us from that store-ground of interesting plants, Combe Wood, flowering sprays of this beautiful hardy shrub. These were placed in the hands of Mr. Fitch, whose illustration (fig. 133) obviates the necessity for any lengthened description. We may, however, say that the plant was first described by our friend, Professor Oudemans, o Amsterdam, in the volume below cited. The plant was introduced from Japan originally by Von Siebold, and we believe the query as to the native country which Oudemans added may now be removed, as the plant has been reintroduced from Japan. The branches are slender and pendulous, the leaves like those of the Laburnum, except that the central leaflet has a longer stalk. Moreover, the under surface is thickly covered with close-pressed white hairs. The flowers are of a light purple colour. Oudemans remarks that the present species differs from its Japanese and Chinese allies in its slender, pendulous branches, its many-flowered pendulous panicles (upturned in our illustration, to gain space), the hairy investment of the stem and under surface of the leaves, the oblong or oblong-lanceolate leaflets, and the subulate lanceolate minute stipules. Apart from these details, which only interest the professed botanist, the present species, by its hardihood, elegant habit, profuse flowering, and pretty lilac-purple flowers, must be considered as one of the best introductions among hardy shrubs.

HARDY FRUIT CULTURE IN THE NORTH OF SCOTLAND.†

THE subject of hardy fruit culture is one of much greater importance than is generally conceived. Hardy home-grown fruit is now universally admitted to be growing rapidly in demand, being found to be one of the essential requirements in domestic economy, and it is therefore likely to become yearly more and more so in this northern part of the kingdom, as the elementary mode of cooking now being taught in some schools is more extended and better understood. Every cottager who is possessed of a garden, however small, endeavours to cultivate, to the best of his judgment, fruit of some kind; while the thrifty housewife will study to turn it to the best dvantage in economic housekeeping.

The growing and treatment of the hardier classes of fruit, which I am now attempting to explain, although not new to cultivators of long experience, may nevertheless prove worthy of being described, and I would venture to remark that the method by which success has been obtained in this northern district will be equally applicable for those who have the good fortune to be cultivators in a more favoured clime.

CLIMATE.—Before making any observation regarding the kinds which I have found to succeed best, I may in the first place make a few remarks on locality, climate, and soil, &c.—conditions upon which it depend in a large measure whether the efforts of the cultivator are to be attended with successful results or otherwise. The situation of this place is, perhaps, fully as well adapted for hardy fruit cultivation as many places farther south, being about 4 miles inward from the sea and at an altitude of 107 feet, latitude 57° 37". The rainfall, as ascertained by myself for upwards of twenty years, averages about 2¼ inches for each month. The district, like most other places on the eastern side of Scotland, cannot, therefore, be termed a wet one. We are situate on the east side of the estuary of the river Spey, and have the advantage of being sheltered by massive plantations, which the western half of the south shores of the Moray Frith abounds in. It will thus be seen that the position is a favourable one. These waving woodlands tend in a large degree to temper harsh winds, and otherwise assist in modifying our northern climate, while the light soils which are common throughout the district generally rest on a dry substratum, or, if otherwise, are well drained. These circumstances combine to give Morayshire its well known character for early stages of ripening, both of horticultural and agricultural produce.

Although, on the whole, the climate is, perhaps, as

* Desmodium penduliflorum, Oudemans, *Neerlands Plantentuin*, tweede deel (vol. ii., 1866), tab. 2; not D. penduliflorum of *Wall. Cat.*

† Paper read at the October meeting of the Scottish Horticultural Association.

mild and genial as that of any other part of Scotland, it is, nevertheless, subject to sudden and extreme changes of temperature. Cold and late springs, often followed by short, sunless autumns, constitute its proverbial character. These, together with occasional sunless summers, or rather deficiency of sunshine, such as the past one, render high-classed fruit flavourless and difficult to ripen; while even the common and hardier sorts fail to reach a high standard of merit. It is gardening under difficulties such as these that makes the gardener's occupation a very teasing one at times.

The soil in the gardens here consists of a dark friable sandy loam, from 2 to 3 feet in depth, resting on a grey sandy clay, which allows water to pass through without becoming water-logged. Although it is not equal in quality to a friable hazel-coloured loam it is nevertheless well adapted to the growth of fruit trees generally

As successful fruit cultivation very much depends on the conditions of the subsoil, or substratum, as well as the surface soil on which it is grown, I consider it proper to here mention, that wherever trees are not giving the satisfaction expected, a thorough examination should be made to the depth of 3½ feet at least, and if at all damp or wet, it should be thoroughly drained. No high-flavoured fruit can be produced from trees grown over a cold, wet bottom, however favourable its surface. The latter, if inferior, can be made suitable by incorporating a portion of good soil into it to suit the kind of fruits intended to be grown.

Being a great advocate for shallow planting, I prefer to plant rather on a raised elevation than otherwise, and to mulch the roots with rank stable litter for one or two seasons after planting, in order to keep them near the surface: and as a means of inducing early fruitfulness, lifting them bodily and replanting say two or three years after they were put in. I know of no better means of checking over-luxuriance than this, especially if the roots have all been carefully preserved in removal, and relaid well up to the surface. These remarks refer to fruit trees generally.

Walls and their Aspects.—A south aspect is that which gets the full rays of the sun when at its meridian height. This aspect, of which there is generally two or more in a garden, should be appropriated only for those kinds requiring most heat to ripen, such as Peaches, Apricots, and some of the late kinds of Pears, Reine Claude de Bavay Plum, a fine late Gage requiring all the season to ripen it, and an early Green Gage or two by way of adding to the length of the Plum season. The sorts of Pears grown on the above aspect here consist of Queen Victoria, Napoleon, Glou Morceau, Beurré Spence, Hacon's Incomparable, Jean de Witte, Passe Colmar, Duchesse d'Angoulême, which in ordinary seasons ripens fairly. The best, however, are Marie Louise and Louise Bonne of Jersey, which do admirably here; we have both these kinds also growing upon walls of east and west aspects as well as upon espaliers and standards, which generally ripen well, except in the very worst seasons.

Peach Management.—Although the border is deeply drained all over, and of shallow depth, I find it a difficult affair, in cold seasons, to get them to ripen their wood, and hence a fruitless season follow. In order to obviate cold blighting winds as far as possible, and also to assist in fostering heat to a long stretch of wall, I have had a number of skeleton buttresses made up with small Larch branches, which taper from 3½ feet to the top. They are neatly done, and have no bad effect when left through the summer. Some Tomatos of different kinds, planted at the bottom of this wall, had some ripe fruit the beginning of August this season, and some of Hale's Early Peach were ripe on the 22d of the same month. Crops were good this season, and trees are growing well. Kinds which succeeded best were Royal George, Barrington, Violette Hâtive, and Bellegarde; Noblesse does fairly.

Apricots succeed better; they come earlier into blossom, and have also the advantage of completing their growth at an earlier period than the Peach, and consequently better ripened wood and buds. Good crops of this fruit are generally obtained of good size and excellent flavour in a number of places around here. The kinds best suited are Moor Park, Grosse Pêche, Hemskirk, and Brussels. I attribute a considerable portion of our success in obtaining fine crops with fruit of high flavour to the attention given to the borders in frequently adding fresh soil to the roots, and keeping them well up to the surface. The natural soil suits remarkably well up to a certain stage, after which, when renewing becomes necessary, strong red loam is incorporated, which in a year or two starts the trees into fresh vigour.

A wall with a north aspect is, of course, directly opposite to the one just described, and one upon which the sun never shines except in the mornings and evenings during the summer months. It is, therefore, only suited to grow fruit of early kinds upon, such as May Duke and other kinds of Cherries; Kentish and Morellos especially do well, and hang late. We have also several Plums, such as Orleans, Early Purple, and Victoria, which help to prolong a supply for culinary purposes. A large Warrington Gooseberry, upwards of fifty years old, carries

Fig. 133.—Desmodium penduliflorum: hardy shrub. (see p. 748.)

*

large crops, and is the latest we get fruit off every year. An eastern aspect is that which gets the morning sun up to 12 o'clock, and a western one, from mid-day up to sunset. Pears, Plums, and Cherries succeed remarkably well upon both here, and the same sorts on the opposite aspects ripen commonly about the same time, although I give a preference to the west. The warmest time of the day being generally about 2 P.M., and the high temperature continuing for some time afterwards, helps to bring the fruit on the western this side to larger size and better flavour, all other points being considered equal. I give a preference to the different classes of fruit trees being, as far as practicable, arranged along the walls by themselves; it not only looks better to my idea, but helps to reduce labour in fruit gathering, and also, at the period, of protecting the blossom. This was a work of considerable labour to me when I undertook the superintendence of these gardens, about thirty-three years ago. Large and old trees were lifted from one aspect to another; trees had been allowed to grow out from the walls into long unsightly spurs, which had almost left off bearing. These I had gradually got rid of by laying in young shoots, and clearing away in a similar manner the whole of the old spurs. At the same time the operation of root-lifting commenced, by doing so many of different kinds each winter, until the whole of the wall trees round the garden, with the exception of some old Cherries, had been root raised, and put down in fresh soil near the surface. In some few cases, where trees have failed to give satisfaction, root-lifting has been carried out a second, and in solitary instances a third time, to force them into a fruit-bearing condition. I am greatly in favour of keeping the roots near the surface, so as to be within the warming influence of the sun's rays, and cropping lightly with vegetables over the borders—a practice which would be better dispensed with altogether as regards the fruit, were it possible to avoid it. I need scarcely remark that high-flavoured fruit is not easily obtained from trees with their roots feeding in cold soil, and extracting crude sap at too great a depth to be treated in short sunless summers. *J. Webster, Gordon Castle Gardens.*

(*To be continued.*)

OPEN SPACES IN TOWNS.—IV.

(*Concluded from p. 718.*)

The Manchester Parks.—Such is the history, such the complexion, of the three original public parks pertaining to Manchester and Salford. Some fifteen years ago, after much deliberation, it was decided to establish a fourth, for the benefit of the residents upon the southern side of the town. Four parks were contemplated at the outset, in 1844, but circumstances of various kinds rendered postponement of the fourth the wisest course.

The Alexandra Park.—The plot obtained for it consisted of no fewer than 64 acres of meadow and pasture, a portion of it belonging to the celebrated "Greenheys Fields," flat, but of excellent composition as to soil, and, being altogether removed from the deleterious influence of the smoke and vapours which elsewhere are so trying, admirably adapted for horticultural effects. The laying-out was entrusted to the City Surveyor of the time, the late much respected Mr. J. G. Lynde, and under his directions the level sward was soon transformed into a beautiful combination of lawn and garden, with belts of shrubbery almost completely enclosing it. It was obvious, however, that considerable improvements could be introduced, and under the skilful control of the present curator and superintendent, Mr. George Manderson, who for the last ten years has had charge of the "Alexandra," as the park was very well named, the strictly ornamental part has acquired quite a new complexion. Nothing can be more beautiful in the way of floral display than Mr. Manderson's annual bedding-out, the number of plants employed exceeding 100,000, and these following a show equally charming of spring bulbous flowers. So rapid and healthful has been the growth of the enclosing trees, that people who went to reside close to the margin of the park in order to enjoy a continual view of the greensward, now find their view greatly intercepted, if not altogether hindered.

The forest trees which do best are the Lime, the Birch, the Ash, the Turkey Oak, the Austrian Pine, the Elm, the Willow, the Poplar, the Sycamore, and the Mountain Ash. The Plane, that excellent tree for the cities and parks of the southern English counties, makes no way. Nowhere in the suburbs or within several miles of Manchester is the Plane ever seen except in a state of tribulation, more or less severe, unless while quite young. It may be interesting to add that the Manchester climate almost entirely forbids the growth of Quercus Ilex, the Bay tree, the Arbutus, and the Laurustious. At all events, when any one of these is met with—a rare occurrence at the best—it is under very specially protective conditions. As for the Paulownia, the Catalpa, the Sophora, the Celtis, they are entirely unknown.

Remembering that the entrance to the Alexandra is little more than a couple of miles from the very heart of enormous Manchester, it is cheering also to note the flourishing condition of the Laburnum, the Sumach, the Almond, the double-blossomed Cherry, Thorns of all kinds, Lilacs in variety, and the Golden Elder. Rhododendrons do excellently, so do hardy Azaleas, hardy Heaths, Hollies, Berberis, and Aucubas; Retinosporas thrive, and Roses do fairly well.

Among the flowers the most successful are Lilies, Irises, Pinks, Picotees, Phloxes, Pæonies, Hollyhocks, Dahlias, Spiræas, Pyrethrums, Pentstemons, and Violas, most of which become all that the heart can desire. The broad walks which traverse this fine place are all asphalted, therefore durable and dry at all times. No wonder that it is the daily resort of thousands, and that upon special occasions it is visited by people enough to fill a country town. The Alexandra was opened to the public on August 31, 1870, or exactly twenty-four years, with five days added, after the opening of Peel Park, the Philips, and the Queen's.

The moral service rendered to the community by the establishment of these great parks is incalculable. Attracted by the features of natural beauty which they present in plenty, and at suitable times by instrumental music, with the fair assurance also of being able to breathe somewhat more freely, people go to them also for the enjoyment of social intercourse, good and pure in itself, and such as when partaken of when all around is calculated to excite happy thoughts and to dissipate the painful, must needs engender more healthful conditions alike of body and soul. Whether the public parks have done anything to promote the general salubrity of the town is a question not easily grappled with; they can hardly fail to do so as the years roll on, since the introduction anywhere, at any time, of a fixed and powerful instrument for the extension of public happiness—one that can never by any possiblity be perverted or profaned—must needs, under Providence, become a grand though silent lever of the general weal.

A movement is upon foot, we believe, for the establishment of a fifth park, this one to be primarily for the advantage of the large population clustered in the neighbourhood of Cheetham Hill. Many times also it has been urged most strenuously that the magnificent grounds and gardens attached to Manley Hall, formerly the residence of Mr. S. Mendel, familiar to the public as Manley Park, and now for several years awaiting a purchaser or a tenant, should be secured and converted into a second Peel Park. Should that splendid place, upon which money was spent almost unlimitedly, be destroyed, or given up to the builder of small tenements, it would be a misfortune for Manchester which would for certain be lamented bitterly when too late. Movements are also upon foot for the securing of "open spaces" in the suburbs. This, it is to be feared, will now be scarcely possible, except in so far as may imply the adaptation of one here and there to the purposes of a boys' playground. There is no prospect, to speak of, of any success in attempts at horticulture, to any degree, that is to say, beyond a few shrubs of imperturbable fortitude. *Leo Grindon.*

Astelia Cunninghamii. — Whether regarded for its foliage or flowers this plant deserves some notice at the hands of the gardener, on account of its hardiness and its suitability for furnishing or dotting about amongst groups or arrangements of plants. The slender grass-like leaves are silvery underneath, and their tufted and graceful habit prove its adaptability for such purposes. Where large conservatories or cool greenhouses exist, that are difficult to furnish with variety at this dull season with something of interest, this plant would not be out of place; and although the flowers are greenish and comparatively inconspicuous they are borne in large panicles well above the foliage, and are possessed of a rather strong but not disagreeable odour. Some specimens are flowering in the temperate-house, Kew.

NEW PLANTS CERTIFICATED

BY THE FLORAL COMMITTEE AT THE ROYAL HORTICULTURAL SOCIETY'S MEETINGS, 1883.

*** *F.C., First-class Certificate; S.C., Second-class Certificate; B.C., Botanical Certificate.*

Acer cratægifolium	Veitch, June 12—F.C.
,, polymorphum variegatum	Veitch, June 12—F.C.
Actæa spicata fructu rubro ..	Ware, July 24—F.C.
Adiantum novæ caledoniæ ..	Birkenhead, June 12—F.C.
,, Weigandi	Veitch, Oct. 9—F.C.
Amaryllis Acis	Veitch, Feb 13—F.C.
,, Achilles	Veitch, Feb. 13—F.C.
,, Adolphus Kent	Veitch, April 24—F.C.
,, A. F. Barron	Veitch, March 13—F.C.
,, Byron	Veitch, March 27—F.C.
,, Dr. Hogg..	Veitch, March 13—F.C.
,, George Gordon	Veitch, March 13—F.C.
,, Lady of the Lake ..	Veitch, March 27—F.C.
,, Tennyson	Veitch, March 27—F.C.
,, Wordsworth	Veitch, March 27—F.C.
Angræcum articulatum ..	B. S. Williams, Mar. 27—F.C
,, Scottianum	Lawrence, July 24—F.C.
Anguloa eburnea	White, Sept. 11—F.C.
Anthurium Ferrierense ..	Bergmann, March 27—F.C.
Auricula (alpine) A. Lloyd ..	Turner, May 8—F.C.
,, ,, Homer	Turner, May 8—F.C.
,, ,, Resplendens	Turner, May 8—F.C.
,, ,, Rob Roy	Turner, May 8—F.C.
,, ,, Roysterer	Turner, May 8—F.C.
,, (double) Delicata ..	Dean, May 8—F.C.
Azalea indica Antigone ..	Turner, April 24—F.C.
,, ,, Baron N. de Rothschild	Turner, May 8—F.C. Veitch, May 8—F.C.
,, ,, Comte de Chambord	Turner, May 8—F.C
,, ,, Deutsche Perle ..	Turner, March 13—F.C.
,, ,, Duchess of Albany ..	Todman, Jan. 9—F.C.
,, ,, Dr. Herman Weigel	Turner, May 22—F.C.
,, ,, Princess Louise ..	Turner, May 8—F.C.
,, ,, Souvenir de Prince Napoleon	Veitch, May 8—F.C.
Begonia Countess of Rosslyn	Laing, July 24—F.C.
,, Dr. Duke..	Laing, May 22—F.C.
,, Goliath	Bealby, July 10—F.C.
,, Orange Giant	R.H.S., June 26—F.C.
,, Madame Grody	Bealby, Aug. 28—F.C.
,, Miss Turner	Laing, July 24—F.C.
,, Monsieur Duvivier ..	Bealby, Oct. 9—F.C.
,, Mrs. Anson	Laing, July 24—F.C.
,, Novelty	Veitch, Sept. 11—F.C.
,, Prince Albert Victor ..	Laing, June 26—F.C.
,, Prince of Wales	Laing, May 22—F.C.
,, Stanstead Surprise ..	Laing, July 24—F.C.
,, (double white) The Queen	Edwards, Sept. 11—F.C.
,, Virginalis	Bealby, Aug. 14—F.C.
,, Zenobia	Benary, June 26—F.C.
Calanthe Regnieri	Veitch, Feb. 13—F.C.
Calochortus macrocarpus ..	Ware, July 24—F.C.
Caraguata sanguinea	Bruant, Dec. 11—B.C.
Carnation (Tree) Field Marshal	Turner, May 22—F.C.
,, ,, Mrs. Keen	Veitch, December 11—F.C.
Cattleya nobilior	Linden, May 22—F.C.
,, superba splendens ..	Ebbage, July 10—F.C.
,, Warneri (Hardy's var.)..	Hardy, June 26—F.C.
Chrysanthemum coronarium flore-pleno	Cannell, Aug. 28—F.C.
,, Bendigo	Ridout, Nov. 13—F.C.
,, Comet	Veitch, Nov. 13—F.C.
,, George Stevens	Stevens, Nov. 13—F.C.
,, (Japanese) Madame La Croix	Jackson, Nov. 13—F.C.
,, ,, Mons. H. Jacobi ..	Jackson, Nov. 13—F.C.
,, ,, A. Dufour	Cannell, Oct. 9—F.C.
,, ,, roseum superbum ..	Veitch, Nov. 13—F.C. Laing, Nov. 13—F.C.
,, Salteri	Veitch, Nov. 13—F.C
,, pompon) Mdlle d'Arnaud	Veitch, Nov. 13—F.C. Laing, Nov. 13—F.C.
Cineraria (double) A. F. Barron	Cannell, March 13—F.C.
,, Captain Edwards ..	James, March 13—F.C.
,, Colonel Clarke	James, March 13—F.C.
,, Duke of Edinburgh ..	James, March 27—F.C.
,, Lord Wolseley	James, March 27—F.C.
,, Mrs. Herrin	James, March 27—F.C.
,, Princess of Wales ..	James, March 27—F.C.
,, Victory	Cannell, Feb. 13—F.C.
Clematis Jackmanni alba ..	Noble, July 24—F.C.
,, John Brown	Noble, April 24—F.C.
Colax jugosus punctata ..	Woodford, May 8—F.C.
Coleus Ellen Terry	King, July 24—F.C.
,, Henry Irving	King, July 24—F.C.
Columnea Kalbreyeri	Veitch, May 8—F.C.
Crinum ornatum	Bull, Oct. 9—F.C.
Cyathea microphylla	Veitch, Dec 11—F.C.
Cycas elegantissima	Williams, June 12—F.C.
Cymbidium affine	Wyatt, Nov. 13—F.C.
,, devonianum	James, May 8—F.C.
Cypripedium Cardinale × ..	Veitch, Dec. 11—F.C.
,, calurum ×	Veitch, Dec. 11—F.C.
,, Schrœderæ ×	Ballantine, Dec. 11—F.C.
Dahlia (single) Bedding Gem..	Ware, Aug. 28—F.C.
,, ,, Barkaway	Ware, Sept. 11—F.C.
,, ,, Cetewayo	Ware, Sept. 11—F.C.
,, ,, Dr. Moffat	Ware, Sept. 11—F.C.
,, ,, Duchess of Westminster	Turner, Sept. 11—F.C.
,, ,, Midget	Cannell, Aug. 28—F.C.
,, ,, Negress	Ware, Aug. 28—F.C.
,, (show) Mrs. W. E. Gladstone	Turner, Sept. 11—F.C.
Davallia brachycarpa	Veitch, July 10—F.C.
Delphinium Dick Sand ..	Bealby, June 26—F.C.
Dendrobium Dearei	Lawrence, May 2—F.C.
,, nobile nobilius	Salter, March 13—F.C.
,, Wardianum var. Waddelianum	Ward, March 13—F.C.
Eucharis Sanderi	Bull, Oct. 9—F.C.
Ficus elasticus albo variegatus	Ker, July 24—F.C.
Fuchsia Mrs. Rundell.. ..	Cannell, March 13—F.C.
Gloxinia Alabaster	C. Bennett, Aug. 28—F.C.
Gladiolus André Leroy ..	Vilmorin-Andrieux, Aug. 14—F.C.
,, Duke of Edinburgh ..	Kelway, Aug. 28—F.C.
,, Duke of Teck	Kelway, Aug. 14—F.C.
,, Grand Rouge	Vilmorin-Andrieux, Aug. 14—F.C.
,, Her Majesty	Kelway, Aug. 14—F.C.
,, Lady Cavendish.. ..	Kelway, Aug. 28—F.C.
,, Sir Trevor Lawrence ..	Kelway, Aug. 28—F.C.

Hyacinth Pink Perfection ..	Veitch, March 27—F.C.
,, Souvenir de J. H. Veen	Veitch, March 27—F.C.
Hydrangea rosea	Veitch, June 12—F.C.
Iberis Empress	Biddles, Aug. 28—F.C.
,, gibraltarica hybrida ..	Dean, May 22—F.C.
Ilex laurifolia aurea marginata	Waterer, Dec. 11—F.C.
Impatiens Sultani	R.H.S., Aug. 23—F.C.
Iresine formosa	Goldsmith, Nov. 13—F.C.
Lencothoe Davisii	Veitch, June 26—F.C.
Lilium Bloomerianum oculatum	Ware, July 10—F.C.
,, Harrisii	Wilson, June 22—F.C.
,, longiflorum	Wilson, June 12—F.C.
,, pardalinum Warei ..	Ware, July 24—F.C.
,, Szovitzianum pallidum ..	Wilson, July 10—F.C.
,, Wallacei	Ware, Aug. 14—F.C.
Lobelia Florie Wood	Times, July 10—F.C.
,, speciosa Prima Donna ..	Carter, July 10—F.C.
,, Swanley Blue	Cannell, July 10—F.C.
Lycaste Harrisoniæ alba ..	B. S. Williams, April 24—F.C.
Masdevallia Schlimii	Lawrence, April 10—F.C.
,, xanthocorys	Lawrence, May 8—F.C.
Medinilla Curtisii	Veitch, Oct. 9—F.C.
Milla biflora	Ware, July 10—F.C.
Miltonia bicolor	Salter, Sept. 11—F.C.
Mimulus grandiflorus Brilliant	Dean, April 24—F.C.
,, Hose-in-hose, Novelty ..	Dean, May 8—F.C.
,, moschatus ruber	Dean, May 8—F.C.
,, ,, grandiflorus	Dean, May 8—F.C.
,, radicans	Veitch, June 12—F.C.
Narcissus pallidus Princess Mary	Barr, April 24—F.C.
Nemophila atomaria atrocœrulea	Carter, July 10—F.C.
Nepenthes Northiana	Veitch, Oct. 9—F.C.
Nephrodium Rodigasianum ..	B. S. Williams, May 8—F.C.
Odontoglossum crispum aureum magnificum ..	Dorman, Feb. 13—F.C.
,, crispum hybridum ..	Sander, May 22—F.C.
,, elegans	Pollett, May 8—F.C.
,, eugenes	Stevens, July 24—F.C.
,, madrense var. giganteum	Vanner, Jan. 9—F.C.
,, polyxanthum grandiflorum	Woodford, April 24—F.C.
,, Scotti, hort. Wilson ..	Wilson, Feb. 13—F.C.
,, vexillarium albicans ..	Baxter, May 8—F.C.
Oncidium nigratum	Veitch, July 10—F.C.
Pelargonium (Ivy-leaved) Abel Carrier	Cannell, July 10—F.C.
,, (hybrid Ivy-leaved) Dr. Masters	George, June 12—F.C.
,, ,, Future Fame ..	George, May 22—F.C.
,, (decorative) Fanny ..	Hayes, June 12—F.C.
,, ,, Formosa	Hayes, June 12—F.C.
,, Dr. Orton	Pearson, Aug. 23—F.C.
,, peltatum Jean d'Arc ..	Bealby, Aug. 14—F.C.
,, White Perfection ..	Eckford, Aug. 23—F.C.
,, (double zonal) Earl King	King, Dec. 11—F.C.
Pentstemon Cerise Queen ..	Lemoine, Sept. 11—F.C.
,, Purple Queen	Lemoine, Sept. 11—F.C.
Pescatorea Lehmanni	Wilson, March 13—F.C.
Phalænopsis leucorhoda alba	Low, Feb. 13—F.C.
,, Sanderiana	Woolford, May 8—F.C.
Philadelphus mexicanus ..	Walker, May 22—F.C.
Polystichum acrostichoides var. grandiceps	Birkenhead, June 12—F.C.
Pratia angulata	Veitch, June 26—F.C.
Primula sp. from the Dolomites	T. D. Llewelyn, April 24—F.C.
,, sinensis, Julia	Lee, Dec. 11—F.C.
,, ,, Queen of the Whites	Cannell, Dec. 11—F.C.
,, ,, Swanley Purple ..	Cannell, Dec. 11—F.C.
Pritchardia grandis	Veitch, June 26—F.C.
Rhododendron Baroness Schroeder	Veitch, Feb. 13—F.C.
,, Brilliant	Veitch, Sept. 11—F.C.
,, Curtisii	Veitch, Nov. 13—F.C.
,, Diadem	Veitch, June 26—F.C.
,, Princess Christian ..	Veitch, Feb. 13—F.C.
,, Scarlet Crown	Veitch, May 8—F.C.
,, Triumphans	Veitch, March 27—F.C.
Rosa polyantha Mignonette ..	Paul & Son, March 27—F.C.
Rose Heinrich Schultheis ..	Bennett, June 26—F.C.
,, Merveille de Lyon ..	Turner, April 24—F.C.
,, (Pedigree Tea) Princess of Wales	Bennett, June 12—F.C.
,, Mrs. George Dickson ..	Bennett, June 26—F.C.
,, Violette Bouyer	House, June 26—F.C.
,, (Tea) W. F. Bennett ..	Bennett, March 27—F.C.
,, White Baroness	Paul & Son, April 24—F.C.
Sarracenia Swaniana × ..	Bull, Nov. 13—F.C.
,, Wilsoniana ×	Bull, Nov. 13—F.C.
Selaginella canaliculata ..	Veitch, Sept. 11—F.C.
Scutellaria Dodgsoni	B. S. Williams, April 24—F.C.
Spiræa palmata alba	Veitch, July 24—F.C.
Sweet Pea Blue Edge	Carter, Aug. 23—F.C.
,, Carmine Rose	Hurst, Aug. 14—F.C.
,, Invincible Carmine ..	Laxton, Aug 23—F.C.
,, ,, striped	Carter, Aug. 23—F.C.
,, New Carmine Rose ..	Hurst, Aug. 23—F.C.
,, Orange Prince	Eckford, Aug. 23—F.C.
Trichosma suavis	Bull, Nov. 13—F.C.
Tropæolum Lustrous	Dean, June 12—F.C.
Tydæa Æsculapius	R.H.S., Aug. 23—F.C.
,, Harlequin	R.H.S., Aug. 23—F.C.
,, Podalyre	R.H.S., Aug. 23—F.C.
,, Robert le Diable	R.H.S., Aug 23—F.C.
,, Venosa	R.H.S., Aug. 23—F.C.
Vanda Sanderiana	Lee, Oct 9—F.C.
,, suavis var. Schroederiana	Ballantine, Sept 11—F.C.
Verbena Beethoven	Cannell, Aug. 23—F.C.
,, compacta	Stacey, June 26—F.C.
,, delicata	Stacey, June 26—F.C.
,, Fantastic	Stacey, June 26—F.C.
,, Faust	Cannell, Aug 23—F.C.
,, Mabel	Stacey, June 26—F.C.
,, Marion Baker	Cannell, Aug. 23—F.C.
,, R. F. Schule	Cannell, Aug. 23—F.C.
,, Swanley Gem	Cannell, Aug. 23—F.C.
Violet (Neapolitan) Comte Brazzi	Allan, Nov. 13—F.C.
Wormia Burbidgeii	Veitch, May 8—F.C.
Yucca gloriosa variegata ..	Veitch, June 26—F.C.
Zygopetalum Burkei	Veitch, Nov. 13—F.C.
,, crinitum roseum giganteum	Wilson, March 13—F.C.
,, maxillare	Heims, Aug. 28—F.C.

NEW FRUITS.

CERTIFICATED BY THE FRUIT COMMITTEE.

Apple, Bramley's Seedling ..	Merryweather, Oct. 11—F.C.
,, Grantonian	Mann, Feb. 13—S.C.
,, Grenadier	Bunyard, Oct. 11—F.C.
,, Mr. Gladstone	Lane, Aug. 14—F.C.
,, Sandringham	Penny, Nov. 13—F.C.
Apple, Tyler's Kernel	Parker, Nov. 13—F.C.
,, Warner's Seedling ..	Warner, March 13—F.C.
Melon, The Goodwood ..	Rutland, Aug. 14—F.C.
,, Hollanden Favourite ..	Goldsmith, June 26—F.C.
Nut, Duke of Edinburgh ..	Cooper, Oct. 9—F.C.
Peach, Alexander	Rivers, May 8—F.C.
Raspberry, Lord Beaconsfield	Faulkner, Aug. 14—F.C.
Strawberry, Duchess of Edinburgh	Brown, July 24—F.C.

NEW VEGETABLES.

Bean (Longpod) John Harrison	Laxton, July 24—F.C.
Curled Kale, Reade's New Hearting	Reade, April 24—F.C.
Lettuce, Green Unctuous ..	Veitch, July 24—F.C.
Onion, White Globe	Vilmorin, Aug 30—F.C.
Potato, Beauty of Eydon ..	Hughes, Aug. 30—F.C.
,, Clarke's Maincrop ..	Clarke, Aug. 30—F.C.
,, Desideratum	Smith, Aug. 30—F.C.
,, Midsummer Kidney ..	Dean, Aug. 30—F.C.
,, Snowdrop	Perkins, Aug. 30—F.C.
,, Welford Park Kidney ..	Ross, Aug. 30—F.C.
Spinach, Monstreuse de Vireflay	Vilmorin, May 8—F.C.
Tomato, Bowerman's Prolific ..	Bowerman, July 24—F.C.
,, Chiswick Red	R.H.S., Aug. 30—F.C.
,, Improved Large Orange	Henderson, Aug. 30—F.C.
Turnip, Extra Early Milan ..	Veitch, June 12—F.C.

POTATO DISEASE.

EXPERIMENTS PERFORMED AT KING'S LYNN IN CONNECTION WITH THE JENSENIAN SYSTEM OF POTATO CULTURE, 1883.—I. *Direct Infection of the Tubers by the Conidia and Zoospores of Peronospora infestans.*—It having been asserted that it was impossible thus to cause the disease in tubers because of the thickness and impenetrable structure of their epidermal tissues, the following experiments were performed, in which recently dug tubers had applied to their surface the conidia, by simply dashing them with a diseased branch; they were then placed in the earth, and examined eight days afterwards; an equal number of tubers taken from the same root at the same time were also buried as control tubers:—

Variety of Potato.	No. of tubers infected.	Date.	No. of control tubers.	Diseased on the eighth day.	
				Infected.	Control.
1. Porter's Excelsior ..	4	Aug. 1	4	4	1
2. Beauty of Hebron ..	3	Aug. 1	3	3	0
3. Porter's Excelsior ..	6	Aug. 1	6	6	0

Experiments Nos. 1 and 2 were made in conjunction with Mr. John Thompson at West Lynn. Experiment No. 3 was made in my garden at King's Lynn. Porter's Excelsior is a Potato which takes the disease very readily; so that the control tuber which became diseased was doubtless affected before it was buried. Care was taken that the tubers were free from any abrasion of the cuticle, or injury by which the disease could have entered the substance of the tuber without penetrating the skin. The control tubers were kept for several weeks, but evinced no signs of disease. These experiments would not have been mentioned, had it not been recently reasserted that the disease could not be communicated in this way.

II. *High-Moulding Experiments.*—Experiment No. 1.—Mr. John Kidd had two rows of Myatt's Prolific with thirty-eight plants in each, one of which he high-moulded on July 15 at my suggestion. On August 17 both rows were lifted; five per cent. of the row with the ordinary moulding were diseased; but in the high-moulded row no diseased tuber was found.

Experiment No. 2.—Four plants of Porter's Excelsior were high-moulded in Mr. J. Thompson's garden on July 14. The next four plants in the row were left moulded in the ordinary way. On August 1 disease was general in this garden; August 18 Potatos lifted by Mr. Thompson and myself with the following result:—

Ordinary Moulding.		High-Moulding.	
Sound.	Diseased.	Sound.	Diseased.
46	5	41	0

Experiment No. 3.—Eight plants of Elephant in the same garden, high-moulded at the same time, lifted on the same day as in the previous experiment.

Ordinary Moulding.		High-Moulding.	
Sound.	Diseased.	Sound.	Diseased.
49	10	39	0

Experiment No. 4.—Four plants of Beauty of Hebron. No disease in either high or ordinary moulding.

Experiment No. 5.—Eight plants of Ashleaf, four in one row, four in another row.

Ordinary Moulding.		High-Moulding.	
Sound.	Diseased.	Sound.	Diseased.
54	13	85	0

Experiment No. 6.—Twelve plants of American Rose, four plants in three rows, high-moulded, as compared with the four adjoining plants grown with the ordinary moulding.

Ordinary Moulding.		High-Moulding.	
Sound.	Diseased.	Sound.	Diseased.
75	13	84	1

Experiment No. 7.—In the foregoing experiments high-moulding compared very favourably with ordinary moulding, but if high-moulding be the true cause of this freedom from disease it should compare more favourably still with plants that have not been moulded at all. There is another point upon which I wished to satisfy myself, which was this—If the Potatos had been left longer in the ground would the disease have travelled down the stem to them? Four plants of the Beauty of Hebron were high-moulded on July 14 to the extent of full 5 inches, the four plants next to them had never been moulded at all. In due course Peronospora appeared upon these Potatos, but it was not until not only was the foliage destroyed, but long after this, when most of the stalks had vanished, that the Potatos were lifted on (September 19). This experiment was made in the Vineyard, West Lynn, by Mr. S. Castle and myself.

Not Moulded at all.		High-Moulded.	
Sound.	Diseased.	Sound.	Diseased.
54	65	107	0

These figures speak for themselves as to the effect of high-moulding as a preventive against the Potato disease.

Tabular Statement of the Results of High-Moulding, Showing the Number of Sound and Diseased Tubers respectively:—

Kind of Potato.	High Moulding.		Ordinary Moulding.		Percentage of Diseased Tubers.	
	Sound.	Diseased.	Sound.	Diseased.	High Moulding.	Ordinary Moulding.
					Per cent	Per cent
Porter's Excelsior	41	..	46	5	..	10
Elephant ..	21	..	30	8	..	20
Elephant ..	18	..	19	2		
Beauty of Hebron	..	..	..	..	..	..
Ashleaf	26	..	34	..	..	24
Ashleaf	59	..	10	13		
American Rose	25	..	26	6		
American Rose	25	1	21	4	1	17
American Rose	29	..	29	3		

Charles B. Plowright, King's Lynn, Dec. 10. [A paper read before the Scientific Committee, Dec. 13.]

—— In last week's *Gardeners' Chronicle* (p. 729) Mr. Worthington Smith attempts to show that I differ from the authority of Professor De Bary as regards the possibility of an alternation of hosts in the case of Phytophthora infestans. "Mr. Carruthers says that Professor De Bary's recent researches seem to point to the possibility," is hardly evidence of a belief, either on the part of Professor De Bary or of Mr. Carruthers. But Mr. Smith will find direct enough evidence in Professor De Bary's *Researches*

into the Nature of the Potato Fungus—Phytophthora infestans (*Journal of the Royal Agricultural Society*, 1876), a paper which Mr. Smith might have been expected to know well from its treatment of the oospore question. At p. 247, Prof. De Bary, referring to "heteræcia" or "metæcia," says:—"It should be remarked here that metæcia has not been observed, and is not even likely to occur in any Peronospora or Saprolegnia; all the species belonging to these families which have been thoroughly investigated are known to have only a single host on which they complete without change their entire development,—they require no second one. Sometimes the species parasitical on one host plant attaches itself to another host, but only partially carries out its development in it, say as far as the formation of conidia; but it should be noted that this is a phenomenon altogether different from that of metæcia." This is the Report to which I referred my audience. On the same page Mr. Plowright makes an attack on my opinion of the Jenseniao method. In such haste is he that on one important point he wholly misunderstands me. So far from opposing Mr. Jensen's belief that the spores are washed to a considerable depth into the ground, my endeavour was to show that all the earthing-up Mr. Jensen advocates would not prevent this! Let him read my lecture again and he will find I say there is "small probability of this filtering action taking place." There was no need to quote the authority of Professor De Bary. I cordially agree with him, and differ from Messrs. Plowright and Jensen only in going further. Mr. Worthington Smith so strikingly exposes the absurdities of Mr. Jensen's experiments in last week's *Gardeners' Chronicle* that I shall leave Mr. Plowright to settle the matter with him. Some of Mr. Smith's own calculations, however, seem to me almost as "wondrous" as Mr. Jensen's. But Mr. Plowright brings the authority of Professor De Bary against me on the second point with more success. I confess I had forgotten Professor De Bary's statement, that he had observed germ-tubes penetrate the skin of Potatos. I forgot it the more readily since it is so exceptional, that none of my own experiments (such as Mr. Plowright recommends me to make), except of course those made on the "eyes," were successful, and some of these were made in Professor De Bary's laboratory. I am glad to be corrected on this point. However, Mr. Plowright will see that it loses weight as an argument, based on Professor De Bary's authority, when he also refers to Professor De Bary's *Researches*, &c. (*Journ. Roy. Agri. Soc.* 1876) of thirteen years later date than Mr. Plowright's source of information. At p. 248 he says, "It is further known that the conidian growth is not only found in the foliage, but that it *extends to the tubers in the ground* (*italics* mine), and there developes the mycelium which is the immediate cause of that injury to the tubers which is so dreaded." No one is less likely than I am to reject the authority of my master, Professor De Bary, and my statement is happily in agreement with this view. Since "authority" is being quoted I shall select three of undisputed weight in this matter. In the report of the Select Committee on the Potato crop, the opinions of Mr. Dyer, Mr. Carruthers, and Mr. Worthington Smith are in favour of the stem as the channel through which the disease reaches the tubers. I refer to questions 137, 138, Mr. Dyer; 146, Mr. Carruthers; and 2094, Mr. Smith. So much for authorities—the plant itself "intervenes" in the matter, and I recommend Mr. Plowright to it also. *George Murray.*

THE RASPBERRY GRUB.

AMONG the "minor miseries of human life" may be classed the cracking of a Nut or Filbert and finding your mouth filled with a nasty black powder and a fat white grub, or larva, of Balaninus nucum, or putting a nice looking Raspberry into your mouth and finding an unexpected maggot in the middle of the fruit.

The last-named insect is the larva of a small beetle named Byturus tomentosus, from the body being entirely clothed with a fine pubescence of a buff or pitchy-brownish colour, with the legs and antennæ yellow, testaceous. It is about one-sixth of an inch long, the head is depressed in front and punctate, the mouth testaceous, eyes large and black, the prothorax rather wide, punctate on the disc, the elytra oblong-convex, narrower behind, thickly punctate and pubescent, the body beneath pitchy-brown. The colour of the insect varies from testaceous to yellowish pitchy-brown, and sometimes even to rufescent, to which varieties several distinct specific names have been applied.

The beetles occasionally eat through the footstalks of the blossoms of the Raspberry, and are sometimes so numerous as to destroy an entire crop. They also eat the flower-buds, which may be found with a hole in the side, through which the enemy has entered and eaten away, partly or wholly, the stamens, as well as the spongy receptacle on which the latter are borne. They equally attack the flowers of the Blackberry, and are also found in the flowers of the Rose, Bird Cherry, Mountain Ash, and, according to Latreille, those of the Ranunculus; and the Rev. L. Jenyns found it common everywhere in the spring on the flowers of the White Thorn. A closely allied

FIG. 134.—THE RASPBERRY GRUB AT WORK.

species (Byturus unicolor of Say), also attacks the Raspberry in the United States, as described by Saunders in his *Insects Injurious to Fruits*, recently reviewed in our pages. From his remarks its proceedings agree with those of our British insect:—"Where the injury is only partial the flower usually expands, but when the sexual organs are entirely destroyed, as is often the case, the buds generally wither and do not open. The beetles attack the expanded flowers as well as those which are unopened, partly hiding themselves about the base of the numerous stamens on which they are feeding. They are seldom seen during the middle of the day,

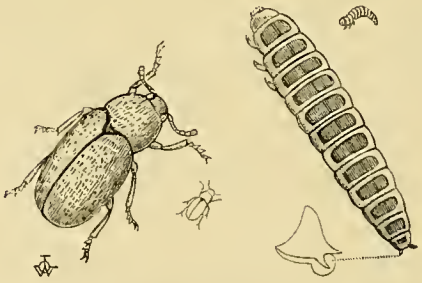

FIG. 135.—BYTURUS TOMENTOSUS: LARVA AND FULL-GROWN INSECT.

but work chiefly during the early hours of the morning and evening. Where the flowers are injured the fruit, if it forms at all, is always imperfect; hence, should this insect become very plentiful, it would prove a great hindrance to successful Raspberry culture. Fortunately, it has never yet occurred in any great numbers [in the United States of America]. Should it at any time become numerous, its ranks might be thinned by hand-picking."

During the past summer the Raspberries in my garden at Oxford were greatly injured by this insect, not only in the perfect but in the larva state, of which latter the only figure previously published appears in my *Introduction*, v. i., p. 142. In the accompanying woodcut (fig. 134) I have represented a bunch of the fruit, of which every berry has been rendered more or less abortive by the attacks both of the perfect beetle and its larvæ, which were generally to be found within the shrivelled fruit.

The eggs from which the larvæ are hatched are deposited by the female beetles in the buds of the Raspberries, and the larvæ are hatched about the time when the fruit sets. These larvæ are white, fleshy grubs, about a quarter of an inch long, nearly cylindrical, but generally lying in a curved position (fig. 135); each of the segments of the body having a transverse dorsal pale buff-coloured scaly plate, with a darker central longitudinal line, and a dark lateral margin to each scale; the underside of the body is white, as are also the six short legs attached in pairs to the three segments following the head; the extremity of the body is armed with two short horny conical spines. When full grown, about the middle of August, the larvæ most probably fall to the ground, where they are transformed into inactive pupæ, from which the beetles are developed in the following summer. *I. O. Westwood.*

PLANT PORTRAITS.

ANÆCTOCHILUS LOWI, *Illust. Horticole*, t. 401.

ANTHEMIS AIZOON, *Garden*, October 20.—A rock plant with pinnately divided silvery leaves and relatively large white flower-heads, borne singly on the ends of long leafless stalks.

CODIÆUM (CROTON) VAN OOSTERZEEI, *Illust. Hort.*, t. 502.—A form with very narrow linear-lanceolate green leaves, with large yellow spots and blotches.

CYPRIPEDIUM MELANOPHTHALMUM, Rchb. f.; Moore, in *Orchid Album*, t. 109.—A hybrid raised by Mr. Warner at Broomfield, near Chelmsford, and described by Professor Reichenbach in *Gard. Chron.*, n. s., xiv., 525.

DODECATHEON MEADIA VARS., *Garden*, November 17.

FUCHSIAS, FRITZ, MATILDA, JULIETTE, *Illust. Hort.*, t. 503.

MASDEVALLIA HARRYANA VAR. MINIATA, Williams and Moore, *Orchid Album*, t. 110.—Flowers vermilion-scarlet, with a yellow eye.

ODONTOGLOSSUM ELEGANS, Rchb. f.; Moore, in *Orchid Album*, t. 111.—Described by Professor Reichenbach in *Gard. Chron.*, n. s., xi., 462, and believed to be a hybrid between O. cirrosum and some unknown species.

ONCIDIUM PAPILIO VAR. ECHKARDTI, Lucien Linden, in *Illust. Horticole*, t. 500.—Flowers larger than the type, lip very broad, with a broad central yellow disc, surrounded by a broad band of reddish-brown, and with a narrow edge of yellow. Grown in the East Indian-house near the glass, and with abundant moisture.

PAPAVER ALPINUM, *Garden*, October 20.

PASSIFLORA HAHNII, Mast.; Moore, in *Florist*, t. 597.—See *Gardeners' Chronicle*, p. 73, 1871.

PEACH GOLDEN EAGLE, *Florist*, t. 398.—Fruit large, globular, with a depressed suture, golden-yellow, heavily flushed with crimson; juicy, melting, richly flavoured. End of September.

PHILODENDRON MAMEI, *Revue Horticole*, Nov. 1.—A handsome Aroid, introduced from New Grenada by M. André. It is a stemless plant, with stalked cordate ovate acute leaves, velvety-green, blotched with milky-white spots.

ROSE CRAMOISIE SUPÉRIEUR.—According to the *Journal des Roses* this Rose was raised in 1832, by M. Coquereau, an amateur, living near Angers. It came ultimately into the hands of M. Vibert, by whom it was distributed in 1835.

EATABLE AND POISONOUS MUSHROOMS.*

THE number of species noticed in this volume is not large, and the author does not seem in every case to have made personal experiment of the correctness of others. Works of this nature are valuable to those who are capable of consulting them, when their zeal in searching for edible novelties does not completely obliterate all notion of danger in making experiments. Where fungi are largely consumed, the poorer and less educated classes trust entirely either to tradition or personal experience, and after all, though there is an inspection of those kinds

* *Les Champignons Comestibles et Vénéneux de la Région de Montpellier et des Cévennes.* Par Louis Planchon, D.M., Montpellier, 1883, 8vo, pp. 220.

which are exposed for sale in the market, it is so slight and superficial as to be practically useless, and cases occur occasionally of fatal results from species which have been purchased and have undergone public inspection. A few isolated cases of fungus poisoning occur in this country, but on the Continent, where they are more numerous, a large portion arise from persons who wander about the woods and fields, happy if they can bring home some appetising dish for their Sunday's supper. They rely in such cases very frequently, not on their own experiences, but upon the dictum of some neighbour, which they receive without doubt; and after all much depends upon the mode of cooking. Salt in many cases, and vinegar, seem to destroy the poisonous alkaloids of many, and when the first water is thrown away, and much more when the fungi have been squeezed in a coarse cloth (a *tammy*) they may be eaten without fear. We can scarcely, however, understand any one venturing upon such a tough, indigestible mass as Polyporus squamosus; indeed, it would seem from experiments which have been made for the purpose that the cells of fungi in general strongly resist the action of digestion, and that consequently the evil effect of fungi is sometimes deferred for one or more days, and, indeed, is sometimes postponed for weeks. One of the most startling instances mentioned by Dr. Planchon of an excellent esculent species is that of Boletus granulatus, as he declares it to be from frequent personal use. Fries, however, considered it excellent. The late Mr. Salter, during the Geological Survey, lived for some time almost entirely on the common species of Boletus; and Sir W. Trevelyan, who must have had a peculiar constitution, used to eat, without fear of any evil results, Boletus luridus, specimens of which he once forwarded to us for authentication. Dr. Planchon confines his remarks to Hymenomycetous fungi; we should, however, have been glad to have seen his remarks on Truffles. We at least avail ourselves of the opportunity of saying a word about Tuber æstivum, which has lately been spoken of in this journal as disagreeable and indigestible. As regards the latter character, we believe it to be one common to other species which are consumed on the Continent, and which come to our *cuisine* in the shape of masses or clots, preserved in oil or otherwise, having lost the greater part of their aroma. But where Truffles are abundant in this country and grow to a good size, as I have repeatedly gathered them, with scarcely the labour of searching, especially in mixed plantations, they are by no means to be despised. Their aroma, of course, is not equal to that of the black Truffles from France, but either boiled or roasted in wood ashes, or minced when raw as an ingredient in salad, they are excellent. Mr. Disney's experiments as to artificial Truffle cultivation were not likely to be successful, as his materials were merely the refuse of drawers at a well known Italian warehouse, and consisted of slices, which were perfectly dry, and in many cases had been subjected to heat.

Dr. Planchon's work concludes with some medical observations, founded partly on his own experiments, which are worth reading. It is said that in 1882 there were in the single town of Lodève, near Marseilles, fifteen cases of fungus poisoning, more or less severe. The greater part of cases arise in spring, from the consumption of Amanitas, or in September after the autumn rains, and it is curious that they happen always to people who from their infancy have been used to distinguish good and bad kinds. After all their acquired knowledge accidents frequently happen, but probably in most cases from presumptuous ignorance. *M. J. B.*

NEW BOTHIES AT ASHBY LODGE.

It is too frequently the case, even in gardens where the greatest care is bestowed upon the site, aspect, arrangement and appointment of the hot-houses, that the sheds and bothies in the rear are left pretty much to chance. They are often badly situated, and carelessly arranged in the first instance, and are then allowed to get and remain in a highly unsatisfactory and unsanitary condition. They are generally, and indeed almost as a matter of necessity, placed at the back of a range of hothouses, and consequently face north, and never obtain a gleam of sunshine. They are often in close proximity to clumps of trees, and these two circumstances combine to render them cheerless, damp, and unhealthy. Again, they are often entirely devoid of the conveniences necessary for the comfort, cleanliness, health, and even decency, of the young men and labourers about the gardens.

We have much pleasure in giving this week illustrations of a range of bothies and sheds now being erected in the gardens of Ashby Lodge, near Rugby, the seat of Edgar Hibbert, Esq. (figs. 136, 137). The buildings, which appear to be most satisfactory and complete, and in striking contrast to the picture we have just drawn, stand in the rear of a new range of fruit and plant-houses, nearly 200 feet long, which is being erected with all the latest improvements by Messrs. J. Weeks & Co., of Chelsea.

It will be seen on referring to the plan that the Mushroom-house, A, is at the extreme east end of the range. Next to it comes the potting-shed, B, which is entered through the open shed, C; it also has a door through the back wall into the plant-house. Then comes D, the fruit-room. The boiler-house and fuel-store come next, and, as will be seen from the plan, occupy a nearly central position. The whole of the space west of this is taken up by the living rooms and conveniences for the young men and labourers about the gardens, and the arrangement and fittings of this portion of the buildings seem to be unusually satisfactory and complete.

The young men's apartments are entered through an ante-room or wash-house, L, where the men can change their boots, coats, &c., before entering the mess-room, N. The ante-room is fitted with wash-basins, with water laid on and proper wastes. The mess-room is a large, light, airy room, 16 feet by 12 feet, with two windows and a skylight, a good fire-place and a useful cupboard. A roomy larder for food is provided at K, next the external wall, and provided with ample ventilation.

The sleeping-rooms, V and W (fig. 137), are reached by a flight of stairs, U, leading out of the ante-room; they are situated over the boiler-house and fuel-house, and are large, light, airy, well ventilated rooms. They both have fireplaces, and the smaller one, V, might be very useful in case of illness. The roof over these rooms is a span, and skylights, as shown by the dotted lines, are provided on the south side of the roof, so that the rooms can have the benefit of the sun when thought desirable; in fact, they are capital dormitories, and form an agreeable contrast to the musty, damp, dark, and cheerless rooms which are too frequently devoted to the under gardeners. In addition to these there is a large and convenient mess-room, P, for the labourers, with commodious fire-place, good cupboard, large window, and skylight. At the extreme west end are the urinals, R R, and earth closets, S S, which are entered through an open yard.

The hothouses which are being erected are on the most extensive scale. In addition to the range (chiefly fruit-houses) against which the sheds and bothies stand, there are to be plant-houses, two ranges of Orchid-houses (span-roofed), and an extensive range of forcing-houses, all built in the most approved style and fitted with every modern improvement; but of this we may have more to say hereafter.

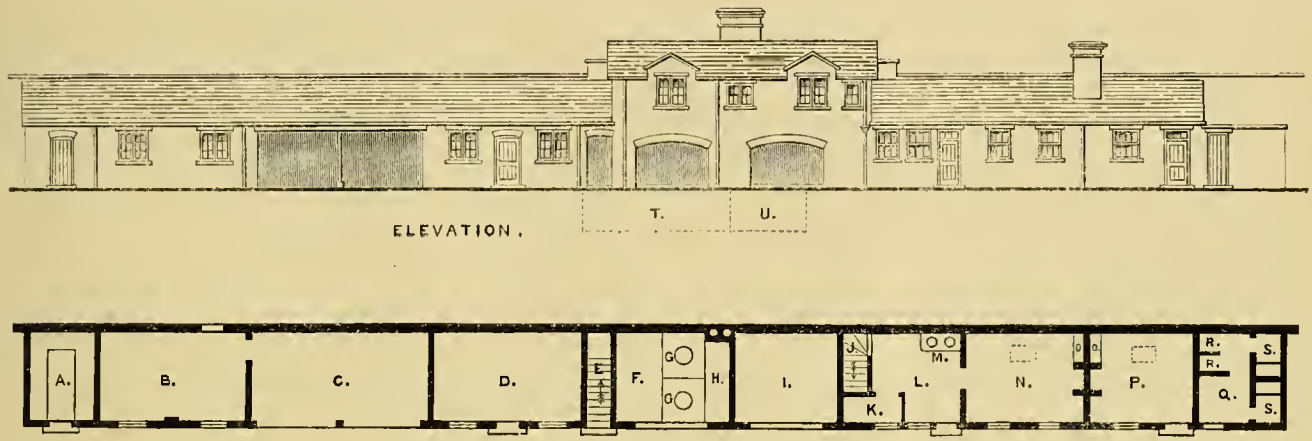

Fig. 136.—PLAN OF THE NEW BOTHIES AT ASHBY LODGE, NEAR RUGBY: SCALE, 24 FEET TO AN INCH.

Fig. 137.—PLAN OF SLEEPING ROOMS.

Psychotria cyanococca.—Comparatively few species of this genus are under cultivation, owing doubtless to their being of little value for horticultural purposes. The flowers in all are small, white or yellow, and often inconspicuous; but some are valued for their medicinal or economical purposes. Horticulturally some are valuable on account of their coloured berries, and the one under notice may claim the palm in that respect. These berries are produced in dense terminal bunches, and when approaching maturity assume a deep blue which is very effective. They ripen regularly about this season at Kew, where they may be seen in the stove. There can be little doubt that this high colouring assists materially in the distribution of the seeds by birds, and is only one of many varied instances of this provision of Nature occurring in the large order of Cinchonads. The seeds being provided with a bony coat, if swallowed by birds or other animals, pass through their intestines without being digested or otherwise injured.

Orchid Notes and Gleanings.

WORK IN THE HOUSES.—The dull or most flowerless season among these plants is rapidly passing by, and every week will now become more interesting, as the promise of bloom will be constantly increasing. The winter blooming Lælias are rapidly advancing to the flowering stage, and these will be quickly succeeded by the various forms of Cattleya Trianæ, the earliest Dendrobiums, and other species. The gem among the winter blooming Lælias is undoubtedly L. anceps Dawsoni, and it has the satisfactory properties of being a good grower and a free bloomer. One of the most useful in this genus for supplying cut flowers is Lælia albida. It is not so free in growth as some kinds, but it is an abundant bloomer, and well developed spikes of a good form of it are among the most delicate flowers of the winter season. It will succeed in the cool end of the Cattleya-house grown on a rough block with a little sphagnum moss attached, but it should never be over-watered nor heavily shaded. Some of the earliest plants of Odontoglossum citrosmum and the variety roseum will soon be on the move, and as the flower-spikes appear simultaneously with the young growths they must be closely watched, and be protected from injury, as the spikes of these kinds are very tender when in a young state. As soon as the plants are seen to be on the move, a little more water at the roots will be beneficial to them. Odontoglossum hastilabium grown in the intermediate-house with the two named above will now be completing its growths, and should be liberally supplied with moisture at the root to bring up the bulbs to the fullest size, when they will not fail to give fine branching spikes of bloom during May and June. Epidendrum bicornutum will now be finishing up its growths, and a little less water at the roots will tend to the better ripening of the bulbs. This plant we have grown in a warm pit exposed to full sunshine during the past season with the best result, as weakly plants have considerably strengthened under this treatment, and will doubtless flower in due course. Masdevallia tovarensis is now in full beauty, and requires to be kept in a dry atmosphere to retain the flowers in perfection at this season. Where they are not cut for decoration the old spikes should not be removed, as they will give another crop of flowers next season. Cymbidium Lowianum is throwing up fine spikes of bloom, and the plants are also moving for fresh growth: the same remarks apply to C. Mastersii. As these are free-rooting plants that are benefited by a free root-run, they may be potted as soon as convenient, after the flowers are removed. Late plants of Oncidium Forbesii should have the flowers removed from them before they begin to fade. Where this has been grown on blocks they should be transferred to pots before another season's growth has commenced, as they do much better under the latter mode of culture. Thunias must be kept cool and dry to prevent them starting into growth before the days begin to lengthen. Vanda cœrulea will also be much benefited by being kept cool and dry for a time, as it will prevent them getting into a tender, sappy state. Attend to the cleaning of all plants that need attention, as no other season is so favourable for this work, but where the plants are grown under conditions that suit them, insect pests never give much trouble. With the weather so favourable it will be an easy matter keeping up the temperatures for the warmest species and allowing them a change of air daily. *J. Roberts.*

ODONTOGLOSSUM ALEXANDRÆ.—The fine specimen of a variety of this plant, with an immense spike composed of five gracefully arched branches bearing in all fifty blooms, which was exhibited by G. F. Wilson, Esq., Heatherbank, Weybridge, at the last meeting of the Royal Horticultural Society, served to demonstrate the extraordinary variety of this Orchid, not only in the different specimens, but in the individual plants themselves, from one year to another. The plant in question was bought in 1880 as O. Alexandræ, and duly entered in Mr. Wilson's Orchid book. In 1882 it flowered with seventeen flowers, it is presumed on a branched spike, for the name was altered to O. Pescatorei. In Jan., 1883, it produced an unbranched spike of fourteen flowers, and the name was put O. Alexandræ, as before, and now it produces the profusely branched spike as described. The plant has been remarkably well grown, and a Cultural Certificate was justly awarded to it. In the arrangement of the spots on O. Alexandræ the individual plants vary much from one flowering to another, some seasons a plant bearing three or four widely separated spots on each petal, and the next time of flowering all the spots on each petal will be collected into one irregular blotch. Many of the poorer shaped forms also bloom with yellow flowers in winter, and are thus frequently sold for high prices, only to appear when next bloomed as common O. Alexandræ. One thing is pretty well known, however, and that is, that the best round-petalled forms are not so variable as the angular ones, and that by good culture their beauties, which never go below a certain standard, may be much increased. The variable character of the flowers, and their arrangement in many of the forms of O. Alexandræ, seem to point to their mixed parentage in the remote past, and that while they have been constantly seeding and reverting towards O. Alexandræ (crispum) they still bear in them traces of other forms, which circumstances may at any time cause them to exhibit.

CYPRIPEDIUM (SELENIPEDIUM) HYBRIDS.—The handsome varieties exhibited by Messrs. Veitch, augmented by the noble flowers of C. Schrœderæ shown by Mr. Ballantyne, gr. to Baron Schrœder, The Dell, Egham, at the Royal Horticultural Society's meeting on Tuesday, and in all of which C. Sedeni × had formed one of the parents, served to illustrate the importance and happy character of that cross. C. Sedeni was raised at Messrs. Veitch's by crossing C. Schlimii with C. longifolium, and *vice versâ*, the result in each case being much the same—a circumstance which has generally been found to hold good in intercrossing this section of Cypripedium; no matter which the seed bearing parent may be, the result in the offspring is a strictly intermediate form. Before the advent of C. Sedeni the delicate but beautiful and distinct C. Schlimii was much sought after, but in C. Sedeni all the coveted beauty was found to be increased, its colour intensified, its size enlarged, its floriferousness increased tenfold, and added to all, a rudely robust constitution imparted; it is not therefore to be wondered at that to all who desire a lovely, easily cultivated plant, the possession of C. Schlimii should be of little consequence when they can easily obtain and grow its more sturdy offspring. When we call to mind the many huge specimens of C. Sedeni, with their hundreds of elegant rose-coloured flowers, which seem to be perpetually blooming in our Orchid collections, we cannot wonder at its being such a general favourite; nevertheless, all due consideration should be given to the meek-looking little C. Schlimii, not only on account of its own beauty but for the important part it has played in giving us a new and beautiful race. With respect to the other parent of C. Sedeni (C. longifolium), it had vigour, a floriferous habit, and good substance, but its pale green, purple-tinged flowers wanted colour, and that C. Schlimii supplied as well as assisting in modifying its angular form, and hence the happy combination. The interest in examining the specimens exhibited was much increased by the forethought of Messrs. Veitch, who also exhibited C. Schlimii in bloom, and flowers of C. longifolium, C. cardinale × (C. Sedeni × C. Schlimii variety). This may be likened to a gigantic very highly coloured C. Schlimii, it being rounder in all its parts than C. Sedeni, and having the patches of rose-coloured hair-like protuberances on the petals near the column much more clearly defined than in that variety. There is a brightness in the rosy tint of C. cardinale, particularly on the pouch-like labellum, which makes it very attractive. C. calurum × (C. longifolium crossed with C. Sedeni ×), a noble plant apparently as strong growing and free-flowering as C. longifolium, and having large wax-like flowers, the petals of which are quaintly elongated and curled. The upper and lower sepals are greenish-white veined with rose, and the petals and labellum are rose beautifully tinged over with brown. The inside of the pouch—a study in itself—is cream-coloured spotted with purplish-rose. These two grand things are among the best of the beautiful hybrids raised at Chelsea. The flowers of C. Schrœderæ (C caudatum × C. Sedeni), brought by Mr. Ballantyne, prove it to be a strikingly beautiful plant. In general appearance the flowers are like a large C. Sedeni with the petals very much elongated; in fact, they are just what might be expected from the introduction of the influence of the long tails of C. caudatum on C. Sedeni. The top and bottom sepals are cream-coloured, veined and lined with rosy-brown, the bottom one being round, petals purplish-rose, lip purplish-rose outside, pale sulphur blotched with brownish-rose inside, the entire length of the flower being about 7 inches—a noble variety indeed. The plant is of Veitchian origin, and was described in the *Gardeners' Chronicle*, p. 432. There are yet other varieties in which C. Sedeni has been a parent, and which will, no doubt, turn out well. It is perhaps needless to say that all have the plain green leaves of their (the Selenipedium) section. *James O'Brien.*

Notices of Books.

The Encyclopædia Americana: *a Supplemental Dictionary of Arts, Sciences, and General Literature.* Vol. I., A to Cen. J. M. Stoddart. 4to, pp. 768.

The man who provides trustworthy works of this character performs a service to his fellows comparable to that rendered by the road-maker or bridge-builder. He renders available a vast mass of information which otherwise would be unattainable by the great majority. The more such works are multiplied—provided, of course, that they are good of their kind—the better for us all. In some departments of knowledge and industry the advances are so rapid and the changes so great that a text-book or Cyclopædia a year or two old becomes as much out of date as last season's bonnet. Any work which will enable the reader to keep fairly abreast of the times is, therefore, sure to be welcomed. Another great advantage arising from the multiplication of works of this character is the opportunity offered to the reader of studying any given subject from a different standpoint. We are all of us much too apt to draw our inferences from that side of a subject which happens to be turned towards us, and to neglect other aspects not so easily observable.

The publication of the various European Encyclopædias necessarily occupies a long period. The *Encyclopædia Britannica*, admirable as it is in its new edition, and pushed forward with commendable rapidity, suffers from this cause. Hardly is a volume issued than a supplement to it becomes necessary. Such a supplement is furnished by the present work—one designed not to supersede, but to be the complement of other works of a similar character. Moreover, as is natural, increased space and special development are given to American geography, history, literature, science, politics, and industry. This is a great boon to seekers after information on this side of the Atlantic, while as to matters not exclusively American there is, as we have said, the inestimable advantage afforded of seeing things from a different standpoint than that to which we are accustomed. Detailed criticism of such a work, if practicable, would be out of place in these columns. We may, however, add a word or two on the subjects most cognate with our own departments. The articles on agricultural geology are supplied by Mr. Ashburner of the Pennsylvania Geological Survey. Lieutenant Birkheimer treats of the Meterological Signal Service in relation to agriculture. Professor Caldwell gives an account of the experimental agricultural stations, as to which the Americans are so much in advance of ourselves. Mr. Chamberlain, of the Ohio Board of Agriculture, deals with manures. Professor Meehan undertakes numerous articles on plants of agricultural or horticultural interest. Professor Riley's name is a guarantee that the subject of insects in their relation to agriculture is in good hands. The general subject of North American botany is dealt with by Dr. Rothrock. The Hon. Levi Stockbridge dilates upon various matters connected with agriculture. The enumeration of these writers—and they are only a few—is sufficient to give confidence in the work. The article on American agriculture occupies some eighty pages, appropriately broken up under various headings, and with an alphabetical index. Incidentally, and with a view to show how comprehensive the book is, we may mention that there is a separate article devoted to Joseph Arch, from whose exertions it is claimed that the wages of farm labourers have been substantially increased, their hours of toil diminished, while thousands have been assisted to emigrate.

The article "Blights" contains a clear statement of

the various Ustilagineæ, Uredineæ, and Peronosporeæ which affect cultivated plants. The author does not admit that the resting-spores of the Potato fungus have yet been discovered, but he fails not to advocate the systematic destruction by fire of the diseased tops. It is somewhat singular that the name of Berkeley does not occur in this article, though fitting tribute is made to De Bary and the Tulasnes. The article "Botany" treats of the geograpical distribution of North American plants, and their economic relations, while a third section is devoted to American botanists and botanical literature. The first part very naturally is taken from Asa Gray's works. Taking North America as a whole it is characterised by its Asters, Golden Rods, Cacti, by its gigantic Conifers, and by the number of species among its deciduous trees. The number of species of Hawkweed (Hieracium), and the areas of Heather (Calluna vulgaris), which characterise vast portions of Northern Europe in like climatic conditions have a strikingly small representation here (America). The earliest publication devoted to North American botany is in Latin, and purports to be a history of Canadian and other unpublished plants by Jac. Cornutus. It was published in Paris in 1635. The account of the literature since that time is concise, so concise that the name of the author of the *Flora Boreali Americana* is not cited. The account of the several States and principal cities of the Union, with the statistical data relating to them, will be very useful to the English reader. The book is well illustrated, and clearly printed on thick paper, not so highly glazed as has become the fashion with American books, and consequently all the more agreeable to read, especially by artificial light.

The Flower Garden.

With the exception of the few severe days we had last week, the weather has been, and still continues, favourable for all outdoor operations; and so good an opportunity should not be allowed to pass without using every available means to complete by the end of the year the transplanting of shrubs and trees, pruning and thinning when mild, also all ground work and other required alterations. When the new year commences it invariably brings with it such a multiplicity of ordinary routine work as will, if duly and properly executed, prevent the accomplishment of any considerable amount of what may be termed extra work, unless by the employment of additional labour, which in these days of economy cannot, except in a few favoured places, be even thought of; and as there is perhaps no greater evil in the garden, nor one so productive of disappointment and failure, as that of work unduly performed in respect to time, no other extraneous operations should therefore be permitted to interfere with the timely performance of all specific routine work. The lawn and walks now require particular care; any extra attention given them at this time will not only give them a clean, dry, and pleasing appearance, but its effects will be plainly visible throughout the ensuing spring and summer, and save endless labour and disappointment during those busy seasons. The leaves having now fallen from the trees, the lawn and walks should be thoroughly swept, and when sufficiently dry well rolled. A careful inspection should then be made of every part of the lawn. Where the ground is wet and unpleasant to walk on it should be well drained, so as to render it firm and dry immediately after heavy storms of rain have fallen. This can nearly always be accomplished with comparative ease provided one or two main points be observed. In the first place accurate levels should be taken, as in nearly flat spaces a few inches fall is all that can be obtained. Having found the lowest point, the direction of the main or outfall drain should be decided. It is advisable at all times to carry it in such a direction as will allow of the branch drains from it being carried as perpendicular to the rising ground as possible, and they should be perfectly parallel to each other. The drains should be laid at a depth of from 3 to 4 feet. A common error is to lay them too shallow. If the subsoil water is removed the surface water can give no trouble. They should be laid about 12, 15, or 18 feet apart, according to the nature of the subsoil. It will also facilitate the drainage, if coarse stones or any other rough material be laid over the drains about a foot deep. When the drains are filled in it is well to allow a short time for the soil to settle over them, otherwise, by ramming it hard, the natural porosity of the soil is destroyed, and the drains rendered comparatively useless. This is also a convenient time to rectify any irregularities on the lawn, which may interfere with its proper keeping and appearance. In filling up hollows, care should be taken to use soil as similar in quality as possible to the natural soil, so as to prevent any conspicuous patches when the turf is relaid. The turf selected should also be as near as possible like that on the lawn, and great care taken to obtain such as is free from Plantain or other unsightly weeds, else it will become a continued source of trouble and annoyance. On all bare spaces partially overshadowed by trees rather than lay down turf it is better to wait till spring and sow it down with suitable grass seeds. Walks also which are not perfectly hard and dry to walk upon a few minutes after the fall of rain should be thoroughly re-drained, otherwise no pleasure-ground can be so called by those who own it. In doing this the fact must be fully understood and recognised, that unless the subsoil be perfectly porous and dry it is useless to expect the surface to be so. If they are wide, say, 18 or 20 feet, three drains are necessary, one in the centre and one on each side; these should be filled up to within 6 inches of the surface with coarse stones or gravel; and where the subsoil is stiff 2 feet of stones or gravel should be laid over the entire walk immediately under the gravel. Some use chalk for this purpose, but it absorbs and retains water too freely, and in severe frosts is very objectionable. Surface drains with catchpits and gratings should be provided at regular intervals; these gratings should be fixed about 2 inches below the turf forming the edge. The stones forming the base of the walk should be made thoroughly firm either by ramming or rolling. About 4 inches of coarse gravel, similar in colour to that intended for the surface, should be spread over this, and again rolled thoroughly hard, and over this about 2 inches of fine gravel, which should finally be rolled to a hard and even surface. The elevation in the centre of a walk this width should be about 5 inches higher than the sides. In narrow walks one deep drain under the centre with transverse drains from the catchpits will be sufficient, and the elevation in the centre about 2 or 3 inches, according to the width. Walks so made will remain hard, dry, and pleasant to walk on at all times. *T. S. C.*

Grapes and Vineries.

The earliest vinery may now be kept at a night temperature of 55°, with a rise of 10° by day, as the buds will now be commencing to break; but if the weather comes on severe a few degrees lower night temperature will be better than too much fire-heat. Raise the temperature to day heat as early in the morning as possible, and on the brightest days give a little air on the back ventilators, and close the house early in the afternoon. While the sun has full power the temperature may be allowed to run up to 80°, after closing with sun-heat and plenty of atmospheric moisture, which will be better for the Vines and save fuel. Turn over the fermenting material on the inside border every morning, and add fresh as the heat declines. Syringe the rods overhead with tepid water several times daily until the bunches can be seen, when it must be discontinued, and steadily increase the temperature as growth proceeds. Examine the border, and if dry apply tepid water at a temperature of 85°. Early Vines started now can be kept at a night temperature of 45° to 50°, with a rise of 10° by day. Before starting water the inside border with water at a temperature of 85°, and syringe the rods overhead whenever they are dry. If fermenting material is used syringing will be less required. Do not give air at present if the day heat does not exceed 70°; but if it runs higher give a little on the back ventilators only.

Any late Hamburghs that are still on the Vines, and are required to be kept as long as possible, will be better taken from the Vines and kept in the fruit-room at a temperature of 45° and in a dry atmosphere. Prune and dress the Vines on the first opportunity, so that they can have as long a season of rest as possible. After pruning wash all the glass and woodwork; tie the Vines down ready for starting, and keep the ventilators open night and day, only closing them when the frost is severe. Muscats that are still on the Vines can be kept at a night temperature of 45°, with the atmosphere dry. Give air on all favourable occasions, but be careful to avoid draughts, or the berries will turn brown. Late varieties of Grapes must still be kept at a night temperature of 45°, and have plenty of air on bright days, closing the house early while the outside atmosphere is dry. Early pot Vines with the buds swelling must be kept at a night temperature of 55°, with a rise of 10° by day, and have plenty of clear tepid water at the roots. Syringe the rods several times daily, keep the evaporating pans filled with weak manure-water, and add fresh material for bottom-heat, so that it keeps at about 80°. *Joshua Atkins.*

The Hardy Fruit Garden.

At this period the principal operations are those of pruning and training, which should be pushed forward, so that as the spring advances, when the various other departments will demand immediate attention, the work shall not be hurried over and be imperfectly performed. Peaches, Nectarines, and Figs are excepted for the present, but they should all be unfastened from the wall; the latter protected from frost, the two former, that the buds may be retarded as much as possible, so that the expansion of the flowers in spring may be delayed till dangers arising from frost be past—also to facilitate the cleansing of the walls for the eradication of insect pests. All other fruit trees, whether on walls or the open borders, should be operated on at once. Established trees of Pears, Plums, and Cherries, bearing on the spur system, where branches are regarded as permanent, and retain their position, should be secured to the wall by means of eyes or staples inserted in the wall alternately on each side of the branch, a sufficient number only to make the branch secure. At the annual training there will only be the renewal of the ties to be made, thus avoiding the damage to the wall caused by the continual driving of nails and the use of large shreds which are unsightly. This system cannot be applied to such trees as produce twiggy growths like the Morello Cherry, Peaches, &c.; but the wiring of the walls will be found of great advantage from many points of view. The excessive damage from the use of nails and shreds, and the harbouring of insects, are avoided; the whole of the branches are exposed, the retarding of the buds in a great measure effected, besides the facility for training increased, and a consequent saving of labour. Wires stretched horizontally along every alternate joint of brickwork, with holdfasts or eyes for supporting the wire at distances from 5 to 7 feet apart, will be found an efficient trellis. These wires should be painted annually, not so much for the cleanliness as the purpose of glazing over the rough and sharp excrescences usually found on galvanised wire—a cause of gumming frequently found on unpainted trellises, but proved by experience to be prevented by the use of paint. The least friction caused by the wind, or in the training, are sufficient to break the skin when in contact with these rough places on the wire, and as a natural result gumming ensues.

For the eradication and prevention of insects on fruit trees a dressing should be applied annually, if time admits, to all, such as are used indoors for Vines and Peaches, thereby acting upon the principle that prevention is better than cure.

Clear away the prunings from quarters of bush fruits. Tie Raspberries to their supports, and on frosty mornings the mulchings can be wheeled on, previously giving a slight dressing of unslaked lime all over the soil; if applied in the evening in mild weather the slugs, which usually seek the shelter of these quarters, will be greatly lessened in numbers. *D. C. Powell, Powderham Castle.*

FLOWERS IN SEASON.

From Messrs. Rodger, McClelland & Co., of Newry, come flowers of

Helianthus angustifolius, a much branched, narrow leaved, small flowered species, too late in many places for out-of-door work, but doing excellently well for pots under glass with Chrysanthemums.

Senecio pulcher, grown in a similar way, is also very effective.

Salvia cœlestina reminds one of Nepeta Muschini, or, better still, of spikes of Lavender. Indeed, if it were not for the different leaves, it might be palmed off on a Cockney—with a cold—as Lavender.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Dec. 17	Sale of Lilies at Stevens', and Dutch Bulbs at Protheroe & Morris' Rooms.
TUESDAY,	Dec. 18	Special Sale of Orchids in Flower, at Protheroe & Morris' Rooms.
WEDNESDAY,	Dec 19	Sale of Plants and Bulbs, at Stevens' Rooms.
THURSDAY,	Dec. 20	Linnean Society meets at 8 P M. Special Sale of Plants in Flower, at Stevens' Rooms. Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY,	Dec. 21	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	Dec. 22	Sales of Hardy Plants and Bulbs, at Stevens' and Protheroe & Morris' Rooms

JULIUS CÆSAR, author, statesman, soldier, and keen observer, in the course of his wide travels in distant lands, called the LARCH *lignum impenetrabile*. It is curious that this useful timber tree, which has excited such keen interest in Great Britain during the past century, and which has spread more rapidly than any other tree of foreign introduction, was 1800 years in following CÆSAR. He favoured this country with a visit in the year 55 B.C.—the Larch arrived under the auspices of the Duke of ATHOLE in 1736. It had been observed growing on the hills and highlands in forests all over the central part of Europe, as a bush in the Alps at an altitude of more than 6000 feet above the sea, on the Carpathians, in Hungary, and in the Tyrol, producing timber in perfection on inferior soils. The Duke of ATHOLE was particularly cautioned against planting on rich soils or in low situations—sites where the tree was found to suffer from spring frosts scorching the foliage or rupturing the tissues of the young bark, causing those ulcerous patches, with discharge of fluid, which the young trees are subject to, though after twenty years of age, especially if the trunk is well feathered and clothed with branches, and after the bark is fully formed and corky, the trees are safe from this malady, becoming as hardy as they were before tender.

As Larch requires somewhat different management from the other Conifers, and its extension in some districts has been checked by inattention to rules, it may be well to describe the main elements of success in the cultivation of this tree. It is, as already said, a tree of the hills. "A certain inferiority of soil is necessary to the Larch," says a writer correctly, but it will not grow in all poor soils; in cold damp land it becomes "fogged and covered with lichens," said a great planter of Perthshire. The poor wastes of Surrey generally consist of these hard compact sands, which compose the soil of the picturesque sand-hills around Guildford. They are covered with timber, and very pleasing, but the timber of the upper and poorer levels consists of Scotch Fir; and the Larch in these compact, dry sands becomes "fogged and covered with lichens," as on damp soils in Perthshire. The Scotch Fir is the weed of the Bagshot sands also, and the comparative scarcity of the Larch is due to their hard, compact character and the inability of the roots of the Larch to extend freely in such soils. As the Oak affects the heavy Wheat-producing soils, so the Larch may be said to affect the light Barley-growing lands, though this is a distinction of only general application.

It would seem that the Larch requires a certain proportion of sand, and cannot thrive without it, but the ground must be porous and well aërated; and this is the character of the soil in the great Larch forest of the Forclaz, above Martigny, noted in these columns lately. On the sands of Surrey the Larch and the Whortleberry are often found together; neither will flourish on hard, compact sand, and both will do so on sandstone rubbles, which their roots can easily penetrate. Another hint derived from the companionship of plants is that shrubs which dry the ground, such as Gorse, may on the same soil prove beneficial to Larch in wet seasons, and the contrary in dry ones. Mr. THOMSON says in the *Transactions of the Highland Society* that the finest Larches have been grown on the loamy soil in Dumbartonshire, on brown loam at Inverary, on sandy soil at Dunblane, and on light alluvial soil at Dunkeld. The depth of soil need not exceed a few inches, but the subsoil must be open, and the situation exposed for the sake of evaporation, but sheltered from cutting winds which would injure the foliage of a tree whose growth is late, continuing till October.

The finest Larches in Scotland are 206 feet above the sea level; those at the greatest altitude are noticed by Mr. THOMSON as growing at Crathie, in Aberdeenshire, 1110 feet above the sea; the lowest placed trees are at Old Kilpatrick, 60 feet above the sea. The same writer mentions 84 feet as the mean height of forty-eight trees whose dimensions, sites, and ages he records; the highest among these trees measures 143 feet in height, the lowest 35 feet. He further describes fifty-three trees whose average girth is 10 feet 10 inches at (apparently) 4 feet from the ground, the greatest girth being that of a tree at Kirkliston, Linlithgowshire, which measures, he says, 22 feet 5 inches. But Mr. THOMSON does not give the height of this tree, and a record of girth without height possesses little value. There are a number of fine Larches growing on the battlefield at Killiecrankie, planted to mark the spot where DUNDEE fell, two of which measure 250 cubic feet of timber, having attained a height of from 105 feet to 115 feet, and a girth at 4 feet of 10 feet and 10 feet 2 inches. A noble Larch at Inverary measures at 100 years old 130 feet by 10 feet.

Many of the Larches at Blair Athole and Dunkeld contain 200 cubic feet of timber at from 120 to 130 years old. The two famous trees on the lawn at Dunkeld, figured in our columns, 1876, vol. v., p. 209, planted in 1736 and 1738, contain 480 and 430 cubic feet of timber, and these are the grandest specimens of the Larch in the United Kingdom. The largest tree measures 16 feet 3 inches in girth at 3 feet from the ground, and the noble column tapers slowly, measuring timber almost to the top, which is 100 feet from the ground. The small side branches of this and other Larches which have grown without being overcrowded, as in plantations, display one of the characteristics of the tree. The measurements of the Linley Larches, planted about the same time (see *Gard Chron.* 1881, vol. xv., p. 241), have, we believe, never been published.

Larches in England are frequently grown too close for the proper development of the timber, since they require much more rigorous thinning than the Scotch Fir, whose side branches are far coarser. Speaking of the hardy habit and the tenacity of life of the Larch, Mr. MICHIE says in his recent volume on this tree that the trees of a plantation when surrounded and confined by other trees during the first seventy-six years of its life only made 4½ inches diameter of growth, and attained 28 feet in height. The annual rings of growth were so small they could scarcely be counted; the trees were bare poles. But the surrounding timber was cut, and the subsequent growth of these injured Larches reached 1 inch diameter every two years, till at 109 years old they were cut.

The Duke of RICHMOND and GORDON'S property at Huntley contains 3000 acres of Larch, mixed with Scotch Fir and Spruce, and planted in 1839 at a cost of 20*s.* an acre. The trees were planted on the lower ground 4 feet apart, on the higher 3½ feet apart, Larch above, the others below; the average number of plants was 3000 per acre. The Larch is in the poorer ground, yet its value at the present time is one-fourth greater than that of the mixed plantation. The Larches grow well even on the highest peak of the hill at an altitude of 1050 feet. At forty-four years' growth the value of the plantation is from £60 to £70 per acre, the number of trees now standing being about 300 per acre, the first thinning having been made at fifteen years from planting.

An adept in forestry would be shy of laying down hard and fast rules in reference to thinning. The object of the operation is to maintain the due proportion of height to girth. It might be said that thinning should commence when the side branches of neighbouring trees touch each other at the points; but when a rapid growth is taking place at the rate of a yard of height annually, thinning should be effected before the meeting of the branches, and on the other hand, the need for shelter on exposed sites may render it desirable to delay thinning, and to act cautiously at all times in carrying out that process. A well-proportioned Larch should measure, says Mr. MICHIE, as many feet in height as inches in girth, measuring immediately above the swelling at the base. A tree 3 feet high should measure 3 inches in girth, 20 feet high 20 inches, and so on; and this rule affords a guide to thinning, since these proportions will not be maintained if the thinning is mismanaged. If the operation be delayed height will be attained at the expense of girth, and *vice versâ*. But so far as the production of side branches is concerned, the same want of pruning which would convert a Scotch Fir, having sufficient space for full development, into a squat trunk with a vast head of branches, as in the native forests of Strathspey, would admit of a Larch, on favourable soil, attaining a trunk measuring timber to a height of 70 or 80 feet, as at Dunkeld. Evidently the economy and management of a Larch plantation cannot be given in detail within the limits of an article, and there are many other points besides those alluded to which the forester will carefully consider.

At thirty years' growth a Larch wood of 20 acres, under the management of Mr. MICHIE, with a soil of thin moorland which even this tree of crags and soils too sterile for farming might prefer if it were richer, has been cut away owing to incipient decay, due no doubt to the poverty of the earth, and the value of the 200 trees per acre is £30. at 1*s.* per cubic foot. The land was worth a rent of 2*s.* 6*d.* per acre for pasturage before planting, and is now worth 5*s.* per acre for the same purpose. The cost of planting moorland by slitting the ground and setting the plants with a spade is very small. These notes on the size attained by Larches, and the value of plantations, may, perhaps, attract attention to the profits attending skilful forestry.

—— BOTANIC GARDEN, ROME.—Professor PIROTTA has been appointed Professor of Botany and Director of the Botanic Garden in place of Professor PEDICINO, deceased.

—— BOTANIC GARDEN, MODENA.—Dr. MORI has been appointed Director of the Botanic Garden, Modena.

—— ZURICH.—Dr. A. DODEL-PORT has been appointed Professor of Botany in the University.

—— NAPLES BOTANIC GARDEN.—Professor PASQUALE has been appointed Professor of Botany and Director of the Botanic Garden in the room of Baron CESATI, deceased.

—— CESTRUM NOCTURNUM.—This is an old friend long lost sight of, elbowed out to make room for more showy, but not more interesting, plants. Those who knew of it of old will be glad to renew their acquaintance with it, while those to whom it is new will appreciate the quiet subdued colour of the flower (a pale yellow-green), fashionable now-a-days, and especially the delicate perfume which it emits at evening. RAY speaks of this plant (or it may be of a

FIG. 138.—CESTRUM NOCTURNUM—NIGHT-SMELLING GREENHOUSE SHRUB.

congener) as growing in the garden of the Duke of BEAUFORT at Badminton in his time. It was in SHERARD's garden at Eltham, where DILLENIUS figured it in his *Hortus Elthamensis*. A writer in these columns (Oct. 25, 1856) mentions a fine specimen in the garden of the Duke of LEEDS at Hornby Castle, Yorkshire, and speaks of it as "One mass of blossom, and had been in flower for the last four months. Its powerful fragrance scented the whole house. I cannot find it in any nursery catalogue, which I regret, as it is one of the most fragrant plants in cultivation." The plant is a native of Cuba and other of the West Indian islands, in some of which it is known as the Dama de Noche. There is a nearly related plant in Mexico, C. fœtidissimum, described as omnium fœtidissima et nauseosa. This was figured by JACQUIN in his *Hortus Schönbrunensis*, iii., 329, but is not a desirable inmate to cultivate. Our illustration (fig. 138), taken from a specimen kindly forwarded by Mr. W. O. CHALK, suffices to give the general appearance of the plant, which is interesting botanically as an aberrant member of the great Solanum family, closely allied to Habrothamnus, the embryo being straight, not curved. Moreover, the tube of the corolla breaks away by a circular constriction near the bottom, leaving the extreme base surrounding the ovary. Further, the stamens are provided at the base with a little spurlike process, directed inwards, and very interesting to those who indulge in speculations as to the past history or possible future development of the flower. The flower is succeeded by a yellowish globular berry, with numerous seeds, whose outer coat is raised in irregular wavy ridges.

—— THE WEEK.—In spite of the general air of dilapidation consequent upon the dismantlement of the Fisheries' Exhibition an interesting show was held on Tuesday last in the conservatory of the Royal Horticultural Society. The details are given in another column, but it may here be noted that the Hellebores of the altifolius type sent from Cornwall were as large as those figured by us, and pure white, with a flush of rose on the outer surface of the sepals. The Blue Spruce (Picea pungens) was sent by Mr. WATERER, of Knap Hill, who has a fine plant in his nurseries so like the one figured by us that our illustration might have been taken from it. The exhibition of Celery from Chiswick was not remarkable, but one variety shown by Messrs. CARTER demands notice for its finely cut foliage, more like that of a Carrot than of Celery. It would look well in a vase on the dinner-table. Hybridisation is now largely practised, but in only a few cases is the result of a superior character. The hybrid Begonia raised between the new B. socotrana and B. insignis, and the new hybrid Cypripedia are cases in point. At present the interest is mainly scientific. Mr. CANNELL's single Chrysanthemums find admirers. Willie Beckwith, a form with rosy-lilac rays with a band of white surrounding a central yellow disc

is luminous and effective, and we cannot doubt that if care be taken to improve the flowers, they will find as much favour as the single Dahlias. Mr. GREEN generally contrives to bring up something noteworthy. His specimens of Bignonia venusta figured by us, *Gardeners' Chronicle*, 1879, vol. xi., p. 273, were very fine, wreaths of bright orange-yellow flowers produced in profusion. Cut blooms of Luculia gratissima filled the conservatory with their sweetness, and some Pines from Mr. D. THOMSON were models of size and symmetry, but we must not repeat what is said elsewhere—our object now is merely to show that even in mid-December under most disadvantageous circumstances an interesting display is made at the fortnightly meetings.—We fear the discussion among the fungologists as to the life-history of the Potato fungus will not be very edifying, but the practical results all point to the necessity for destroying the diseased haulms.—It seems there is in gardens a hitherto undescribed form of Cephalotaxus with globular berry-like seeds; this may be the doubtful form that FORTUNE spoke of in these columns after his second visit to China.—The posthumous paper on *Instinct*, by the late CHARLES DARWIN, was read on Thursday evening last at the Linnean Society, and was somewhat severely handled by Prof. HUXLEY, who deprecated its publication; and if it be true that it does not represent the matured views of the author, it is a pity that it should have been brought forward; nevertheless, the conclusion is quite Darwinian, reaffirming the hereditary transmission of faculties and attributes, together with a power of variation and adaptability to circumstances, as a result of which the weakest goes to the wall.—TENNYSON is to be made a Peer, BOWMAN and LISTER, two eminent medical men, are to be made Baronets. BOWMAN's researches into the minute anatomy of the kidney gave him fame long before he became known as an oculist, and are still classic in their way. LISTER has made himself illustrious by a happy application of the germ theory to the explanation of the history of certain diseases, and to the prevention of disastrous results after surgical operations. Exclude the germs and healing goes on properly, without the serious consequences that too frequently occur under other circumstances. No honour is too great for all these gentlemen, if they feel honoured by it, but it may well be asked whether some more appropriate honour cannot be devised for eminent men of letters, science, and art, than that which rewards a City dignitary? The venerable Professor OWEN retires from the Superintendentship of the Natural History Department of the British Museum — simply as RICHARD OWEN. His services to science and the State have been enormous, and would have secured him a large income if he had followed his profession. We can well understand that such a man, having attained the highest rank in the aristocracy of brains, is not particularly anxious to enter the aristocracy of wealth and rank, though doubtless such an honour has been more than once proposed for him. It would in no wise add to the respect in which he is held or serve in any way to perpetuate his well-earned fame. OWEN and BOWMAN are enthusiastic gardeners, and as such have a claim on the sympathies of other horticulturists quite independently of other considerations.—The Pelargonium Society, having accomplished as much as it was likely to do, has, we believe, become defunct. Certainly there are few flowers which require adventitious aid of this kind less than the Pelargonium.—We hear that the Council of the Royal Horticultural Society are likely to develope the fortnightly meetings next year, and that a new building is likely to be erected for them in place of the existing exhibition tent. It is expected that the financial state of the Society will this year prove more satisfactory than has been the case for many years. Certain changes in the constitution of the committees are expected to be made, which will be satisfactory to the members.—The gale on Wednesday morning last seems to have been very destructive throughout the country. In South-west Scotland especially it seems to have wrought much mischief. At Drumlanrig acres of timber have been uprooted, and at Kinmount no fewer than 10,000 Spruces have been destroyed.

—— HYBRID ANTHURIA.—M. BERGMAN narrates in the *Revue Horticole* how he raised the beautiful Anthurium Ferrierense × from A. Andreanum, fertilised with the pollen of A. ornatum; and how, when the cross was reversed, and ornatum was fertilised with pollen from A. Andreanum, exactly the same result followed. M. BLEU, the well known raiser of Caladiums, testifies to a similar occurrence among those plants.

—— THE "JOURNAL OF BOTANY."—The appeal that was made last year on behalf of this journal has been so far successful that "the balance is reported to be on the right side." It is not very creditable to British botany that it should not be able to maintain a special journal. The utility for mere purposes of record, independently of other considerations, of such a publication should ensure its well-doing.

—— SUBSTITUTE FOR COFFEE.—A writer in the *Bulletin of the Tuscan Horticultural Society* recommends the fruits of Galium pisiferum of BOISSIER as a substitute for Coffee. The plant is a native of Palestine, and is readily cultivated.

—— "PINETUM BRITANNICUM."—This splendid publication is now being pushed on to a rapid conclusion. It is only a week or two since we had occasion to notice the issue of several parts, and now four more are before us. The plants mentioned in the text include Pinus Bungeana, the Lace-bark Pine of China, which has produced cones in this country, and whose trunk has now attained such proportions that the characters upon which its popular name is based are plainly observable. Pinus monticola is one of the Californian Pines of the Strobus section, whose hardiness is well ascertained. Pinus Coulteri is also a Californian Pine, remarkable for its long leaves and gigantic cones. There is a well grown tree of this species at Kew. P. flexilis is a Rocky Mountain Pine, figured in our columns in 1875. The remaining text is occupied with the completion of the details relating to the Cedar of Lebanon, of which photographs are given, showing it on the slopes of Lebanon. The coloured plates given with the present parts are Sequoia sempervirens and Araucaria imbricata.

—— LINNEAN SOCIETY OF LONDON. — The papers to be read at the meeting on Thursday next are:—1, "Structure of the stem of Rhyncopetalum montanum," F. O. BOWER; 2, "Glands of Hypericaceæ," J. R. GREENE; 3, "Ear-bones of Rhytina," ALBAN DORAN; 4, "Starch Grains in the Cells of Euphorbia," M. C. POTTER; 5, "Stipular Glands of Coprosma Baueriana," WALTER GARDINER.

—— DR. EDWARD PERCEVAL WRIGHT. — The last meeting of the Royal Irish Academy was particularly interesting as being made the occasion for presenting the CUNNINGHAM Gold Medal to EDWARD PERCEVAL WRIGHT, M.D., Professor of Botany, T.C.D., in recognition of his attainments and industry, not alone in his immediate department, but in almost every branch of natural science, as also for his personal research and discoveries in the Mediterranean, the Seychelle Islands, &c., all of which were alluded to in eloquent terms by the President, Sir SAMUEL FERGUSON, and endorsed in terms equally eloquent and emphatic by the Rev. Dr. HAUGHTON, S.F.T.C.D., in proposing Dr. WRIGHT as Dr. M'ALLISTER's successor to the Honorary Secretaryship of the Academy, to which he was unanimously elected. *Irish Farmers' Gazette.*

—— PARIS EXHIBITION.—A general exhibition of plants, &c., will be held under the auspices of the Central Horticultural Society of France, in the Pavillon de la Ville, in the Champs Elysées, from May 20 to May 26. There are 175 classes, and three or four prizes are offered in each class. The great International Horticultural Exhibition is to be held in Paris in the last fortnight of May, 1885.

—— THE FOREST FLORA OF COCHIN CHINA.—M. PIERRE, the Director of the Botanic Garden of Saigon, has published, under the auspices of the French Government, the first volume of the *Flore Forestière de la Cochin-Chine*. It consists of a considerable number of lithographic illustrations of large folio size, but large as is the page it is not big enough to do justice to the noble proportions of some of the Dilleniads and Guttifers here represented. Although the large size would preclude their culture in this country, except under special circumstances, yet small plants might be grown for the sake of their foliage. Many of them would be serviceable in our tropical colonies as timber trees or for other purposes. Among the plates is one devoted to the Mangosteen, Garcinia Mangosteen, which, it appears, is not known in a wild state, and others devoted to the trees producing gamboge. Garcinia Morella var. β pedicellata, which is known to produce Siam gamboge, is considered by M. PIERRE to be a distinct species, and is accordingly named G. Hanburyi. The resin is obtained by incising the bark to a shallow depth, and in a spiral direction, during the dry season, the supply ceasing when the rains come. The book has been added to the Lindley Library.

—— INDIGO IN NICARAGUA. — Indigo as a cultivated crop in Nicaragua appears to be known only at the present time in the department of Rivas, although formerly produced in considerable quantities in all the western departments. Large stone tanks, it is stated, are still to be seen in many places, bearing witness to the former extent of this industry, which, from all accounts, appears to have been abandoned, owing to the increase in price of labour and the plagues of locusts which several times devoured the whole crop. The labour difficulty still hinders the development of the indigo cultivation, but a visitation of locusts has not occurred for many years.

—— "THE TROPICAL AGRICULTURIST."—We have before us the second volume of this publication, compiled by Messrs. A. & J. FERGUSON of Colombo. It is a veritable mint of information for planters of coffee, tea, sugar, Cinchona, rubbers, and other tropical products. The difficulty, as in all similar cases, will be for the practical man to discriminate from all this mass what is really of practical use to him. There are no better means than that this journal affords of collecting and contrasting the experience of different men under the same or different circumstances.

—— TIT FOR TAT. — The very limited area of time over which Chrysanthemum shows may successfully be distributed often renders apparent antagonisms in the arrangement of dates unavoidable, although in the case of shows that are essentially local in their associations this apparent antagonism is exceedingly minimised. All the best shows must fall within one short fortnight; but those aspiring to be esteemed as the very best—the *crème de la crème* of Chrysanthemum exhibitions—find their pretensions to such pre-eminence entirely contingent upon their getting into the premier week of the show season—a week, too, that can hardly be made to exceed four days. Monday shows are out of the question unless Sunday is to be converted from the ideal day of rest into one of exceedingly patient if not of arduous labour in the shape of dressing flowers; whilst Saturday is as obviously unfit because it is too immediately near to Sunday again. Therefore we find the favoured four middle days of the week utilised for shows over and over again. Two of our metropolitan shows, however, the *ci-devant* Borough of Hackney and Kingston, have long aspired to be other than mere local displays—indeed, to almost national importance. Difficulties have, however, long presented themselves to the executive of these two exhibitions as to the selection of days, and that of the first-named—which now, not only in its competitions, but in name, aspires to be truly national—has long selected Wednesday and Thursday of the best week with such exceeding promptitude that the Kingston management, having failed to induce the metropolitan exhibitors to consent to a more equitable arrangement of days, so far has been content to play second fiddle, and take the Thursday and Friday. Next autumn, however, they play a different and more ambitious part, for whilst the one adheres to its days as before, Kingston changes to Tuesday and Wednesday, thus forestalling its London rival. Whilst the change can harm neither, it is amusing. Still reciprocity would have been more pleasing.

—— ROYAL METEOROLOGICAL SOCIETY. — At the ordinary meeting of the Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 19th inst., at 7 P.M., the following papers will be read:—"On the Explanation of Certain Weather Prognostics," by the Hon. RALPH ABERCROMBY, F.R.Met.Soc.; "Preliminary Enquiry into the Causes of the Variations in the Reading of Blackbulb Thermometers *in vacuo*," by G. M. WHIPPLE, B.Sc., F.R.Met.Soc., F.R.A.S.; "Report on the Phenological Observations for 1883," by the Rev. T. A. PRESTON, M.A., F.R.Met.Soc. The meeting will be adjourned at 8 P.M. in order that a special general meeting may be held to consider certain alterations in the bye-laws.

—— CHINESE PRIMROSES AT SOUTH KENSINGTON.—At the meeting of the Royal Horticultural Society on Tuesday last some charming patches of colour were afforded by groups of Primula sinensis from several growers, and an attractive collection of Cyclamen persicum from Messrs. VEITCH & SONS. Messrs. H. CANNELL & SONS' contribution of Primula sinensis from their Swanley nurseries contained two varieties to which First-class Certificates of Merit were awarded, viz., Swanley Purple, a rich coloured variety of a decided ruby-crimson hue dashed with purple—fine in pip and truss, and with a good habit of growth; and Queen of Whites, a pure white variety that in all probability remains untainted with any tinge of blush until the end—fine in the pip, with a clear well-defined orange eye, and having dark Fern-leaved foliage of compact growth. This appears to be the purest white we have seen since Waltham White, and, like that variety, the flowers are in combination with dark foliage. This will make a very fine exhibition and decorative variety. Other of the Swanley varieties were Princess of Wales, a very pretty pink, with slight margins of pale rose to the stout and finely formed florets; Swanley Giant, a large pale purple variety, with stout flowers of great size and substance; the Queen, delicate blush, deeper on the edges—very pretty large flowers, but very rough as shown; Swanley Carminata, a good pale salmon-carmine variety—one plant had Fern-leaved and the rest plain foliage; and Princess Beatrice, pale pinkish-rose, margined with white—very pleasing, but in danger of being considered "washy" by some admirers of this flower. A First-class Certificate of Merit was also awarded to Messrs. C. LEE & SON, nurserymen, Isleworth, for a rich-coloured variety named Julia Lee, of a bright ruby-crimson hue, and without the dash of blue seen in Swanley Purple—good in colour and highly effective. Mr. WIGGINS, gr. to W. CLAY, Esq., Kingston, had a collection of varieties, but with the exception of two or three partly expanded flowers, they were but of ordinary types. Mr. BARRON sent from Chiswick a collection, conspicuous among which was the rich-coloured Chiswick Red; and Mr. HENRY LITTLE, of Hillingdon, had flowers of some fine new types raised from crosses made by himself, and generally of a highly promising character.

—— ZONAL PELARGONIUMS IN DECEMBER.—Two remarkably fine stands of cut blooms of these were produced by Messrs. HENRY CANNELL & SONS at South Kensington on the 11th inst. So fine in development were they, so massive and finely formed in pip, and grand in colour, that not a few were of opinion that it was one of the finest collections that had ever come from the Swanley nurseries. Double and single varieties alike were characterised by a remarkable fineness of development; of the former the darkest coloured were Faidherbe crimson; Colonel Flatters, purple-crimson; Plaisancon; bright deep crimson; General Campenon, deep vermilion-crimson, very fine; Charles Darwin, pale bright purple; General Billot, magenta-crimson. Scarlet shades: F. V. Raspail, Paul Charbonnier, Ludwig Ferchl, Mr. H. Cannell, and Lord Cecil; Lord Mayor, lilac-purple, very fine; J. P. Stahl and Danaë, carmine; E. Bandouin, purple. Shades of pink: Paul de St. Victor, M. Hardy Jules Simon, Madame Dalloy, and Lovely; and white-flowered, La Quintinie and Flocon de Neige. The leading single varieties were—John Lord, rich crimson. Scarlet: Adelaide, Clytie, Mr. Brunning, Mr. Teesdale, and Cato. Yellow: New Guinea, very distinct. Cerise: Herminius, Octavia, Daphne, and Favourite. Salmon: Rose, Aurore boreale, and R. Farmer. Pink: Constance, very pale; and Kate Greenaway. White: Miss Hamilton and Snowball.

—— ONIONS IN SERVIA.—Seed Onions form an important article both of import and export trade in Servia. Those grown in Servia are raised from seed which, when sown in spring, gives in three or four months later the little seed Onions—balls about half an inch in diameter. These, to produce the large, flattened, round, hard Onions sold in the Servian markets for kitchen use, are then replanted at correct growing distances. The second growth gives an Onion 1¼ to 1¾ inch thick, and 2 to 3 inches in diameter. The present price in the Belgrade market is about ½d. per pound. The prices, however, often vary considerably, ranging sometimes during a single season from ½d. to 2d. per pound. The production of Onions to be eaten with brown bread by the peasants is so much a matter of course that no attention has been given to the question of raising and exporting the large ones in quantity, for which Servian soil and climate are well suited. This is owing to the fact that no agent in the country will undertake the export at his risk, and even the Custom-house and carrier must all be paid on the instant, no current account for such goods being admitted. It seems, however, that an English agent has been able to export thousands of bags from Galicia, which would make it appear that they can, if properly handled, be exported. The Servian Government have been anxious to do something in the matter, if possible, but as prejudice now stands there will be some difficulty in creating a supply and export trade in Onions from Servia. They have, however, a good skin to bear transport. To prevent one bad Onion contaminating a great many, the Servians string them and hang them up in a dry place. An agent from Hungary, speaking of the difficulty of transport or shipment to a foreign port, explained that he supplied the Servian class of Onion to his customers in wicker baskets, and not in bags.

—— ROSES IN DECEMBER. — Dr. PATERSON, Bridge of Allan, has sent to the *Scotsman* several varieties of Roses in full bloom, and also blooms of Christmas Roses, all of them wonderfully perfect, considering that they have blossomed out-of-doors during the recent cold weather. A branch of Whin in bloom, and beautifully fresh in leaf, also bears witness of the comparatively mild climate which Bridge of Allan enjoys even at this period of the year.

—— VANILLA, SUGAR, &C., IN TAHITI. — The cultivation of Vanilla in Tahiti is being carried on at the present time to a large extent, the yield amounting to between 2000 lb. and 3000 lb. annually. In the matter of sugar, however, the three or four small plantations at present worked are said to be insufficient to meet even the demands for home consumption. Oranges, Limes, Cocoa-nuts, and other fruits thrive with little or no care or culture.

—— THE NATIONAL ROSE SOCIETY. — The annual meeting of the National Rose Society was held on Thursday, December 6, at the rooms of the Horticultural Club. The report shows a flourishing state of affairs. The General Committee henceforth is to be confined to forty members, while the numbers of the Executive Committee are raised from twelve to eighteen. The metropolitan show is to be held in the gardens of the Royal Horticultural Society on July 1, and provincial exhibitions are to be held at Salisbury on July 9, and at Manchester in July. None but members of the Society are in future to be allowed to exhibit—a proposal only carried by a majority of three. It was also agreed that any three members present at any exhibition of the Society shall have the power to declare any exhibit to be disqualified, and the decision of such committee shall be final and conclusive. The dinner, which formed the *finale* to the proceedings, was presided over by the Hon. and Rev. J. T. BOSCAWEN.

—— LOCUSTS IN ASIA MINOR.—As an illustration of the destruction caused to vegetation by the visitation of locusts, we may refer to a recent official statement of the extent of the devastation in 1880-81 in some districts in the neighbourhood of Smyrna. In the districts which suffered most from their ravages the inhabitants were compelled by the authorities to assist in their destruction. In the springs of the two years mentioned above the fields, gardens, and roads were literally blackened with these insects crawling all in the same direction, and leaping before the traveller in multitudes at every step. Then was the time when it was comparatively easy to make war upon them, and much was done under the short but energetic rule of MIDHAT Pacha, who called on every householder in the neighbourhood of Smyrna to produce a certain weight of dead locusts, each house being taxed according to the supposed means of its occupant. The peasants were, moreover, mustered in small armies to collect and destroy the young insects, sweeping them into sheets or into trenches, preparatory to burning them. But in May and June, when their wings were fully developed, all efforts to destroy them were in vain; they filled the atmosphere in never-ending clouds, throwing a glittering haze over the landscape, and blotting out all objects save those in the immediate foreground. In July the insects suddenly disappeared—smitten, as it seemed, by some plague or blight, and, driven from the land by a strong easterly wind, their bodies darkened the Gulf of Smyrna in red shoals for many days.

—— TUPISTRA NUTANS.—The position of this genus, together with that of this Aspidistra, in the natural arrangement was a matter of great uncertainty among some of the older botanists, some even relegating them to the Aroids. At present, however, they are regarded as forming a very distinct group of the Liliaceæ. Of the two or three species introduced, T. nutans, above mentioned, seems the most robust in habit, and for general decorative purposes the one that should receive most attention. The inflorescence consists of a dense mass of dingy yellow and purple-coloured flowers, similar in appearance to those of the well-known Aspidistra, but elevated on a scape instead of peering through the soil as in the latter. The value of the plant, however, is centred on the eathery evergreen foliage, which attains a length of three or more feet, and which could be utilised in a variety of ways as the popular and never failing Aspidistra, although it is questionable whether it would accommodate itself to such varying treatment with regard to temperature. It thrives in stove heat, and attains good proportions in house No. 1 at Kew.

—— Mr. JAMES GARNIER, Head Gardener for the past seventeen years to MITCHELL HENRY, Esq., M.P., Kylemore Castle, Galway, has commenced business as Landscape Gardener and Garden Architect, &c., at 17, Rathgar Road, Dublin.

—— MESSRS. MESSENGER & CO., OF LOUGHBOROUGH, have secently erected a winter garden and lounge at the residence of Baron HUDDLESTON, at Ascot. It is connected to the dwelling-house by a corridor, and the interior has been fitted with rockwork and fountain by Messrs. NIEMAN & CORNISH, of Orchard Street, London.

—— THE WEATHER.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Dec. 10, issued by the Meteorological Office, London:—The weather has been rather cloudy or dull, with somewhat frequent, but in most places slight, falls of rain, hail, sleet, or snow. The brilliant appearance of the sky at the time of sunrise and sunset noticed of late has again been repeated, though generally in a less striking degree. The temperature has been about equal to the mean in "Scotland, E.," but below in all other districts, the deficit in the south and south-west of England being as great as 4°. The maxima, which were registered at the commencement or close of the period, varied from 47° in "England, N.E.," to 55° in "Ireland, N." During the 6th and 7th the thermometer in some parts of England did not rise above 35° or 36°, while the maximum on the 7th at Armagh was no higher than 33°. The minima were recorded either on the 6th, 7th, or 8th, and were low in all districts. In "Ireland, N.," temperature fell to 19°, in "Ireland, S.," to 21°, in "England, S.W.," to 22°, and elsewhere to between 23° and 28°. The rainfall has been slightly less than the mean in most districts, but about equal to it in "Scotland, W.," and "Ireland, W.," and a little more in "England, E.," and "England, N.W." Bright sunshine has been more prevalent than during last week at most stations, the percentages of possible duration varying from 15 in "England, N.E.," and 16 in "England, E.," to 34 in "England, S.W." Depressions observed:—During the first part of this period depressions continued to move in a southerly direction over the North Sea, Denmark, and North Germany, occasioning fresh or strong N.W. to N.E. winds on our south and south-east coasts, and moderate northerly breezes over our islands generally. By the morning of the 8th, however, the barometer was falling briskly at our western and northern stations, while the area of highest pressure, hitherto shown over Ireland, was becoming established over France. From this date until the end of the period some important depressions skirted the Irish and Scotch coasts, causing S. to S.W. winds, gradually increasing in force on all our coasts.

—— GARDENING APPOINTMENTS.—Mr. RICHARD HENDERSON, for the last ten years Foreman at Alnwick Castle, as Gardener at Swarland Hall, Felton, Northumberland.—Mr. T. A. TODD, formerly Gardener at Paulton's Park, Romsey, as Gardener to J. SPENDER CLAY, Esq., Ford Manor, Lingfield, Surrey.

PLANT NOTES.

PANCRATIUM SPECIOSUM.—Of the various species of this genus requiring the warmth of a stove this one may claim the first rank, not only with regard to the purity of the white flowers, but from the certainty with which they may be produced, and the delicious odour they diffuse through and perfume a whole house. The large, handsome, pale green leaves are of a leathery texture, freely produced, and retained in healthy vigorous condition all the year round. It is, therefore, necessary to water the bulbs at all seasons, although it is beneficial or of some importance to withhold water to a certain extent after flowering is over, in order that the bulbs may resuscitate themselves for future demands made upon them, or, in other words, to rest them. Like the Eucharis, they are not restricted to any one season of flowering, and if space at command forbids the idea of growing them in quantity, the bulbs can be grown singly in 24-sized pots, or in threes in larger ones, and standing them in various positions they cannot fail to give a succession. P. speciosum is figured in the *Botanical Magazine*, 1453, and flowers freely and often in the Palm-house at Kew.

PHŒNIX ACAULIS. — In private establishments where Palms are often employed for decorative purposes in various ways, P. reclinata and P. sylvestris are grown where the subject of this note would be more appropriate and more manageable for a great number of years. It never assumes a tree form, nor elevates its crown above the soil; but as it gets old, ramifies till it produces an impenetrable mass of leaves. A fine specimen in the Palm-house at Kew has been flowering for some time. It bears female flowers only, being of course like all the other dioecious, and although fruit is not produced the branching spadices are not without interest as well as ornament. The leaves range from 6 to 12 feet in length, but if required could be moderated considerably by growing in pots instead of planting out, as in this instance. Moreover, if it is desirable to plant out, the leaves stand erect for about one-third of their length, and then arch over gracefully, so that the surface of the soil could be closely occupied with various low-growing plants.

CENTROPOGON LUCYANUS.—As a winter flowering plant this has much to recommend it, but it requires careful cultural attention that the results may be thoroughly satisfactory. To raise plants annually from cuttings in the early part of the summer, and to grow them on to the flowering stage, is the way to produce the greatest amount of bloom on a single stem, although old plants cut down and started afresh flower fairly well. Warm treatment is necessary for its proper development, after which, while it slowly produces its axillary and terminal corymbs of crimson flowers, an even temperature, if possible, should be maintained, as sudden or much fluctuation in that respect causes the older leaves to shrivel as if scorched. It is a plant moreover that would repay a little attention, owing to the arrangement of the inflorescence, which continues to open its flowers in succession for a good number of weeks. The plant in question is said to be a hybrid between C. fastuosus and Siphocampylus betulæfolius, an occurrence by no means improbable, seeing that a very close relationship between the two genera exists. Flowering specimens may be seen in the T range at Kew.

WILLDENOVIA TERES. — Why this old introduction should be so entirely neglected as it is apparently, is not very clear. Many plants of a similar or even inferior value enjoy a comparatively wide popularity, take as an instance the Cyperus, some of which are variegated, thus affording an excuse for the attention they receive, while the green forms are also used for decorative purposes. As in the Cyperus, the flowers are of no moment whatever, being brown, and produced in slender terminal spikes; but the slender thread-like shoots, after the leading stems have been secured to stakes, hang down in the most graceful and elegant manner. As a decorative plant it might safely be introduced amongst foliage plants of stiffer habit, and there it could not fail to be conspicuous by contrast, relieving the monotony, and toning down the rigidity, where plants of one habit only would be objectionable. A large plant may be seen in the Succulent-house at Kew, and there is a figure of the species in the *Acta Helvetica physico-mathematico-botanico-medico*, 1790, t. 2, f. 2.

PEAR TRIOMPHE DE TOURNAI.

THIS is a medium-sized Pear of symmetrical outline, with a short stout stalk, and eye but little depressed (fig. 139). The skin, at first uniformly green and faintly pitted, becomes ultimately yellow. The flesh is white, melting, slightly perfumed, and of agreeable flavour. The fruit ripens usually at the end of March, but one we tasted recently was already ripe. The Pomological Committee of Tournai tested this fruit in March, 1882, and March, 1883, and unanimously awarded its raiser, M. Daras de Nagbin, a bronze medal. Our own experience of the Pear is necessarily very limited, but our Belgian friends speak of it as "*hors ligne*."

THE QUINCE.

WHEN driving along a country lane in Kent some years ago, the effect of a group of Quince trees growing on a knoll by the roadside, and the branches of the trees so hanging as to present to view the fine golden fruit which illumined the branches, was very striking. The trees were young and vigorous, and bore fruit, handsome in appearance, with scarcely a speck to mar their beauty. So picturesque did this group of trees look by the roadside, that one could scarcely help wondering why it is that this fruit is not more frequently planted in belts of shrubbery and other suitable places as an ornamental plant.

Some objection has been taken to the use of the Quince as an ornamental plant, on the ground that its crooked, branching, irregular habit of growth, renders it unsuited for the purpose. Still, this is by no means an insuperable objection, for there are many spots on which isolated specimens, or a group of two or three or more, might be planted with decided advantage; and it is an accommodating plant, succeeding in almost any soil, though doing best in one which suits the Apple and Pear; a moist, rich, and somewhat light soil is best; in a dry one the plants come into bearing earlier in points of age than they do in a heavy moist clay, but the duration of the tree is longer in the latter than in the former.

Some writers have made four or more varieties of the Quince, but three is the number usually accepted by modern authorities. The more commonly grown is the Pear-shaped, probably because it produces the largest fruit and keeps the longest, but it is of less value for culinary purposes. The Portugal Quince is considered to be the best, but it is said not to bear so frequently as others, and probably from this reason it has not been planted so frequently as the preceding. The tree is of taller growth, and much more vigorous, but by some it is considered less hardy. It makes a fine ornamental plant both in respect of its flowers and fruit, and as from its more robust character it forms thicker annual layers of wood, it is useful as furnishing stocks for grafting Pears on. The Apple-shaped Quince is regarded as the most profitable to grow for market purposes, as it bears very freely, and stews admirably; it also ripens in a less favourable climate than the other sorts.

The Quince has a somewhat restricted use in this country, that is to say, it is not so much grown as it deserves to be. The fruit is generally used in a stewed form, or for flavouring pies and puddings. By some it is made into a kind of marmalade; the expressed juice repeatedly taken in small quantities is said to be cooling, astringent, and stomachic. In the case of horticultural shows held late in the year, so as to have agricultural roots in combination with vegetables, and such flowers as may be in season during a favourable autumn, prizes are offered for Quinces, and very fine fruit are occasionally produced.

The young plants are generally produced by means of layers; they are also raised from cuttings. Budding and grafting is sometimes resorted to, but only occasionally. Some fruit cultivators are of opinion that seedlings of the Quince make the best rooted stocks for Pears, but when raised from seed the Quince stock requires several years longer to grow than in the case of plants obtained from cuttings and layers, before it is fit for grafting. In consequence of the Quince being such a late fruit in this country, it is only seldom, and in exceptional seedlings, that seeds can be had for sowing.

The usual mode of growing the Quince is as a standard tree, indeed it is very seldom, if ever, trained in any other way. All that is therefore necessary, is to keep the branches so arranged and regulated that they may not become too numerous or crowded. Strict attention to pruning at the earlier stages of the plant will obviate much after-trouble, and will also be more efficacious in its ultimate effects in regard to the habit of the tree. *R. D.*

HOME CORRESPONDENCE.

Tenant's Fixtures.—As "R. P." asks some one else to reply to his question, I ought not to interfere again, but as an allusion is made to "Hothouses for the Million" (the copyright title of Sir Joseph Paxton's patent), it seems necessary to tell him that of thousands of houses made during twenty-two years I do not believe a dozen have been erected on this principle with wooden sides. If the painted woodwork of roof will stand the moisture of a hothouse, why not the sides also, unless there is a bed all round? How "R. P." can use brick walls without building in the ground, and make them removable, unless on a wooden base, I do not know. There can be, and are, portable hothouses erected without either brick or boarded sides, which are as durable as and warmer than brickwork, and these are made with concrete slabs. Those who want portable houses are not, as a rule, those who can afford the more expensive hothouses with their elaborate heating arrangements. The colonist, who takes out with him a wood and iron cottage, would not do so if he could afford to have a permanent stone house built when he arrives on his farm. As to pipes, any form of joint with rubber rings or screws is removable, and if the two joints next to the boiler are made so all can be removed from that point; but if all are made with cement, they become as a part of the boiler itself, irremovable without breaking something, which breakage is illegal. *B. W. Warhurst.*

Fruit Naming.—It is to be hoped one of the permanent benefits arising from the recent show of fruit at Chiswick will be a more general practice of naming (correctly, if possible), all the varieties grown and cultivated in private establishments. Hitherto, beyond the Peaches, Nectarines, &c., under glass having their names attached, it has seldom been one's luck to drop in at any private establishment and find the system practically adopted and thoroughly carried out. The other day I was agreeably surprised, when calling upon Mr. Bogie, the talented and courteous gardener at Auchens House, the seat of the Honourable Greville R. Vernon, in Ayrshire, to find the matter treated as it should be. All the wall trees were in health and vigour and in full bearing, and every one had a label bearing the correct name legibly printed. It was interesting to look through this collection; it gave one an insight into what sorts were most suitable to the locality, in some instances corrected old and long entertained errors, and altogether I recall with pleasure the feelings of interest and improvement which I experienced in my hurried visit to Mr. Bogie. I should say this is an example worth following, and as a worthy and eminent horticulturist by whom I was accompanied said, "This is as it should be." Mr. Bogie may safely be imitated by all growers of fruit with satisfaction and profit, in his style and system of "nomenclature" at any rate. *John Downie.*

White Truffle.—Judging from the description of this plant and its habitat, as given by Mr. C. Wolley Dod (p. 729), I should say the Eton master sought for and found the Truffle known as Choiromyces meandriformis, and not Tuber æstivum. The Editor of one of your contemporaries was "inconvenienced" after testing the quality of the white Truffle a few years ago. Mr. Berkeley, I believe, described the effects at one of the meetings of the Royal Horticultural Society. *W. G. S.*

A Rara Avis.—In the gardens here is to be seen daily a sparrow corresponding exactly with the one of which a description is given at p. 695. Some two or three years ago a similar specimen was seen in this neighbourhood. *E. Morgan, The Butts, Harrow-on-the-Hill.*

Caraguata sanguinea.—A short time since I had the good fortune to receive a specimen of this strikingly handsome and very interesting new Bromeliad, and to the description given with the figure last week, there are some particulars which perhaps I may usefully add. The plate in the *Revue Horticole* gives no true idea of the coloration of the leaves, because of the artistic liberty which seems to have been taken in its composition. They are given with a fiery appearance and with a yellow glare, entirely absent from our plant, which shows an even tint throughout, except where the coloration passes into green near the bases of the leaves. This coloration increases with growth to the flowering period; it varies in different individuals, and in some it is purple, but in our plant it is almost precisely that which tips the leaves of Nidularium spectabile, and it approaches that lighter colour which belongs to a Dracæna terminalis. It extends practically over the entire leaf, and from this it is easy to imagine the brilliant character of our new species. Some of the individuals, M. André says, are spotted. The

leaves are from 8 inches to a foot in length, and they are represented as arching and recurving, forming a neat rosette of about eighteen in number. It will be seen from the illustration in last week's issue that the inflorescence is nested in the centre among the leaves, and this is a new feature in the genus. This plant would still appear from the *Genera Plantarum* to be correctly referred to Caraguata, but in its subconnate anthers an approach is made towards Guzmania, an allied genus of similar habit, in which they are united in a ring. In habit, except for the spinose leaves, there is nothing to distinguish it from Nidularium, but from that it is widely separated by its floral characters. It was called Tillandsia sanguinea by M. André in the *Tour du Monde*, liv. 987, p. 367, and the well-known Tillandsia musaica with T. Zahnii are now brought over to this genus, which comprises the Tillandsias with united petals and filaments adnate to the corolla. The culture of this Bromeliad will differ in nothing from that of other stove species. As it grows on the branches of trees, it would most naturally be potted in peat, or in *débris* of peaty character, but we find that others, equally of epiphytic habit, grow well in almost any soil, and I think it was Colonel Trevor Clarke who told me that the Bromeliaceæ generally were found by him to flourish equally well with every fashion of potting he had tried for experiment. It is very satisfactory that the splendid and varied family to which this fine addition belongs should be coming into popular favour. On the Continent, where most of the new species have been sent out, it has had more worthy recognition than in Britain; but now, with the example of the fine collection at Kew, lately so much enlarged and developed, and often presenting the finest kinds in flower, we may expect soon to be unsurpassed. At Glasnevin, too, a good collection has lately been formed, while at Cambridge there are now but one or two less than fifty species, which represent the principal genera, and serve to show the character of the order. *R. I. Lynch.*

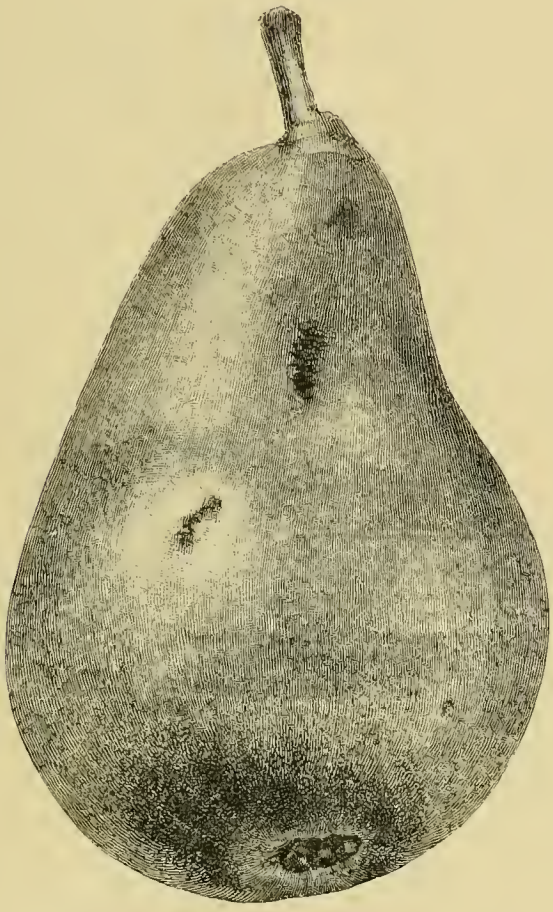

Fig. 139.—Triomphe de Tournai. (see p. 760)

The Best Method of Growing Chrysanthemums.—Taking it for granted that the sooner Chrysanthemums are rooted and established in small pots the better—of course without fire-heat, or forcing, as either, at this time of the year, gives them a puny, spindly growth, and from which they never recover their wonted robustness—the next question on which many would like your and your readers' views is the above. Admitting that for decorative purposes there are three methods:—1, with the pots plunged; 2, with the plants planted out in an open border and fully exposed; and 3, as usually grown and shifted from pot to pot until reaching that in which they are to flower — this does not include those planted against walls and chanced to bloom outside, for cutting before hard frost comes. The second method intends the plants to be lifted, say in September, and repotted for flowering indoors, and has much to recommend it for amateurs, and those otherwise engaged in business. *W. J. M., Clonmel.*

Truffles.—In the years 1875-76, and I believe for many years before, if not since, black Truffles were found in tolerable plenty in one portion of the grounds at Wynyard Park, Stockton-on-Tees. Some of these used to be exhibited annually at the horticultural exhibition held at Bishop Auckland, and they invariably attracted much notice from the public, part of which was no doubt due to the mode of exhibiting, which was as follows:—A grass turf, which had been clipped closely, was cut to fit a box, and the Truffles were then partially embedded in it at irregular distances, the grass showing them off to great advantage. *John C. Tallack, Prideaux Place, Padstow, Cornwall, Dec. 10.*

—— It may interest some of your readers to learn that Truffles are frequently found in the park here, and are greedily eaten by squirrels, especially during severe weather. *A. D. Webster, Penrhyn.*

Boltonia latifolia.—I see "C. W. D." has made the correction about Boltonia latifolia. I should guess that he has received B. glastifolia (asteroides) under the name of B. latisquama. The latter, however, is not very tall-growing. It is known from all others by the involucre, to which the name points. *A. Gray.*

Double Grafting Fruit Trees.—Many years ago I grafted a Passe Colmar Pear on to a Williams' Bon Chrétien, and frankly confess that I thought the flavour improved, but to endeavour to grow this improved Pear by continued grafting for the purpose of sending it out under a new name is a thing I never should dream of. We have already such a number of kinds that nurserymen are at a loss which to propagate, and gardeners which to select. Let any one take up a fruit catalogue and read down page after page, and see how confusing it is, and then, when one comes to the end of the list, what a relief to find, for example, a list of twenty-four of the best kitchen Apples, and twenty-four of the best dessert, which have been carefully chosen by some experienced hand, and placed in the order of their ripening. I do not say that we have come to the end of our tether in raising new fruits—far from it; what I do say is, let us have them distinct and superior to those which we now have, and by all means let us have them by the more certain plan of methodical hybridisation, to be raised from seed rather than from ephemeral graft shoots. We have had a Congress of Apples, and one of Pears is being advocated—each most interesting and instructive in its way — but what purpose are these meetings to serve if we are to introduce sports and re-grafted varieties into commerce? I considered one object of these meetings is to unravel the confusion which exists amongst our hardy fruits, as well as to get rid of inferior kinds. It will be well if the Fruit Committee of the Royal Horticultural Society insist on having the origin of a fruit ere they grant a certificate for new fruit. In a recent number of the *Gardeners' Chronicle* I see mention is made of a new Grape, a Pear, and some Apples, all stated to be the result of regrafting. Weall know that sports will revert to earlier characteristics, and I for one very much doubt the trustworthiness and permanence of these supposed new varieties that have sprung from double grafting. *J. Rust, Eridge Castle.*

Schizostylis coccinea. — This brilliant Iridaceous plant is one of the most useful things that can be grown, coming in, as it does, so late in the autumn, when a few pots of it quite brighten and light up a greenhouse, in the cool temperature of which it stands and opens out its tall spikes of scarlet flowers in long continued succession. For cutting, too, these are exceedingly valuable, as not only do they dress well in vases, but the numerous blooms keep on unfolding and last nearly as long in water as they do on the plants. These, being hardy, will live and do well outdoors, but they must have a sheltered position, or be so grown that they may be protected with a handglass or old lights to keep the flowers from being knocked about by wind or damaged by wet. When cultivated in pots, the way to manage it, as soon as the plants have done blooming, is to rest them for a short time by keeping them a little dry, and then shake them out, when they may be separated and increased by pulling them apart, in doing which, the strongest crowns should be separated from the weaker, that they may be potted together and the others either planted-out or treated by themselves and grown on for stock. The soil most suitable for Schizostylis coccinea is fibry loam, to which some well rotted cow manure and sand should be added to enrich it and keep it open and porous. The sized pots that answer best for the plants are 7-inch, which are quite large enough to grow specimens that will produce from ten to fifteen spikes of blooms, and are handy for furnishing. When potted, a cold frame is the proper situation for the plants, where they should be stood on a hard bottom, and have plunging material round them, which keeps them uniform as to moisture and encourages a more rapid and healthy root-action than occurs when the pots are exposed. In spring the plants do best without the lights over them, and through summer they should be kept sprinkled overhead at the time of watering, which prevents red-spider attacking them and maintains the foliage in a clean, fresh condition. Towards autumn liquid-manure is a great help, and should be administered freely, as it will strengthen the crowns and enable them to push fine heads of flower, and open them freely when placed under glass. *J. S.*

Stapelia Massoni, Haw. (charact. emend.). — Although an old inhabitant of our greenhouses, this species has never been properly described. Haworth, the author of the name, merely describes the stems, not having seen the flowers; but as his description will answer for the stems of several other species, there may, of course, be some question as to whether the plant I have here described is the same species as that which Haworth intended to bear the name of S. Massoni; possibly it may not be, especially as there are some other species also cultivated under this name, as I have elsewhere stated in these columns (see the *Gardeners' Chronicle*, 1875, vol. iii., p. 206-7, under S. olivacea). But it is impossible to determine from Haworth's description what plant was intended for S. Massoni, yet as the plant here described is the one that I find most commonly known under that name, and which has been so called for many years, it may be the plant Haworth intended to bear the name of S. Massoni. It also seems to me desir-

able that names should not be passed from monograph to monograph as unknown plants when it is possible to avoid it, and in the present instance the plant is one that has been in cultivation many years under the above name, and yet, so far as its flowers are concerned, it is undescribed, for I have never been able to match it with any published description or figure; therefore it appears to me better to consider that the name it is known by in gardens is the correct one, and to give a proper description of the plant under that name, than it would be to invent a new name for it. Stapelia Massoni, then, as I understand it, is known by its dark brown-purple corolla with a few very narrow yellowish lines on its glabrous lobes, and the rather sparse, very fine hairs on the disc, which are very short for a Stapelia of this group. The following are its characteristics in full:—Stems erect, four-angled, pubescent, 6—8 inches high, 6—8 lines thick, angles dentate, with erect, pubescent, rudimentary leaves 1—2 lines long, soon withering. Flowers from near the base of the younger stems. Pedicels an inch long, 1¾ line thick, pubescent. Calyx lobes 3½—4 lines long, linear-lanceolate, acute. Corolla 4—4½ inches in diameter, minutely pubescent on the back; face rugose on the lobes, dark brown-purple, with the edges of the rugosities on the lobes pale yellowish or whitish, disc rather thinly covered with very fine, short (about ½—1 line long) purple hairs, lobes ciliate with long purple hairs, but glabrous on their face, more or less reflexed, and with revolute margins. Outer coronal lobes linear-oblong, concave, obtuse, with a short mucro, blackish; inner coronal lobes nearly concolorous with the outer corona, or a little paler, 3 lines long, subulate acute, slightly spreading, with a free, spreading, dorsal deltoid wing 2—2½ lines long by 1 line broad, entire or slightly toothed on the inner margin. A native of South Africa. *N. E. Brown, Herbarium, Kew.*

Walks and Edgings.—The heavy autumnal rains, with the slight frosts we have had, are already showing the defects or faults in the formation of walks where they exist, and as they cause much discomfort to those who use them, it is important that they be remedied as quickly as possible, so that the owners of gardens, their friends, or others, who take exercise or work therein, may be able to do so with pleasure and comfort. There are three things essential and necessary towards having good walks, the first being proper drainage to get rid of the water, and the next good solid foundations to lay the material on; and last, but not least, hard, binding gravel, without which it is impossible to have a solid, close surface, unless tar, cement, or some material of similar nature be used. The first preliminary towards draining is to see that there is a proper fall and outlet or discharge for the water to be carried away, to get rid of which is a difficult matter in many places that lie flat, or have no sewer or main drain to lead others to; but where the subsoil is not close and retentive these disadvantages may be met and got over by having dead wells, which may readily be made deep and large enough to hold all the rain that falls on a circumscribed space. The way to make these dead wells is to dig large square or round holes, sinking the same to a depth of from 5 feet to 10 feet, according to the character of the ground, and the water they are expected to receive or hold, when the sides should be bricked-up pigeon-hole fashion, or the joints left open for the wet to get easily through and soak quickly away. The great point in forming these wells is to make them perfectly safe, which can only be done by building up the walls properly and doming the top in, or laying a thick strong slab of York stone on instead. With the wells or receptacles for the water provided, the next thing is to provide the drains, which, if not near trees, may be made with the ordinary tiles manufactured for the purpose, and used either in halves on the flat bottoms, or placed together, which doubles the size of the watercourse through. If near trees, where they are likely to become choked by the roots, or where there is likely to be much traffic over, it is better to use the round ones, which are longer and much stronger, and will stand at least double the weight. To keep the tree roots out, the joints should be cemented after being wetted, to cause the cement to adhere. The most economical plan of draining walks is to run the drain down the middle, and to lead branches to it from the gratings placed at the sides. These gratings should be of cast-iron and as inconspicuous as possible, and placed about 20 feet apart, close to the grass verges or edges, and slightly below the level of the gravel, that the water may drain into them and get away quickly, instead of lying and making the walk rotten and soft on the surface. With the drains got in, and proper falls given, the next thing is to see to the foundations, which should not be loose and open, as many suppose, but close and compact, or they will shift and give no hold to the gravel above. To afford the necessary compactness and solidity to the bottom there is nothing like chalk, which binds very hard, especially if the material used with it be rough, as clinkers, broken bricks, and stone screenings are. A few inches of any of these, with gravel laid on, will make such walks as will always be hard, and not only hard but clean, as they will be impervious to worms, and moss and weeds will not be able to gain much of a footing. In making choice of gravel, that of a bright colour should be selected, and from a pit where it is found bound firm in veins, for if sandy and loose there it will be so after, and never firm underfoot. For kitchen garden walks dead edgings are the best, as Box not only gets broken and gappy but harbours slugs, besides which the gravel cannot be salted without injuring or destroying the Box, and salt saves much labour and time in preventing the growth or clearing the gravel of weeds. Dead edgings, to be of real service and lasting, without becoming chipped and shabby, must be of the hardest material that can be got, and should be rounded at the top or made in the cable form, which looks neat; and tiles of this pattern, of a dark colour, made in Staffordshire, are the best that can be had for the purpose. In some places large flints or smooth pebble stones are abundant, and may be obtained at a cheap rate, and if either of these are well laid by being partly embedded and put in regularly, they make an edging to a walk that always keeps in order and ever looks well. If they are considered too bare they may easily be clothed with beauty by planting Gentians between or behind, which do splendidly, and in spring are a blaze of bloom; or Sedums of various kinds, Violets, or any low-growing plants that are hardy and do not spread too quickly about. *J. S.*

Seeds Lying Dormant.—In reference to this subject, which a correspondent treats of at p. 666, it is both interesting and instructive to note the remarkable changes that take place on land that has been denuded of trees which had occupied it for a great number of years, to the total exclusion or almost of other kinds of vegetation. Other changes are seen in the draining and reclaiming of land, resulting in a loss of nearly all the perennial native plants, except those producing underground rhizomes. Where the Bog-bean, Comarum palustre, Cardamine pratensis, C. amara, and other bog plants flourished previous to drainage, the same land under cultivation soon becomes infested with the ordinary weeds of the cornfield. These are mostly annuals, and are noticeable by their absence a year or two after the field has been sown down with grass, but immediately make their appearance again when the turf is broken up by the plough. Some years ago, in a closely cultivated district of Aberdeenshire, two woods of no great extent were cut down. They were adjoining each other, but otherwise isolated by cultivated land on three sides and a stream of some size on the fourth. Except towards the margin, where they were of a mixed character, the trees consisted of Picea excelsa and Pinus sylvestris. They were large trees, of a century's standing or more, and occupied the ground so closely that great part was devoid of other vegetation. The soil, deep, rich, and spongy to the tread, consisted of accumulations of decaying leaves and other vegetable matter overlying a stratum of clay. The first summer after a clearance had been effected plants of various kinds began to spring up, and the second or third year witnessed a luxuriant and rampant vegetation. This was so much the case that (since the ground was immediately replanted) means had to be employed to cut down the grosser herbage, and so prevent the young trees being smothered. The running brooks were choked up with grasses, Nasturtium officinale and Stellaria uliginosa; while the stagnant pools supported Duckweed, Sphagnum, Pondweed, and such-like. Amongst trees Birch and Mountain Ash took possession of the ground, so rapidly in some places that after a little thinning the best were allowed to remain. The Raspberry and various species of Bramble soon formed impenetrable masses, the soft earth being favourable to their rambling habit. Amongst the finer plants, Viola sylvatica and Orchis maculata made their appearance, the latter growing luxuriantly. Valeriana officinalis, Calluna vulgaris, Erica cinerea, Polytrichum commune, and Epilobium angustifolium macrocarpum found each a suitable medium for their requirements. The latter is a distinct variety, bearing erect fruit-pods about 3 inches in length, and soon formed a broad spreading patch. An isolated colony of Parnassia palustris, not exceeding two dozen plants, made a pretty picture on the damp margin of an open ditch. The occurrence of these and a host more would be difficult to explain except on the grounds of a long previously existing vegetation again cropping up, although now separated from anything of a similar nature by an ever-widening breach before the advance of the ruthless ploughshare. *Z.*

Pruning and Cleaning Fruit Trees.—These are operations the importance of which can scarcely be overrated, and require skilled labour to carry them out, especially the pruning, as it is necessary for the operator to be able to distinguish between fruit buds and wood buds, and to know at a glance where to cut. That many have not this knowledge is only too evident, or we should not see the wild looking orchards, or trees with long crowded spurs, we now witness so frequently, nor young ones with their heads taken off, with the mistaken idea that they would not break back without it, instead of which young trees do far better planted as they are, excepting perhaps it may be with the removal of any misplaced shoot, and trimming the ends of any large roots that may have been broken or badly bruised in digging them up and lifting the plants. To get a proper foundation to start with, it is needful sometimes to cut back maidens, but to repeat it after they have made side branches that may be carried right and left and trained so as to leave an open centre for the future filling up, is the greatest mistake possible, as it cripples the energies of the trees so treated, and throws them back greatly, causing much loss of time and delay in covering the surface of a wall and obtaining a crop, as the more leaves and shoots a plant has, the more roots it makes, swelling its stem quickly, and speedily becoming large and established. This any one may soon see and prove by planting two trees, and treating the one after the old system, and the other in the way now advocated; and I venture to say that those who do so will in future be very sparing of the knife, and more inclined to keep it safe in their pocket. As regards old trees, the thing with them is to keep their spurs thin and short, by doing which, they are continually renewed, and instead of assuming that twisted, gnarled, and knotty character they do when allowed to lengthen, they become stout and clear, and produce far finer fruit. All trees will not bear shortening alike, but great liberties may be taken with Pears and Apples, which, if healthy, may have the spurs reduced and thinned considerably, as they are sure to break back, and eventually become studded with fat plump buds right to their base. The best tool to operate on long neglected trees is a very narrow, fine-toothed saw, the wounds left from which should be faced or smoothed over by using a knife, which, if strong, may also be made to cut out or reduce some of the spurs. Not only are these often very crowded and thick on trees on walls, but they are as frequently so with pyramids, and in many cases the branches of these are far too numerous, by letting them get in which state sun, light, and air are shut out and kept from the fruit, and this, in the absence of those necessary factors, must be of inferior quality. To have Pears really good, the branches should not be nearer than from a foot to 18 inches, and all gradually shortening from the centre to the outside, with their spurs stubby, in which condition they may soon be brought by the attention referred to above. Apricots and Plums require more care in reducing the length of their spurs, for unless cut to a bud they are apt to die back; but as the pruning of both may be deferred to a late period, those who do the work can soon see where they will break, and how many flower-buds may be sacrificed and still leave enough for a crop. Dessert Cherries bear the knife quite as well as Pears, and if there are plenty of bloom-buds there need be no hesitation in throwing the spurs nearer home; and Morellos should be thinned severely, that their young shoots may be laid-in similar to Peaches and Nectarines, when they bear very fine fruit. All that standard Apples need is to have their branches kept thin and the centres of the trees tolerably open, which may be done by the removal of any young shoots as they form on the stems, and the cutting out of all limbs that cross or crowd others. Wall trees are apt to become affected with scale and other insects, as well as with moss and lichen, especially when old, to remedy which there is nothing equal to the fumes of burning sulphur, which quickly destroys all parasites and so cleanses the bark and bricks as to leave both bright and clear. The way we apply it here is to have several pans, with lighted charcoal in them, placed under the wall on a still day, when the air is damp and heavy, and feed them with dust sulphur, keeping them moved every few minutes till the job is complete. Treated in this easy manner trees are no trouble, and all other insecticides, painting and smearing with clay mixtures, may be abolished. Of course the sulphur must only be used in winter while the trees are dormant, when it does them no harm, but much good, and I have no doubt if it could be applied to those in orchards or pyramids and espalliers by means of an asphyxiator it would be a cheap process, and very effectual. Fresh slaked lime made into wash and syringed on will kill moss, and is good for orchards and fruit bushes, and paraffin painted into the cavities of Apple trees will destroy American blight without injuring the bark. *J. Sheppard.*

Helleborus niger altifolius.—The herbarium at Kew contains a very interesting series of specimens of Helleborus niger, which I have just had the opportunity of examining with the kind assistance of Mr. Baker. In the Hookerian *Herbarium*, under date 1837, there is a fine specimen of H. niger from Carniola, which is exactly like our present H. n. altifolius. In Rupert Heuter's *Tyrolese Plants*, is H. n. altifolius (Hayne), from Carinthia, which is our present variety. In Hooker's *Herbarium* is H. n. altifolius (Hayne), from Auersberg; in Krain (Carniola) again exactly the same variety. In Gray's

Herbarium H. n. altifolius (Hayne), the same plant and locality. In Rupert Heuter's *Tyrolese Plants* is H. n. altifolius (Hayne), from the Tyrol, near Val Vestino, found in the woods at altitude 1000—3000 feet. Dr. Hooker's specimen: this example so nearly resembles your excellent plate in a recent number of the *Gardeners' Chronicle* that Mr. Baker and I exclaimed that it might have been drawn from it. The flower measured 4½ inches in diameter, yours being 5 inches, showing, as Mr. Baker remarked, very little extra size after fifty years' cultivation in gardens. It will thus be seen that this fine Hellebore undoubtedly originates from Carniola and the neighbouring valleys of the Tyrol. Reference was made in your editorial remarks, p. 687, to plate 186 in Sweet's *Flower Garden*, 2d series. Mr. Baker kindly turned up this figure, which proved to be H. n. altifolius, but taken from a Chelsea grown specimen of dwarfer habit. It has the mottled purple stalks and pink-tipped stigma, the flowers being 3 inches in diameter. Sweet here refers to three varieties of the Christmas Rose, as being then grown in English gardens, and on turning to his *Hortus Britannicus*, or catalogue of plants cultivated in the gardens of Great Britain in 1827, I find these three are:—1, Helleborus niger; 2, H. n. (α) latifolius, broad-leaved (altifolius); 3, H. n. (β) angustifolius, narrow-leaved; thus showing that our Cheshire narrow-leaved variety was known to Sweet, and this is the earliest record of it I have yet discovered under its name "angustifolius." This I think confirms my previous conclusions in a remarkable manner. I am proposing shortly to deal with the varieties of H. niger not included in the two previous essays; and if any of your readers have a variety of Christmas Rose which is worth notice, I shall be glad if they will send me a full-grown leaf with or without a flower-stalk. Mr. Barr tells me there is a fine variety of H. niger (major) near Bath; this I should like to see, if some kind friend will send it to me. Mr. Tyerman writes me that he finds H. n. altifolius in old Cornish gardens, where it has grown for more than forty years. No doubt there are many more interesting localities for old-established Hellebores if we only knew of them. *W. Brockbank, Brockhurst, Didsbury.*

Serving up Potatos.—From a remark that occurs at p. 726 I infer that some one has advocated serving up Potatos in earthenware vessels with the intervention of a cloth to absorb moisture and prevent escape of heat. Whoever has adopted such a course should be taught that this comes near to the perfect way. I take advantage of the opportunity to repeat that a hot dry white cloth is the best possible protection for cooked Potatos. When for some time shut down in their own steam in earthenware dishes without a cloth, they soon become heavy, but a cloth preserves them in perfect condition for a considerable length of time. *Shirley Hibberd.*

Is the Rhododendron Poisonous?—I observe that Dr. Lindley (*System of Botany*) says that Rhododendron ponticum is "venomous," and it is often stated that honey made from its flowers is poisonous. I should be very glad to know whether these assertions rest on good ground. Mr. Webber writes to the *Agricultural Gazette* (Nov. 19, 1883) that he has recently lost several sheep in consequence (as he believes) of their having eaten the leaves of Rhododendrons. He does not state whether the remains of Rhododendron leaves were found in the stomachs. I observed here a few days ago that some lambs had been eating leaves of Rhododendrons, either ponticum, or hybrids of ponticum. The quantity eaten was not very large, but no bad result has followed. The leaves are, I believe, bitter, and as a general rule both sheep and cattle let them alone; but it is a question of some importance whether they are or are not poisonous, as it becomes a question whether it is prudent to plant them in open pastures, and also whether bees should be kept in places where the shrub exists in abundance. Every one knows that Xenophon's soldiers, on the famous return from Persia, suffered from eating honey supposed to be made from the flowers of the Rhododendon; but it seems to be uncertain what shrub the Greeks called by that name. Dr. Lindley says that it was Azalea pontica, but is it not as—or more—likely that it was the wild Oleander? The flower of this shrub is much more like that of a Rose tree than is that of the Azalea, and it is said to be extremely poisonous. *Alex. Nesbitt.*

The Potato Disease.—Mr. Plowright has made Professor De Bary to reply so forcibly to Mr. W. G. Smith that really little more is left to be said on the subject of the Jensenian theories of sporadic infection of Potato tubers. One passage in Mr. Smith's paper, however (p. 719), exhibits such a strange misimpression of fact that I must refer to it. Mr. Smith urges that if Potato tubers are affected by the fungus externally, it arises from their being attacked by insects, animals, and other creatures, which injure and eat the stems, and thus leave the surface of the flesh exposed. Surely that must have been written under the influence of a strong imagination. Nothing can be rarer over thousands of acres of Potatos than to find damage to the tubers of the kind alluded to above, and in not one case in a thousand will it be found that any tuber which has unfortunately become thus partially eaten is diseased. As a rule, any such injury to the tubers is caused when permitted to remain long in the soil, and considerably after all danger of infection has passed by the entire disappearance of the tops. I have occasionally found a tuber eaten by mice or mole, but never one so gnawed that was diseased. Wireworms are partial to diseased tubers, because the flesh is soft, and perchance sweet; but there is no further connection between their attack and those of the fungus. On the other hand, in seasons when the disease is rife, myriads of tubers may be lifted that, entirely unhurt otherwise, are speckled and spotted all over, and even to the naked eye it is most obvious that the fungus has pierced the tender skins. Whether the rain can or cannot wash the minute spores of the fungus through 4 or 5 inches of soil I say nothing, but without doubt the greater the bulk of soil on the tubers the drier they lie, and hence the limited powers of the fungnid spores for ill. It is a case in which experience cannot be gainsaid. *A. D.*

Florists' Flowers.

Azaleas.—When alluding to these plants a few weeks ago they were stated to be out-of-doors, and instructions were given to take them under glass, and to see that they were free from red-spider and thrips. Those plants intended to flower early should now have a little heat, but 50° at night will be sufficient, with a rise from 55° to 60° by day; a higher temperature than this has a tendency to cause the plants to make growth instead of swelling up the flower-buds. They require attention in watering to see that the plants do not become too dry at the roots. Even those plants that have not to be forced at all must not be allowed to become too dry at the roots. The plants are still shedding their leaves, and these must be removed from the plants or gathered up, if they fall on the surface of the pots or stages. It will be as well to fumigate the house again to destroy any thrips that may have developed during the last month. All houses where thrips or green-fly usually appear ought to be fumigated once in three or four weeks as a preventive.

Cinerarias.—We obtain a succession of bloom from these, beginning in November, and finishing off in April, or as late as May, if it is desirable to have them at that time. The plants now are as good as we ever had them at any season of the year, and their bright colours, arranged well in the conservatory with other foliage and flowering plants. Mildew is rather troublesome, and a watchful eye is necessary to see that it is dusted with flowers of sulphur as soon as observed. If it is intended to have any plants grown on to form good flowering specimens in April for exhibition, the plants should have plenty of room, and be placed near the glass, where they can obtain a free circulation of air. The large foliage, and the shoots ought to be tied out to give the plants a better chance to develope their flowers. Very weak manure-water should be applied to them at each alternate watering. And if sharp frosts set in artificial heat must be resorted to, to keep the frost from them, as they cannot stand such a low temperature as Calceolarias. Much artificial heat causes green-fly to increase; but this pest must be at once destroyed by fumigating.

Chrysanthemums.—A considerable number of the late-flowering varieties still make a brave show in the greenhouses, but a considerable number of them have gone off; and the stems have been cut over near the surface of the pots. This is the best time of the year to put in the cuttings. Take off the root suckers a little below the surface of the ground. Each cutting should be inserted separately in a small pot; the best way is to plunge them to the rim in a cold frame in Cocoanut fibre refuse. Some varieties will strike readily, others will remain for six weeks or more without forming a root. It will be easy enough about the end of January to start the slow-rooting varieties in bottom-heat. Others, again, will scarcely throw up any suckers, or they will not do so until very late. There is no help for it but to wait and take them when we can get them. Those that refuse to start may be placed in a warmer house until they do so. To obtain good large exhibition specimens of the large-flowering varieties it may be as well to shake out any plants that have shoots sprouting from near the base of the stems. The plants with tall stems that have produced exhibition blooms are most prolific in supplying this kind of stock.

Pelargoniums.—Specimen plants of the large-flowering, fancy, and decorative varieties are much liable to have their growths drawn up weakly at this season of the year, therefore admit air on all favourable opportunities, and give the plants as much room as it is possible to spare them. Those intended to flower early should have been repotted in October, or at least in the early days of November; but the whole of them ought to be potted now without any delay, and the growing stems must be carefully tied out, and if there are too many of them the surplus growths ought to be thinned out. The decaying leaves (but of them there ought to be few) should be removed at once, else they are sure to cause injury to the plants; besides, they look very untidy. Another matter of very great importance at this season is watering. The plants must not suffer for lack of it; but at this time the supply ought to be reduced to a minimum. Those that receive a good supply of water will have the strongest growths furnished with deep green leaves; but this is not desirable in December, nor in January, and the plants that have been kept rather dry and cool during those months will give the finest head of bloom in May and June.

Zonal Pelargoniums.—These have now become amongst the most useful of our winter flowering plants, and they do not require much attention. We have a house, 50 feet long, quite full of them, with a few Bouvardias and winter flowering Carnations, and it is quite a mass of bloom. We keep up a night temperature of 50° to 55° with plenty of air. The plants are kept near the glass. It is a good plan to pinch out the point of the growing shoots, as this throws all the strength into the flower truss. Still keep exhibition specimens dry at the roots and cool. *J. Douglas, Great Gearies.*

Gold-laced Polyanthuses.—Notwithstanding that some growers suffered losses with these during the winter and spring of 1882-83, certain varieties, such as Cheshire Favourite, Prince Regent, Lancer, Formosa, and President, appear to be fairly plentiful. George IV. and Exile are scarce, and the former appears to find a ready sale. Lord Lincoln is very scarce, and is likely to remain so, being a delicate grower, and making offsets very sparingly. What we have been obtaining as Pearson's Alexander is now said to be simply a variety known as Black and Gold, and of but indifferent quality. The true form of Pearson's Alexander is in culture in the North, but can be obtained only at a high price. It is very difficult indeed to obtain a plant of Lord Lincoln.

When at Reading, in September last, I picked up at a second-hand book-stall the first fifteen numbers of the *Florists' Magazine*, a monthly publication published in 1835-36, of large size, containing four plates each month. That for August, 1836, contains a coloured illustration of Polyanthus Pearson's Alexander, and which is represented by a bold truss of ten expanded pips, each flower having seven or eight segments, black ground, clear pale gold centre and lacing, and large finely formed pips; in character and marking not unlike Prince Regent; but the habit of growth much resembling that of Lancer. It forms a bold and pleasing picture. Unfortunately the descriptive notes which accompany the picture give no information as to the origin of this flower.

At the time this plate was published the difficulty of cultivating the Gold-laced Polyanthus in or near London was acknowledged. Even then, when the Polyanthus was much more of a florists' flower than it is in the present day, it seldom put in appearance at metropolitan flower shows, and for the reason named. The difficulty of keeping the Polyanthus healthy and growing in or near London is increased rather than diminished in the present day, when London is extending so rapidly towards the suburbs. The Polyanthus, being a native of pure atmosphere, cannot endure the tainted and smoky atmosphere of large towns.

Last summer I tried to keep my Polyanthuses through the summer by planting them out in a carefully prepared bed on a north aspect. I had but few, and I scarcely lost one. This autumn, when I got in the stock of a few varieties from the Midlands, I planted

them out also in this bed, and up to this time they have done well; have rooted freely, and made a nice growth. I had hitherto potted the plants as soon as received, placing them in a cold frame; but they died, and apparently rather from dryness at the roots than from over much moisture. About two dozen of the strongest were put into 48-sized pots for blooming; only one crock was placed at the bottom of the pots, then a layer of cocoa-fibre, and the plants potted firmly in a sandy compost made up of loam, leaf-mould, and sand. The plants were stood out-of-doors on a bed of cocoa-fibre on a north aspect, where they still remain, exposed to all weathers, but they are looking grandly, and pictures of rude health. They are doing much better than the plants I had at the corresponding period last year in pots then standing on an ash bottom in a cold frame. Mr. Beswick, of Middleton, and other growers in Lancashire, treat their plants in this way, and if they succeed there, there is no reason why the same measure of success should not be meted out to Southern growers. When frost sets in the plants will be protected; but should it prove very severe they will be taken within doors until the worst has passed. I never before had plants in better form at this season of the year, but I am well aware that the terrors of January, February, and March have yet to be faced. But with well established vigorous plants, and due precautions, one may hope to come safely through the ordeal.

Two months ago Mr. S. Barlow kindly sent me specimens of two of his new varieties, viz., Model and John Bright. The former is a red ground, and Mr. Barlow thinks it will prove a second Kingfisher. Both are doing well in pots; the former has a distinct habit of growth, and will, I think, make an excellent exhibition variety. John Bright has a black ground, a good grower, highly fragrant, but not a first-rate show variety.

It is when the biting, withering March winds blow from the east that the cultivator of the Polyanthus has to be on the alert. I hold to the opinion that the Polyanthus expands its pips best when kept cool and moist in the open air, but sheltered when necessary. A dry atmosphere is fatal to its well-being. If kept in an open frame it must be carefully protected from cutting winds when the pips are expanding, and great care must also be taken that slugs do not reach and injure the flowers.

It will be observed that when Mr. Barlow, Mr. Brockbank, and others, come southwards to our Auricula show, and bring their Polyanthuses with them, their flowers are characterised by much greater refinement in marking than we are able to attain to in the South. I think that climate has a great deal to do with it; but those of us who try to grow these charming flowers round London must not be dismayed. The difficulties to be encountered are great, but they may not be insurmountable. To "him who works, and to him who waits," there come sometimes seasons of success, and by patience there may come a time of exultation over cultural successes of a highly satisfactory character. *R. D.*

FORESTRY.

THE CORSICAN PINE (P. LARICIO). — Of late years a good deal has been written and spoken in this country about Coniferæ, more especially those of recent introduction, and still our knowledge of them as British timber trees is far from perfect. The Corsican Pine as a timber and ornamental tree has certainly not escaped notice, for while some have spoken in admiration of its majestic appearance and adaptability for planting in exposed or maritime situations, others have enlarged on the quality of its wood, and spoken of the excellent returns from this tree that might be realised by proprietors and others were they but wise enough to plant plenty of it. How far any or all of these views may be correct is a point which—at least, from practical experience of the tree in this country—cannot be very satisfactorily settled, and of which it would as yet be premature to speak with any amount of certainty. Certainly as a fast growing ornamental tree, or for planting in exposed or maritime situations, this Pine is invaluable, and bids fair to outrival all others, not even excepting our much praised Austrian and Pinaster, and to which, more especially as regards quality of wood, it is in every way superior. The dense growth, beautiful dark green foliage, and hardy nature of the Austrian Pine we by no means wish to overlook, but in carefully weighing its merits in point of general utility with those of P. Laricio we feel in duty bound to throw our weight of evidence in favour of the latter tree.

The introduction of Pinus Laricio from the island of Corsica occurred about the year 1814, so that but few trees in Britain can at the present time be much over sixty years old, and consequently not sufficiently matured to form a correct idea of the real value of the wood as produced in this country. Of late years this Pine has become a general favourite with most planters, and with none perhaps more so than the owner of this estate, who, seeing its value not only as an ornamental tree, but for planting in exposed or maritime situations, caused it to be extensively used in the formation of young plantations throughout the estate.

A plantation containing over 30 acres was four years ago formed with Pinus Laricio and the Cornish Elm, planted 16 feet apart all through, the intervening spaces being filled up with Larch and Scotch Firs, as well as various other forest trees. For the past half a century this Pine has been extensively planted at Penrhyn Castle, not only as a park or lawn tree, but generally over the estate, which has given us ample opportunities of not only testing the quality of its wood, but also of forming a pretty correct idea of its utility and value for general forest planting.

Within the park, where a quantity of this Pine was planted shortly after its introduction, it has now attained large dimensions, the average height being from 50 feet to 60 feet, and the stems at breast high girthing about 5 feet. Many are, however, much larger, and one gigantic specimen growing on the lawn to the south-west of the Castle has attained the following dimensions:—Height, 72 feet; girth of stem at 1 and 5 feet, 9½ feet and 9⅓ feet respectively, and with a diameter of spread of branches of 45 feet.

Regarding the quality of home-grown wood of Pinus Laricio it would, as I have before stated, be yet premature to speak, as few trees have attained a size at which the wood could be considered mature. We have, however, cut up several of the largest trees here, and used the timber for various purposes on the estate, and, I may add, with very satisfactory results. When sawn into boards the wood resembles very nearly the red deal of commerce; it is, however, more brittle, and contains a great quantity of resin; is very weighty, strong, and the concentric rings firmly packed. A series of experiments with the timber are at present being carried out on the estate; such as for fencing-posts, boarding, and in the construction of hurdles and water-gates; but sufficient time has not yet elapsed since the commencement of these experiments for us to form a correct idea of the real value of the wood as grown in this country; so far, however, the results are in every way satisfactory.

The nursery management of Pinus Laricio requires a great amount of care, more especially in the way of frequent transplanting, so that strong well-rooted plants may be produced; neglect of this generally proving injurious, if not fatal, to the tree when planted out permanently.

Usually young plants of this Pine are, like P. Pinaster, found to have but two or three large roots, and to be entirely destitute of the numerous small rootlets so necessary for the successful transplanting of the tree.

Few of the Pine tribe are better suited for withstanding the sea breeze than the one under consideration; and for this reason, as well as its ornamental appearance, it has been extensively used in the formation of our seaside plantations. It is seldom uprooted or broken over by the wind, and has this special quality, that it is never injured by ground game, even during the most severe weather.

In conclusion, from my present experience of this tree, I have every reason to believe that in point of general utility, as well as suitability for our climate and soil, this Pine is not excelled by any as yet introduced into Britain. *A. D. Webster, Penrhyn Castle, North Wales.*

—— The accounts given of this tree are varied and conflicting, and it can only be by obtaining reliable information upon the different results from varied sources that the true character and history of the tree can be arrived at. I have neither had extensive nor varied experience of the culture of the P. Laricio, but the one example I am hereby enabled to give may possibly be of as much practical value to the planter as several would be of less distinct features.

On the Seafield estate, in the parish of Fordyce, a plantation of about 350 acres was planted between 1860 and 1864. In 1862 an oblong piece of ground of about 20 yards was selected and planted with four-year-old plants. This part of the plantation is about 700 feet above the sea-level, and the ground slopes to the sea in a north-east direction and distant from it about 2 miles. The part thus planted was on the side of a public road open to the south, but protected on the sea side by a considerable breadth of plantation, planted at same time, composed of Scots Pine and Larch. When the plantation came under my charge in 1866, I observed the Laricio on passing along the road as presenting a strange appearance, and on examining them they were found to present a straggling, bushy aspect, all without leaders, many dead and withered branches upon them. They were carefully watched for a few years till it was seen they would not succeed, and then the ground was planted with Larch. None of the Laricio plants were cut, but allowed to remain, to see what would become of them. From year to year they gradually died, now there is only one solitary plant in the whole piece that has life in it. Some of the dead stems at the surface of the ground are over 3 inches in diameter, but most of them are under that size; thus showing most of the trees to have died off at an early age. The plantation altogether is certainly very much exposed, but the Laricios were rather less exposed, especially of late years, than the surrounding trees of Scots Fir and Larch. Even they are not growing fast, but are keeping the ground, and healthy, with the exception of here and there a withered top.

The Laricio plantation should now have been twenty-one years old and the trees surrounding it of the same age are about 12 to 15 feet high, and in sheltered places over 20 feet. The Larches are in general in the most exposed places 6 to 8 feet higher than the Scots Firs. Whatever inferences may be drawn from this narrative, this at least may be relied upon, that the Laricio for such soils and situations is decidedly much inferior to the common Scotch Pine and Larch. *C. Y. Michie.* [We should be glad to hear of the experience of others. ED.]

Reports of Societies.

Royal Horticultural: *Dec.* 11.—The Rev. G. Henslow, at the afternoon meeting, in drawing attention to some of the plants exhibited, first noticed a fine specimen of Fatsia (Aralia) papyrifera, exhibited by Mr. Green. The leaves are described as being 1 foot across, but this specimen, by cultivation, had leaves 3 feet in diameter. It is the plant the pith of which forms the well-known "rice-paper" of Japan and China, first discovered to be from this plant by Sir William Hooker in 1852, who described it in the *Journal of Botany* (vol. iv., 347). Mr. Green also exhibited a fine spray of Bignonia venusta, first figured in the *Bot. Reg.* 1817, and received from Brazil.

He next drew attention to a plant called Caraguata sanguinea, discovered by M. André in the Cordilleras of New Grenada. It is a Bromeliad, with red and green foliage. It appears to be the custom to use it as a decorative plant with Tree Ferns in its native home when any spot is signalised for some remarkable event. A curious Eryngium pandanifolium, sent by Mr. G. F. Wilson, showed how one plant may in its foliage or otherwise imitate others; the British species, common on the seashore, is called Sea Holly, from its prickly foliage, and has heads of flowers resembling a Composite. As other cases of mimicry the lecturer alluded to the genera Euphorbia and Poinsettia, whose coloured involucre or leaves mimicked, or were a substitute for coloured flowers wherewith to attract insects to fertilise the small, inconspicuous flowers in their centres.

Mr. Henslow next drew attention to a fine cut specimen brought by Mr. Green of Dahlia imperialis from Mexico, a species which attains a height of from 12 to 20 or more feet. He remarked upon the present taste of reverting to single Dahlias in preference to the common double form—a reversion which Mr. Cannell had attempted in his display of fine single Chrysanthemums; but the many beautiful double forms of this genus are scarcely yet likely to be ousted by their revived progenitors. As instances of skill in cross-fertilisation there were several specimens of the genus Cypripedium and its allied form Selenipedium, recognisable generally by the long tails to the petals. There was a difference in the ovary, in that it is one-celled, and not three-celled, as in all other Orchids. Hence the first result from C. Schlimii (of a true species) and C. longifolium (ditto) was C. Sedeni. This crossed with C. longifolium gave rise to C. calurum, while C. Schroderæ was the offspring of crossing C. caudatum and C. Sedeni. Gardeners do not distinguish between the two original species, however, but call them all Cypripediums.

Scientific Committee.—G. F. Wilson, Esq., F.R.S., in the chair. Present: Messrs. Maclachlan, Murray, Boulger, Grote, Loder, Hon. and Rev. J. T. Boscawen, Dr. Masters, and Rev. G. Henslow, Secretary.

Potato Disease.—A letter was read from Mr. A. S. Wilson on the subject of the masses of oxalate of lime discovered by him, in the course of the discussion upon which Mr. Murray stated that dilute nitric acid dissolved the whole of these masses, from which fact he inferred that no protoplasmic matter was contained in them. A letter from Mr. Plowright on the same subject, dealing with the method of high-moulding as advocated by Mr. Jensen was read. (See p. 751.) Mr. G. Murray admitted that the conidia in the course of germinating entered the tuber by means of the eyes, if not through the epidermis, but pointed out that this was exceptional.

Ergot.—Mr. G. Murray showed specimens of ergot which he had cultitivated, and which had borne the so-called claviceps or cordiceps, the ascigerous condition of the fungus.

Picea pungens.—Mr. Waterer sent growing plants of the plants known as P. Parryana and P. Parryana glauca, which Dr. Masters recognised as the Picea pungens of Engelmann, alluded to in the last number of the *Gardeners' Chronicle.* Mr. Waterer also sent specimens of the green-leaved and of the glaucous form of Picea Engelmanni, to show that by their blunter, less spine-pointed foliage they were distinct from those just mentioned.

Cephalotaxus.—Dr. Masters reported that he had examined the specimens sent by the Rev. J. Goring, and that the form with globular seeds appeared to be distinct and undescribed, and was probably the same as that mentioned by Mr. Fortune in the *Gardeners' Chronicle* after his second visit to China. The full account of the species of Cephalotaxus grown in this country is reserved for a future occasion.

Caraguata sanguinea.—A plant of this handsome Bromeliad was exhibited by Mr. Bruant, of Poitiers, concerning which some details were given by Dr. Masters. (See p. 717.) A Botanical Certificate was unanimously awarded.

Hypertrophy of Plum Root.—Mr. R. Dean sent a large lobulated mass found on the root of a Plum tree at 10—12 inches below the surface. It was surmised that the growth in question was the consequence of insect puncture at an early stage of growth, and regret was expressed that specimens of such growths were not detected and examined at any early stage of their development, when it might be possible to determine their exciting cause, concerning which little or nothing could be ascertained from such specimens as that sent.

The Lindley Library.—The following books were reported as presented to the Library:—*A Bushel of Corn*, by A. S. Wilson; *Auswahl von ausser tropischen Pflanzen*, a German translation, by Dr. Goeze, of Baron Mueller's *Select Plants for Industrial Culture*, &c., presented by Baron von Mueller; *Agricultural, Botanical, and Chemical Experiments on Pasture Lands at Rothamsted*, part ii., by Sir J. B. Lawes, Drs. Gilbert and Masters, presented by the authors; *Field and Garden Crops of North-West India*, by Dr. Duthie, presented by the author. Among works recently purchased were *Flore Forestière de la Cochin-Chine*, by M. L. Pierre—a folio volume, copiously illustrated with large folio plates; *Iconographie des Azalées*, by A. Van Geert, vol. i.; *British Moss Flora*, by Dr. Braithwaite; *Farm Insects*, by Curtis, new edition; *Illustrations of British Fungi*, by Dr. Cooke; *Nouvelles Remarques sur la Nomenclature Botanique*, par A. de Candolle.

Fasciation. — Specimens of Euonymus japonicus aureo variegatus and of Cryptomeria japonica in a fasciated condition were sent by Mr. A. D. Webster, forester, of Penrhyn Castle.

Postal Boxes.—From Mr. T. P. Bethell came samples of his "unique folding box," intended for use in the Parcel Post and otherwise. The boxes are ingeniously made, and can be stowed away in small compass, but hardly seem strong enough to bear rough usage.

Vote of Thanks to the President.—On the motion of Mr. Grote, seconded by Dr. Masters, and carried by acclamation, a vote of thanks was passed to Sir Joseph Hooker for his conduct as Chairman of the Committee.

Floral Committee.—Present: G. F. Wilson, Esq., in the chair; Messrs. T. Moore, J. Laing, F. R. Kinghorn, H. Bennett, J. Fraser, J. Douglas, W. Bealby, S. Hibberd, J. James, G. Duffield, H. Ballantyne, J. Dominy, H. Turner, W. B. Kellock, J. Cutbush, J. Wills, H. Cannell, J. Hudson, C. Green, and Dr. Masters. For the last meeting of the year several exhibitors combined to make up a small but choice display of flowering plants, and there was a good attendance of members and regular *habitués*, but very few visitors put in an appearance at any part of the day. The larger groups consisted of a fine bank of Cyclamens, from Messrs. James Veitch & Sons; a large and neatly grown collection of Chinese Primulas, from Mr. J. Wiggins, gr. to W. Clay, Esq., Elm Villa, Grove Road, Kingston; and a choice collection of Primulas, single Chrysanthemums, and single and double zonal Pelargoniums, from Messrs. H. Cannell & Son. Several new Primulas were exhibited, and First-class Certificates were awarded to three of them, whose merits are discussed in another column. The Pelargoniums, including a good winter-flowering double variety named Erl King, are also commented upon in another place, while in the column devoted to Orchid Notes will be found a note on some new Cypripediums raised from C. Sedeni ×, and exhibited by Messrs. Veitch and Mr. Ballantyne, gr. to Baron Schrœder. Mr. Anthony Waterer exhibited some small examples of the handsome Picea pungens, illustrated in our last issue; and a new Holly, in Ilex laurifolia aurea marginata, the leaves of which are but slightly toothed, the centre dark bronzy-green, and the margins golden-yellow. Cyathea microphylla, shown by Messrs. Veitch, is a handsome Tree Fern, the curious stem of which is a compromise between the erect, tree-like stem of most of its congeners, and a creeping stock. The leaf-stalks are shining, thickly clad, especially at the base, with dark brown scales, the leaves spreading, deltoid acuminate tri-pinnate, the ultimate segments oblong, rather deeply crenated. Carnation Mrs. Keen, which belongs to the tree-flowering section, is a very good novelty, the flowers being large, full, and of good substance, and almost black in colour—one of the darkest varieties we have seen. Mr. Green brought up from Pendell Court a flower-stem and gigantic leaves of the noble Formosan Rice-paper plant, Aralia papyrifera, from a specimen planted out, and about 20 feet high, in a temperate-house; some cut blooms of the tall-growing Dahlia imperialis, and some splendid wreaths of blossoms of the very beautiful orange-flowered Bignonia venusta, grown in a warm-house. The Chairman received a Cultural Commendation for a specimen of Odontoglossum crispum with a five-branched spike, on which fifty blossoms were counted. That fine old plant, Luculia gratissima, was represented by a charming box of half-a-dozen bunches of flowers, exhibited by Mr. A. G. Bridgman, gr. to J. Somers Cocks, Esq., Thames Bank, Great Marlow. Mr. Turner sent from Slough a capital stand of one dozen fresh blooms of Japanese flowering Chrysanthemums, and another stand of the white incurved show sort, Princess Teck, a first-rate late-flowering variety. Mr. J. C. Tallack, gr., Prideaux Place, Padstow, Cornwall, sent a fine box of blooms of Helleborus niger altifolius, several of the individual blooms in which measured quite 5 inches across, and were of a white colour, the backs of the sepals with a faint tinge of rose. Mr. Cannell's box of blooms of single pompon Chrysanthemums attracted the attention of many by reason of their pretty colours and generally bright appearance. The prettiest, perhaps, was Willie Beckwith, light-coloured in the centre, shading off to rosy-lilac; Miss Cannell, white; Gus Harris, lilac-pink; Miss E. Terry, rosy-purple; Brunette, bronze-brown; and Yellow Gem.

The awards made were:—

First-class Certificates.

To Messrs. Veitch & Sons, for Cypripedium calurum ×.

To Messrs. Veitch & Sons, for Cypripedium cardinale ×.

To Messrs. Veitch & Sons, for Cyathea microphylla.

To Messrs. Veitch & Sons, for Carnation (Tree) Mrs. Keen.

To Mr. Ballantine, for Cypripedium Schrœderæ ×.

To Messrs. C. Lee & Son, for Primula sinensis Julia Lee.

To Mr. A. Waterer, for Ilex laurifolia aurea marginata.

To Messrs. Cannell & Sons, for Primula sinensis Queen of the Whites.

To Messrs. Cannell & Sons, for Primula sinensis Swanley Purple.

To Mr. J. King, for double zonal Pelargonium Erl King.

Fruit Committee.—Present: John Lee, Esq., in the chair; Messrs. H. J. Veitch, J. Willard, W. Denning, J. Smith, C. Silverlock, P. Crowley, J. Burnett, R. D. Blackmore, J. Roberts, and Dr. Hogg. The best contribution made to this meeting consisted of four well-proportioned and handsome fruits of the Smooth Cayenne Pine, weighing respectively 7 lb. 8 oz., 7 lb. 2 oz., 8 lb. 4 oz., and 8 lb., and exhibited by Mr. D. Thomson, Drumlanrig Castle Gardens. The committee recommended the award of a Silver Medal. From Chiswick Mr. Barron sent up a collection of fifteen varieties of Celery; and various sorts of Apples, mostly sent up for naming, came from several exhibitors, but none call for any comment.

Messrs. James Carter & Co. offered prizes for a collection of vegetables, and four competitors entered the list. The prizes were won by Mr. E. Beckett, gr. to J. P. Currie, Esq., Sandown House, Esher; Mr. R. Phillips, gr. to Dr. Baker, The Deodars, Meopham; and Mr. H. Marriott, Skirbeck, Boston, in the order named.

Manchester Horticultural Mutual Improvement Society: *Dec. 6.*—At the last fortnightly meeting, held in the old Town Hall, King Street, Mr. R. Tait in the chair, Mr. R. Mackellar, gr., Abney Hall, Cheadle, read a paper on "Vines and Vine Culture." He said that all that seemed necessary to make Grape growing profitable in England out-of-doors was a summer of a month's longer duration. In Bedfordshire he had noticed that the Vines grew very well, showed abundance of fruit, and brought it partially to maturity; but just as the first berries began to ripen the cold weather begins, and the early frosts put a stop to all further progress. A good result, therefore, need not be expected from Grape growing outside, but by artificial aid the matter is much simplified. Mr. Mackellar dwelt upon the form of structure necessary, whether span-roof or lean-to, inclining in the majority of cases to the latter, and he showed how indispensable it is that it should be erected in the most sunny position. Ventilation should be amply provided, and at all times used with care and caution. The formation of the borders was then treated of, showing the need of good drainage, and gradual additions as the Vines increased in size and vigour. The composition of the soil, the sorts to be planted, naming particularly the old Black Hamburgh and Muscat of Alexandria as two of the best; pruning, disbudding, setting of the fruit, thinning of the berries, and perfect ripening of the fruit, particular stress being laid upon the proper thinning of the berries and keeping the Vines clear from insects, were all discussed. Considerable discussion took place. Mr. Neild (Wythenshawe), Mr. Upjohn (Worsley), Mr. Ellis, Mr. C. Jones, Mr. H. Driver, Mr. Butterworth, and others adding to the information. Mr. W. Swan, the Hon. Secretary, announced at the next meeting Mr. W. Birkenhead would read a paper "On the Cultivation of Ferns."

Smithfield Club Show.—This exhibition was opened on the 10th inst., and was as interesting as it usually is, the entries being fully as numerous as in recent years, and the quality, judged from the Smithfieldian point of view, as meritorious as ever. Leaving the animal portion of the show we will glance at the vegetable productions in their allotted spaces in the galleries, being sure to find something of interest. Among the immense Mangel Wurzels, Swedes, Kohl Rabi, and other roots some few good things of value to the horticulturist are sure to be found. In the stand of Mr. John K. King, Coggeshall, Essex, an excellent strain of Champion Cabbage, that will reach the great weight of 28 lb., and also of curled Parsley, that finds much favour amongst local growers, were to be seen. Messrs. Webb & Sons, of Stourbridge, have an extraordinarily fine display of enormous roots, Potatos, and selected seed corn, in Tartarian Oats, Challenge and other Wheats, and Barleys of various pedigrees. The benefits accruing from careful selection or from intelligent hydridising are fully apparent in these samples, and the enterprise of the firm in this direction would seem to have been abundantly endorsed by the judges at the various great shows at Birmingham, York, Norwich, &c. Messrs. James Carter & Co. make a fine show of Mangels and other sorts, and are especially rich in Potatos, such as are seen at the large Potato tournaments, and in those kinds as well that we prefer to see on the table; making, in addition selections of those kinds that succeed best on heavy, and those that are best suited for light soils. Messrs. Hooper & Co. have in their well furnished stand Laxton's new Pea, Evolution, in the shape of dried specimens of plants in pod: the habit is vigorous, branching, and it appears to possess the property of abundant bearing; an enormous Oat, nearly 6 feet high, and very prolific, often bringing 2000 grains from one seed. After this no other Oat should be wanted. A good looking sort of Potato, called Conqueror, that is reported as being very prolific, was shown by them. Messrs. Sutton & Sons, Reading; and Messrs. Raynbird, Caldecott, Bawtree, Dowling & Co. (Limited), have very fine stands, but they were more purely of interest to agriculturists than to gardeners. Messrs. Harrison & Sons exhibit the true Leicester Red Celery, Marble Turnips, and very fine Altrincham Carrots.

TEA AND ITS SUBSTITUTES.

(*Continued from p. 803, vol. xix., n.s.*)

Rhamnaceæ.

11. *Sageretia theezans*, Brongn. (Sacaretia, or Tia of Chinese). — A thorny shrub 6 to 8 feet high, with smooth, shining, green, egg-shaped leaves, somewhat resembling those of the common Tea. The fruit is dark brown, globose and succulent, about the size of a Pea; has a sweet taste, and is eaten largely where it grows, and the leaves are used as a substitute for Tea by the poorer classes in China. It grows in China and Japan, and according to Brandis's *Forest Flora* extends into India, being "common in places on the eastern flank of the Suliman range at between 2000 and 8000 feet; in the Salt range, and in the North-west Himalaya between 3000 and 8000 feet from the Thebam to the Sarda."

12. *Paullinia Sorbilis*, Mast. (Guarana).—A woody plant, described as of a climbing habit, with an angular smooth stem, and alternate pinnate leaves on long stalks. It bears an ovoid or pyriform fruit about the size of a Grape, and contains usually a solitary seed (rarely two or three). These seeds have been

described as having the appearance of "Horse Chestnuts in miniature." The plant is a native of Brazil, where the seeds are used in the preparation of a beverage, as well as in medicine. The name Guarana is derived from a native tribe, Guarinis. The following is the mode of preparing the seeds:—After being dried, and the aril removed, they are powdered; water is then added, and the mass kneaded into a kind of dough, which is rolled into cylindrical masses 5 to 8 inches long, or spherical lumps, and finally dried in the sun or by fire-smoke. When so treated they become very hard, and of a darkish brown colour, and can be kept or carried about for a long time. It has an astringent bitter taste, and a smell somewhat like chocolate. Its medicinal properties are regarded as tonic, febrifugal, nutritive, and slightly narcotic. It acts as a restorative and nervous stimulant similar to that of ordinary tea and coffee. In Brazil it is extensively used in the preparation of a refreshing and nutritious drink made by putting a teaspoonful of the prepared Guarana into a glass of sweetened water. It has been introduced into this country, and recommended in diarrhœa, neuralgia, nervous headache, &c.

LEGUMINOSÆ.

13. *Psoralea glandulosa*, L. (Jesuits' Tea, or Calen).—A dwarf shrub with trifoliate leaves, native of Chili, where an infusion of the leaves is drunk as a tea—more, perhaps, for its medicinal value than as a refreshing beverage, having vermifuge and stomachic properties. The plant has a smell like Rue.

14. *Cyclopia genistoides*, Vent. (Bush Tea, or Honigthee). — A glabrous shrub with ultimate sessile trifoliate leaves, and bluntly mucronate linear leaflets, which are used at the Cape, where the plant grows, as a substitute for tea. The aroma is said to strongly resemble that of Chinese tea, and the taste to be sweetish astringent. It is valued at the Cape as a restorative, and a decoction or infusion is often given to promote expectoration in chronic catarrh, or even in consumption. The leaves of C. Vogelii, Harv., are said to be used for a similar purpose.

15. *Borbonia parviflora*, Lamk. (Stekelthee). — A glabrous shrub with compressed angular winged branches, and alternate, cordate, many-nerved, mucronate leaves. The plant is common at the Cape on the Lion's Head and Table Mountains, and a decoction is used as a medicinal tea in asthma, and as a diuretic.

16. *Astragalus Bœticus*, L.—A procumbent plant, native of Spain, Barbary, Sicily, and the Levant, the seeds of which, when roasted and ground, are used in Hungary more as a substitute for coffee than tea.

ROSACEÆ.

17. *Cliffortia ilicifolia*, L. (Doornthee).—A South African shrub common in the district of Uitenhage, where the sharp-pointed and spiny leaves are used as tea, and as an emollient and expectorant in coughs.

18. *Prunus spinosa*, L. (Sloe, or Blackthorn).—This is introduced because the leaves were at one time extensively used for adulterating Chinese Tea, and it is said that they form the best substitute known.

SAXIFRAGEÆ.

19. *Hydrangea Thunbergia*, Sieb. (Amatsji, or Tea of Heaven).—A Japanese shrub found on the mountains of Aiva and Souaki, where the leaves, which are oblong and serrate, are, when dried, used by the natives as tea, under the name referred to above, and by the Chinese as "Di-sido-san." It is sometimes known as "Sweet Tea" by the Japanese, who assert that there is a variety of the same plant with bitter leaves, which they call "Kakassoo."

MYRTACEÆ.

20. *Leptospermum scoparium*, Forst. (New Zealand Tea tree). — A shrub 4 to 6 feet high, native of New Zealand and Australia. The leaves were used by the seamen of Captain Cook's expedition as a substitute for tea. The flavour is an agreeable bitter, and when fresh they have a pleasant smell, which is partially lost in drying. A strong infusion has been found emetic in a similar way to green tea. "They were also used with Spruce leaves in equal quantities to correct their astringency in brewing beer from them, and they rendered the beer exceedingly palatable."

ONAGRACEÆ.

21. *Epilobium angustifolium*, L. (Twan Tea).—The leaves of this well-known plant are used in Finland for making tea. When so prepared they have quite the appearance and smell of black tea.

COMPOSITÆ.

22. *Solidago odora*, Ait. (Blue Mountain Tea). — A plant 2 or 3 feet high, with a slender erect pubescent stem, and linear lanceolate leaves, entire, acute, rough at the margins, and covered with pellucid dots. It is found in woods and fields more or less abundantly in all parts of the United States. The leaves have an agreeable, warm, aromatic taste, and a fragrant smell. They are not only valued in America for their medicinal properties, but a large trade is done with them under the name of Blue Mountain Tea. Quantities of this so-called tea are said to be brought into Chicago. The following account has been given of it:—"This tea is gathered in large quantities on the Blue Mountains, and the mountains to the north of that range. The tea matures in the latter part of September, and is gathered until late in October. It is then cured and put up into packages, selling on the mountains at from 20 cents to 30 cents per pound, but retailing in villages and towns at 1 dol. per pound. The tea has a very pleasant aromatic flavour, and is held by many persons in great esteem."

23. *Helichrysum nudiflorum*, Less. (Kaffir Tea). —A common herbaceous plant of South Africa, with amplexicaul, ovate lanceolate, radical leaves, and narrow, lanceolate, sharp-pointed cauline ones. The plant is demulcent, and an infusion made from it is given in phthisis, catarrh, and pulmonary complaints generally. An infusion of the leaves forms the tea. An allied species, H. serpyllifolium, Less., furnishes Hottentots' tea. The plant, like the last species, is demulcent and emollient. The leaves have an agreeable smell, and for the purposes of tea-making are highly esteemed by the people. The Duinen-thee —so named from the plant being abundant on the Cape Downs—is yielded by H. imbricatum, Less.

24. *Eupatorium triplinerve*, Vahl. (E. Ayapana, Vent.). — A slender, glabrous, erect, perennial herb, native of the Amazon Valley, has been introduced into India, Mauritius, and other parts of the world. It has had a reputation on account of its medicinal value in fevers, cholera, &c.; its general use, however, is as a gentle tonic. The leaves, when dried, have a smell somewhat resembling hay, and have been used as tea in Bourbon.

THE "REFUGIUM BOTANICUM."

IN order to make our record complete, we now give a list of plants figured in the lately issued parts of this work. It will be remembered that the plates and the text were prepared several years ago, but that owing to various circumstance their publication has been delayed till now.

AMBLOSTOMA TRIDACTYLUM, Rchb. f., *Refug. Bot.*, t. 101.—A Mexican, perhaps also Brazilian Orchid.

ANSELLIA GIGANTEA, Rchb. f., *Refug. Bot.*, t. 136.—Natal.

BULBOPHYLLUM DAYANUM, Rchb. f., *Refug. Bot.*, t. 115; *Gard. Chron.* 1865, 434.

BULBOPHYLLUM LOBBII (Lindl.) VAR. SIAMENSE, Rchb. f., in *Refug. Bot.*, t. 116. See *Gard. Chron.* 1867, 592.

BULBOPHYLLUM TRISTE, Rchb. f., *Refug. Bot.*, t. 117.—Khasya Hills.

CATASETUM LAMINATUM, Lindl.; Rchb. f., *Refug. Bot.*, t. 137.

CHONDRORHYNCA FIMBRIATA, Rchb. f., *Refug. Bot.*, t. 107.—A New Grenadan Orchid. It is the Stenia fimbriata of Rchb. f., in *Gard. Chron.* 1868, 1313.

CYRTANTHUS MAKENNII, Hook. f., in *Gard. Chron.* 1869, 641; Baker in *Refug. Bot.*, t. 355.—Bulbous flowers, umbellate, each whitish, 2 inches long, tubular, curved, fragrant. Natal.

DENDROBIUM BICAMERATUM, Lindl.; Rchb. f., in *Refug. Bot.*, t. 143.—Khasya Hills.

DENDROBIUM PEGUANUM, Lindl.; Rchb. f., in *Refug. Bot.*, t. 144.—Pegu.

EPIDENDRUM AVICULA, Lindl.; Rchb. f., in *Refug. Bot.*, t. 138.

EPIDENDRUM GLOBOSUM, Jacq.; Rchb. f., *Refug. Bot.*, t. 140.—West Indies, with a description of E. leucomelanum.

EPIDENDRUM × IPHERES, Rchb. f., *Refug. Bot.*, t. 111.—New Grenada.

EPIDENDRUM NON-CHINENSE, Rchb. f., *Refug. Bot.*, t. 139.—Guatemala.

EPIDENDRUM POLYANTHUM, Lindl.; Rchb. f., *Refug. Bot.*, t. 112.—Mexico.

ERIA BARBATA, Rchb. f., *Refug. Bot.*, t. 114.—A species from the Khasya Hills, remarkable for the curious outgrowths from the pedicels in the form of spindle-shaped hairs.

GASTERIA VARIOLOSA, Baker, in *Refug. Bot.*, t. 347.—Algoa Bay. Leaves ligulate, lanceolate. Flowers in long racemes, pink, with green tips.

HEXADESMIA REIDII, Rchb. f., *Refug. Bot.*, t. 113.—A Brazilian Orchid, with descriptions of H. bifida and H. sessilis.

LEUCOCORYNE IXIOIDES, Lindley; Baker, in *Refug. Bot.*, t. 348.—A pretty Chilian bulbous plant, with stalked umbels of white star-shaped flowers, each about 1¼ inch long.

LYCASTE LEUCANTHA, Klotsch; Rchb. f., in *Refug. Bot.*, t. 102.—Costa Rica.

LYCASTE SCHILLERIANA, Rchb. f., *Refug. Bot.*, t. 130.—New Grenada.

LYCASTE XYTRIOPHORA, Lindl.; Rchb. f., *Refug. Bot.*, t. 131.—Costa Rica.

MAXILLARIA CEPULA, Rchb. f., *Refug. Bot.*, t. 104.—Brazil.

MAXILLARIA CRASSIFOLIA, Rchb. f., *Refug. Bot.*, t. 135.—Brazil, with description of M. superflua.

MAXILLARIA DESVAUXIANA, Rchb. f., *Refug. Bot.*, t. 134.—Cayenne, New Grenada.

MAXILLARIA ELONGATA, Lindl.; Rchb. f., *Refug. Bot.*, t. 132.—Guatemala.

MAXILLARIA NASALIS, Rchb. f., *Refug. Bot.*, t. 103.—New Grenada.

MAXILLARIA RUFESCENS, Lindl.; Rchb. f., *Refug. Bot.*, t. 133.

NEPHRODIUM FRAGRANS, Richardson; Baker, in *Refug. Bot.*, t. 360.—A handsome hardy Fern with a distinct smell of Violets; fronds with brown scales at the base, linear-lanceolate pinnate, pinnæ crowded, lobulate, pilose.

ODONTOGLOSSUM RINGENS, Rchb. f., in *Refug. Bot.*, t. 99.—A Peruvian species.

ONCIDIUM FLAVESCENS, Rchb. f., *Refug. Bot.*, t. 126.—Brazil.

ONCIDIUM MACRANTHERUM, Hook.; Rchb. f., *Refug. Bot.*, t. 125.—Mexico.

ONCIDIUM MICROCHILUM, Batem., *Refug. Bot.*, t. 122.—Guatemala.

ONCIDIUM ORNITHOCEPHALUM, Lindl.; Rchb. f., *Refug. Bot.*, t. 124 = O. abortivum, hort. Ang., but not the true abortivum of Rchb. f.—New Grenada.

ONCIDIUM PLANILABRE, Lindl.; Rchb. f., *Refug. Bot.*, t. 123.—Guayaquil.

ORNITHIDIUM DENSUM, Rchb. f., *Refug. Bot.*, t. 105.—A Mexican Orchid.

ORNITHOGALUM SCILLOIDES, Jacquin; Baker, in *Refug. Bot.*, t. 350.—A South African species, with long lanceolate leaves, and long conical racemes of greenish-yellow star-like flowers.

PANCRATIUM ROTATUM, Ker; Baker, in *Refug. Bot.*, t. 357.—A West Indian and Mexican species, with long linear flower segments, and a large white expanded trumpet-like cup.

PELLÆA STELLERI, Baker, in *Refug. Bot.*, t. 359. —A high northern Fern of small size, with creeping stock, loosely arranged bipinnate foliage, the pinnæ lanceolate with recurved edges.

PELEXIA TRILOBA, Lindl.; Rchb. f., in *Refug. Bot.*, t. 97.—A Brazilian Orchid. Inconspicuous.

PLEUROTHALLIS CILIATA, Knowles and Westc.; Rchb. f., in *Refug. Bot.*, t. 142.—Demerara.

PLEUROTHALLIS FLORIPECTEN, Rchb. f., *Refug. Bot.*, t. 118.—Venezuela.

PLEUROTHALLIS LONGISSIMA, Lindl.; Rchb. f., *Refug. Bot.*, t. 141.—Jamaica.

PLEUROTHALLIS PARDIPES, Rchb. f., *Refug. Bot.*, t. 119.—A Brazilian species.

PLEUROTHALLIS SAUNDERSIANA, Rchb. f., *Refug. Bot.*, t. 120; *Gard. Chron.* 1866, p. 74.—Popayan.

PRESCOTTIA DENSIFLORA, Lindl.; Rchb. f., in *Refug. Bot.*, t. 98.—Orchidaceæ. Brazil. Inconspicuous.

RODRIGUEZIA BATEMANNI, Poepp. et Endl.; Rchb. f. *Refug. Bot.*, t. 128.—Peru.

RODRIGUEZIA REFRACTA, Rchb. f., *Refug. Bot.*, t. 129 = Burlingtonia refracta, Lindl., *Gard. Chron.* 1853, 679.—Peru.

SACCOLABIUM MICRANTHUM, Lindl.; Rchb. f., in *Refug. Bot.*, t. 110.—Nepal.

SARCANTHUS LAXUS, Rchb. f., *Refug. Bot.*, t. 109. —Moulmein.

SEDUM SPATULIFOLIUM, Hook.; Baker in *Refug.*

Bot., t. 337.—California; cool greenhouse. Flowers yellow.

SPIRANTHES ESMERALDA, Lindl.; Rchb. f., *Refug. Bot.*, t. 121 = S. margaritifera, Lindl.; Rchb. f.—Brazil.

STANHOPEA PLATYCERAS, Rchb. f., *Refug. Bot.*, t. 108; *Gard. Chron.* 1868, p. 7.—New Grenada.

TRICHOPILIA FRAGRANS, Rchb. f., *Refug. Bot.*, t. 127.—Colombia.

TRICHOPILIA ROSTRATA, Rchb. f., *Refug. Bot.*, 100.—A New Grenadan Orchid.

TULBAGHIA ALLIACEA, Thunb.; Baker, in *Refug. Bot.*, t. 349.—A singular Liliaceous plant from Natal, with stalked umbels of small flowers, the perianth tubular, green, the segments tinted rose; from the throat arises a thick fleshy cup as in Narcissus, but thick, as long as the segments, and of a reddish colour.

ZEPHYRANTHES VERECUNDA, Herbert; Baker in *Refug. Bot.*, t. 356.—A Mexican Amaryllid, with solitary funnel-shaped pinkish flowers.

ZYGOPETALUM ROSTRATUM, Rchb. f., *Refug. Bot.*, t. 106.—Surinam.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, DECEMBER 12, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions. Degree of Humidity: Sat. = 100.	Wind. Average Direction.	Rainfall.
Dec.	In.	In.	°	°	°	°	°	°	°		In.
6	32.1	+0.24	36.0	29.0	7.0	32.3	− 9.3	27.1	79	N.: N.N.W.	0.03
7	30.39	+0.63	37.5	30.5	7.0	34.2	− 7.3	27.2	74	E.: E.N.E.	0.00
8	30.27	+0.50	35.5	29.0	6.5	33.0	− 8.4	27.3	79	E.:	0.00
9	30.04	+0.26	39.5	33.3	6.2	37.0	− 4.2	28.5	71	S.W.: S.S.W.	0.00
10	29.54	−0.25	46.5	36.5	10.0	42.8	+ 1.8	39.6	88	S.W.	0.36
11	29.52	−0.27	48.0	41.0	7.0	44.6	+ 3.8	37.0	73	N.W.	0.00
12	29.72	−0.07	49.0	40.0	9.0	43.7	+ 3.0	33.5	66	N.W.	0.08
Mean	29.93	+0.15	41.7	34.2	7.5	38.2	− 2.9	31.5	76	variable	0.47

Dec. 6.—Snow falling frequently. Fine cold day; sky clear till 9 P.M.; cloudy since, with a little snow falling.
— 7.—Fine cold day and night. Lunar halo.
— 8.—Fine cold day and night.
— 9.—Dull day and night.
— 10.—Fine day; rain falling all the evening.
— 11.—Fine day and night; cold wind.
— 12.—Gale of wind from early morning throughout the day. Lunar halo at night.

LONDON: *Atmospheric Pressure.*—During the week ending December 8, the reading of the barometer at the level of the sea decreased from 30.38 inches at the beginning of the week to 29.59 inches by midnight on the 3d, increased to 30.13 inches by 9 A.M. on the 5th, decreased to 30.07 inches by 9 A.M. on the 6th, increased to 30.59 inches by 9 A.M. on the 7th, decreased to 30.56 inches by 3 P.M., and increased to 30.58 inches by midnight on the same day, and was 30.41 inches by the end of the week.

The mean reading for the week at the level of the sea was 30.17 inches, being 0.23 inch higher than last week, and 0.24 inch above the average of the week.

Temperature. — The highest temperature in the shade in the week was 51°.5, on the 3d; the highest reached on the 8th was 35°.5. The mean of the seven high day temperatures was 41°.

The lowest temperature was 29°, on the 6th and 8th; on the 3d the lowest temperature was 37°.5. The mean of the seven low night temperatures was 33°.1.

The greatest range of temperature in one day was 14°, on the 3d; and the smallest was 5°, on the 4th. The mean of the seven daily ranges was 7°.9.

The mean temperatures were—on December 2, 42°.3; on the 3d, 46°.2; on the 4th, 39°.2; on the 5th, 36°.7; on the 6th, 32°.3; on the 7th, 34°.2; and on the 8th, 33°; of these the first two were above their averages by 0°.5 and 4°.4 respectively, and the rest were below by 2°.6, 5°, 9°.3, 7°.3, and 8°.4 respectively.

The mean temperature was 37°.7, being 7°.9 lower than last week, and 4° below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 59°.5, on the 7th. The mean of the seven readings was 53°.8.

The lowest reading of a thermometer with its bulb placed on short grass was 21°.5, on the 6th. The mean of the seven readings was 26°.2.

Rain.—Rain fell on the 3d and 6th to the amount of 0.08 inch.

ENGLAND: *Temperature.*—During the week ending December 8 the highest temperatures were 54° at Truro, 53°.9 at Plymouth, and 53° at Bristol; the highest at Hull was 48°, at Bolton 49°, and at Liverpool 49°.8. The general mean was 51°.2.

The lowest temperatures in the week were 23°.3 at Wolverhampton, 25°.2 at Bolton, 26° at Truro; the lowest temperature at Sheffield was 31°.5, at Liverpool 30°.5, and at Leeds 30°. The general mean was 27°.9.

The greatest ranges in the week were 28°.6 at Wolverhampton, 28° at Truro, and 26°.6 at Bristol; the smallest ranges were 19° at Hull, 19°.3 at Liverpool, and 19°.5 at Sheffield. The general mean was 23°.3.

The mean of the seven high day temperatures was highest at Truro, 47°.7, at Plymouth 47°.2, and at Leeds 43°.6; and was lowest at Bolton, 40°.5, at Leicester 40°.9, and at Blackheath 41°. The general mean was 42°.9.

The mean of the seven low night temperatures was highest at Truro, 36°.9, at Liverpool 36°.3 and at Leeds 35°.7; and was lowest at Wolverhampton, 29°.3, and at Brighton and Hull 32°.2. The general mean was 33°.7.

The mean daily range of temperature was greatest at Plymouth, 11°.9, at Wolverhampton 11°.8, at Brighton 11°.3; and was least at Liverpool, 7°, at Bradford 7°.5, and at Sheffield 7°.6. The general mean was 9°.2.

The mean temperature was highest at Truro, 42°.2, at Plymouth 41°, and at Liverpool 39°.7; and was lowest at Wolverhampton, 35°.1, at Bolton 36°.4, and at Hull 36°.7. The general mean was 38°.2.

Rain.—The largest falls were—0.86 inch at Bolton, 0.40 inch at Hull, and 0.36 inch at Truro; the smallest falls were—0.01 inch at Bristol and Bradford, and 0.08 inch at Blackheath. The general mean fall was 0.21 inch.

SCOTLAND: *Temperature.*—During the week ending December 8 the highest temperature was 53°.2, at Glasgow; at Dundee the highest in the week was 44°.4 The general mean was 47°.8.

The lowest temperature in the week was 24°.9, at Perth; at Leith the lowest temperature was 32°.2. The general mean was 28°.

The mean temperature was highest at Leith, 40°; and lowest at Dundee, 36°. The general mean was 38°.1.

Rain.—The largest fall was 0.71 inch at Greenock; and the smallest was 0.05 inch at Dundee. The general mean fall was 0.18 inch. No rain fell at Glasgow, Edinburgh, Leith, or Paisley.

JAMES GLAISHER, F.R.S.

Enquiries.

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

SILO AND ENSILAGE.—Please to state what is the derivation of the word "silo," or who invented the term; and also the same as to the word "ensilage." *Argus.*

Answers to Correspondents.

BEGONIA: *R. Owen.* Your seedling white-flowered Begonia appears to be a very nice variety, and its late-flowering character should make it worth looking after.

CONIFERS: *J. O. B.* We are not aware of any one that is more health-giving than another, but if your soil and climate is moist the quick growing sorts should be planted in preference to others.

DRAWING BOOK: *Ignoramus.* Burbidge's *Botanical Drawing*, published by Winsor & Newton.

FUCHSIAS: *James Lye.* Both your seedlings are acquisitions, but we give the preference to the light one—white tube and sepals, and light scarlet corolla; a neat compact flower, of great purity and pleasing contour. The warm rosy-plum colour of the corolla of Aurora, and broad waxy scarlet sepals, render that variety very distinct, we think.

NAMES OF PLANTS: *Cymro.* 1, a species of Bauhinia; 2, Ruscus androgynus. — *An Old Subscriber.* Laurus sassafras. — *W. J.* We do not know the variety.—*Enquirer.* 1, Birch; 2, Lime; 3, Hornbeam?; 4, Alder; 5, Birch; 6, common Ash. We cannot identify them closer without leaves.—*A. R. L.* A common form of Cypripedium insigne. — *Sea View, Isle of Wight.* Cymbidium affine, not Mastersii. The yellow Oncidium is probably O. Cavendishianum. The other flower is Nidularium fulgens.

PRIMULA SEEDLING: *Polesden.* A pretty novelty, that you should take care of. The colour is lavender shading to blue, and comes nearer to our ideal of a blue Primula than any we have seen.

SEEDS TO NAME: *J. Slater & Sons.* We do not recognise the white seed, but the black one is Entada scandens.

SNOWDROPS: *T. S.* We only know of the forms mentioned in our article, 1879, p. 236.

ZYGOPETALUM MACKAYII: *S. F. F.* We have no means of knowing the reason why the flowers come imperfectly developed. The next will probably come all right.

*** All communications intended for publication should be addressed to the "*Editor*," and not to the Publisher or to any member of the staff personally. The Editor would also be obliged by such communications being *written on one side only of the paper* and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

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INTELLIGENT READERS, PLEASE NOTE: — *Letters relating to* ADVERTISEMENTS, *or to the supply of the Paper, should be addressed to the Publisher, and* NOT *to the Editor.*

CATALOGUE RECEIVED.

R. B. LAIRD & SONS, 17, South Frederick Street, Edinburgh — Forest and Ornamental Trees, Fruit Trees, Roses, &c.

COMMUNICATIONS RECEIVED.—F. M. (next week).—Dr. M.—J. C. & Sons.—A. P. B.—C. B. P.—Amateur.—J. F. S.—D. B.—B. W. W.—J. M.—E. M.—A. Davidson.—G. N.—T. S. B.—L. P.—C. P.—A. Woods.—W. W.—D.—Spratt's Patent.—T. W. S.—P. Frost (next week).—G. Paul (next week).—A. D. W.—G. H.—F. W. B.—E. P.—W. H. F.—G. N.—J. R.—W. T. D.—Baron Ricasoli.—H. Correvon.—Dr. Cleghorn.—H. Tanner.—W. W.—Greenwood Pim.

Markets.

COVENT GARDEN, December 13.

[THE subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. ED.].

THE market is very depressed. Best Apples are selling more freely, owing to short supplies from America. There is no alteration in Grapes, and prices are with difficulty maintained. Kent Cobs flat. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 0– 4 0	Lemons, per case ..	15 0–25 0
Cobs, per 100 lb...	140 0– ..	Pears, French, doz.	1 6– 9 0
Figs, per dozen ..	1 0– ..	Pine-apples, Eng., lb.	1 6– 2 0
Grapes, per lb. ..	1 0– 3 0	— St. Michael's, each	5 0– 8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz. ..	3 0– 5 0	Horse Radish, bund.	3 0– 4 0
— Jerusalem, bush.	4 0– ..	Lettuces, Cabbage, per dozen ..	1 0– ..
Beans, French, lb. ..	1 0– ..	Mint, green, bunch ..	1 0– ..
Beet, per doz. ..	1 0– ..	Mushrooms, p. baskt.	1 0– 2 0
Cabbages, per doz. ..	1 0– 2 0	Onions, per bushel ..	4 0– ..
Carrots, per bun. ..	0 4– 0 6	— Spring, per bun.	0 6– ..
Cauliflowers, English, dozen ..	2 0– 3 0	Parsley, per bunch ..	0 4– ..
Celeriac, per root ..	0 4– 0 6	Radishes, per doz. ..	1 6– ..
Celery, per bundle ..	1 6– 2 6	Rhubarb, per bund.	1 0– ..
Cucumbers, each ..	0 4– 0 8	Salsafy, per bundle ..	0 8– ..
Endive, English, per dozen ..	1 0– ..	Seakale, per punnet	2 6– ..
Garlic, per lb. ..	0 6– ..	Small salading, pun.	0 4– ..
Herbs, per bunch ..	0 2– 0 4	Spinach, per bushel	5 0– ..
		Tomatos, per lb. ..	0 9– 1 0
		Turnips, new, bun.	0 4– ..

POTATOS.—Kent Kidneys, £4 to £4 10s. per ton; do., Regents, £3 10s. to £4 10s.; Champions, £3 10s. to £3 15s. per ton.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Marguerites, 12 bun.	4 0– 6 0
Arum Lilies, 12 blms.	4 0– 8 0	Mignonette, 12 bun.	2 0– 6 0
Azalea, white, 12 spr.	1 0– 2 0	Narcissus (Paper-white) ..	2 0– 4 0
Bouvardias, per bun.	1 0– 1 6	Pelargoniums, 12 spr.	1 0– 2 0
Camellias, per doz...	2 0– 5 0	— zonal, 12 sprays	0 4– 0 9
Carnations, 12 blms.	1 0– 3 0	Poinsettia, 12 blooms	6 0–12 0
Chrysanth., 12 blms.	1 0– 2 0	Primula, double, bun.	1 0– 1 6
— 12 bunches ..	6 0–12 0	— single, 12 bun...	6 0– 9 0
Cyclamen, 12 blooms	0 3– 0 6	Roses (indoor), doz.	2 0– 0 0
Epiphyllum, 12 blms.	0 6– 1 0	— coloured, doz. ..	3 0– 8 6
Eucharis, per doz. ..	4 0– 6 0	Tropæolum, 12 bun.	1 0– 2 0
Gardenias, 12 blms..	6 0–12 0	Tuberoses, per doz..	2 0– 4 0
Heliotropes, 12 sp. ..	0 6– 1 0	Tulips, 12 blooms ..	1 0– 2 0
Hyacinths (Roman), 12 sprays ..	1 6– 2 0	Violets, 12 bunches..	1 0– 1 6
Lapageria, white, 12 blooms ..	3 0– 6 0	— French, per bun.	2 0– 2 6
— red, 12 blooms..	1 0– 3 0	— Parme, per bun.	4 0– 5 0
Lilac, white Fr., bun.	8 0–10 0	Wallflower, 12 bun..	4 0– 6 0
Lily-of-Valley, 12 spr.	4 0– 6 0	White Jasmine, per bunch ..	0 6– 1 0

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	12 0–24 0	Ficus elastica, each	1 6– 7 0
Arbor-vitæ (golden), per dozen ..	.. 6 0–18 0	Foliage Plants, various, each ..	.. 2 0–10 0
— (common), dozen	6 0–12 0	Fuchsias, per dozen	4 0– 9 0
Azaleas each	.. 2 6– 5 0	Hyacinths, per doz.	9 0–12 0
Begonias, per doz. ..	6 0–12 0	— Roman, per doz.	18 0–24 0
Bouvardias, doz. ..	12 0 18 0	Marguerite Daisy, per dozen ..	.. 8 0–12 0
Chrysanth., per doz.	6 0–18 0	Myrtles, per doz. ..	6 0–12 0
Cyclamen, per dozen	9 0–24 0	Palms in variety, each.. ..	.. 2 6–21 0
Dracæna term. doz.	30 0 60 0	Pelargoniums, scarlet, per dozen	.. 4 0 9 0
— viridis, per doz.	12 0–24 0	Poinsettias, per doz.	12 0–24 0
Epiphyllum, per doz	18 0 30 0	Primula, single, doz.	4 0– 6 0
Erica, various, doz.	.. 9 0–24 0	Solanums, per dozen	8 0–15 0
Euonymus, various, per dozen ..	.. 9 0–18 0	Tulips, per dozen ..	6 0–12 0
Evergreens, in var., per dozen ..	.. 6 0–24 0		
Ferns, in var., dozen	4 0–18 0		

SEEDS.

LONDON: *Dec.* 12.—The trade for farm seeds is now characterised by the quiet tone customary towards Christmas. Quotations for American red Clover seed are cabled firm. Rather more English Clover is now coming forward. There is no variation in either Alsike or white this week. Italian Rye-grasses keep steady. The demand for Hemp and Canary seed is quiet. Linseed is rather weaker. Other articles at this dull period of the year call for no remark. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday prime English Wheat ruled very steady, whilst second qualities were flat. Flour met a little more inquiry, but not enough to affect quotations. Fine qualities of Barley were fully supported from scarcity, but all other grades found exceedingly slow sale. Beans and Peas were unaltered in value. Oats were firm, and the common grades of Russian the turn dearer. Flat Maize was scarce, and very firm. Round corn was barely so well supported.—On Wednesday the merely retail transactions in Wheat left quotations nominally unchanged. Flour was equally quiet. Barley was dull of sale, without alteration in value. Beans and Peas firm. For Oats there was very little demand. — Average prices of Corn for the week ending Dec. 8:—Wheat, 40*s.*; Barley, 32*s.* 3*d.*; Oats, 19*s.* 7*d.* For the corresponding period last year:—Wheat, 41*s.* 8*d.*; Barley, 34*s.* 5*d.*; Oats, 20*s.* 3*d.*

CATTLE.

At Copenhagen Fields on Monday there was an improved market of cattle as regards condition, prime qualities of all British stock being in larger proportion. The general trade was slow, but prices firm. The sheep supplies were largely made up of rather heavy weights, and sales moved slowly, prices remaining unchanged. For the few calves on offer there was no demand. The pig trade was very slack. Quotations:—Beasts, 4*s.* 4*d.* to 5*s.* 4*d.*, and 5*s.* 6*d.* to 6*s.* 2*d.*; calves, 5*s.* to 6*s.* 8*d.*; sheep, 5*s.* 6*d.* to 6*s.*, and 6*s.* 4*d.* to 7*s.* 4*d.*; pigs, 4*s.* to 4*s.* 6*d.* — Thursday's trade was steadier. Fair supplies were offering, and the demand for both beasts and beef was more animated, at improving prices. Calves were steady, while pigs were dull.

HAY.

Tuesday's Whitechapel Market report states that there was a good supply, with a quiet trade at the following prices:—Prime old Clover, 95*s.* to 108*s.*; inferior, 60*s.* to 75*s.*; prime second cut, 90*s.* to 105*s.*; best meadow hay, 80*s.* to 86*s.*; inferior, 40*s.* to 65*s.*; and straw, 30*s.* to 38*s.* per load.—On Thursday a moderate supply was offered, and trade was quiet at Monday's rates.—Cumberland Market quotations:—Superior meadow hay, 80*s.* to 90*s.*; inferior, 60*s.* to 72*s.*; superior Clover, 100*s.* to 112*s.*; inferior, 80*s.* to 90*s.*; and straw, 34*s.* to 38*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that the good supply on sale met with a quiet demand at the following quotations:—Magnum Bonums, 100*s.* to 110*s.*; Regents, 100*s.* to 110*s.*; and Champions, 80*s.* to 90*s.* per ton—The imports into London last week consisted of 13,393 bags from Hamburgh, 604 Bremen, 2682 Harlingen, 28,004 Stettin, 72 Ghent, 2 Jersey and Guernsey, 126 tons Pontrieux, 87 tons Dabourst, 74 tons St. Nicholas, and 140 sacks from Boulogne.

COALS.

The following are the prices current at market during the week:—Bebside West Hartley, 15*s.* 9*d.*; East Wylam, 17*s.*; Ravensworth West Hartley, 15*s.* 9*d.*; Walls End — Hetton, 19*s.*; Hetton Lyons, 17*s.* 6*d.*; Lambton, 18*s.* 6*d.*; Wear, 17*s.* 6*d.*; East Hartlepool, 18*s.* 3*d.*; South Hartlepool, 17*s.* 9*d.*; Tees, 19*s.*; Tunstall, 17*s.* 6*d.*; Thornley, 18*s.*

Government Stock.—Consols closed on Monday and Tuesday at 100 to 100⅛ for delivery, and 100¼ to 100⅜ for the account. Sales closed on Wednesday at the previous day's figures for delivery, and 100⅛ to 100¼ for the account. On Thursday Consols closed $\frac{1}{16}$ higher for delivery, and $\frac{1}{16}$ better for the account. These quotations are ex div.

CUT LILY of the VALLEY. — The Advertisers are now booking orders for a regular supply of cut Lily of the Valley, commencing December 15 up to April. Orders should be sent in early to insure really fine blooms for Christmas. Price, &c., on application to TURNER BROS, Florists, Green Hill Nursery, Allerton, Liverpool.

LAXTON'S EARLIEST OF ALL PEA.

For the First Dish of Peas this is essentially the finest variety extant. Overwhelming testimonials about its superior qualities, splendid colour and great productiveness.
Price, per sealed quart, 3*s.* 6*d.*; per sealed pint, 2*s.*
To be had of all Seedsmen and
HOOPER AND CO., Covent Garden, London, W.C.

Christmas Trees in Great Variety.
W. JACKSON AND CO., Nurseries, Bedale, have a large stock of the above, at reduced prices. CATALOGUES now ready.

GARDEN REQUISITES.
COCOA-NUT FIBRE REFUSE.
4*d.* per bushel; 100 for 25*s.*; truck (loose, about 2 tons), 40*s.*; 4-bushel bags, 4*d.* each.
LIGHT BROWN FIBROUS PEAT, 5*s.* 6*d.* per sack; 5 sacks, 25*s*; sacks, 4*d.* each.
BLACK FIBROUS PEAT, 5*s.* per sack, 5 sacks 22*s.*; sacks, 4*d.* each.
COARSE SILVER SAND, 1*s.* 9*d.* per bushel; 15*s.* per half ton, 26*s.* per ton; in 2 bushel bags, 4*d.* each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1*s.* per bushel.
SPHAGNUM MOSS, 8*s.* 6*d.* per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Free Price LIST.—H. G. SMYTH, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

12-oz. Sample Packets, free by post, 12 stamps.
FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6*s.* per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15*s.* per ton per Truck. Sample Bag, 5*s.*; 5 Bags, 22*s.* 6*d.*; 10 Bags, 45*s.* Bags included. Fresh SPHAGNUM, 10*s.* 6*d.* per Bag. SILVER SAND, Coarse or Fine, 52*s.* per Truck of 4 tons. Red Sandstone ROCKWORK, £5 per Truck of 4 tons. GRAVEL, good colour, 25*s.* per Truck of 6 tons.
WALKER AND CO., Farnborough Station, Hants.

COCOA NUT FIBRE REFUSE, newly made, as supplied to the Royal Horticultural Society and principal Nurserymen in England, in sacks at 1*s.* 3*d.* each, or 15 sacks, 18*s.*; 30 sacks, £1 5*s.*, sacks included. Truck-load, loose, 33*s.*; fifteen bags or more and truck-load free on to rail. Post-office order or cheque with all orders will oblige. Established 1872.—J. STEVENS AND CO., "Greyhound" Yard, and 132, High Street, Battersea, S.W.

Meredith's Vine and General Plant Manure.
JOSEPH MEREDITH (late of The Vineyard, Garston, near Liverpool) will shortly be able to Execute Orders for this celebrated Manure, which can now be booked.
JAMES MEREDITH, Seedsman, 126, Bridge Street, Warrington, Sole Agent.

SILVER MEDAL-1881. BRONZE MEDAL-1881.
To Her Most Gracious Majesty Queen Victoria.
To His Royal Highness the Prince of Wales.
For Beautiful Flowers and Fruits
USE CHUBB, ROUND AND CO.'S PATENT
COCOA-NUT FIBRE REFUSE
By CHUBB'S PATENT PROCESS,
As supplied to all the Royal Gardens and Principal Nurseries of Europe.
GUARANTEED ABSOLUTELY PURE. FREE FROM ANY FOREIGN INTERMIXTURE. Manufactured on the premises from the famous "Laguna" Cocoa-Nut Husks, and can only be obtained from us direct. This article is not to be confused with so-called Cocoa-Nut Fibre Refuse, sold by dealers and others at ridiculously low prices, and dear in the end. Amongst numerous Testimonials and extracts from scientific writers, to be seen at our works, we hold the following:—From Mr. CHARLES PENNY, Head Gardener to H.R.H. the Prince of Wales: "The Gardens, Sandringham, February 28, 1883.—I must say your Cocoa-Nut Fibre Refuse is far superior to any I have ever tried; in fact, it is simply perfection; and the use of your Fibre for so many purposes in Horticulture is a thorough boon. Make what use you like of this letter." Useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bulbs, Mushrooms, Bedding-out Plants, &c.
DESTROYS ALL SLUGS AND INSECTS.
An elegant Bordering to Flower Beds. Combines warmth and cleanliness with valuable antiseptic and deodorising properties.
MOISTENS IN HEAT. HOLDS HEAT IN COLD WEATHER.
Terms, strictly cash with order. Prices as follows:—Sacks, 1*s.* 6*d.* each; 10 sacks, 13*s.*; 15 sacks, 18*s.*; 20 sacks, 23*s.*; 30 sacks, 30*s.* (all sacks included). Truck-load, free on rail, £2. Limited quantities of SPECIAL QUALITY, Granulated, in sacks only, 2*s.* 6*d.* each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from the Manufacturers, CHUBB, ROUND & CO.,
Fibre Works, West Ferry Road, Millwall, London, E.

PURE WOOD CHARCOAL
FOR
VINE BORDERS, FRUIT TREES, STRAWBERRIES, ROSES, FLOWER BEDS, POTTING PURPOSES,
AND GENERAL HORTICULTURAL PURPOSES.
HIRST, BROOKE, AND HIRST, Manufacturers, Leeds Yorkshire.

Thomson's Vine and Plant Manure.
Manufactured by the
LIVERPOOL HORTICULTURAL COMPANY
(JOHN COWAN), LIMITED,
The Vineyard and Nurseries, Garston, near Liverpool,
and Sold by them and all Nurserymen and Seedsmen.
This is the Manure used to produce the splendid Grapes grown by Messrs. WM. THOMSON & SON, Clovenfords.
For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

GARDEN REQUISITES.
PEAT, LOAM, SILVER SAND,
PREPARED COMPOST, RAFFIA FIBRE,
TOBACCO CLOTH, &c.
Quality the Best in the Market.
(All Sacks included.)
PEAT, best brown fibrous .. 4*s.* 6*d.* per sack; 5 sacks for 20*s.*
" best black fibrous .. 3*s.* 6*d.* per sack; 5 sacks for 15*s.*
" extra selected Orchid .. .. 5*s.* 0*d.* "
LOAM, best yellow fibrous .. ..
PREPARED COMPOST, best .. ..
LEAF MOULD .. .. ..
PEAT MOULD .. ..
1*s.* per bushel (sacks included).
SILVER SAND (coarse) .. .. 1*s.* 3*d.* per bushel.
RAFFIA FIBRE, best only .. .. 10*d.* per lb.
TOBACCO CLOTH, finest imported .. 8*d.* per lb., 28 lb. 18*s.*
" PAPER, finest imported speciality 8*d.* per lb., 28 lb. 18*s.*
SPHAGNUM MOSS, all selected, 2*s.* per bushel, 6*s.* per sack.
COCOA-NUT FIBRE REFUSE (see special advertisement).
Terms, strictly Cash with order.
CHUBB, ROUND & CO.,
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LONDON, E.

GARDEN REQUISITES.
PEAT, LOAM, SILVER SAND,
COCOA-NUT FIBRE REFUSE, TOBACCO CLOTH,
PAPER and ROPE, &c.
Superior quality, at exceptionally low prices.
PEAT, best Black Fibrous, from 4*s.* 6*d.* per sack.
PEAT, best Brown Fibrous, from 5*s.* per sack.
PEAT, specially selected for Orchids, from 6*s.* per sack.
LOAM, Yellow Fibrous, 1*s.* per bushel.
LEAF MOULD, best, 1*s.* per bushel.
PEAT MOULD, 1*s.* per bushel.
SILVER SAND, Coarse, 1*s.* 6*d.* per bushel.
RAFFIA FIBRE, best, 9*d.* per pound.
TOBACCO PAPER, CLOTH, and ROPE, from 6*d.* per pound.
COCOA-NUT FIBRE REFUSE, 1*s.* 6*d.* per bag; per truck-load of about 2 tons, 35*s.*
SPHAGNUM MOSS, 4*s.* 6*d.* per bag.
VIRGIN CORK, 18*s.* per cwt.
The Trade supplied on Wholesale terms.
W. WEBBER, 34, Glengarry Road, East Dulwich, S.E.

EUREKA!!! INSECTICIDE, prepared by WILLIAM SMITH, Chemist, Edinburgh. In Bottles, 1*s.*, 2*s.*, and 3*s.* 6*d.* each. 7*s.* 6*d.* per Gallon. Special quotations for large quantities.
TESTIMONIAL.
"*Clovenfords, by Galashiels, N.B., July* 25, 1883.—Mr. Smith: Dear Sir, we have now tried your Insecticide on all the Insects we can find on any of our Plants, including Orchids, and used as directed by you we find it instant destruction to them all, while it neither stains nor injures the tenderest leaf. We shall in future use no Fir Tree Oil or other Insecticide but yours.—We are, yours truly, WM. THOMSON AND SONS."
Wholesale Agents—IRELAND AND THOMSON, Waterloo Place, Edinburgh.

To the Seed and Nursery Trade.
ROLL TOBACCO PAPER, CLOTH, CORD, of reliable quality; extremely moderate prices. Terms on application.
RICHARDSON AND CO., Tobacco Works, Leith.

FINEST TOBACCO CLOTH and PAPER, at 8*d.* and 9*d.* per lb., 28 lb. 18*s.* Special quotations for the Trade.
J. DENYN, Manufacturer, 73, Rendlesham Road, Clapton, E.

GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1*s.*, 3*s.*, & 10*s.* 6*d.*

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

GISHURSTINE, for dry feet and boot comfort, is much used by Gardeners, Farmers, Ladies, Sportsmen, and Shore-waders; is sold by Nurserymen and Oilmen, with testimonials and directions for use, in boxes, 6*d.* and 1*s.* each. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), London.

INDIAN MUSLIN, for Garden Shading.—100 yards for 10*s.*, delivered at Burnley Station; or 85 yards for 10*s.*, delivered free per Parcels Post. Very useful pure Cotton for Curtains, Blinds, Draperies, &c.; cream colour. Postal Order to be sent with each Order. Send stamped envelope for Pattern.
J. KAY AND SONS, Burnley Wood Mills, Burnley.

GARDEN REQUISITES.—Sticks, Labels, Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of
WATSON AND SCULL, 90, Lower Thames St., London, E.C.

NEW PLANT LABEL—Figured in the *Gardeners' Chronicle*. Mr. GEDDES having conceded to us the right to make the above, please forward all Orders to J. R. PEARSON AND SONS, Chilwell Nurseries, Notts.

UNDER SPECIAL ROYAL PATRONAGE

DAY, SON & HEWITT,

Inventors and Sole Proprietors of the "ORIGINAL"

STOCK-BREEDERS' MEDICINE CHESTS,

For all Disorders in Horses, Cattle, Calves, Sheep and Lambs,

And Inventors of the First Animal Medicines ever known as "Day's."

Price of Chest complete, including "Key to Farriery," £2 16s. 6d., sent carriage paid throughout Great Britain.

CAUTION.—Beware of imitations, and see that the name, DAY, SON & HEWITT, is on all Bottles and Packets.

DAY, SON & HEWITT,
22, DORSET ST., BAKER ST., LONDON; AND WANTAGE, BERKS.

IRON HURDLES, GATES, TREE GUARDS,

Iron and Wire Espalier, &c., &c.

MATERIAL for WIRING GARDEN WALLS.

GALVANISED.

EYES, 7d. per dozen. HOLDFASTS, with Winders, 7s. per dozen. WIRE, 2s. per 100 yards.

Illustrated CATALOGUE Free on application.

BAYLISS, JONES & BAYLISS,
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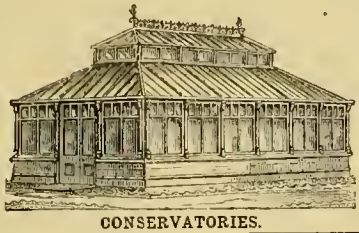
HORTICULTURAL BUILDERS AND HEATING ENGINEERS.

VINERIES
Erected in correct style by competent men.



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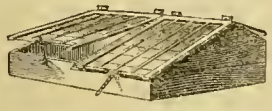
GREENHOUSES
For all parts of the World of first-class materials.

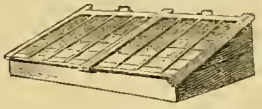
GARDEN FRAMES OF EVERY VARIETY in Stock or Made to Order.



No. 74. Three-quarter Span-roof Garden Frame.
CASH PRICES, CARRIAGE PAID.

No. 2	8 feet long	6 feet wide	£4 15 0
No. 3	12 feet long	6 feet wide	6 10 0
No. 4	16 feet long	6 feet wide	8 5 0

These Frames are 11 inches deep in front, 22 inches deep at back, and 32 inches in the centre. Front or back lights turn over. Set-opes are provided for ventilating. All painted four coats of best oil colour, the lights glazed with best 21-oz. English glass.



No. 75. Melon or Cucumber Frames.
CASH PRICES, CARRIAGE PAID.

No. 2	8 feet long	6 feet wide	£3 7 6
No. 3	12 feet long	6 feet wide	4 17 6
No. 4	16 feet long	6 feet wide	6 7 6

These Frames are 13 inches deep in front, and 24 inches deep at the back; the lights are 2 inches thick, with an iron bar and one handle to each light. All painted four coats of best oil colour, the lights glazed with 21-oz. English glass.

General CATALOGUE post-free, twenty-four penny stamps. Estimates and Lists post-free.

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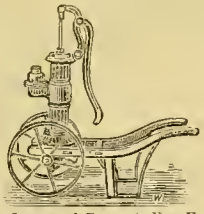
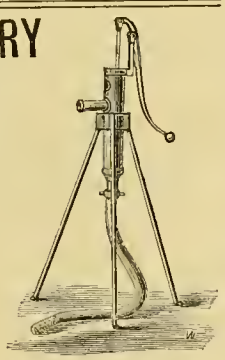
Of every description for Steam, Water, Wind, Horse, or Manual Power.

Prices upon application with particulars of requirements.

Warner's Garden, Farm, or Greenhouse Lift Pumps.



Warner's Improved Farmer's Fire Engine, or Portable Force Pump for Manure.



Warner's Portable Pump, with Improved Valves for Liquid Manure.

J. WARNER & SONS, Hydraulic and Sanitary Engineers,
CRESCENT FOUNDRY, CRIPPLEGATE, LONDON, E.C.

HORTICULTURAL STRUCTURES of EVERY DESCRIPTION, in EITHER WOOD or IRON, or BOTH COMBINED.
WOODEN CHAPELS, SHOOTING LODGES, COTTAGES, TENNIS COURTS, VERANDAHS, &c.

Orders for shipment carefully fitted and packed, and delivered f.o.b. Glasgow. Illustrated Circulars post-free. Complete Catalogue, 3s.

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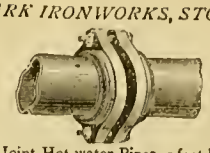
HOT-WATER APPARATUS for WARMING CHURCHES, SCHOOLS, PUBLIC BUILDINGS, MANSIONS, HARNESS ROOMS, DRYING ROOMS, HOTHOUSES, and BUILDINGS of EVERY DESCRIPTION.

THOS. W. ROBINSON,

DENNIS PARK IRONWORKS, STOURBRIDGE.

The "Expansion Joint."



The Best and Quickest Made.

4-in Expansion Joint Hot-water Pipes, 9 feet long, 4s. 3d. each.
4-in. Socket Hot-water Pipes, 9 feet long, 4s. 6d. each.
Price List on application.

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Terra-Cotta! Portable! For Coal!

ROBERTS'S PATENT.

Pure and ample Heat 24 hours or longer for about 1d., without attention. For Greenhouses, Bedrooms, or almost any purpose. Pamphlet and authenticated Testimonials sent. In use daily at Patentee's—THOMAS ROBERTS.

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HORTICULTURAL BUILDERS,
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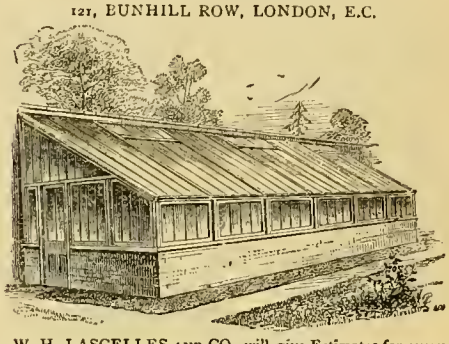
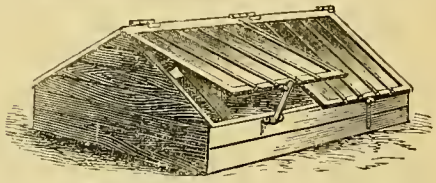


W. H. LASCELLES AND CO. will give Estimates for every description of HORTICULTURAL WORK, free of charge, and send competent assistants when necessary.

LASCELLES' NEW ROCKWORK material in various colours.

Samples can be seen, and prices obtained at 121, Bunhill Row, and 35, Poultry, Cheapside, E.C.

Illustrated Lists of Wooden Buildings, Greenhouses and Conservatories, and Concrete Slabs for walls, paths, and stages, sent post-free on application.



PORTABLE PLANT FRAMES.

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

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

The glass is nailed and puttied in.

R. HALLIDAY & CO.,
Hothouse Builders and Engineers,
ROYAL HORTICULTURAL WORKS, MIDDLETON, MANCHESTER.

HELLIWELL'S PATENT SYSTEM OF GLAZING WITHOUT PUTTY
REQUIRES NO OUTSIDE PAINTING.

Adopted by His Royal Highness the Prince of Wales.
Banksian Medal of Royal Horticultural Society.
OLD ROOFS RE-GLAZED. OLD WOODWORK COVERED.
Plans and Estimates free of charge from

T. W. HELLIWELL,
Royal Horticultural Works, Brighouse, Yorkshire; and 8, Victoria Chambers, Westminster, S.W.

Oil Paint No Longer Necessary.

HILL AND SMITH'S BLACK VARNISH, for Preserving Ironwork, Wood, or Stone. (*Registered Trade Mark.*)

This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the Advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in Casks of about 30 gallons each, at 1*s.* 6*d.* per gallon at the Manufactory, or 1*s.* 8*d.* per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"*Piercefield Park, June* 21, 1876.—Sirs.—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, WM. COX."

CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

Large illustrated CATALOGUE of Fencing Hurdles, Field and Entrance Gates, &c., sent free on application to

HILL AND SMITH, Brierley Hill Ironworks, Staffordshire; 118, Queen Victoria Street, London, E.C.; and 196, St. Vincent Street, Glasgow.

BELGIAN GLASS for GREENHOUSES, &c.

Can be obtained in all sizes and qualities of

BETHAM & SON,

9, LOWER THAMES STREET, LONDON, E.C.

B. & Son have always a large stock in London of 20 in. by 12 in., 20 in. by 14 in., 20 in. by 16 in., 20 in. by 18 in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200-ft. and 300-ft. cases

SPECIALLY CHEAP GLASS.

Packing Cases free and not returnable.

100 Squares, good Glass, at the following prices, in Leeds:—

15 oz.	21 oz.
13½ by 8 for 9*s.* 6*d.*	13½ by 8 for 12*s.* 6*d.*
12 by 9 for 9*s.* 6*d.*	12 by 9 for 12*s.* 6*d.*
14 by 10 for 13*s.* 6*d.*	14 by 10 for 18*s.* 0*d.*
15 by 9 for 13*s.* 6*d.*	15 by 9 for 18*s.* 0*d.*

HENRY WAINWRIGHT, Glass and Lead Merchant, 8 and 10, Alfred Street, Boar Lane, Leeds.

21-oz. Foreign of the above sizes, in 100 and 200 feet boxes, 3ds and 4ths qualities, always kept in stock.

A large stock of similar current sizes of 15-oz. glass in 200 feet boxes.

Propagating and Cucumber Glasses, and all Miscellaneous Glass Articles, can be obtained from

GEORGE FARMILOE & SONS,

GLASS, LEAD, OIL and COLOUR MERCHANTS,

34, St. John's Street, West Smithfield, London, E.C.

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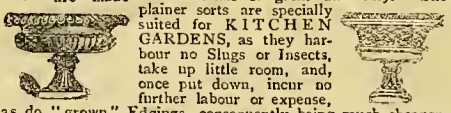

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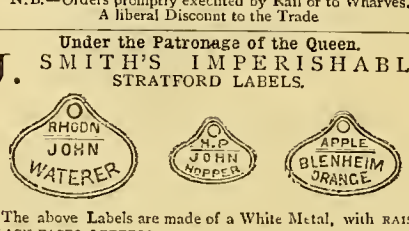

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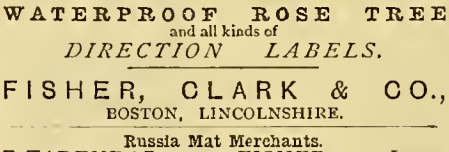

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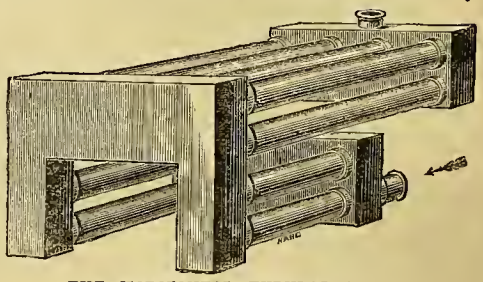

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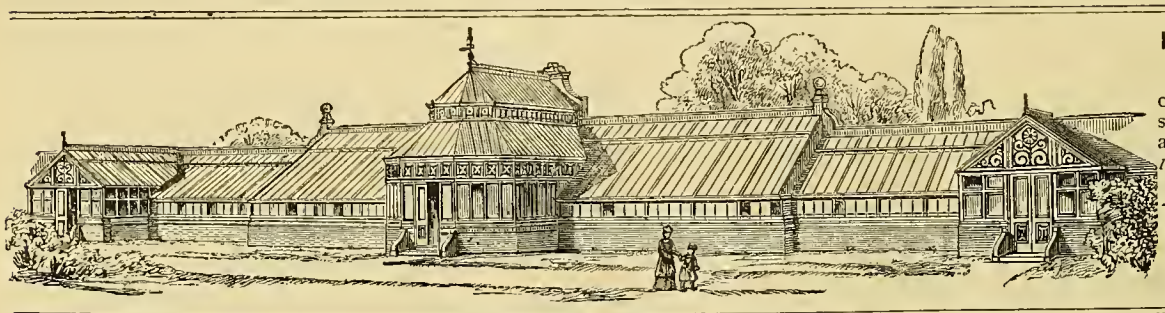

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MESSRS. PROTHEROE AND MORRIS beg to state that, owing to the Christmas Holidays, there will be NO SALES at their ROOMS DURING NEXT WEEK.

7000 Lilium auratum.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Rooms, 67 and 68, Cheapside, E.C., on MONDAY, December 31, 7000 fine bulbs of LILIUM AURATUM, just received from Japan, together with a splendid assortment of hardy English-grown LILIES and BULBS, a consignment of CYPRIPEDIUMS from America, and BULBS from the West Indies.
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This Day.—(Sale No. 6549.)
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MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., THIS DAY, DECEMBER 22, at half-past 12 o'Clock precisely, a consignment of choice named INDIAN AZALEAS, AZALEA MOLLIS, Hybrid RHODODENDRONS of sorts, PALMS, &c., from Ghent; 1000 first-class Standard ROSES, from English Nurseries; Pyramid and Dwarf-trained FRUIT TREES; HARDY HERBACEOUS PLANTS, BULBS from Holland, &c.
On view morning of Sale, and Catalogues had.

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AUSTRIAN PINE, 2 to 2½ feet, 30*s.* per 1000 SCOTCH FIR, 2 to 3 feet, 20*s.* per 1000; PINUS LARICIO, 2 to 2½ feet, 30*s.* per 1000. Fine Standard ROSES, good heads and stems, £4 per 100; LAURELS, bushy, 2 to 2½ feet, £5 per 1000; PYRAMIDAL YEWS, 3 to 3½ feet, 50*s.* per 100.
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CUPRESSUS LAWSONIANA, 3, 4 and 5 feet high.
CUPRESSUS ERECTA VIRIDIS, 2, 3, 4 to 6 feet high.
RETINOSPORA PLUMOSA, 2, 3, 4, 5, 6 to 10 feet high.
RETINOSPORA PLUMOSA AUREA, 2, 3, 4 to 5 feet high.
RETINOSPORA LEPTOCLADA, 2 to 2½ to 4 feet high.
RETINOSPORA OBTUSA NANA, a neat dark green variety and very pretty, from 1½ foot.
RHODODENDRON PONTICUM, 2 to 5 feet, bushes.
RHODODONDRON, named kinds, in great variety.
TEA ROSES, in pots, several sizes to offer.
For Prices and other Stock, see CATALOGUES, post-free on application to
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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.
NOTICE IS HEREBY GIVEN that the ANNUAL GENERAL MEETING of the Members of this Society will be held at the Bedford Hotel, Covent Garden, on THURSDAY, January 10, next, for the purpose of receiving the Report of the Committee and the Accounts of the Institution for the present year, and Electing Officers for the ensuing year, and for the ELECTION of TEN PENSIONERS. The Chair will be taken at 4 o'Clock. The Ballot will Close at 7 o'Clock precisely. By order, E. R. CUTLER, Sec.
14, Tavistock Row, London, W.C., Dec. 19, 1883.
The Voting Papers have all been issued. Any Subscriber not having received one is requested to make immediate application.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.
ELECTION—JANUARY, 1884.
The favour of your VOTES and INTEREST is earnestly solicited on behalf of
MARTHA SWANSBOROUGH,
Aged 80 years.
Widow of the late Thomas Swansborough, for many years Gardener at Thornecombe, Guildford, Surrey, whose case is stated on the list of Candidates of the Gardeners' Royal Benevolent Institution, for the January Election, 1884.
The case is strongly recommended by—
Mr. YOUNG, Milford, Godalming.
*Mr. SWANSBOROUGH, Glasslough, Co. Monaghan, Ireland.
*Mr. RICHARDS, 41, Wellington Street, Strand.
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E. FISHER ROWE, Esq., Thorncombe.
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Mrs. JEKYLL, Munstead, Godalming.
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DAPHNE MEZEREUM, well budded, red, 3*s.*, 4*s.* to 6*s.* per dozen; white, 4*s.* per dozen.
AZALEA MOLLIS, seedlings, various colours, nice plants, 2 to 6 buds on each, 9*s.* per dozen.
" PONTICA, nice bushy plants, well budded, 6*s.* to 9*s.* per dozen.
Our Descriptive CATALOGUE of General Stock of Rhododendrons, Azaleas, &c., forwarded on application.
ISAAC DAVIES AND SON, Nurserymen, Ormskirk, Lancashire.

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T. L. MAYOS, Hereford.

PORTUGAL LAURELS, 2 to 3 feet, 3 to 3½ feet, and 3½ to 4 feet, from 5*s.* per dozen. PICEA NORDMANNIANA, three times transplanted, grandly rooted, 1½ to 2 feet, 10*s.* per dozen. IRISH IVY, in pots, 5*s.*; fancy sorts, 9*s.* DRACÆNA AUSTRALIS, fine specimens, 10*s.* per pair. Selling off Herbaceous and Spring Bedding plants cheaply. LIST free.
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The above Stocks are all saved from pot plants.
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BROOM, Common, in drills, 1 to 3 feet, 3*s.* 6*d.* per 1000; transplanted, 2 to 4 feet, 50*s.* per 1000.
DEUTZIA CRENATA fl.-pl., 2 to 3 feet, 60*s.* per 1000.
LAURELS, Common, bushy, 1 to 1½ foot, 6*s.* per 100; 1½ to 2 feet, 8*s.* per 100.
CEDRUS DEODARA, specimens, 3 to 4 feet, 110*s.* per 100; 4 to 5 feet, 130*s.* per 100.
BOX, Handsworth, bushy, 1½ to 2 feet, 20*s.* per 100.
CHESTNUTS, Common, very fine standards, 30*s.* per 100.
" scarlet, budded, very fine standards, 65*s.* per 100.
ELMS, Huntingdon or Canadian, exceedingly good standards, 60*s.* per 100.
ARTICHOKES, Globe, strong, 15*s.* per 100.
CURRANTS, white, very fine, 8*s.* per 100; 70*s.* per 1000.
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FRUIT TREES (74 acres).—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, &c., as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety. VINES, excellent canes, 3*s.* 6*d.* to 10*s.* 6*d.* ORCHARD HOUSE TREES in pots, from 5*s.* FIGS, from 3*s.* 6*d.* Descriptive LIST, containing a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also information as to Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., free by post.
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POTENTILLAS, PYRETHRUMS, DELPHINIUMS, lovely hardy flowers for Cutting or Garden Bloom. Named, 5*s.* per dozen.
SPLENDID PHLOXES, Pentstemons, Pinks, Pansies, in the finest varieties, 3*s.* 6*d.* per dozen.
HARDY HERBACEOUS PLANTS, the most showy sorts, 3*s.* per dozen, 21*s.* per 100.
CARNATIONS and PICOTEES, good exhibition sorts, 6*s.* per dozen plants. Fine Clove and Border Self varieties, 4*s.* per dozen—all from layers.
LILIES, candidum, Orange, and Tiger Lilies, 3*s.* per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

NEW CHRYSANTHEMUM, "G. STEVENS."
First-class Certificate Royal Horticultural Society, South Kensington, November 13, 1883. A charming reflexed variety, compact blooms, flat florets, crimson-chocolate, slightly incurved in centre, showing the gold under-surface; quite distinct from any other variety. A limited quantity to send out in March next, at 1*s.* each, post-free 1*s.* 3*d.* Cash with order. See report in *Journal of Horticulture* of November 15. Orders now being booked, which will be sent out in strict rotation.
Chrysanthemum CATALOGUES on application.
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To the Trade.

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H. AND F. SHARPE are prepared to make special offers of all the varieties of VEGETABLE and AGRICULTURAL SEEDS they have grown this season from choice selected stocks. The quality of the seeds is excellent, and the prices are very low.
Seed Growing Establishment, Wisbech.

CHOICEST CONIFERÆ.—Abies Douglasii, 1 to 1½ foot, 24*s.* per 100; 1½ to 2½ feet, 30*s.* per 100; 6 to 8 feet, 36*s.* per dozen. Abies taxifolius, 2 to 2½ feet, 20*s.* per dozen. Araucaria imbricata, 2 to 2½ feet, 40*s.* per dozen. Cedrus Deodara, 4 to 5 feet, 18*s.* per dozen; 6 to 7 feet, 36*s.*; 8 to 9 feet, 60*s.* per dozen. Cryptomeria elegans, 1½ foot, 30*s.* per 100; 4 feet, fine, 12*s.* per dozen. Cupressus Lawsoniana, 2 to 2½ feet, fine, 25*s.* per 100. Cupressus Lawsoniana striata, the finest of all, 2 to 2½ feet, 75*s.* per 100; 3 to 4 feet, 15*s.* per dozen; C. L. erecta viridis, 2 to 2½ feet, 50*s.* per 100; C. L. elegans, 1½ to 2 feet, 6*s.* per dozen. Cupressus macrocarpa, 1½ to 2 feet, 50*s.* per 100. Picea Nordmanniana, 8 to 9 inches, 16*s.* per 100; 12 to 18 inches, 30*s.* per 100; 4 to 5 feet, 36*s.* per dozen; 5 to 6 feet, 60*s.* per dozen. Picea lasiocarpa, 4 to 4½ feet, 60*s.* per dozen. Pinus excelsa, 2 feet, 50*s.*; 5 feet, 18*s.* per dozen. Thuia Lobbii, 3 feet, 50*s.* per 100; 4 feet, 75*s.* per 100; 5 feet, 100*s.* per 100. Thuiopsis dolobrata, 2 feet, 15*s.* per dozen; 3 to 4 feet, 36*s.* per dozen; Thuiopsis borealis, 2 feet, 50*s* per 100.
GARLIES MITCHELL, Nurseryman, Stranraer.

Suitable Christmas Presents for Country Friends, per Parcels Post.

WILLIAM GORDON, of 10, Cullum Street, London, E.C., offers the following HARDY LILIES, at very low prices, as suitable for Presents to Friends:—
LILIUM AURATUM.—This splendid golden-rayed Lily, from Japan, is offered in exceptionally fine bulbs, at 6*d.*, 9*d.*, 1*s.* and 1*s.* 6*d.* each. Many of my Customers wrote last year that they had over forty flowers on one stem.
LANCIFOLIUM (SPECIOSUM) LILIES. — These old favourites are offered in very much improved form, the result of hybridising by those clever gardeners, the Japanese. All Lilies are carefully packed, package and packing free.

	Each.	Per doz.
	s. d.	*s. d.*
SPECIOSUM RUBRUM CRUENTUM.—These Lilies are a great improvement on the roseum and rubrum of Dutch gardens, and throw lovely flowers, colours more distinct, and flowers are larger and more beautiful. They are the original variety from Japan again introduced	1 0	10 0
SPECIOSUM ALBUM KRÆTZERI.—The most lovely of the speciosum type, having large flowers with a well defined band up each petal of a pea-green colour. This Lily is a very strong grower, and is offered at the low price of	1 0	10 0
BATEMANÆ.—New Japanese Lily, growing from 3 to 4 feet, flowers Apricot-coloured and unspotted. A lovely and rare Lily ..	1 0	10 0

CATALOGUES free on application, containing List of all the best Lilies.

CARRIAGE PAID.—Strong autumn-sown CAULIFLOWER PLANTS, September sown samples, 60, 1*s.* 9*d.*; 120, 3*s.* CABBAGE, KALE, or BORECOLE, BRUSSELS SPROUTS, ONION, LETTUCE, ENDIVE, &c., 60, 9*d.*; 120, 1*s.* 3*d.* HERBS, twenty best varieties, 30, 2*s.* 6*d.*; 120, 7*s.* Any quantity supplied. Write for special quotations for large quantities, on rail, or carriage paid. LIST free.
EDWARD LEIGH, Wrotham Farm, Dunsf ld, Godalming.

TREES and SHRUBS. 100,000 Hardy HEATHS, nice plants, suitable for planting on banks and mounds. Can be supplied in 20 or 30 varieties, at 4*s.* per dozen, 25*s.* per 100, or £10 per 1000.
LARCH, 2 to 3 feet, 21*s.* per 1000; 2½ to 3½ feet, 23*s.* per 1000; 3 to 4 feet, 25*s.* per 1000; 3½ to 4½ feet, 30*s.* per 1000.
FIR, Scotch, 1 to 1½ foot, 18*s.* per 1000; 1½ to 2 feet, 27*s.* per 1000.
CEDRUS DEODARA, 2 to 2½ feet, 12*s.* per dozen, 90*s.* per 100; 2½ to 3 feet, 24*s.* per dozen, 160*s.* per 100; 3 to 4 feet, 30*s.* per dozen, 230*s.* per 100; 3½ to 4½ feet, 36*s.* per dozen, 275*s* per 100—beautiful plants, having been recently transplanted.
RHODODENDRONS, Hybrids, 9 to 15 inches, 27*s.* per 100, or 250*s.* per 1000; 12 to 18 inches, 32*s.* per 100, or 300*s.* per 1000; 15 to 20 inches, 42*s.* per 100; 1½ to 2 feet, 50*s.* per 100.
CATALOGUES, containing other Evergreens and Flowering Shrubs, may be had on application to
JAMES SMITH AND SONS, Darley Dale Nurseries, near Matlock.

ASPARAGUS for Forcing.—Strong crowns, which will produce a quantity of capital heads, 2s. per dozen, 12s. 6d. per 100.
SEAKALE, famous forcing roots, 2s. 6d. per dozen, 16s. per 100.
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DAISIES, Red, White, Rose, &c.; POLYANTHUS, Single PRIMROSES in variety of colours, WALLFLOWERS, CANTERBURY BELLS, 9d. per dozen, 4s. and 5s. per 100. PANSIES and VIOLAS (colours separate), ARABIS, ALYSSUM, SILENE COMPACTA, AUBRIETIAS, MYOSOTIS, 1s. 6d. per dozen, 8s. per 100. Or 500 assorted Spring-flowering Plants for 17s. 6d.; 1000 for 31s. 6d.
HEPATICAS, Blue and Red, Double PRIMROSES, White, Lilac, or Sulphur, 3s. 6d. per dozen.
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Collections of 100 choice varieties	..	30s.
,, 50 ,, ,,	..	17s. 6d.
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Packing free and extra plants sent to compensate for carriage.
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ROSES (20 acres).—Well-rooted, many shooted, truly named, of matured vigorous growth, and of the best kinds. Bushes, R. S. & Co.'s selection, 8s. per dozen, 60s. per 100; packing and carriage free for cash with order. Standards, 15s. per dozen, or 100 free for 120s. These world-famed Roses cannot fail to give the greatest satisfaction. Descriptive LIST free on application.
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DWARF ROSES, splendidly rooted, the best sorts, 6s. per dozen, from ground; fifty for 21s.
TEA ROSES, in pots, 15s. per dozen, fifty for 50s.
FINE CLIMBING PLANTS, Hardy, for Walls, Trellises, Arbours, Rockeries, &c., in twelve varieties, 6s. and 9s.
FINE HARDY HEATHS and other Dwarf American Plants in variety, 4s. and 6s. per dozen.
PRETTY DWARF SHRUBS of various kinds, for Pots, Boxes, Winter Bedding, &c., in variety, 4s. and 6s. per doz.
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(Established 1787.)
Our Stock, which is one of the largest in Scotland, comprises FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, ROSES, GREENHOUSE PLANTS, &c.; also a splendid Stock of THORN QUICKS, for Hedging and for Filling up Gaps.
The Trees and Shrubs are of all ages and sizes, and are well adapted for extensive Planting or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c. Prices on application.
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ANDRÈ LEROY'S Nurseries, at Angers, France, the largest and richest in Europe in Collections of FRUIT and ORNAMENTAL TREES, SHRUBS, CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT TREES, &c. CATALOGUES sent on application. Freight from Angers to London, *viâ* Honfleur, about 2s. 6d. per 100 lb. Medal of Honour at the Universal Exhibition at Paris in 1878.
Orders must be addressed to Messrs. WATSON AND SCULL, 90, Lower Thames Street, London, E.C.

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AQUILEGIA GLANDULOSA (GRIGOR'S, guaranteed true).
Twelve Plants of this beautiful Columbine, to bloom next season, free to any part of the United Kingdom, at 6s. per dozen. Cash with order.
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R. AND A. MORRISON, The Nurseries, Elgin, beg to draw the attention of intending Planters to their extensive and well-grown stock of SCOTCH FIR and LARCH, of all sizes, from 1-yr. seedlings to 2 to 3 feet, all the produce of seed collected for them in the Forests in the North of Scotland, and taken out of cone on kilns within their Nursery Grounds. This is the best guarantee of their Stock being "True Native."
R. AND A. M. also grow largely PINUS AUSTRIACA, LARICIO and MONTANA, NORWAY SPRUCE, ASH, ELM (Wych), OAK, SYCAMORE, and other FOREST TREES, as also a large Stock of TREES and PLANTS suitable for Hedges, Underwood, and Game cover.
CATALOGUES and Prices on application.
R. AND A. MORRISON, The Nurseries, Elgin.

Gold Medal Begonias.

LAING'S CHOICE HYBRIDISED SEED, all new and of unequalled quality. Sealed packets, free by post—single, 1s., 2s 6d. and 5s.; double, 2s. 6d., 3s. 6d. and 5s. TUBERS, mixed seedlings, by Parcels Post, 4s., 6s., 9s. and upwards per dozen. The Trade supplied.
JOHN LAING AND CO., Seedsmen, Forest Hill, S.E.

LAUREL, Common, 1-yr., 18s.; 2-yr., 22s.; Colchic, 1-yr., 25s. per 1000; 2 feet, fine, 16s. per 100; 4 to 5 feet, extra bushy, 9s. per dozen; rotundifolia, 2 to 2½ feet, 25s. per 100.
EVERGREEN OAKS, 4 to 6 inches, 80s. per 100.
SWEET BAY, 4 to 6 inches, 70s. per 1000.
ESCALLONIA MACRANTHA, 12 to 15 inches, 20s. per 100.
COTONEASTER MACROPHYLLA, 2 feet, 12s. per 100; SIMONSII, 2 to 2½ feet, 10s. per 100.
IVY, Irish, 2 to 2½ feet, 20s. per 100; maculata grandifolia, 1½ foot, 20s.
MANETTI STOCKS, strong, 26s. per 1000.
GARLIES MITCHELL, Nurseryman, Stranraer.

HELLEBORUS NIGER MAXIMUS.—The large flowered Aberdeen variety, true, 1s. 9d. each, 18s. per dozen. Post-paid or carriage-free for Cash with order.
MORRISON BROTHERS, Aberdeen.

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CATALOGUE, of fifty pages, containing full information as to colour, height, situation, time of flowering, &c., free on application.
A CAPITAL COLLECTION for Rocks, Stumps, and Borders, from 25s. per 100, or 4s. per dozen.
Most of the plants being in pots may be despatched at any time, or by Parcels Post when fit.

RICHARD SMITH & CO.,
NURSERYMEN AND SEED MERCHANTS,
WORCESTER.

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May be understood when circumstances lead to such Prices as the following:—
STANDARD RHODODENDRONS worth 5, 4, 3, and 2 guineas, are being sold at 21s., 15s., 10s. 6d. and 5s.
BUSH RHODODENDRONS, 7, 6, 5, 4, 3 and 2 guineas, sold at from 7s. 6d. to 1s.
ANDROMEDA FLORIBUNDA, and other kinds, 3s. 6d. to 1s.
SPIRÆA PALMATA, fine forcing clumps.
SPIRÆA JAPONICA, fine forcing clumps.
The largest stock in Europe.
HODGINS' and other HOLLIES, perfect specimens, 7, 6, 5, 4, 3 and 2 feet, from 15s., 10s. 6d., to 1s.
AYENUE TREES, perfect specimens, 12 to 15 feet, at 5s., 3s. 6d. and 2s. 6d.
COLLECTION of SHRUBS and TREES for general planting, 25s. to 75s. per 100.
Extra large FRUITING TREES of APPLES, PEARS, CHERRIES, &c., from 3s. 6d. to 1s.
Other Trees, Shrubs, &c., not enumerated in this Advertisement, will be supplied on the same liberal terms.
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2½d. Postage on a Letter of Inquiry will secure you by return Mail our PRICES—Wholesale or Retail.
SEEDS of MAIZE for Field or Garden, PEAS, BEANS, CUCUMBERS, PUMPKINS, SQUASH, CANTALOUPES, WATER MELONS, TOMATOS, OKRA or GUMBO, COTTON SEED, TOBACCO, OSAGE ORANGE or MACLURA, TREE SEEDS, AMERICAN GARDEN TOOLS, BOOKS, &c.
All offered by the *oldest and ever the most extensive* Seed Farmers in America.
Founded in 1784.

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PHILADELPHIA.

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EXOTIC and BRITISH FERNS and SELAGINELLAS,
suitable for STOVE and GREENHOUSE Cultivation, for OUTDOOR FERNERIES, and other purposes, in immense number and variety. SPECIAL LISTS, issued at intervals during the year, giving extremely low quotations, may be had FREE on application.
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Vines—Vines—Vines.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this season, as usual, a splendid stock of VINES, suitable for Fruiting in Pots and Planting Vineries. Also 2 fine stock of Maréchal Niel, Gloire de Dijon, and other TEA ROSES.
Descriptive Priced LIST on application.
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STRAWBERRIES.—Capital planting roots, 4s. per 100 (free by parcels post, 4s. 6d.); plants in pots for forcing, 16s. per 100. Descriptive LIST on application.
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SPECIAL OFFER, for want of room, common LAURELS, 3 to 4 feet, 4 to 5 feet, Colchic LAURELS, 4 feet; LAURUSTINUS, 1 to 2 feet; THUIA LOBBII, 3 to 4 feet, 4 to 5 feet; AUCUBA JAPONICA, 1 to 2 feet, bushy; SHRUBS, for pots, from 6 to 18 inches; standard and dwarf ROSES, in all the leading varieties, by the dozen, 100, or 1000.
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LEDSHAM'S "LATEST OF ALL" BROCCOLI.
Mr. S. Ledsham, the raiser of this unequalled Broccoli, "which was awarded a First-class Certificate by the Royal Horticultural Society, May 9, 1882"—see *Gardeners' Chronicle* for May 13, p. 645—has succeeded in harvesting this season a good supply of Seed of the above Broccoli, and is prepared to make Special Liberal Offers per pound or cwt., to the Trade. Also a quantity of BRUSSELS SPROUT SEED of a very superior strain, which will be sold at a low price. Terms on application to
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IMANTOPHYLLUMS. Fresh Seeds, hybridised from the sorts with large flowers; per dozen, 5s.; per 100, 30s.; per 1000, £10.
Forwarded free by post to all parts of the world for cash.
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To the Trade.

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ACACIA ARMATA, well budded, extra fine, 75s. and 100s.
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CORYPHA AUSTRALIS, fine plants, £5 to £7 10s. per 100.
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ERICA COLORANS, in flower and bud, 9s. and 12s. per doz.
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LATANIA BORBONICA, well shaped sturdy plants, 150s. 100.
LAURUSTINUS, French White, well shaped plants in pots, finely budded, 12s. per dozen.
SOLANUMS, berried, 50s. and 75s. per 100.
PRIMULA, Double White Chinese, in flower, 12s. and 18s. per dozen. Clapton Nursery, London, E.

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BULBS.—Very long experience enables us to offer the best quality at a moderate price, as proved by hundreds of testimonials. Illustrated LIST, descriptive, select, and comprising important novelties, on application.
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A large and important section of the Nursery (about 7 acres) is being cleared on expiration of lease. Rhododendron growers should visit this Nursery, which is only ten minutes' walk from Sunningdale Station, South-Western Railway.

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For the First Dish of Peas this is essentially the finest variety extant. Overwhelming testimonials about its superior qualities, splendid colour and great productiveness.
Price, per sealed quart, 3s. 6d.; per sealed pint, 2s.
To be had of all Seedsmen and
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GRAPE VINES.—A fine stock in leading varieties, Planting and Fruiting Canes. Apply to
FRANCIS R. KINGHORN, Nurseryman, Richmond.

Erica hyemalis, in flower.

HUGH LOW AND CO. offer the above, in 48-pots, at 75s. per 100; can be supplied by the 1000.
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H. AND F. SHARPE are prepared to make special offers of their fine selected stocks of SEED POTATOS, grown under their own superintendence expressly for seed purposes. Their LIST includes all the varieties worthy of cultivation, and the prices will be found very reasonable.
Seed Growing Establishment, Wisbech.

PEACH and NECTARINE TREES.—A fine lot of well-grown, dwarf-trained, healthy trees. Apply to
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Orchids a Speciality.

The stock at the Clapton Nursery is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent.

HUGH LOW & CO.

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

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This is unquestionably the finest variety of Rhubarb ever offered; in mild seasons it is ready to pull in February. The crowns and stalks are produced in such profusion that more than twice the weight can be pulled from this than from any other sort. The colour is a splendid red, flavour excellent, and it has this qualification over all others, IT NEVER SEEDS.

PRICE—per Plant, 1s. 6d.; per Dozen, 15s.

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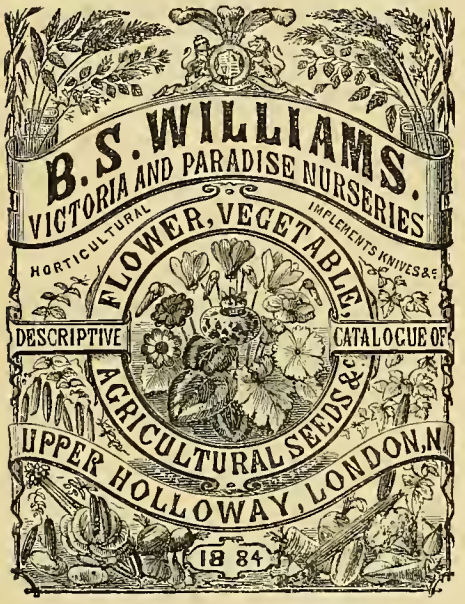
CHARLES KERSHAW,
THE SLEAD SYKE NURSERIES, BRIGHOUSE.

NOW READY GRATIS and POST-FREE.



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BROOM, Common, 1½ to 2 feet ..	2 6	0 15
,, White, 3 to 4 feet	10 0	4 0
COTONEASTER MICROPHYLLA, 1 to 1½ foot	8 0	3 0
DECIDUOUS SHRUBS, sorts, 1½ by 2 feet	8 0	2 10
FIR, Silver, 9 to 12 inches	..	0 8
GUELDRES ROSE, double, 1½ to 3 ft.	10 0	..
LAUREL, Common, 9 by 18 in., bushy	6 0	2 10
HARDY PERENNIALS, in 100 distinct named sorts..	16/8 to 25s.	£6 to £8

The same collection of Perennials, in small plants, at half these prices.

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	Per 1000 s. d.	Per 100,000 £ s.
FIR, Scotch, 2-yr...	1 0	4 0
,, ,, 3-yr.	1 6	5 0
,, ,, 1 yr., bedded	2 0	7 10
FIR, Spruce, 2-yr...	1 0	4 0
,, ,, 3-yr.	2 0	7 10
FIR, Silver, 3-yr.	3 0	10 0
PINUS AUSTRIACA, 2-yr.	1 6	5 0
,, ,, 3-yr.	2 6	7 10
,, ,, 1-yr., bedded	3 0	10 0
,, LARICIO, 2-yr.	2 6	7 10
,, ,, 1 yr., bedded	4 0	15 0
,, MARITIMA, 2-yr.	2 6	7 10
WHIN, or GORSE (good roots) ..	2 6	7 10

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SCOTCH FIR, true native, 2 to 3 feet, twice transplanted, 18s. per 1000; 2-yr., 1-yr., fine, 5s. per 1000, £20 per 100,000.
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SPECIAL OFFER.—ASH, 2 to 3 feet, 16s. per 1000; 3 to 4 feet, 20s. per 1000; Spanish CHESTNUTS, 2 to 3 feet, 20s. per 1000; ELMS, 2 to 3 feet, 18s. per 1000; LARCH, 1½ to 2 feet, 15s. per 1000; 2 to 3 feet, 20s. per 1000; 3 to 5 feet, 24s. per 1000; SPRUCE FIR, 1 to 1½ foot, 10s. per 1000; 1½ to 2½ feet, 12s. 6d. per 1000; SCOTCH FIR, 1½ to 2 feet, 12s. per 1000; 2 to 3 feet, 14s. per 1000; 3 to 4 feet, 16s. per 1000; SILVER FIR, 4-yr. transplanted, 20s. per 1000; HAZELS, 2½ to 3½ feet, 20s. per 1000; LARICIO, 10 to 15 inches, 20s. per 1000; PRIVETS, 2 to 2½ feet, 13s. per 1000; Oval do., 2 to 2½ feet, 40s. per 1000; BEECH, 1½ to 2½ feet, 17s. per 1000; THORNS, 1½ to 2 feet, 12s. per 1000; 2 to 3 feet, 14s. per 1000.
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	s.	d.
12 choice free flowering sorts for	21	0
12 ,, ,, extra size	30	0
12 ,, ,, very choice selected ..	42	0
100 in 50 sorts for	200	0
100 in 100 sorts for	400	0

Special Cheap Price LIST of NEW and other PLANTS on application.

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AIGBURTH BRUSSELS SPROUTS.
SCRYMGER'S GIANT BRUSSELS SPROUTS.
Select Stocks. Prices on application.

JOHN K. KING,
SEED GROWER, COGGESHALL, ESSEX.

WE OFFER

PINUS DOUGLASII,

First quality, 16s. per pound.

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

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EXETER STREET,
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Seed and Trial Grounds, Feltham and Twickenham, Middlesex.

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Dwarf-trained and Maiden Fruit Trees and Roses, of fine quality, grown on fresh land at Bush Hill.

APRICOTS, trained, 36s. per dozen.
CHERRIES, in variety, trained, except May Duke and Morello, 21s. and 24s. per dozen.
PEACHES and NECTARINES, trained, £12 10s. p. 100.
PEACHES, Dwarf Maiden, £3 15s. per 100.
PLUMS, trained, £7 10s., £8 15s., and £10 per 100.
PLUMS, Dwarf Maiden, £2 10s. per 100. [100.
ROSES, Standard and Half-standard, £3 10s. to £4 per

HUGH LOW & CO.,

CLAPTON NURSERY, LONDON, E.

PAMPAS PLUMES

AND TUBEROSE BULBS.

J. C. VAUGHAN, Chicago, U.S.A., makes a speciality of the above items.
IN LARGE QUANTITIES AND BEST QUALITIES.
Correspondence solicited.

ROSES IN POTS,

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

These World-famed ROSES cannot fail to give the greatest satisfaction.

DESCRIPTIVE LISTS on application.

RICHARD SMITH & CO.,

WORCESTER.

ANTHONY WATERER

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GARDENERS' CHRONICLE

FOR

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THE QUEEN'S SEEDSMEN, READING.

THE
Gardeners' Chronicle.
SATURDAY, DECEMBER 22, 1883.

CHRISTMAS FLOWERS.

FLOWERS are indispensable to the Christmas season, for their tints, enlivening and cheerful, have come to play an important part in all festivities pertaining to the annual celebration. At no other period of the year do the warm and attractive colours of flowers, as well as their soft and tender tints, appear so acceptable as at mid-winter, when the natural life of vegetation has fallen to its lowest ebb—when trees, hedge-rows, and fields are russet-brown, and scarcely a blossom of any kind can be found in them. It is then that flowers within the house are trebly welcome, though they can be had only at the cost of money and labour. They are, therefore, to a very large extent, the luxury of the rich; but the marvellous development of late in the business of manufacturing artificial flowers, and the comparatively cheap rates at which they are sold, places in the hands of thousands of toilers at least something bright and cheerful with which to light up their houses at the festive season of the year. The consumption of artificial flowers in the great centres of industry at Christmas is something astonishing; and to the social reformer and philanthropist the fact comes as one of cheering significance. The desire to have some touch of beauty in the home of the worker is surely a proof that his life is gradually being raised to a higher level of fitness; and though the change is slow it is not the less marked, nor less acceptable, and those who begin with the artificial will be led on to better things.

Cut flowers rather than plants are in demand at the Christmas season, and the production of these, while it gives employment to an enormous number of persons, is, as a business, pretty remunerative. The greater the demand the higher the prices realised; and at the flower nurseries a marvellous season of activity in the way of production has already commenced.

Bulbous plants, as might be expected, are to the fore at Christmas. The pretty white Roman Hyacinth, apparently one of the easiest of subjects to force, and which, when correctly treated, always flowers abundantly, is grown to an unprecedented extent. But a much greater quantity of spikes of bloom in a cut state rather than as plants, find their way into the markets. Mr. John Reeves, of Acton, forces enormous quantities. The bulbs are put thickly into shallow boxes as soon as they are received from abroad, and covered up in the open air with cocoa fibre, spent Hops, or some such material. They remain until they are rooted, and are then brought into a brisk heat and forced into bloom as required. Of Tulips the best, or at least the earliest forcers, are the rose and scarlet Van Thol, the white and yellow Pottebakker, and the fine old double Tournesol. The rose Van Thol comes almost white when forced, and is known in the market as the white Van Thol; but the last-named, when true, is very expensive, because scarce—too dear in price to be much grown. These boxes of Tulips form a striking sight; there are from 200 to 300 bulbs in some of them, and when they show colour

they are put in 48-sized pots, five bulbs in a pot, sometimes all of one colour, sometimes of mixed colours; they soon open a little in heat, and are then marketed. A great many blooms are also sold in a cut state.

Hyacinths force only indifferently well when required at Christmas. They have to be pushed on into flower in a great heat, and the consequence is many failures, owing to the pressure brought to bear upon them. Hard forcing does not suit what we may term the popular varieties of this flower.

Primula sinensis has been for weeks past, and still is, a leader of market plants; but one sees little variety beyond a fine strain of the purple and the white. Some growers make a leading speciality of Primulas, and one of these is Mr. James Pike, of Acton. He has now a large house of purple and white varieties, representing selected strains, perfect in habit, fine in quality, and wonderfully free, throwing up in the first instance a fine bold truss, and a succession of others from the base of the flowering stem. The white variety is the *beau-idéal* of a market plant, with a stout flower-stem thrown well above the foliage, and a symmetrical truss that displays all the pips to the best advantage. The pips are gummed before being sent to market; the advantage of this practice is clearly obvious. Cut blooms of these fine plants past their best are also sent to market.

Cyclamens represent another popular market plant at Christmas. They have been seen there for a few weeks past, but at Christmas time large numbers find their way to London. It is a plant grown largely by a few only, but superlatively well done in consequence. It supplies a large quantity of acceptable cut flowers also, that are eagerly bought up.

It is at this season of the year that one sees the Poinsettias in all their beauty. When Mr. Reeves, of Acton, grows something like 8000 plants, there must be a great demand for them. A large number are sent to Scotland and the northern cities and towns, packed with great care, and it is wonderful how well they travel. Any plants with crooked stems and awkward growth have their bracts cut away and sent to market in bunches; they are also cut from any plants that are deficient in foliage. What a dwarf growth the plants have, how bold and clean the foliage! —and the size of the heads of bracts and their splendid colouring is matter over which to wonder greatly.

Thousands of little Ferns of many kinds are now being sent to market—charming little plants in small Long Toms, 4 to 6 inches in height, and in great demand for *jardinières*, baskets, &c. A few of the leading sorts may be enumerated:—Lomaria gibba, Pteris serrulata, and a crested variety, P. tremula, P. argyrea, P. cretica and its variety albo-lineata; Lastrea aristata variegata, Adiantum pubescens, and many more — Maidenhairs, Polypodium sporodocarpum, Nephrodium molle cristatum, Gymnogrammas, &c. In Mr. Reeves' nursery at Acton they can be seen by the hundred thousand in all stages of growth; the sowing of spores, the pricking of young plants into store-pans and pots, and potting into thumbs, is almost a daily occupation. A shallow herring-box takes eighteen plants; in these they are sent to market, and they are made up generally of six plants each of three sorts or largely mixed.

It is scarcely necessary to allude to the number of young Palms and other plants of a like character, and also the great variety of hardy shrubs that are sent into market for general decorative purposes at this season of the year, or how many hundred dozens of bunches of fronds of Ferns, especially of Adiantum cuneatum and its variety gracillimum, that go there for many purposes. They must, indeed, be manifold.

Of cut flowers there are many zonal Pelargoniums, the gummed pips of which last for a long time. There is a great demand for white Azaleas, and a large house of huge plants of A. indica alba and Fielder's White in Mr. Pike's nursery at Acton is indeed just now a great sight. These very large specimens are repotted about once in five years, and from November until February they supply thousands of chaste blossoms, which are cut off with just sufficient stem to admit of their being wired. Azalea mollis is also forced very early into flower, and it bears this driving remarkably well. Astilbe (Hoteia) japonica forces so well that it is no wonder clumps in very large quantities are annually imported to this country. As soon as received some of the clumps are put into heat, and flowers are had as early as the first week in November, and successional batches are introduced into heat at intervals as necessary; but a very strong and moist heat is required to get them into bloom so early. Euphorbia jacquiniflora, with its long floral wreaths of bright orange-scarlet flowers, is also in great demand at Christmas, and, like the Poinsettias, supplies a rich and striking hue among the many flowers that are chaste and delicate.

Veitch's new Jasminum gracillimum, with its distinct and graceful habit, promises to make an excellent mid-winter flowering plant; its long slender branches produce at their tips panicles of flowers of large size, white, and highly fragrant. Mr. John Reeves speaks in the highest terms of this plant for winter work, and intends to grow it largely.

Lilies of the Valley are produced by the thousand. The fine, stout looking, single Berlin crowns are preferred. They are put into a strong bottom-heat in successive batches as required, and they speedily throw up spikes of blossom. As a matter of course the roots are of no practical value after they are forced, and they are thrown away. It need scarcely be stated that the chaste, fragrant flowers are in great demand, especially for bouquets and buttonholes.

Bouvardias are just now supplying cut flowers on plants that have been blooming for weeks past. B. Hogarth, with its rich rosy-carmine blossoms; Vreelandi, white; and Alfred Neuner, white, are among the best; the double flowers of the latter are very charming indeed, like miniature Tuberoses. Mr. Reeves has to give up the culture of Bouvardias and Solanums at Acton; he has brickfields on two sides of him, and the effect of the smoke and fumes from the kilns causes the leaves of each of the plants to become spotted with a kind of fungus, and they soon become dried up.

Nor must the Tuberoses be forgotten; they, too, are forced into flower at this season of the year, but under decided disadvantages, as many of them go blind, or develope only two or three flowers on the spike, in consequence, it is believed, of the want of solar heat. Camellias, Eucharis amazonica, Richardia æthiopica, Gardenias, &c., are also to be found in the market, as also Roses, but the last-named are somewhat scarce just now.

It is surprising to see what a number of Chrysanthemums there are in flower in Mr. Reeves' nursery at Acton just now. The plants were obtained from tops of shoots taken from plants in June and July, and put three or four in a 48-sized pot, and they are now in fine bloom, with many successional buds to expand. The leading sorts are Jardin des Plantes, golden; Aureum multiflorum, pale yellow; Princess Teck, delicate blush; and a white-flowered Japanese variety that is wonderfully free, and looks like Meg Merrilies. There is a probability that cut blooms of these will be had up to the end of February, and so with the aid of the new early-flowering varieties it is possible to have Chrysanthemums in bloom eight months out of the twelve.

Nor must the old double white form of Primula sinensis, which Mr. Reeves grows so finely to the extent of 3000 plants in a year, be overlooked. The great majority are in 48-pots; a goodly number in 32's. Who can look upon this plant — clean, healthy, vigorous, rich in foliage, and crowded with blossoms—and say it is a "miffy" subject? It is anything but miffy here. There is a batch of a hundred or so plants, of a very pleasing shade of pinkish-lilac, which Mr. Reeves states is very old, but very scarce, and shy of producing side growths out of which to make cuttings in spring. All Gilbert's new double varieties have been tried, as well as those produced by other raisers, but they have been abandoned as practically useless. Thousands of trusses of blooms of the double white go from here to the market, to re-appear in bouquets and other choice arrangements.

The list of Christmas flowers is by no means exhausted—enough that some of the leading kinds have been indicated. It is very laborious work in these forcing establishments at Christmas time—all high pressure, producing as much as possible and of the best quality; and, despite the falling snow and chilling frost, the whirlwind of the wintry blast, or heavens all coldly clear with something of Arctic brightness of some seasons, gentle flowers are still to be had, to give a touch of natural beauty to Christmas enjoyments, and in ecclesiastical piles are employed to give life and colouring to the services consequent upon the celebration of the great Christian festival. The art of the gardener and his productions become almost daily more and more incorporated with our social life; they are present at our rejoicings, as they are also on occasions of deepest sorrowings; it may be that their presence answers to some touch of sympathetic feeling in human breasts, and amid the many genial influences at work to moderate passions, it is perhaps given to flowers to aid the oncoming of the time when—

"The wrong shall fail,
The right prevail,
With peace on earth, goodwill to men."

R. D.

FLORISTS' DISPLAYS.—The approach of Christmas is now generally marked, in towns at least, by an appropriate dressing of the windows and show conservatories on the part of those who minister to the floral decoration of our homes. The abundance and variety of the items exhibited for sale becomes more varied and charming every year. If nothing else redounds to the credit of the sometimes thoughtlessly maligned breeders, hybridisers, and raisers of improved sorts of popular favourites, their efforts in the way of lending additional interest and beauty to these productions are beyond all praise. We need only mention a few amongst the many that may be instanced of plants improved in every way, and rendered quite different in all desirable ends, from what we were accustomed to see in years gone by. What immense improvements have been made in the form and floriferousness of the Cyclamen, an advance that has been attended with corresponding skill in flowering them from seedlings within twelve months. What miserable puny things these seedlings were twenty years ago. In Roman Hyacinths again, we have a charming addition to our earliest winter treasures, available for almost all the purposes for which flowers are required, and, moreover, so easily grown that any one possessing a sunny window need not be deterred from attempting and succeeding with their cultivation. The Regal strain of Pelargoniums, with their massive trusses of crimped blooms, are both pretty, and useful evidences of the florists' success in getting winter-blooming plants from a section whose usual period to flower is the early summer time. Without making our list unduly long, may be mentioned, as advances in older forms, the present race of Bouvardias, especially noticeable among which are the pretty double pink and flesh coloured forms and Primula sinensis in more intense shades of colour, and with bolder flowers, with perfectly distinct eyes of great size. In this class may be seen some near approaches to blue—pale, certainly, but almost as decided in hue as that of the Neapolitan Violet. Eucharis Sanderi and E. candida—the latter now being designated Calliphruria subedentata, although the trade generally will abide by the first and more easily remembered name—will soon become common market plants, owing to the facility with which they may be raised, and the favour in which they are held by the public.

At Mr. Aldous', St. George's Terrace, Cromwell Road, we noticed a small-flowered pink Camellia, nicely reflexed, and elegant in form, which is likely to become a favourite when better known. It is of Japanese origin, and has not as yet received an English name. Here were to be seen Helleborus niger, its large, purely white saucers being of great size; excellent white Lilac, Tree Carnations, Erica hyemalis, beautifully flowered; Bouvardias in variety, and very good Primulas and Cyclamens; the double Madame Thibaut Pelargonium, fine Poinsettia pulcherrima, with other seasonable flowers. Kentias, Seaforthias, and Latanias in robust examples lent a foil to the great variety of colour in the surrounding flowers.

At Messrs. Veitch & Sons' nursery, where of course no special effort is made to provide flowers for Christmas, owing to their being found there in quantity at every period of the year, a pretty display of Orchids in variety welcomes the visitor. The useful Lælia autumnalis rubra was coming finely into flower on several examples, one that we remarked carrying eight stout sprays of many blooms: another near by had almost as many. The pretty L. albida, with its balsamic scent, also made itself known in this house, although the flowers are not showy like the former. Angræcum sesquipedale is showing immense quantities of flower-buds that will be well worthy of inspection shortly. Cypripediums continue to bloom, the pretty pale-spotted lemon-coloured C. concolor being very noticeable in spite of the plants being rather diminutive as yet. The Odontoglossum vexil-

larium were blooming in infinite variety. Amongst the Odontoglossums was the small winter-flowering O. Rossi bearing flowers purple and white—a very desirable kind for winter blooming. A stove creeper that is seldom seen in good order, Ipomœa Horsfalliæ, was coming well into bloom on the roof, as also was a pot plant; the white variety mentioned in these pages lately would form an admirable companion to this sort. The new Rhododendron Curtisii was here to be seen in bloom, probably the result of some degree of forcing, as also in the case of small plants of Luculia gratissima in 48's in a cool-house, looking at a distance like medium-sized pink Hydrangeas. This is a capital way to grow this charming plant.

The different varieties of Palms, and those of the hardier Dracænas, considered so indispensable to all efficient house decoration, are to be found in excellent condition at Messrs. Wimsett's nursery, King's Road. The plants are grown in comparatively low-pitched houses, built partly below the ground line, with the result of obtaining fine stocky hardy plants, that suffer but little by being brought into low temperatures, as must be the case in plants used for house decoration. The bulk of the kinds grown, which we found in all stages of growth and stature, consists of Areca lutescens, Kentias, Seaforthias, and Latania borbonica. Ferns are also found here in quantity, and are chiefly of those kinds that endure removal well. Davallia Mooreana and D. Tyermanni seemed favourite kinds. The kinds of Dracæna grown are D. Mooreana, D. Cooperi, D. terminalis, and D. ferrea, the tenderer hybrids of later years being found to be too tender as trade-furnishing plants. A houseful of D. australis in robust health and free from spot or blemish is a sight not often seen. The plants would range from 4 feet to 15 feet in height, and bore massive beads of leafage. A Curculigo variegata striata here appears to be a very useful plant for either indoor uses or for tropical foliage beds in summer; it seemed to have more creamy white stripes than the older variety.

Covent Garden.—As might be expected there is a fine display made by our florists and plant dealers in Covent Garden. As this is the centre from which the florists in all parts of the town, and in country places too, get their certain and unfailing supplies, we are not likely to meet with anything in the floral way that may not also be seen at any good shop; and it is only seen in the "Garden" in greater abundance. We notice our old spring acquaintance, the Wallflower, is altogether out of season now, and, not seeming to like the unpromising-looking weather, opens only just enough to show the rich brown of its flowers. Violets are fairly abundant, consisting of the dark blue sort and those of Parma, both of them French importations, as are also the Roses Safrano and Niphetos, that one sees in those pretty Filbert-like bud forms so suitable for personal adornment. White and rose coloured Camellias are now much employed in all kinds of bouquets, wreaths, and crosses, interspersed with other pure white flowers, such as the indispensable Roman Hyacinths, white Abutilons, white Indian Azaleas, Paper-white Narcissus, Eucharis amazonica, Bouvardia jasminiflora, and white, or, rather, common or Persian Lilac that has been bleached in forcing. Poinsettias, Carnations, and Mignonette are now to be found in great quantities. The plants whose scarcity indicates that we are entering the gloomy winter season are the Orchids, for with the exception of some few Odontoglossum vexillarium, Cypripedium insigne, and Zygopetalum intermedium, there is little else to gratify the *connoisseur* of these popular flowers.

There is much variety among pot plants now, and foremost among them are the hardy little Japanese Retinosporas and Aucubas, the latter with or without berries. The Thuias form a strong contingent, as do the Euonymuses, Veronicas, and Laurustinus. Palms, Dracænas, and Ficus elastica, with Aralia Sieboldi, form a portion of the tender section of the pot subjects exposed for sale.

Cyperus alternifolius, and the variegated form of it, together with warm-house Ferns, seem sadly out of place in the cold shops. In the middle of December it is almost cruelty to expose tender things in such places. The early Pottebakker Tulips, in scarlet, striped and yellow, are now to be had, and neat little plants, covered with scarlet berries, of Solanum capsicastrum. A fact that will be received with regret by many is that the Holly brought to the London market has but very few berries on it, showing that the spring was as unfavourable to its blooming as it was to the setting of Plums. *M.*

A MOULD ON ENSILAGE.

At a recent meeting of the Scientific Committee of the Royal Horticultural Society Mr. Worthington G. Smith exhibited a curious reddish mould which made its appearance on grass from a silo at the Albert Model Farm, Glasnevin, Co. Dublin. This form, which had been previously noticed in Kent, is an Australian plant, and has been named Isaria fuciformis. Associated with this, if no more intimate relation subsist between them, was another very different fungus, to which Mr. Smith made no allusion, and to which I wish now to draw attention, inasmuch as from all I can learn it seems to be undescribed, and its connection with the now somewhat popular system of ensilage enhances its interest. It consists of a deep reddish coating to the grass stems of a filamentous character, occasionally standing out from the cuticle for a short distance, as though the stem had been scraped. It is not visible on freshly cut ensilage, but very quickly appears as each ledge is cut.

Under the microscope we see a closely matted mycelium, or spawn, copiously branched, the hyphæ,

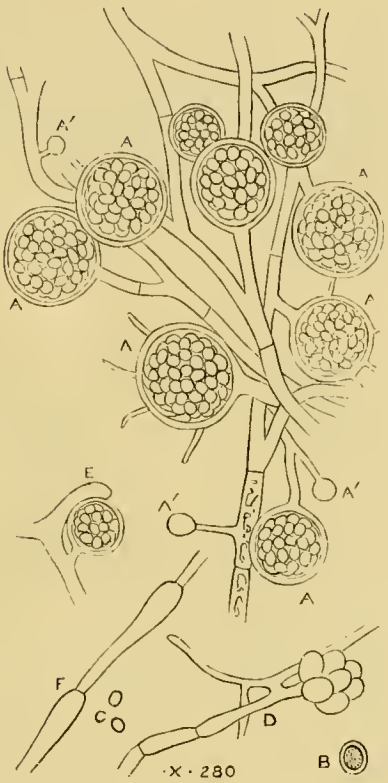

Fig. 140.—Mould on ensilage.

A, A A, Sporangia arising from septate mycelium; A', A', Conidia (?) *in situ*; B, Conidium detached; C, Spores extruded from sporangium; D, Two hyphæ conjugating; E, Sporangium and antheridium (?); F, Swollen hyphæ.

or threads, filled with large oil globules, and bearing in profusion globose sporangia, or spore cases, of considerable size, and filled with spores, recalling forcibly those of Saprolegnia or Pythium. From most species in both these genera, however, it differs in the distinctly septate or jointed character of the hyphæ, and in its very marked red colour, which is often, though not always, easily seen, even with the higher powers of the microscope. Besides the sporangia a second form of fructification is met with, namely, conidia (or, possibly, zoosporangia), which are produced singly on erect pedicels, and from which they readily become detached. They have a thick cell-wall, and the contents in some cases become divided apparently into a number of minute bodies, which pass after a while into the water if left in it for some time, when they move pretty briskly for a while. In other instances they germinate, and produce hyphæ. What their exact nature may be I cannot as yet say, but I am carefully investigating the plant with a view of, if possible, determining its life history, which is at present somewhat obscure, as I have seen instances of an apparent antheridium applied to the sporangium (E, fig. 140), as described by Mr. Marshall Ward in the current number of the *Quarterly Journal of Microscopical Science*, as occurring in Pythium, and which has been also seen in Saprolegnia. In another instance I have seen two neighbouring hyphæ distinctly conjugated as in Spirogyra or Zygnema, and one of the hyphæ producing what appears to be an immature sporangium (D).

These sporangia are often sessile, or nearly so, and they are so numerous, and the hyphæ so much branched, as to render it not easy at first to determine accurately how they are really disposed. The annexed figure shows a group of the sporangia (A A), which are usually thick-walled, and not unfrequently present filaments on their outer surface. At A' A' we have the structures, which I have called conidia, *in situ*; at B one detached, and at C the broadly oval spores, as discharged from the sporangium.

It seems not unlikely that vegetable matters preserved in silos may yield us some new and interesting forms of parasitic fungi, the conditions under which the fodder has been placed being so entirely different from usual. From the same silo I have obtained an ochraceous-brown mould—a true mould—which I have not yet worked out, but which appears to resemble some form of the genus Dactylium. Perhaps some of your many readers who have the opportunity will examine any silos that may be available, as it would be interesting to know whether these unusual forms have appeared in other silos or are confined to that at Glasnevin. *Greenwood Pim, M.A., F.L.S.*

Since the foregoing was written I have had a letter from the Rev. M. J. Berkeley, to whom I communicated specimens. He says he is unacquainted with any genus corresponding to this plant, in which view Messrs. W. G. Smith and Murray coincide. For the present I would hesitate as to where this curious form should be placed, but it seems closely allied to Pythium, as above hinted. *G. P.*

New Garden Plants.

ONCIDIUM JONESIANUM, *n. sp.**

When first I opened the box I saw only the flowers it contained, and was quite struck with their resemblance to those of Oncidium Limminghei, excepting in the colour and columnar wings. Then, however, appeared a thin subulate leaf, and the illusion of a new brother to that lovely pigmy was dispelled. The sepals and petals are cuneate oblong, wavy, erect, of lightest white ochre with numerous brown blotches, as in Oncidium carthaginense, Sw. The brown, however, is not reddish, but of the sepia shade. The lip is remarkably elegant; its small auriculæ are of the finest light yellow, whereas the blade is white, with a few small brilliant purple blotches near the isthmus, and very few brown ones on the anterior border of the auricles. The callus consists of two patellar bodies, standing one before the other, the smaller the anterior one, and traversed by a strong keel, that exceeds them in front. There are brown spots and lines on the calli, which I intentionally describe otherwise in English than in the Latin description, hoping to be better understood. The column has a very large protruded tabula infrastigmatica of finest white with a yellow base, and three purple lines and a purple border around the inferior stigmatic hollow. The back, sides, and wings of the column are marbled with brown-purple.

This charming Oncid was introduced by Messrs. Fred. Horsman & Co., of West Stockwell Street, Colchester, from Paraguay. A desire was expressed that it should be named after Rev. Morgan Jones, an enthusiastic lover of Orchids, and a new one! *H. G. Rchb. f.*

Carex ligerica.—This species has for the first time been found in Britain on the Scilly Isles, being obtained there by Mr. Cunnack, and the specimens themselves were exhibited by Mr. Arthur Bennett at the Linnean Society on December 6 last.

* *Oncidium Jonesianum*, n. sp.—(Teretifolia.) Folio tereti subulato canaliculato (ultra spithamæo) illi Oncidii adscendentis, Lindl. æquali; racemo paucifloro; sepalis tepalisque cuneato oblongis obtusis undulatis; tepalis paulisper majoribus; labello basi humerato utrinque oblongo auriculato, isthmo brevi, lacinia antica magna, subreniformis biloba, callo baseos quinque membrato, carina mediana ultra apicem; lamina semipatellari in basi, lamina anteriori minori obtusangula utrinque, papulis acutis dentibusque adventitiis nonnullis tabula infrastigmatica producta, alis subquadratis. *H. G. Rchb. f.*

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GARDENING IN NORTHUMBERLAND.

THE Southern visitor to this county is frequently reminded of the coldness and ungeniality of the climate, by the remarkable paucity of the finer kinds and varieties of trees and shrubs. In some few favoured spots, proprietors have attempted the planting of these in small numbers, and with a fair measure of success, when the all-important items of shelter and well-drained land have lent their indispensable assistance. It seems as if plants, at least trees and shrubs, fail to mature their wood during the cool damp summers, rather than that the plants suffer directly from the severity of the winter; so that owing to their immaturity such things die off in a climate not actually colder than that of the Midlands. On southern exposures, sheltered naturally by hills or braes, or by plantations of the hardiest trees, much may be attempted. It is quite otherwise in the rural districts abutting on the manufacturing towns and mining quarters. There the country is almost devoid of tree growth, and frequently of all other, and has a very desolate, naked appearance; but still, in places lying out of the line of the prevailing wind currents the Poplar, Willow, Elder, Maple, and Beech will grow, not well, but sufficiently large to form a feature in the landscape. Being a maritime county, there are many subjects which, being easily grown in more southerly parts of the island, would flourish nearly as well in the belt of land, about 20 miles in breadth, that skirts the German Ocean.

The noble demesne of Alnwick Castle contains much fine timber, Abies pectinata and other commoner species forming grand sticks; and at Howick, situated 40 miles north from the town of Newcastle-on-Tyne, the Arbutus Unedo and A. Andrachne grow into fine spreading half trees; Juniperus Lycia, Cedrus Deodara, Abies cephalonica, Pinus Pinea, Acacia inermis, Fuchsia Riccartoni, Buddleia globosa, Leycesteria formosa, Garrya elliptica, and Roses, grow and flourish. Myrtles, Tea Roses, Salvia patens, Aloysia citriodora do well under a slight winter protection, the latter plant growing to 6 feet in height. This is sufficient proof that away from the pernicious smoke of the towns things considered even in the Midlands to be somewhat tender do succeed. American trees from high latitudes, such as Oaks, Ashes, Catalpas, Gymnocladus, are nowhere seen.

In plant growing our northern craftsmen do not approach their more southern brethren. Soft stuff is much looked after, but hard-wooded plants are now at a discount, as are also stove plants, and yet in the towns that great *desideratum*, fuel, is not more than 11*s.* per ton for the best sort. Orchids, again, with a few notable exceptions, get but little attention, and market flowering plants are not well done.

Out-of-doors work in the vegetable and hardy fruit garden seems to be the strong point in these counties. The vegetables are good, and in the markets cheap. Potatos are this season a good crop, and free from disease. Peas grow wonderfully fine in this moist county, as do Cauliflowers, Cabbages, Broccoli, and Rhubarb. The Gooseberry is more grown and appreciated than further south; Strawberries in warm seasons are usually of good flavour, and large, as the heat is never such that the berries are ripened before attaining full size, as frequently happens about London. Wall trees receive much attention, especially Pears, Plums, and Cherries. The Peach is not of much account unless under glass protectors, or on a heated wall, where the wood can be assisted in ripening and the bloom protected by the warm wall. Figs and Apricots do well only under similar conditions. I knew a gardener of the old school who for a quarter of a century had not failed to obtain annually good crops of Peaches, Nectarines, Apricots, and Brown Turkey Figs from such a heated wall—a sufficient proof of the utility of such an adjunct to a complete kitchen garden. The Pears, which are commonly grown on walls, are the Jargonelle, almost everywhere on sunny aspects; Swan's Egg, Napoleon, Beurré d'Aremberg, B. Bosc, B. Rance, seldom good; Jersey Gratioli, Eyewood, Jean de Witte, Winter Nelis, Beurré Diel, Hacon's Incomparable, Knight's Monarch, Easter Beurré (wants a good season), Louise Bonne de Jersey, and Marie Louise. The Crassanes are worthless so far north. Late Pears are usually placed on south and south-western aspects, and earlier kinds on east and west ones. Newer kinds of Pears are not yet much grown. The Pears Aston Town, Bishop's Thumb, and Beurré de Capiaumont succeed pretty well as standards or bushes.

In the flower garden old kinds of bedding plants are still much employed, although carpet bedding is sometimes indulged in; but, labour being scarce and dear, it is not likely to become very general, most places being undermanned. The carpet beds seen are less bright than those seen further south, the brightness of the Alternantheras being much missed from the designs—greys and yellow, green and bronze taking their places, and with a lessened effect. Annuals are much relied on for summer arrangements, and very gay and enduring they are under their cool skies, with the effect of producing more interest and variety and less glare. Lupins, Clarkias, Eucharidiums, Mathiola incana, Malcolmia maritima, Tagetes, Aster, Chrysanthemum segetum, C. tricolorum, Marigolds, Collinsia bicolor, dwarf Nasturtiums, Godetias, form the bulk of these. Violas, Petunias, and Calceolarias still hold their own. The single Dahlias, as well as the double varieties, are much grown. At Rothbury, at a considerable elevation, the single Dahlia grew splendidly this season under a sheltering wall, the plants being compact, well furnished with foliage, and full of bloom. All herbaceous plants grow well. Phloxes are magnificent, as are Delphiniums and Hollyhocks. The Primula family and Hepaticas and Lilium auratum do finely, the flowering season being much longer there than in the South. There were two Rose beds I saw at a nobleman's place in August, one filled with Madame Despres, an old rampant pink kind; the other Fellenberg Noisette, that pleased me better than anything in the way of a bed I had seen. They were loosely pegged down, their great garlands of bloom waving to and fro over the bed, making a very pretty picture. *M.*

HARDY FRUIT CULTURE IN THE NORTH OF SCOTLAND.

(*Concluded from p.* 750.)

THE kinds of Plums growing on the two last named aspects [north and east] consist principally of the following, viz., Green Gage, Blue Gage, five or six varieties of Gages raised by myself, Jefferson, Coe's Golden Drop, Goliath, Victoria, Orleans, Magnum Bonum, Drap d'Or, an early French Gage of high flavour, but rather too tender for so far north; Kirke's Blue Gage, Cloth of Gold, Columbia, a large red early Plum, of hardy constitution and free-bearing qualities, reported to be of American origin; St. Martin's Quetche, Royal Hâtive, Webster's Golden Gage, Ickworth Impératrice, Pond's Seedling. These, with a number of other kinds, both early and late, of my own raising, assist in keeping up a good supply.

The trees are all fan-trained, and we make it a rule to have a portion of young shoots laid-in every year over the tree, and in winter pruning a portion of weak and spurless branches is cut out to make room for the young shoots. Being a strong advocate for close training, or, in other words, for keeping branches close to the walls, my instruction to pruners is to keep a keen eye upon spurs inclining to grow too far from the wall, and to foreshorten to a joint; by constantly adhering to this method fruit gets full advantage of the walls to ripen properly. The stronger the annual growths of shoots are, the closer they are cut in as a rule in winter, and the very grossest are cut out clean; the small natural spurs, with ripened wood and fruit buds on them, are left longer in proportion. With these remarks upon wall cultivation, I may here mention that a number of the sorts grow and bear freely as standards. Out of upwards of four dozen standard trees, within the walls of the gardens, we have as many as eighteen different kinds, most of them ripening well in ordinary seasons, while some of the hardier sorts, such as Victoria, Mitchelson's, Red Magnum Bonum, and even the white ditto, with some others here, bear more freely than upon walls. They do not, however, do well with pruning, and the principal use of the knife on standards is to prevent shoots getting too high. I consider the closer the branches in spring to shelter blossom while fully expanded, the better the fruit sets. A number of sorts growing upon espaliers, trained horizontally and full of spurs, flower freely most seasons, but never carry any fruit of importance, although perfectly healthy and in a good position. It will thus be seen that we have more of this class of fruit trees than is common in most gardens. Having had the honour of showing a distinguished nobleman, well known throughout Scotland for the great interest he takes in horticulture, round the gardens here, some years ago, he made several remarks while going round that the crop of fruit was large and fine. I then told him that for a number of years we had been able to give a supply of Plums for dessert and kitchen from the beginning of August up to the end of October, having them growing on four different aspects as well as upon espaliers and standards. "Yes," he replied, "you have large quantities, but you will never have too many for the cooks." These remarks amused me very much, being expressed as freely as from a youth serving the kitchen.

THE SORTS OF PEARS grown upon walls having the two aspects last described are principally of the early kinds, for autumnal use. Citron des Carmes and Jargonelle are the two earliest, and are followed by Grey Gudewife, a large juicy fruit of good flavour, which suits our climate here, either on walls or standards; it is also a good culinary fruit. Williams' Bon Chrétien and French Bergamotte, Hessel, follow close after; Doyenné d'Automne is a large brown, firm-fleshed fruit, of a rich sugary flavour, ripening early in October, and keeping good for about three weeks only; Louise Bonne of Jersey, Gansel's Bergamotte, and Autumn Bergamotte, Marie Louise, Dunmore, Napoleon, Brown Beurré, Beurré Rance, Beurré Diel, Beurré Clairgeau, Seckle, Beurré Blanche, constitute the principal, with the different sorts of Cherries, which all do well and ripen perfectly on these aspects, and therefore may be pronounced suitable for cultivation in this northern climate.

THE APPLE.—This fruit stands prominently at the head of British fruit cultivation, whether as regards its uses for culinary purposes in all establishments, from the nobleman's down to the most humble cottager's, or for the purpose of cider-making. Summer fruit, whether from bushes or trees, is of short duration, compared to the length of the Apple season. Home-grown fruit, although inferiorly ripened, compared to imported sorts, is, nevertheless, superior for cooking purposes, being more juicy, and containing more acidity than sorts more perfectly ripened. Another important feature attendant on the value of home-grown Apples is that ripeness does not detract from their keeping qualities, but rather the opposite. I can remember on several occasions when complaints were general of Apples keeping badly after unusually dry summers. Certainly there has been no reason for complaints of that nature lately. The climate bears also such an important part in open-air fruit culture that it is difficult to know what and where to plant, so as to best overcome the influences of unfavourable weather in the period of blossoming and fruit setting. My own idea is, that every effort should be made to obtain more hardy sorts by hybridising or otherwise, as springs of late years do not grow better, but rather the reverse. No mention has been made of Apples in describing the different sorts of trees suited for wall culture. The reason is, we grow none, walls here being all built with brick. I found we once became so infested with American bug that I had them all cleared away, and now grow them only on espaliers and standards. The crop of this class of fruit this season has been an abundant one all over the North of Scotland, as well as of the hardier kinds of Pears, and fruit is swelling and ripening fairly, considering the great absence of sunshine, both on standards and espaliers. It is from the latter that we commonly get our finest fruit, having the advantage of the summer shoots being early shortened as in the case of wall trees. The fruit, in consequence, gets more sun and air, and is not subject to be threshed about by gales of wind. The trees occupy small space, and assist to give shelter in the gardens otherwise. Although the method is of old date, I nevertheless think them preferable to dwarf standards on the margins of walks. The culture of the Apple being pretty well understood everywhere, I need not say more than that the treatment recommended in the management of the roots is equally applicable to the Apple.

Before giving a list of the kinds I find to do best here, I may mention some of the sorts which grow strong and healthy, but seldom bear any fruit: the Blenheim Orange is one of them. We have fine trees on both espaliers and standards; they blossom freely, but seldom carry a crop. The following kinds do somewhat better, but cannot be recommended for growing in our northern latitude:—Mannington's, Claygate, and Adams' Pearmain, Gravenstein, Cockle Pippin, most of the Reinnettes, Sturmer Pippin, Bess

Pool, Cox's Orange, a fine Apple, but, like Ribston Pippin, it requires better autumns than we generally have to do it justice in getting its proper flavour; Alexander, Brown Pippin, Wormsley Pippin, Tower of Glamis, Gooseberry Pippin, remarkable for its long-keeping properties. I had some fruit of this sort which had been kept in a drawer in the fruit-room for the long period of twenty-one months; it was exhibited at a flower show in Aberdeen, firm and still fresh in appearance. There is a large number of other kinds grown here which I need not mention, as it is principally in seasons like the present that we have any fruit off them.

Autumnal table sorts grown here consist principally of the following:—Early Harvest, Summer Red Streak, Oslin, American Pippin, Forfarshire or Short Pippin, Devonshire Quarrenden, Cellini, King of the Pippins, Worcester Pearmain, Summer Strawberry, Scarlet Nonsuch, &c. There is a sort here, and commonly grown in the district, under the name of Bringewood Pippin. [One of Knight's seedlings. Ed.] The tree grows to a large size as a standard, and bears good crops of large round well formed fruit, much resembling the Blenheim Orange both in appearance and flavour. It suits well either for dessert or cooking from the middle of December to March, and is worthy of being more generally grown. Cooking Apples are mostly grown on standards, and consist principally of free bearing kinds, such as Hawthornden, Stirling Castle, Keswick Codlin, Royal and Dutch ditto, Lord Suffield, Alfriston, snd some other sorts which do not bear freely. There is still a great want of hardy free bearing varieties of cooking Apples such as will give fruit in ordinary seasons and ripen in late districts. It is with this object that I have been engaged in raising new varieties, and the two sorts sent out under the names of Northern Dumpling and Beauty of Moray will both be found valuable acquisitions for their free bearing qualities.

Before finishing this paper, already too long, I beg to take this opportunity of making a few remarks to my young friends in the profession who may be desirous of trying their skill in rearing new kinds of fruit. A good time to begin this very interesting subject is at the period of taking charge of a garden establishment entirely on his own management. The attempt to produce new kinds exercises a strong and lively interest, especially until the period when the productions have proved what they are worth.

The first thing to consider in endeavouring to effect a cross between two kinds of fruit is the sort desired to be improved; and, secondly, the best sort to effect it with, or what may be properly termed made the male parent. The two sorts having been decided upon, the next important point to consider is to get the flowers of the two kinds in the same perfect stage to receive the pollen. This requires the minute watching of the manipulator to catch the pollen and the stigma both in the right and proper stage for fertilisation. It must, however, not be omitted to clip off the anthers of the flower intended to be artificially fertilised, by a pair of small-pointed scissors, as soon as the flowers are beginning to open, or at least before the pollen becomes ripe. In this stage the pollen should be applied with a small camel's-hair brush, to which it will readily adhere if done at the proper time. The flowers operated upon should be marked at the same time with a bit of twine or matting, and the name of the sort from which the pollen was taken. The swelling of the fruit ought to be carefully watched, and when ripe put aside until it is beginning to show signs of decay. Pips or kernels of whatever kind should be at once put into pots, with the soil suited to grow them in, and kept in rather a cool place until the period of placing them in heat arrives to cause them to vegetate. My system in managing seedling fruit, such as Peaches, Plums, Apricots, Pears, Apples, &c., is to pot them off singly into 4-inch pots as soon as they are fit, and to grow them on in a good heat until they complete their first growth, at which period they are taken outdoors and placed in an open, sheltered, and sunny place for about three weeks. They are then taken up and shifted into larger-sized pots, and are again put into heat, in order to get them to grow a little. By the time they have started and grown a few inches the buds on the first made wood will be in a suitable stage for budding. By selecting strong young shoots of the current year's growth on well established trees I have generally been able to succeed in getting most of the seedlings budded the first year of raising them, and if inserted upon free bearing sorts they will not be long in showing what they are worth. Fruit hybridising and raising new kinds will be found a very interesting pursuit, and if I have assisted in any way by explaining my method of management to encourage others to follow the attempt to improve hardy kinds, I shall consider my labours in writing this paper to be fully recompensed. *John Webster, Gordon Castle Gardens, Sept.*, 1883.

PROLIFEROUS ATHYRIA.

On November 2, 1882, I exhibited at the Linnean Society two forms of Athyrium filix-fœmina, which, at a very early stage—on their first fronds, in fact—bore, in the one case several, and in the other case numerous proliferous buds in the axils of the pinnæ. Enlarged representations of these plants were given in your journal of December 16, accompanied by a description and observations bearing upon the extreme rarity of such phenomena in the genus Athyrium, of which, indeed, at that time no record appeared to exist, though I have since learned that Mr. Mapplebeck had observed bulbils on young Athyria of the uncum strain, and had even raised plants from them, which, however, apparently ceased to be proliferous at a more advanced stage. Regarding the plants of my raising, therefore, it may interest your readers to learn, that while the first form discovered has ceased to develope bulbils, though several plants have been reared from those at first produced, the second form found has yielded this season numerous bulbils on its spring fronds, but none on its later ones—its very first fronds persisting, singular to say, through the winter in my fernery, whence the frost is just excluded, and, resuming growth in January, the pinnæ forking anew dichotomously several times, producing numerous bulbils on the fresh growth. The small plants raised from this Fern are fully as

Fig. 141.—A, Bulbil of Athyrium Filix-fœmina plumosum divaricatum, highly magnified; B, Pseudobulbil of A. Filix-fœmina clarissimum, highly magnified.

proliferous as the parent, all the pinnæ being dotted here and there with bulbils. Finally, in this connection I may add that by careful search I have discovered no less than five other seedlings from the same batch, which have numerous bulbils on one or more of their crests.

My chief object, however, is to place on record the existence of this proliferous character in the same section, but in another and most unexpected direction, viz., amongst the plumose varieties, and this, too, on old full-grown plants. On September 18 this year, while examining a large specimen of A. F.-f. plumosum divaricatum, bought in 1881 of Messrs. Stansfield, I was struck by the fact that in the place of sori, for which I was searching, the under-surface of the pinnæ was studded profusely with minute nodules surrounded shuttlecock fashion by scales. Applying a lens I found the central excrescence to be roundish and of a brilliant green, while the scales were of a symmetrical lanceolate shape and beautifully reticulated (*vide* A, fig. 141).

My immediate impression was that they were bulbils, but this, nevertheless, seemed more unlikely, as, to my knowledge, no Fern, British or exotic, had been known to produce them on the under-side of the fronds and in the centre of the pinnæ. I, however, determined to try the question, and laid down several pinnæ, under-side uppermost, on sandy soil, dredging coarse silver-sand over them to keep them flat, and washing this off again sufficiently to expose the presumed bulbils to the light, the result being that on October 31 I was able to report to Mr. G. B. Wollaston that their bulbil character was established, since in one case a frond with three pinnæ had arisen, and in many cases the circinate form was evident. In reply to this announcement Mr. Wollaston informed me that my discovery had been anticipated, though only by some weeks, since on September 6 he had seen a plant of A. F.-f. plumosum elegans, a seedling of the Axminster variety, in the possession of Mr. Carbonell, Usk, upon which similar bulbils had been discovered this season by his gardener, Mr. Cropper. He added, however, that so far no signs of development had been visible, and that, to the best of his belief, I was the first to raise plants. On a subsequent visit of Colonel Jones, however, minute fronds had appeared, as upon my plants. In the light of these discoveries Mr. Wollaston proceeded to examine his plants, and found some exceedingly curious growths upon a form allied to Athyrium F.-f. pulcherrimum, viz., A. F.-f. clarissimum, the pseudobulbils or bulbiloid spores of which (*vide* B, fig. 141) are extremely different in appearance from the minute bulbils on A. F.-f. plumosum divaricatum, and about four times as large; they are also found under the microscope to differ very much in their nature, no definite axis of growth being apparent; and although in some cases the tops of the flask-shaped pseudobulbils grow into filiform processes, no sign of circination or resemblance to fronds at any stage is discoverable; added to which an indusium is invariably present, instead of scales, which points rather to an abnormal sporoid growth than to a really proliferous one, capable of producing plants.

From Colonel Jones, of Clifton, I have received the following additional information, which has so far, I believe, not been formally recorded, and which, taken in conjunction with the recent discoveries of proliferousness on other varieties of the Athyrium, certainly merits it. Mr. E. J. Lowe, he informs me, noticed some twenty years since similar bulbils upon the Axminster plumosum, but, owing to the lateness of the season, failed to raise detached plants, though they appear to have attained some size while still adherent; and so far the difficulty of establishing them independently seems to have been insurmountable. From the appearance, however, of my young plants I cannot think that it will long remain so.

As the matter now stands this viviparous character has been found upon four different forms, viz.:—A. F.-f. plumosum Axminster, by Mr. E. J. Lowe; A. F.-f. plumosum elegans Axminster (Parsons), by Mr. Cropper; A. F.-f. plumosum, Stewardson, by Mr. Stewardson; A. F.-f. divaricatum, by the writer. *C. T. Druery, Fernholme, Forest Gate.* [The special interest here appears to be the production of buds in the place usually occupied by clusters of spore-cases, sori. Such cases throw light on the morphology of the sori and indusia, and on the physiology of the "spores." Ed.]

AGRICULTURAL STATISTICS.

We extract from the report issued with the agricultural returns for the year 1883, and which for the first time are sent out by the newly-constituted agricultural department, the following general results:—In Great Britain the area reported in 1883 to be under all kinds of crops, bare fallow, and grass, amounts to 32,385,000 acres, as compared with 32,313,000 acres in the previous year, or an increase of 72,000 acres, which is stated by the collectors to be largely due to the enclosure and reclamation of mountain and heath or waste land in different parts of the country, and in a much smaller degree to greater accuracy in the returns supplied, owing, in some cases, to the rectifications of errors occasioned by the use of local measures in the preceding year, and in others to omissions since discovered.

Of the increased acreage above-mentioned about 59,000 acres are in England, 7000 acres in Wales, and 6000 acres in Scotland. The increase is almost exclusively in permanent pasture, the area under tillage still tending to diminish. The total increase in the ten years since 1873 is no less than 1,282,000 acres.

With regard to the details of particular crops in Great Britain, the most important features to be noticed as regards corn crops, apart from the decrease in the total, appear to be a considerable diminution of the area under Wheat and an increase in that under Barley and Oats. The total extent of land returned under Wheat in the present year is 2,613,000 acres, or 390,000 acres less than in 1882, and a decrease of 192,000 as compared with the acreage of this crop in 1881, when the breadth sown was less than had previously been recorded. The diminution in the area under Wheat in 1883 is almost unanimously stated by the collectors to have been caused by the unsuitable condition of the ground at the proper seed time, owing

to the continued heavy rains in the autumn of 1882 and spring of this year.

The area under Barley was 2,292,000 acres. This is an increase of about 37,000 acres as compared with 1882, but it is worthy of note that the present year's acreage is less by 146,000 acres than the average of the previous ten years.

Oats were sown on 2,975,000 acres, being 141,000 in excess of 1882, and a larger breadth than that recorded in any year from 1868. The substitution of Oats for Wheat is attributed in many reports to the cause already mentioned under the head of Wheat, namely, the condition of the soil at sowing time. It is also said that in some districts Oats have taken the place of Barley, on account of the low price obtainable for the latter grain during the last two years, probably owing to deterioration in its quality through the unfavourable harvest weather of those years, while Oats have proved more remunerative.

Among minor corn crops the acreage under Rye shows a decrease compared with 1882 of 5800 acres, and in Peas of 7000 acres, while Beans have increased by 11,000 acres. The imports of Maize, which compete with these crops, have considerably fallen off, and in 1882 amounted only to about half the quantity imported three years ago. Taking, then, all the figures as to corn crops in Great Britain, we find their total area was 8,618,675 acres, or 214,705 acres short of that in 1882—a decrease of 2.4 per cent., the average area of the preceding ten years having been 9,145,680 acres.

As regards green crops Potatos were planted on 543,000 acres, a slight increase over the land so occupied last year. The unprofitable nature of the crop of late years, owing to disease, is stated in some cases to have interfered with its cultivation.

Turnips and Swedes were returned as grown on 2,029,000 acres, against 2,024,000 acres in 1882. Mangel, Vetches, and other green crops unenumerated have, however, declined, making the total area under green crops 3,454,579 acres, or a decrease of 21,000 acres on that of the previous year.

Flax still occupies but a small acreage in Great Britain, and in 1883 was grown on 4317 acres only.

Hops covered 68,000 acres, or an increase of 3.7 per cent, over last year's figures. The result of the failure in the crop picked in 1882 is apparent in the remarkable importation of Hops which took place in that year, namely, 319,620 cwt., or 172,000 cwt. more than the quantity imported in 1881, and exceeding that of any year since 1869, while the value of last year's imports was £2,962,631, or £1,335,690 more than that of any previous year recorded.

Rather less land was left under bare fallow than in 1882. In some counties, viz., Lincolnshire, Suffolk, and the North Riding of Yorkshire, a noticeable increase has taken place, especially as more uncropped land has been returned in these counties each year since 1878.

Clover and rotation grasses show a considerable increase, the extent being 4,396,000 acres, or 68,500 more than in 1882. The increase is frequently attributed by the collectors to the better classification made by occupiers generally in distinguishing between permanent grass and land that is ultimately to be broken up, some of which has been returned by them under the former head in preceding years. In several counties the increase is explained as the result of the necessity of making provision for a greater number of cattle and sheep. The acreage of these crops is, however, much influenced by the character of the seasons.

The movement in the direction of constant additions to permament pasture, which has been remarked upon in former reports, continues, and the results are shown this year in an area of 15,065,300 acres, as compared with 14,821,600 in 1882. Although a part of this increase is attributed to the enclosure of hill and waste land, it has also followed as a matter of course from the systematic conversion of arable land to the purposes of rearing cattle and sheep, for which the high prices lately obtainable appear to have offered such inducements. The land transferred to owners during the recent agricultural depression, and chiefly utilised by them for grazing purposes, has also added its quota towards the result. Ten years ago grass covered 13,000,000 acres, while arable land has fallen during that period from 18,186,000 to 17,319,000 acres.

Orchards in Great Britain have again further increased, their acreage being this year returned as 190,700 acres, against 187,500 in 1882. Market gardens likewise show an important increase, namely, from 48,000 to 53,000 acres. The collectors report under both these heads a continually growing demand for fruit and fresh vegetables for the neighbouring towns, which induces many farmers to appropriate land to this produce. From the very large increase in the imports of fruit from abroad, it would appear that there is yet plenty of scope for further efforts in this direction.

FOREST AND HISTORIC TREES OF GREAT BRITAIN.

THE above formed the subject of an interesting and instructive lecture, recently delivered by Mr. Arthur Hodgson, C.M.G. (Mayor of Stratford-on-Avon), at Warwick, and from which we take a few extracts :—

There can be little doubt that the whole of England was covered with forests and marshes at the time of the first Roman invasion, fifty-five years before the birth of our Saviour. I must except a small tract of country along the south coast, notably Kent and Sussex, where there was some rude attempt at agriculture, and some few very small towns, inhabited chiefly by traders, who carried on a traffic with France, then called Gaul. Cæsar wrote a history of this expedition. His description of this country and the mode of life of an ancient Briton is interesting, but not over flattering. Our ancestors were content to live in holes in the ground, or in miserable huts; they were not, as now, disturbed at Christmas with milliners' and tailors' and hatters' bills, for they wore no clothes, save the skins of animals killed in the chase; hunting, including bears and wolves, being their chief amusement. No Mundella Code existed in those days: they could neither write, read, sew, nor weave. There were no roads, no bridges, no paths, save the tracks of the hunters. Cæsar described a town as nothing more than "a thick wood, fortified with a deep ditch." Strabo describes a town—"forests were the only towns in use among the Britons, which were formed by cutting down a large circle of wood, erecting huts within it, and sheds for cattle." Nearly 2000 years have passed since then, and under the Oak trees from which the mysterious Druids cut the sacred Mistleto Saxon Parliaments have been held, and many a Christian church or chapel now occupies the site of one of those Oak forests. The Druids have gone, the Romans have gone, millions of human beings have since lived and died; but the Scriptural truth remains, "Generations pass away, but the earth endureth for ever," and the island of Mona, now called Anglesea, the chief seat of the Druids, stands precisely as it did when the Roman Legion landed on its shores. The straits passed by Agricola and his soldiers remain; the old groves and forests have disappeared; but the earth on which they stood abideth for ever. Generations came and went; Saxon monarchs filled the English throne for upwards of 250 years, when, in 1066, on the battlefield of Hastings, the proud Norman, William the Conqueror, gained the day, and changed the fate of England!

The first forest laws of which there is any record were made in the reign of Canute the Great, and were very severe. These laws enabled kings to enclose any tract of country for forest which they pleased, for the purpose of planting new forests. Many amongst my audience must have read in history how William the Conqueror formed what was, and is still, called the New Forest, in Hampshire, where, for the sake of indulging in the pleasures of the chase, he depopulated a large district, pulled down thirty-six churches, and destroyed thirty-six villages. Under this code of forest laws, coolly made by Canute at Winchester, and in force until the reign of Henry III., in 1250, the king could possess himself of any tract of country, the timber being in those days lightly regarded, the chief consideration being the care of the wild animals by which the forests were inhabited. It was death to kill a deer in a royal forest, and sometimes, as a middle punishment, the offender had his eyes plucked out. It is positively asserted that the kings of England up to the reign of Henry III., possessed themselves of one-eighth of the country as royal forests; but in the forty-first year of the reign of this long-lived, but weak and vaccilating king, a "great charter" of the forest was passed (A.D. 1256), giving up the stolen forests, abolishing the punishment of death, and substituting fine and imprisonment for killing royal deer. Slowly, but surely, successive kings and queens of England restored to their subjects the forests of which their royal predecessors had possessed themselves, under the plea of necessary recreation from the harrassing cares of state; and only last year our beloved Queen proceeded in state to hand over Epping Forest to the Lord Mayor and Corporation of London in perpetuity.

The names of some of the most remarkable forests are the Forest of Arden, Sherwood, Dean, Dartmoor, the New Forest, and Windsor. You are aware that there is a district called Henley-in-Arden, the word Arden being the British word for forest; and there can be little doubt that this forest at one time extended right across England, and included what are now called the forests of Dean and Sherwood. A large portion of the Forest of Arden was destroyed by fire at the battle of Evesham, in the reign of Henry III.

SHERWOOD FOREST was at one time very extensive; it covered the whole county of Nottingham, and extended into Yorkshire and Derbyshire. Some large and stately Oaks, to which I shall presently allude, still grow in it, notably at Welbeck, the seat of the Duke of Portland. In this forest the famous outlaw and freebooter, Robin Hood, who is supposed to have been born at Loxley, in this county, roamed about at pleasure, at the head of several hundred men, who were the dread of all the Norman aristocracy, both lay and spiritual. Newstead Abbey, once the property of the great poet, Lord Byron, is also in Sherwood Forest, with other noblemen's seats to which the name of the Dukeries has been applied, and the two important towns of Nottingham and Mansfield.

THE FOREST OF DEAN is situated in the western part of Gloucestershire, between the rivers Severn and Wye, and about 5 miles from Newnham. During the war against Napoleon this forest supplied upwards of 1000 loads of timber annually for the use of the Navy. It is capable of growing 920,000 Oaks in full vigour; but it has been much neglected of late, owing to many of the trees having been allowed to stand too long; secondly, where good timber has been felled nothing has been planted, and nothing can grow self-sown on account of the deer breaking all the young trees. Again, droves of pigs are allowed to go into the woods in autumn in search of acorns, and flocks of sheep, which bite off the tender shoots; and, lastly, the forest-free miners, who consider they have a right to dig for coal whenever they please. These are the causes why timber does not grow in the Forest of Dean.

DARTMOOR FOREST is in Devonshire, and belongs to the Duchy of Cornwall. There is very little vegetation, and few human dwellings; the freeholders of the surrounding parishes possess the right of common. The peasantry at no distant date were looked upon as little better than savages, and even now they are a very rough lot.

THE NEW FOREST, formed originally, as I have already mentioned, by the cruel mandate of William the Conqueror to enable him to enjoy his recreation of hunting in the immediate neighbourhood of Winchester, his favourite residence, was bounded by Southampton Water on the east, the Avon on the west, and on the south by the channel of the Isle of Wight. It now contains about 66,000 acres, and extends over a district of 20 miles from N.E. to S.W., and about 15 miles from E. to W.; 6000 acres are enclosed expressly for the growth of timber. In this forest is a triangular stone with an inscription, "Here stood the Oak on which an arrow, shot by Sir Walter Tyrrel at a stag, glanced and struck King William II., surnamed Rufus, in the breast, of which he instantly died on August 2, 1100." John, Lord Delawar, caused this stone to be erected in 1745, six centuries and a half after William's death. It was reserved for a private nobleman to raise a stone to inform Englishmen where their second Norman King was killed! The forest borderers have a right to feed their pigs in this forest during the pannage months, commencing about the end of September, and lasting six years. Pannage is derived from the Latin word *panis*, bread—food for swine in the woods, such as acorns, Beech-nuts, &c. There are also wild hogs, a cross from the well-known wild boar of Germany, imported into this forest by Charles I. The principal trees are the Oak and the Beech; many are old and of great bulk. A few years ago an Act was passed cancelling the right of the Crown to keep deer in this

forest. The scenery is enriched by some beautiful ruins, amongst them Netley Abbey, Hurst Castle, and the once celebrated monastic establishment, Beaulieu Abbey, founded by King John. Here, in those days, many fugitive victims of the law fled to the sanctuary. Margaret of Anjou, Queen of Henry VI., the Countess of Warwick, widow of the noble Earl slain at the battle of Barnet, in 1471, Perkin Warbeck, and others; the last-named did not escape his just fate. He was advised by the monks to leave the abbey and commit himself to the king's pleasure; this he did, and he was executed at Tyburn in 1499.

Windsor Forest.—My last forest will be that of Windsor. This name will be familiar to many of my audience, as we have all heard of Windsor Castle, Windsor Park, and Windsor Forest. Windsor is the Windsor of Chaucer and Shakespeare, as well as of the Plantagenet princes and Stuart kings. It is not only the "winding shore" of the River Thames, from which circumstance it derives its name—it is by common consent Royal Windsor, the home of our English kings and queens. Since the reign of William the Conqueror down to Queen Victoria, there is not a sovereign but has ridden, driven, or hunted in Windsor Forest. We must think of the hunting in olden time as more like our shooting of the present day, and substituting long bows or crossbows and arrows for our breech and muzzle-loaders. The hunting party did not entirely depend upon the speed of the dogs or hounds. Windsor Forest is of great antiquity. In the reign of Edward I. (200 years after the Conquest) an order was given to the Constable of the Forest that he, with he assistance of the foresters, should sell the "old dead Oaks," and these could not have been called for removal had they not been some hundred years old. In 1819 duly appointed commissioners sent in their report, which resulted in a large portion of the forest being surrendered to the nation, the sovereign to accept a yearly sum in lieu of the ancient hereditary domain; 14,000 acres were reserved for the use of the Crown, and 3000 were planted as nurseries for the use of the Navy. The Long Walk at Windsor is supposed to be the longest avenue in Europe, and consists of Elm trees, planted in the reign of Charles II. They are not quite so fine or so old as those in the playing-fields at Eton. The circumference of the largest of them is 18 feet, and of the largest in the Long Walk 14 feet. I believe the allotted age of an Elm to be about 250 years; by that time the "Elm beetle" has done his work, and they have no deep tap-roots. These Elms in the Long Walk seem to be condemned; not a winter passes but some three or four are uprooted or mutilated. One Elm fell a short time ago, killing a person sitting underneath. The avenue is double, and 70 yards across from outside. There were originally 1660 trees, representing the year in which Charles II. began to reign. In the forest there are four trees assigned as the Royal trees. Each has an iron tablet indicating the queen—for they are all queenly—under whose name they still flourish. These are Queen Anne, Queen Charlotte, Queen Adelaide, and Queen Victoria. Three are Oaks. Queen Adelaide's is a Beech. The Elm is indigenous to England. A very large Elm, called "The One Elm," and a boundary tree to the borough of Stratford-on-Avon, was cut down some thirty years ago, to the great annoyance of the inhabitants. The *sobriquet* of the man who committed this foul deed was "Billy Brick," and he was thus lampooned by one of our local poets of which we have several:—

"Billy Brick has cut the stick,
And brought it to a level;
There was no need for such a deed
To take him to the D—v—l."

I may be permitted to say something about the fauna of this Windsor Forest—the deer, herons, and wild boars. The latter exist now in the Great Park, but are confined within a small enclosure of 18 acres. They are a present from the Prince of Wales to Her Majesty, and were collected by him during his Indian and other travels. Some are Indian and some German. Including sows and pigs there are now twenty-three, but they are not impressive specimens, because by breeding and feeding we have so increased the size of the wild animal that the original ancestor is insignificant when compared with his really degenerate descendant. There is a specimen in the British Museum of the early English bull, which would look very small by the side of a prize bull of the present day. These boars in Windsor Park have a wonderful facility of turning up the ground, and within their limited space they have done this as well as Messrs. Howard's or Ransome's improved ploughs could do the work. They are shot when they reach a mature age, and Her Majesty's Christmas table, at Osborne, is supplied with a boar's head. The number of deer is 1600, besides 150 red deer and fifteen white harts. There is also a heronry. Wolves (though now extinct in this country) were at one time a great scourge, the dense forests which formerly covered the land favouring their safety and their increase.

(To be continued.)

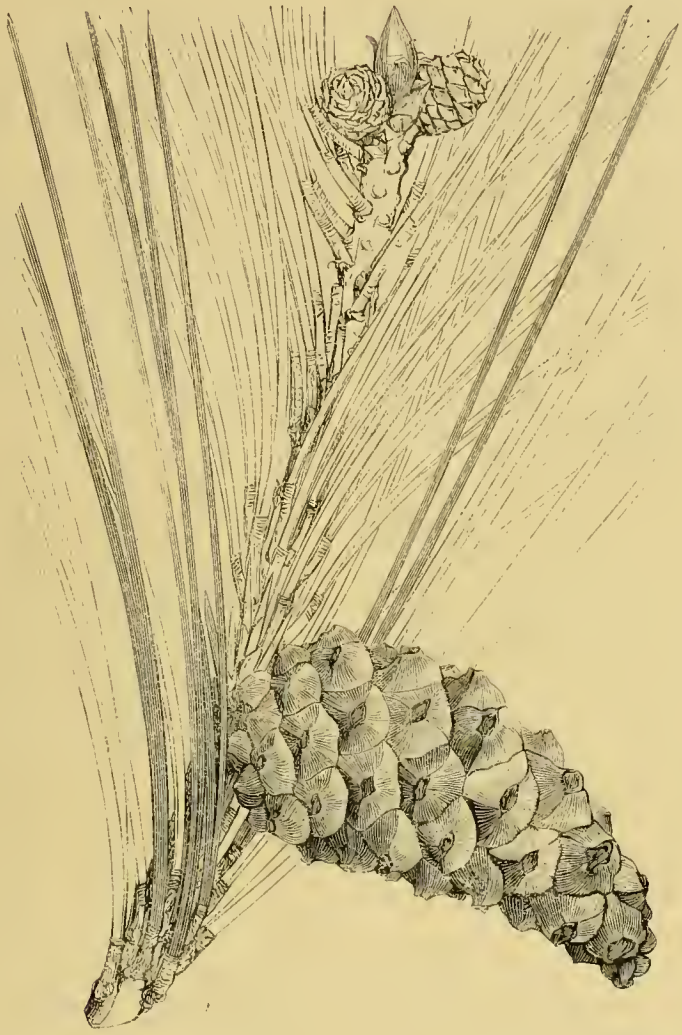

Fig. 142.—The Crimean Pine, P. Laricio var. Pallasiana.

The Arboretum.

Pinus Laricio var. Pallasiana. — This is a fast growing Pine of the Laricio section. In general habit it is much branched, with an ovoid, somewhat pyramidal head, the lower branches spreading, the upper ones ascending, all slightly upturned at the tips. The bark is of a smoky-brown colour, alike at Kew, where Brentford fumes often conceal the natural coloration of plants, and at Pampisford, free from such influences. The young shoots of the year are naked at the base, and do not produce leaves for some time. The fully developed leaves are in pairs, ascending, dark green, about 5 inches long, lighter and longer than those of P. Laricio, serrulate, shortly and somewhat abruptly mucronate at the tips. The disposition of the resin canals in the cellular tissue of the leaf, and the general anatomical structure, is the same as in Laricio and all its varieties, such as austriaca, Fenzlii, Heldreichii, pyrenaica, caramanica, and neglecta. The reddish buds are elongate, ovoid-conical, with lanceolate reflexed lacerate scales. The male catkins are fawn-coloured, oblong, twisted. As to the cones, Mr. Smith's illustration of one grown at Kew will suffice, without the necessity of entering into tedious description (fig. 142). We may, however, add that the specimen is a small one, and the colour is a peculiar ashy-brown. Pinus Pallasiana is the Crimean representative of Pinus Laricio, of whose qualities as a timber tree mention was made in our last issue. Messrs. Veitch, in their *Manual of Conifers*, thus speak of Pallasiana:—"Although P. Pallasiana can only be regarded botanically as a variety of P. Laricio it is, in a horticultural sense, quite distinct; and as an ornamental tree for the park and landscape it should be preferred to P. Laricio, but never substituted for it if planted for the sake of its timber." Pallas himself describes the timber as compact, white, brownish-red in the centre, resinous, and very knotty. It differs from ordinary Laricio in its longer leaves and cones, the latter being curved towards the point, as shown in the illustration, not straight. At Kew it is of freer growth, and earlier than P. Laricio.

Most writers now place P. taurica with this form, and perhaps correctly. We have no opinion at present to offer upon that subject, but we may state that the tree grown under the name taurica in Mr. Parker Hamond's fine collection at Pampisford has orange-brown bark, shorter and more twisted dark green leaves, while the young shoot of the year is clothed to the base with leaves. The male catkins also are bright orange. *M. T. M.*

The Golden Austrian Pine.—We can fully endorse all that you say respecting the beauty of the Golden Austrian Pine in your issue of December 8. We have a number of plants growing here, all the leaves of which, especially on the younger growths,

are beautifully tipped with gold, as in the specimen sent. We cannot answer your question definitely respecting the origin of the variety, but we believe it was either raised or introduced by Mr. Mongredien, during the time that he held the Heatherside Nurseries. *J. Cheal & Sons, Lowfield Nurseries, Crawley.*

Orchid Notes and Gleanings.

CATTLEYA CALUMNIATA × .—The last number of the *Revue Horticole* contains a coloured plate of a hybrid Cattleya of some interest, raised by M. Bleu, of hybridising celebrity, between C. amethystina and C. Aclandiæ, the former being the seed-bearing parent. The pseudobulbs are about a third larger than those of C. Acklandiæ; the leaves, a deep green sometimes spotted with violet, are also not unlike those of that species. In form the flower is similar to that of the pollen parent, but the colouring, &c., is altogether different, the sepals and petals being whitish, tinted with rose and spotted with violet, as in C. guttata amethystoglossa; the lip is a violet-red in the centre, fading into light rose colour at each side. If not the first hybrid Orchid raised in France, this is certainly the most important.

ODONTOGLOSSUM BICTONIENSE.—Several examples of this are stood about in the Orchid-house at Kew, and considering the quantity of bloom produced, with the time during which the flowers remain in passable condition, it is a plant that merits the little attention it requires, and deserves a place in every collection of any pretensions. The flowers are parti-coloured, being transversely blotched on the sepals and petals with brown on a greenish-yellow ground, while the lip is variously suffused in different individuals with pale purple or lilac on a whitish ground. A white-lipped variety was introduced in the same year as the normal type. These varietal differences are also supplemented by an apparently constitutional one, which shows itself in the labellum and petals, but especially the former, where it is variously lacerated or partly wanting. This is carried to such an extent sometimes that the part affected is reduced to a mere linear shred. It would be interesting to know whether this was characteristic of the species as a whole, or whether it is merely an accidental defect that has been propagated from one individual and disseminated by cultivation. Possibly this may account for the other names that have been given it by different authors, as Zygopetalum africanum of the *Botanical Magazine*, 3812, and Cyrtochilum bictoniense of Bateman's *Orchids of Mexico*, 6. There is also a figure of it in the *Botanical Register*, 1840, 66.

"COOL HOUSE."—This term is very misleading, as some give the name to the cool Odontoglossum and Masdevallia-house, others to the Cattleya-house, and thus many are induced to expose plants only suitable to the Cattleya-house to the low temperature of the cool Odontoglossum and Masdevallia-house, and thus injure or lose valuable plants, as has happened to myself in the beginning. Would it not be better if contributors to your journal abandoned the use of "cool-house" altogether, and adopted solely those of East India-house, Cattleya-house, and Odontoglossum house?—and which would leave no doubt as what they intended to convey to your readers. *H. J. Ross, Castagnola, Lastra a Signa.*

ORCHIDS AT FERNSIDE, BICKLEY.—Being a great lover of flowers and intimately connected with horticulture for many years, it seems but natural that Mr. H. M. Pollett should turn his attention to Orchids, his success with such florists' flowers as Primulas, Chrysanthemums, Cinerarias, and Pelargoniums, and particularly in his skilful management of the beautiful zonal varieties of the last mentioned for winter blooming, and which now makes such a glowing display in the house set apart to them, seeming at the commencement of his Orchid growing some few years ago to point to that high success in that direction which is now assured. The neat little span-roofed houses—light, perfectly ventilated and carefully heated—which have been erected for the Orchids, are now filled with a very select lot of plants, all of which are in perfect health, among the more noteworthy of them being the large plant with several flower-spikes of the rare hybrid Odontoglossum elegans. This is a very beautiful thing, and many longing eyes are turned on it; if 100 guineas would coax it to a new home it would not long remain at Bickley. Other rare hybrids also, such as O. Wilckeanum, O. Ruckerianum, O. mulus, &c., are here in fine masses of the best varieties; and O. Hallii is represented by one of the best forms in the country. Scrupulous cleanliness has much to do with the good culture of Orchids, and at Fernside it is carried out to the letter. The houses are white and clean inside and out, the floors are clean, the stages and pots are clean, and in a great measure, no doubt, in consequence the plants are clean, and scarcely an insect is to be seen on them. Time spent in cleaning in Orchid-houses is never wasted, as it is impossible to keep a pure air in a house where the pots, stages, and floors are not kept clean. Among the good specimens in bloom in the Phalænopsis-house are many fine P. grandiflora with immense round flowers, P. amabilis, P. Stuartiana, P. violacea, and one of the best forms of that lovely P. Sanderiana ever seen, with its bright pink flowers marked in the centre with crimson. In the cool-houses are many fine masses of the best varieties of O. Alexandræ and O. Pescatorei, many of them with from ten to fifteen huge bulbs each, and all looking plump and well, and plenty of them finely in bloom. Also in bloom are grand plants of O. Londesboroughianum, one spike having four branches; O. bictoniense roseum, the rare true O. Rossii rubescens (not yet out), many O. R. majus, and brilliant Sophronitis, O. Uro-Skinneri, O. tripudians, several O. vexillarium, both of the large and small flowered forms; Pleiones, Masdevallia ignea, M. amabilis striata, M. radiosa, M. Lindeni, M. tovarense, M. coccinea, M. chimæra, M. Reichenbachiana, M. Veitchii, M. Davisii, and, as a crowning beauty, a mass with many spikes of a superb form of Lælia autumnalis atro-rubens, with bright rosy-purple wax-like flowers, with snow-white centre. The plant was luckily obtained at Stevens' out of an importation of Sander's, and which has given some of the best varieties ever seen. They were sold as L. autumnalis from the atro-rubens district. The Cattleyas are in grand health, only the lovely C. exoniensis and the pretty sweet C. Holfordiana being in flower, although plenty of buds of Trianæs may be seen through the sheaths. Enough bloom is supplied in the house by Oncidium crispum, O. aurosum, O. incurvum, O. cheirophorum, O. unguiculatum, O. barbatum grandiflorum, and some superb O. Forbesii, as well as by various Cypripediums, Dendrobes, &c. Calanthes are specially well cultivated at Fernside, and here, as in most places where they are well grown, they are given a moist, warm temperature while growing, and a liberal allowance of liquid manure made with cow-dung. Such treatment secures a strong bulb, stout spike, and numerous flowers of the brightest hue. The C. Veitchii are not yet at their best, although they have been in bloom for six weeks, and have had from twenty to forty flowers on a spike all open at once. Lælia majalis is also very robust as grown here; it is wintered dry in the Pelargonium-house, and is grown cold and without shade all the year. The Cypripediums in bloom are C. Sedeni, C. Dominianum, C. Harrisianum, C. Spicerianum, C. barbatum Warnerii, C. selligerum, and C. insigne varieties. C. Schlimii is growing as strongly as a little C. Roezlii by being kept in the intermediate house with a pan of water under it, and being sprinkled overhead occasionally. Other plants in bloom are Cœlogyne assamica, C. barbata (very fine with several spikes), Dendrobium nobile, D. crassinode, D. heterocarpum, Lælia pumila præstans, L. p. Dayana, Mesospinidium vulcanicum, Maxillaria venusta, Odontoglossum pardinum (very fine), Ionopsis paniculata, Restrepia antennifera, good Vanda cœruleas, and Zygopetalum Mackayi, Warrea bidentata, and Spathoglottis Lobbii. Everything at Fernside is done well, the assistance of the proprietor no doubt being frequently forthcoming, if we may judge by the neatly fitted sanctum which is here, as in many other establishments, to be found near the Orchid houses.

ORCHIDS AT CAMBRIDGE.—The most charming of all, without doubt, is Zygopetalum intermedium, its almond scent is most delightful, pervading the house with a perfume unsurpassed. The sepals and petals are green, with large brown spots, and they slightly arch forward, forming, as it were, an alcove, beneath which the labellum is hung as a round white lamp, giving a bright aspect to what would otherwise be extremely dull. Its veins are picked out in lines of violet. This is a much more striking kind than Z. Mackayi, of which there are two varieties, a light and a dark, neither of which equal the other species in its perfume. Maxillaria picta, though not showy, is invaluable in its way, because it produces a large number of bright and pretty flowers on long independent stalks, sufficiently large and quite suitable for those small table arrangements now so much admired. In this way they are not lost, so to speak, as they would be in the mass of some other forms of decoration. The sepals and petals reach forward, and are incurved as if for the purpose of seizing an object in front; but this does not close the flower, and inside the colour is orange, darkened in places by the shadows of transverse bands of reddish-brown spots on the outside, which are upon a nearly white ground. Oncidium fasciculatum is not unworthy of mention, because of its free-growing and floriferous disposition. It has yellow and brown flowers of an uncommon appearance, produced rather far away on long stems. Another species is more noteworthy, and this is Oncidium vexillarium, which is a very fine plant. The inflorescence rises to a height of 2 feet, and forms a lax panicle, in this case of six or seven branches, with a large number of flowers, which are extremely showy on account of the breadth of pure bright yellow presented by the labellum. They average about 1¼ inch across. It belongs to the O. bifolium group, and is allied to O. varicosum, from which it differs in very evident particulars. Instead of inclining to be round, as in that species (by the evidence of one flower) the labellum has a tendency to assume a decidedly oblong shape in the direction of width, and it has very much shorter wings at the base of the labellum than those of O. varicosum, and these are the most evident differences, the latter pointed out to me by a great authority. Among other good kinds of Orchids there are none perhaps which need special mention. *R. I. L.*

The Kitchen Garden.

SNOW'S Broccoli will soon be turning in, and will need watching. A handful of clean hay placed in the heart of the plant will protect the growing flower-head against a moderate frost, but if severe weather be anticipated, the forwardest should be dug up and laid quite close together in some sheltered corner or under glass. Endive will require constant attention, in either tying it up or covering it over with a saucer to blanch it; but whichever plan is adopted, it should be done when perfectly dry. Broad Beans which are above-ground should have a little earth drawn up to them for protection. Be prepared with protective materials for the Celery, which must be removed from the ridges when frost is gone. Lettuces which are getting forward may be planted quite thickly in a frame for daily consumption. Sugar-loaf Brown Cos, sown the first week in August, is now in perfection, and in daily use for salads. On all favourable occasions wheel or cart manure upon vacant ground. In large gardens the use of the dobbin cart, with three wheels and trace harness for the horse, effects a great saving of labour; but we would repeat it, that the manure should always be half decayed, and have been turned over previously to being drawn out. This is the time to lay in a store of pea-sticks, rods for Scarlet Runners, birch for brooms, &c.; therefore, in country districts get them cut at once and brought in and placed in some convenient sheltered corner or building where they can be got ready in inclement weather. Few gardens have sufficient shed accommodation. The present being a rather slack time oftentimes a rough building in an out-of-the-way corner can be erected for the purpose above named. It may be roofed with felt, or thatched with heath, reeds or straw; such a building is also a handy place for storing wood—ashes, lime, soot, soils, &c. Soon the next year's supply of garden seeds will have to be ordered; in doing this avoid the so-called "collections," but order such things as are required by the family, and as a rule those kinds amongst them which you have proved to be worthy of cultivation, and which will give satisfaction to your employer.

FORCING.—Keep up a rather brisk temperature in Asparagus pits, and introduce a second batch. It is better not to cover the roots with more than 2 inches

of soil, as then the grass will be green throughout its entire length, and therefore eatable. Seakale will require constant attention; introduce to heat quantities in proportion to the requirements of the family. The Lily White is a good variety which bleaches beautifully, and is of good flavour. A hotbed of dung and leaves ought to be got ready for spring Carrots, for which purpose the French Horn is a nice early kind, that forces well. Also get a slight hotbed ready for Radishes; the French Breakfast is a very pretty variety, and generally liked. Very soon the earliest Potatos will show above-ground; take care then to keep them stocky by giving a little air in fine weather, and be most careful when they want watering that it is lukewarm. Mustard and Cress may be sown at weekly intervals; and take the greatest care that Cauliflowers in frames are not allowed to get drawn for want of air; but in this, and all kinds of forcing, the secret is to open early and to shut up in good time, so as to be prepared for the coming night. *J. Rust, Eridge Castle, Sussex.*

Plants and their Culture.

Greenhouse Flowering Plants.—For this season of the year the Epacrises are most valuable. We often wonder why they are not more generally grown than they are, especially by those cultivators who have to supply a large quantity of cut bloom for decorative purposes. The Epacris is of comparatively easy culture, therefore no one need fear to take the plants in hand. Some of the New Holland and Cape plants certainly do require close attention, but this is not the case with the genus in question. They are easily accommodated in vineries and Peach-houses during the autumn, winter, and spring months, transferring them from one structure to another as forcing proceeds, till they reach the late vinery. In this house most of them will finish their flowering season and commence to start into growth, after having been headed back pretty closely, the treatment given to the Vines in the early stages being just suited to their requirements. By the time moderately good shoots have been made it will be safe to shift them into a greenhouse or cold pit, there to harden off before being placed in the open air again. Any that require re-potting can best be seen to when the new growth has fairly commenced. In doing this use the best peat procurable, and of silver-sand likewise; also be sure to pot firmly. By adding a few young plants to the stock occasionally some of the oldest can be discarded when giving indications of exhaustion. In a cut state we find them to last exceedingly well; a week or ten days in most cases will elapse before they become faded. The stronger spikes of bloom are useful for floral arrangements in vases and epergnes. The smaller ones are all handy for buttonhole bouquets and such-like purposes; all of the colours, too, to be found in them light up well under artificial light. We have been using them now for one purpose and another since early in October, and hope to have a supply a good way into March next. The best in flower at the present time are E. Mrs. Pym, E. Albertus, E. Kinghorni, E. delicata, E. hyacinthiflora candidissima, and E. rubella. The soft-wooded varieties of Ericas, as they are often termed, to distinguish them from the slower-growing kinds, will thrive well in company with the Epacris under the treatment just detailed. Erica hyemalis and E. melanthera are two of the best kinds at this season of the year. The latter variety ought to be grown far more than it is by many cultivators. The first-named sort needs no recommendation, being so well known. Both the Epacris and Ericas above-mentioned require close attention in regard to watering. Their wants in this respect had better be anticipated than be deferred till on the point of suffering through need of the same during the season of flowering.

Camellias will now, on the decline of the Chrysanthemum, prove of good service. One of the best of the earlies is the old but good C. variegata, which invariably flowers well every season. The buds of those varieties that are most disposed to drop are hanging on better than usual with us this year. The absence of fogs to any extent for a few weeks past has been all in their favour. We are in hopes now that they will tide over the critical period in safety. Close attention with regard to watering will now be needed, and on no account should they be allowed to suffer in the least at the root whilst the buds are swelling. Should a spell of frosty weather set in, necessitating the use of fire-heat, the atmosphere will be rendered too arid for the Camellia. This can in a measure be obviated by occasional damping with the syringe both in the morning and late in the afternoon. A thorough good cleaning of the foliage will be a good occupation when the weather prevents out-of-door work being done in comfort.

The following are three valuable winter-flowering plants with deliciously sweet perfumes, viz., Luculia gratissima, Jasminum grandiflorum, and Daphne indica. If a suitable spot for their cultivation can be accorded to these, by all means give them a trial in an open border. The Jasmine likes a temperate atmosphere, whilst the Daphne, on the other hand, will succeed well in an ordinary greenhouse; where one cannot be accommodated either of the others would perhaps succeed well. Habrothamnus aurantiacus and H. elegans are both best grown in this manner. The former is equally floriferous with the latter, and valuable also for its distinct colour. For the clothing of pillars or training over wire arches they are both valuable subjects and are useful in a cut state too.

The zonal Pelargoniums that have been treated for winter-flowering should now be at their best. They will be found to give the greatest satisfaction if grown in a light house near the glass, with a little fire-heat always on to prevent an excess of atmospheric moisture. For decorative uses in rooms, either on the plants or in a cut state, the double varieties will be found by far the most durable where gas is in use. Tree Carnations, if not accorded a house for their especial cultivation, will succeed very well in a vinery just having fire-heat applied. Bouvardias in pots that have yielded a good crop of bloom may be induced to break afresh in a trifle warmer temperature, to give a second return early in the new year. Cyclamens should have all the light possible, with a moderate amount of air on all favourable occasions. A little heat in the pipes will greatly aid in dispelling damp, as well as in creating a better circulation of air amongst the plants. If no better place can be found at present, a swing shelf will do for them very well. Double Primulas will also give greater satisfaction if assisted during the winter months with a little fire-heat. The single types will need attention paid them to prevent decaying flowers from injuring the good ones. If this is omitted the footstalk of the flower will soon decay too, and oftentimes cause the premature loss of the entire truss. Keep an eye on the Solanums against any inroads being made by aphis, and fumigate on the first appearance of this pest. Cinerarias will also need attention in the same direction, as well as a careful scrutiny for any signs of mildew on the under-surface of the foliage. To the forwardest of these plants a little weak manure-water will be beneficial when the pots are well filled with roots. *James Hudson, The Gardens, Gunnersbury House, Acton, W.*

Peaches and Nectarines.

If the directions given in former Calendars have been carried out, the trees in the early house will by this time have commenced swelling their buds, and so far without the aid of much fire-heat, but a little more may now be used in the daytime, and on mild days the thermometer may run up to 60°, and on bright sunny days up to 65° or 70°, with a nice gentle circulation of air. Get the heat up to the desired point as early in the morning as possible, in order to do all the forcing during the daylight, allowing the night temperature to go down to 45°, or 50° at the most, with a slight circulation of air on through the night. Syringe the trees well with tepid water twice daily, and damp every available surface several times on bright days. Where fermenting material is used it must be kept sweet and in a state of fermentation by being turned over every day, adding a little fresh manure and leaves when the heat declines. Where there are three or four or more houses a second may now be started in the usual way, and if it is apprehended that the borders are in a dry condition give a thorough watering with tepid water at about 85°; but if the weather should keep mild very little fire-heat will be required at first, a little being turned on in the morning to get the temperature up to 50° or 55°, according to the state of the external temperature, but it must be turned off in the evening, and the warmth allowed to decline to 45°, or even a little lower if the weather is cold and frosty. A third house may be prepared for starting by the second week in the new year. Succession-houses must be kept cool, and where such houses are filled with bedding or other plants give as much air as possible without injuring the plants. Keep the latest houses free from plants, so that in frosty weather they may be kept open; and if the trees are syringed occasionally, to get them coated over with ice, it will tend to clear them of brown-scale and other insects that may infest them. Succession-houses may be managed in a similar manner, for unless the work is kept up pretty close this season as regards cleansing, &c., the trees will get too forward for the usual dressing. *J. Waller, Keele Gardens.*

Cucumbers.

Take every opportunity to encourage growth in the plants by shutting up the house early on bright days (which of late have been few and far between), and damping at the same time with tepid water the plants and pathways, using a fine spray for the former. Let tepid liquid-manure in a diluted state be given to plants which are making a free growth; but, on the other hand, should they show the least signs of a sluggish growth, it will be advisable to withhold the manure-water until they again exhibit unmistakable signs of activity. A light top-dressing composed of one part of peat, two of loam, and one of horse-droppings, previously warmed to the same temperature as the soil in which the plants are growing, will have a beneficial and invigorating influence upon the plants. Manure and leaves having been mixed and turned a couple of times, as advised in my last Calendar, will now be ready for making into a hot-bed. This should be made in a southern aspect, or all the better if in front of a wall or Laurel hedge, planted for the purpose of breaking the north winds, and preventing them cutting into the back of the frames when air is applied. The ground on which the dung-bed is made should be higher than that surrounding it. As the work of making the bed proceeds beat the fermenting material well down, and leave it sufficiently high to allow for shrinking, which will be rather more than one-third its height when finished. When the box or frame is placed on the bed put a shell inside it, which should be 6 inches shallower than the frame. The shell can be easily made by measuring the interior of the frame, and making it 1 inch less all round, and, as I have already stated, 6 inches shallower, and nailing the battens on the outer side of the shell, so that when it is fixed in the frame there will be a space of 1 inch between the two, thus supplying a means of top-heat; and it will be all the better if a few small drain-pipes have been introduced in the sides and ends of the bed as it is being finished, say 6 inches from the top, and the ends of the pipes communicating with the outside, stopped for the present to prevent cold air getting in, and removed when the linings are being made. Put fermenting material inside the frame sufficient to make the depth of the back part correspond with that of the front, after which a couple of inches of short dung, and then 4 or 5 inches of sawdust or leafmould, in which for the present, and where no better means exist, to raise (in addition to cuttings, &c.) young Melon and Cucumber plants. The seeds of these should be sown singly in 3-inch pots two-parts filled with fine mould, and be plunged in the sawdust, and a piece of glass placed over the pots; this, however, should be removed as soon as the seedlings appear through the soil, which will then have to be guarded from the attacks of slugs by encompassing them with a mixture of quicklime and new soot, and from injury through steam arising in the frame by leaving a little air (more or less, according to circumstances) on the back day and night so long as danger is to be apprehended in that direction. As soon as the plants have attained 2 inches in height top-dress them with soil of the same temperature as that in which they are growing. For frame, as for house culture, the Telegraph Cucumber is, all points considered, about the best variety. *H. W. Ward, Longford Castle Gardens.*

Double Whin in Flower.—Scarcely a better proof could be adduced of the hitherto almost phenomenal mildness of the present season than the fact that in the neighbourhood of London, less than a week before Christmas, a bank of the Double Whin was quite conspicuous from the large number of fully open flowers.

SATURDAY, DECEMBER 22, 1883.

WE have recently read some remarks concerning the CULTURE OF VEGETABLES FOR EXHIBITION, in which the writer seems to labour under the impression that growing for show is a matter of the first consideration, and production for ordinary consumption but a secondary affair. So much has from time to time been written about the production of exhibition subjects that such an error may be not altogether without excuse, and specially in the case of a gardener who, being an exhibitor himself, may easily be led to think that growing for exhibition is his first and chief duty.

It must be realised, however, that the primary object of exhibitions of all kinds of garden produce is to stimulate a higher average culture, and that prizes are but the incentives to that end, and not the primary objects. That many gardeners have been demoralised by the offer of prizes, and tempting ones too, for the special purpose of popularising some kind of garden product, whether vegetable or otherwise, there can be no doubt, and, with the hope of winning, they have run the risk of neglecting the culture of other high-class and more serviceable kinds, in order that the purpose of these special prizes might be served. That would be an unfortunate result, and shows how correct ideas may be diverted into wrong channels. Still there remains the undoubted fact, that prizes for collections of vegetables competed for at any time of the year should have a highly beneficial result.

The error into which it is feared gardeners who compete for prizes, and young gardeners especially, may fall, is that of supposing that so long as they can, by dint of special culture, succeed in raising of the various kinds just enough of good samples for the purpose of the competition, the end in view is achieved. That is, indeed, a deplorable idea, and one that cannot be too strongly deprecated. If the samples on the exhibition table do not fairly and honestly represent the average character of the crops of their kinds in the garden at home they are misleading. They may very fairly be the pick of their kinds, but they should represent the good average quality of the bulk, and not be isolated products of the highest and most careful culture. Some gardeners may plead that their pressing duties prevent their giving such excellent culture to all their garden crops, and that it is but the special few of each kind that can have special culture. Such an excuse is not to be tolerated. Really it would be far more manly and honest to remain a non-exhibitor. Were any one who had seen the samples on the show table to visit the exhibitor's garden and there find that the bulk of the crops were of inferior quality the obvious deduction would be, that the exhibitor had not been the grower of his show products. Gardeners anxious to maintain a reputation for integrity should avoid that pitfall.

We may well hope that gardeners prefer to give to all their products high-class culture, whether they exhibit their produce or not. It is a fact without doubt that in many gardens, from which not a thing ever goes to the show table, the cultivation is of the highest order of excellence. Such examples tend to show that after all no good gardener stands in need of the stimulus that prizes present to good culture. On the other hand, there can be no doubt that such prizes have proved stimulating, as not only are vegetables far more widely exhibited now than they were several years since, but that the average quality is also higher; indeed, sometimes we see products that cannot be excelled. We can but hope, therefore, that whilst the danger of highly cultivating the few samples to the detriment of the bulk of the crop may sometimes exist, yet that, as a rule, gardeners honestly and faithfully present at shows examples of their general cultivation, and not specially selected or cultivated products. The moral of all these prizes is found in the old adage, that whatsoever is worth doing is worth doing well; and to that end, as far as human labour is concerned, there must be no sparing of trenching, forking, hoeing, thinning, manuring, and those other essentials which readily occur to all gardeners. Pleasant as it may be to win prizes, we doubt whether they give more pleasure than do the satisfaction and praise of employers and visitors on the garden crops, where these are throughout first-rate. Where the soil is clean, and all well occupied, and specially where forethought has cropped so as to ensure no vacant patches and a good succession, there is the perfection of kitchen gardening displayed.

In visiting private gardens our impressions of the skill of those who labour in or superintend them are not so much derived from this house of Grapes or from that row of trees, or from the charms of the flower garden, as from the general cultural ability seen in the kitchen garden, and in the nature of the crops therein grown. The gardener who does his least showy department well may be trusted to exhibit not less skill and industry in those where display is naturally expected. It is a curious fact, but none the less worthy of comment, that in the judging of vegetables; judges and the public the most often come into collision. Only the other day, in what was an exceedingly limited competition, the after-discussion on the awards showed that the judges were in a hopeless minority. Still the lesser weight of opinion made the awards. This discrepancy arises from the fact that far too many of those selected as judges still cling to mere bulk or size as being one of the chief points of excellence in vegetables; yet we are quite sure that in their own gardens they would send such samples, as they have given the highest honours to on the show table, either into the servants' hall or into the bothy, and not to their employer's table. Size means bulk of course, but seldom quality, still less does it mean beauty. Cleanness, evenness, handsomeness, and fair average size, always indicate high excellence, and were fair consideration given to these points fewer mistakes would be made.

It is to be deplored that, because of the concentration of the competitions for vegetables in a few favoured months of the year, no special encouragement is given to the winter culture of vegetables. Of course these products are as essential and needful then as at midsummer, but the donors of prizes seem to want a big return for their money, and therefore prefer to have their competitions when vegetables are abundant. We confess we should like to see a competition for collections of eight or ten kinds of vegetables at any time during the coming three months. From such competitions we might gather evidence as to the provision made by gardeners for their employers' tables during the winter months, not in the form of a dish of any one kind forced specially for the purpose, but of the representatives of abundant crops serviceable for a long winter season's consumption.

—— THE LAKE AT KEW. — Where is this? Such, we have no doubt, will be the inquiry which will arise in the minds of many when they first set eyes upon our centre illustration (fig. 143). Does it not, on this pre-Christmas morning, suggest pleasant reminiscences of woodland walks, Surrey streams, or parks in the Midlands in the sunny summertide? Where could those spiry Foxgloves show to such advantage? Where those giant Butterburs (Petasites) more forcibly suggest the rank vigour of tropical foliage, than in some rural spot far from the haunts of busy men? And yet they are within rifle shot of the dirty bustling town of Brentford, within sound of the tram-car bells, the railway whistles, and the still more unearthly compound between screech and groan that emanates from the steam tugs. In other words, they are to be seen in Kew Gardens. The Arboretum and pleasure grounds are, indeed, but too rarely visited by the practical gardener. Isleworth nursemaids and their attendant swains, a troop of school-girls, occasionally a bored wanderer who has lost his way—these are the class of people one sees most frequently in the more remote parts of Kew Gardens—rarely the gardener or the forester. And yet there is much, very much, for him to profit by, and if he wants to make a special study of Oaks, of Elms, of Pines, or what not, to realise what a wealth of valuable subjects for ornamental or for commercial purposes are at his disposal—did he but know it—he could scarcely do better than make himself acquainted with the treasures of the Arboretum. Our illustration is taken from the north side of the lake, and shows one of the raised islets that break its surface, with the channel between it and a fellow islet. Time and vegetation have softened down the whilom too regular outlines of these islets, and the broken margins well conceal the fact that this is an artificial, not a natural lake. Willows and Alders find appropriate places along the banks, though these genera are scarcely so well represented as some others. Extensive works are now in progress near the lake, which will doubtless somewhat alter its character, and prevent the visitor in the future from ascertaining the precise point of view selected by Mr. FITCH for our illustration, but the general character will not be altered, and the charm of this lovely sylvan scenery will suffer no impairment.

—— THE WEEK.—A testimonial is to be presented to M. BURVENICH, of Ghent, at a complimentaty dinner on the 23d inst., in honour of the "jubilee" of this gentleman as a teacher and practitioner of horticulture.—M. BESSON, of Nice, has been appointed Chevalier of the order of "Merit Agricole." The like honour has been paid to M. BERNARD VERLOT, the Curator of the outdoor department of the Jardin des Plantes and Professor at the School of Horticulture of Versailles.—At the recent electric exhibition at Vienna some perfectly ripe Strawberries were exhibited, which had been grown under the influence of the electric light for twelve days. The plants were exposed to the sun's rays by day, were then allowed a rest of two hours, and subsequently placed under the influence of the electric light. M. BRONOLD, who conducted the experiment, states that it is necessary to pass a current of electricity through the soil.—M. NAUDIN, of Antibes, has published the first part of a memoir on the species of Eucalyptus grown in the Mediterranean region. He enumerates thirty-one species introduced into cultivation, and gives descriptions of them.—Dr. STURTEVANT's address on Indian Corn, read at the New York Agricultural Society, is an interesting document dealing with the history and botany of this valuable grass. — M. BALTET, of Troyes, sends us a copy of his new work, *Traité de la Culture Fruitière*—a work of singular interest, on which we shall have more to say on another occasion.—The voting list for the Gardeners' Royal Benevolent Institution has been issued. There are twelve pensioners to be elected, and there are twenty-one candidates, two of whom, by virtue of their subscriptions, will be recommended for election in accordance with the rule which gives the preference to those who have done their best to help others in former years. There remain then ten candidates to be selected from the list. The attempt to increase the pensions moves slowly but surely. About half the amount required has been obtained; let us hope the other moiety may soon be secured. Quite independently of the duty of helping one's neighbour is the fact that this Institution offers to the thrifty, who may fall into misfortune or poverty, about the best investment for money that it is possible to have now-a-days. It has been the fashion of late to abuse the Institution because it is not a benefit society. It never pretended to be, but it offers a perfectly secure investment to those who may need its help in the future, and it is able to help many who have never directly or indirectly helped the Society at all. It meets the

FIG. 143.—THE LAKE IN THE PLEASURE GROUNDS AT KEW. (SEE P. 788.)

requirements of those who say "Charity begins at home" by giving the preference to those who have tried to help others and to make provision for themselves in case of need, and, as far as its means allow, it satisfies those who remind us that charity should not end at home by extending its benefits very largely to those who have never subscribed a penny. If any reader feels "Christmassy" we can assure him that one excellent way of doing his duty to his neighbour is to send a contribution to the fund. It has been said that the gardeners have no confidence in the Institution or its management, but against this should be said that an institution which in one year can pay over £1300 in pensions and put £1200 to its reserve fund must have the confidence of somebody, and its managers can well afford to disregard their detractors.

—— ALPINE PLANTS.—M. CORREVON, of Geneva, whose articles on the culture of alpine plants have been so much appreciated, is prepared to issue a work on the subject, comprising their description, acclimatation, and cultivation. The work, which will be in the French language, will be published by subscription, at a cost of a few shillings. Persons desirous of subscribing should address to M. CORREVON, Saint Antoine, Geneva.

—— WILLDENOVIA TERES.—The plant so named in our last issue (p. 760) is the male plant of Restio subverticillatus, MAST. The true Willdenovia teres is, we believe, not in cultivation in either sex. Though not largely endowed with beauty of colour, some of the Restiads are very elegant and graceful, especially the species of Thamnochortus. They would take rank among ornamental grasses (though, of course, not strictly grasses), and it is much to be desired that some of them should be introduced. It would not surprise us to find that some of them were hardy, though they would be better grown in the greenhouse.

—— THE LIMA BEAN.—A correspondent, who has been successful in the cultivation of the Lima Bean in his garden at Abergavenny during the past three years, has kindly sent us some ripe seed-pods and an excellent photograph of a group of plants, which appear to have been in a robust, healthy condition at the time. The "complete success" which has followed our correspondent's experiments leads him to advocate the more extended cultivation of this variety, but in this we regret that we cannot agree with him. The Lima Bean is no novelty in this country; its cultivation has been many times attempted, but the result has not warranted its adoption as a regular garden crop. The fact is, the plant is too tender for our climate, and even in the more favourable environs of Paris it only ripens part of its pods, and in cold wet summers none at all. Except as a curiosity, or on the off chance of securing a crop, the variety is not worth growing; had it been otherwise its general cultivation would have been adopted years ago.

—— CHRISTMAS VEGETABLES.—The cutting off the tops of Turnips, tying them into bundles, and selling them in market at this season, seems to indicate either extreme depravity of taste on the part of consumers, or else exceeding scarcity of good greens. At present there is no lack of good edible material in respect of the Cabbage family; although there is not such great abundance as was seen a year ago, still there is enough to make its culture profitable, for a very great abundance on the part of the hardier or more common kinds always means a profitless glut. Turnip-tops are, however, not being marketed because of a lack of Brussels Sprouts, Savoys, Coleworts, and other substantial greens. We have rather to look for the reason in the undoubted fact that such are the peculiar tastes existing amongst the vast metropolitan population that some would gladly purchase Turnip-tops at any time, although there can be but one time of the year when the green is really a pleasant edible vegetable. The cutting, too, has been helped by the fact that large breadths owing to the August drought came away too late to form good bulbs; and farther, all experience shows that plants left to produce tops in the spring seldom prove profitable, owing to the marvellously low price for the pungent commodity which then prevails. It must be obvious that consumers can find little really edible matter in Turnip-tops now, and that little would require as much boiling as another new and less famous vegetable to render it tender. Still if a fair demand is met as fairly as it can be no one can complain. The chief defect in our Christmas supply of vegetables is not found in the lack of the hardier members of the Brassica family, but in the absence of those tenderer but more enjoyable kinds, such as good late Cauliflowers and early Broccoli, with fresh Spinach and similar products. Having regard to the almost regularly mild nature of our pre-Christmas seasons, it seems as though autumn Cauliflowers should be induced to hold on till the festive season, whilst early winter Broccolis are either deceitful or not planted sufficiently early. Good as our greenstuffs for Christmas may be there is room for improvement.

—— PELARGONIUM ERL KING.—As a personal compliment to himself Mr. KING has been very happy in the selection of a name for his new double Pelargonium, which so very deservedly received a Certificate of Merit last week, but the designation conveys no impression as to the undoubted advance the kind shows in its stocky short-jointed habit of growth and singular floriferousness beyond what hitherto has characterised double kinds. Erl King is the product of a deep-coloured double and of a salmon single kind. What is now desired is that it shall be made the progenitor of a race of deep-coloured kinds as free in every respect as itself, and then for pot or bedding purposes we shall see the doubles superseding single-flowered kinds. Whether for ordinary decorative purposes or for cutting, double-flowered Pelargoniums are so enduring that they can hardly be too highly prized. Still farther, when we can have them blooming as freely, and if possible even more beautifully, in winter than in summer, we have but ourselves to blame if our greenhouses are not all through the dull season of the year rich and gay with colour. To suggest the holding of a Pelargonium show at Christmas reads very much like a joke; yet it is certain that growers like Messrs. CANNELL, KING, and others, could tell us that a display might be made that would astonish even hardened show *habitués*. All who have seen Mr. CANNELL'S wonderful show of cut bloom of Pelargoniums, double ones especially, at South Kensington and elsewhere, want no assurance as far as displays of cut bloom are concerned; but it is only those who have visited Swanley at this time of the year who can fully realise the gorgeous beauty found in a big lot of Pelargonium plants in winter. Their culture is simple enough, and the production of a grand mass of bloom is solely a question of space and warmth. A long low span-house specially for winter flowering Pelargoniums should be found in all large gardens.

—— ILEX DIPYRENA.—Mr. GEORGE PAUL has been good enough to send us fruits of this species, which are in his and our experience but rarely produced. The orange-red fruits are borne singly and sparsely, and are about the size of a large Pea, oblong, obtuse at both ends, and so deeply furrowed lengthwise as to render the fruit somewhat two-lobed. There were three seeds in the berry we examined, but one of these was abortive. We have not had an opportunity of examining the flowers, but probably they are practically, if not structurally, unisexual. Supposing the flower in the present instance to have been female only, without possibility of impregnation by the pollen of its own species, it might yet become fertilised by the pollen of other species (I. nobilis, &c.), of which there are plenty in the immediate vicinity.

—— PRUNES IN BELGRADE.—It seems, from a recently issued report from Belgrade, that Prunes, besides being generally consumed in the country, are also exported in large quantities. They have not yet, however — at least directly — found a market in England. They are exported to Hungary, where Plum trees no longer exist in large numbers as formerly, and also directly to the United States, where they have a good market. An attempt has been made to introduce them into England, and it is thought that in time it will thoroughly succeed, as measures are being taken to make them equal in respect to preparation to those imported here from France. The selling price lately at Belgrade has been about 2*d.* per pound, but the price varies with the season and demand, as well as the prospects of fruit for the coming year, which up to the time of writing (in May last) were very good. In respect to the difficulty of introducing Servian Prunes into the English market, it appears that M. PARANDS, the head of one of the principal export houses on the Save at Belgrade, consigned to England a certain quantity of Servian Prunes on trial, but with a result wholly unfavourable, as he lost on them. On inquiry into the cause, he found that the Servian Prunes, not being prepared on the French plan, were regarded in London as inferior, and in consequence realised a low price. This occurred about two years ago, and the Government have profited by the experiment, for it is now about to introduce uniformly the French system of preparation throughout Servia; so that, in future, Servian Prunes will be fit for the best market. M. CHEDOMIL POPAVITCH, the president of the official Agricultural Society, who has charge of introducing the new system of drying, has stated that the fault lies in the construction of the peasants' drying ovens, as they are sealed, and have no ventilation. The French oven, on the other hand, is ventilated. The old forms at present in use are also unequally built, so that the Prunes, when collected for export from the many peasants, are not equally baked. All these evils are now, however, to be as promptly remedied as may be; but M. POPOVITCH is of opinion that it will take five years to make the French system general in the country. Rakie, or Plum-spirit, is consumed generally throughout Servia, but the export to Bosnia has been stopped by high duty on the Austrian administrative frontier there. When less rakie is made for export more Plums are available for export as Prunes, and the price is lowered in proportion. The rakie exported to Bosnia has eight degrees of spirit, and costs about 9*d.* per gallon. That commonly sold on the Belgrade market costs about 1*s.* 6*d.* per gallon, or double the price of the former.

—— GLASNEVIN BOTANIC GARDEN.—Messrs. JAMES BOYD & SONS have entered into a contract with the Government, for the sum of £4300, to construct a new Palm-house at Glasnevin, which is to be 100 feet long, 80 feet wide, and 65 feet high. The new house is to be built over the old one, which will be removed on the completion of the new structure.

—— CHIEN-DENT.—The botanical secretary of the Linnean Society (December 6) exhibited a specimen of "Mexican Whisks," known also in the London market as "Chien-dent," which are now imported in considerable quantity from the vicinity of La Puebla, in Mexico. It is believed to be derived from a species of Andropogon, but is in bulk coarser than the similar material from Southern Europe from Andropogon Gryllus, and finer than the species of Panicum used in India for brushes.

—— GOODYERA DISCOLOR.—Whether we estimate the value of this lovely plant merely for the beauty of its foliage or the chasteness of its white flowers, or for both combined, it is in every respect a gem amongst Orchids. As in the rest of its congeners, the creeping stems, terminating in a tuft of leaves, betray its terrestrial habit; but coming from South America it requires stove temperature for its perfect development and to keep it in a healthy vigorous condition, whereas the majority of species they inherit elevated regions where they enjoy a cool moist atmosphere. The leaves of G. discolor are of a peculiar deep green above, with a white midrib, and often suffused with a bronzy hue, especially in a young state, while the under-side is always of a bronzy-red colour. In this respect it simulates some of the Anæctochilus, a closely allied genus of plants that are rather difficult of management. It is figured in the *Botanical Register*, 271, and a fine pan of it will continue for some time an object of attraction in the warm division of the Orchid-house at Kew.

—— A NEW AMERICAN PEA.—This novelty has been introduced by a New York firm, and is a wonder. A photograph of a single plant represents a half dwarf growing variety 15 to 18 inches in height, foliage large, thick and full, and it is said to be of a dark green colour. It is a second early, ripening one week after the earliest kinds. "The most striking feature of this variety is its remarkable tendency for branching directly from the roots, forming a veritable bush," and therefore it is necessary that the plants stand 6 inches apart in the rows. The first Pea of American origin that has attained a world-wide reputation was American Wonder, and was obtained by crossing Little Gem with Champion of England. From the same cross came the latest novelty, and the results of certain trials made in the United States

have proved so favourable that it is to be sent out this season. But English raisers of new Peas who in the home market can obtain but small prices for sorts of high class quality will be filled with envy when they learn that the stock of this Pea was purchased at the rate of £200, or 1000 dols., per bushel. It cannot be matter for surprise if the next three months witnesses a marvellous exodus of Pea raisers to this El Dorado across the Atlantic. There a large fortune can be made from a single pod, while in this country, overrun and satiated with new Peas, there is no market to be found for new commodities of such excellence that the Pea of the future is already in the hands of some dozen raisers. Berths should be secured at once, even if at a high premium.

—— Christmas.—Are gardeners a stupidly unsentimental race, that they view the festive season with so much cold unconcern? or does the monotony of recurring seasons fail to show them Christmas in any other than a stupid mood? When the sun shines out warmly the trees are rich in leafage, and the earth is all aglow with Nature's floral pictures, then, indeed, is the gardener's heart stirred, and is full of grateful feelings and hearty good will to all. A cold, cheerless season, when all Nature is resting, and the earth gives no increase, is hardly the time to excite the hearts of men to whom if winter be not a season of discontent it is yet one of repining because Nature is asleep. Give but the now unwonted excitement of hard frost, when all the energies of men are needed to battle with the destructive foe, and some compensation for the common dulness of Christmastide is found. It is not always possible, however, to contend successfully with the enemy, and the comparative rarity of his visits renders Jack Frost rather more dangerous when now and again he comes in an unusually crusty mood. Gardeners know nothing of those pleasant suspensions of business that at this season in our towns set so many free for a few days to take holiday. In the office or warehouse, or even factory, at the end of a week's leisure all things are found as if but one night only had interposed, and work is resumed again without harm or loss. In gardening there can be no locking up, no standing still; for whilst in some departments rest is inevitable, in others the unceasing demands of Nature keep attendants ever on the alert and ever watchful. The fact that gardeners must be ever at work makes Christmas sentiment rather of the nature of a nuisance. It seems out of gear with the surroundings; and and this year especially, the seasons have stripped Christmas of all its old romantic associations, crushing out all sentiment by its monotonous dulness and frequent dirt.

—— Cornus sibirica. — During the winter months the bright colouring of the twigs and branches of this Dogwood render it one of the greatest ornaments of the shrubbery; no other outdoor shrub exhibits such brilliant colour in its bark, a rich deep orange-red. Some authorities place Cornus sibirica as a variety under C. alba, whilst others make the two identical. Nothing can be more decided than the difference in the habit of the two plants, from a garden point of view. The one (C. alba) grows vigorously enough, and strikes freely from cuttings, whilst in many places C. sibirica almost refuses to grow at all, and in all is exceedingly difficult to strike. Of course it layers readily enough, and the plant repays any care bestowed on it by the beauty of its winter dress. An enthusiastic friend, who had long petted his stock, commenced to graft C. sibirica on the vigorous growing C. alba, with happy results as he got larger and handsomer specimens, which were quite able to take care of themselves.

—— Azolla caroliniana.—In the December number of *Science Gossip* a correspondent of that publication confirms the fact stated by us at p. 307, that this pretty and interesting aquatic has become naturalised near Pinner. Whether it will really withstand our severe winters, and settle down contented in its new quarters, of course remains to be seen. "In its present position at Pinner, it has succeeded in covering the pond, and the effect is very striking, as it overrides the green chickweed; in places its red tint is very curious, and totally unlike that of any native pond weed. I have examined several ponds in the immediate vicinity, and have found a small quantity growing in them, so that in course of time it will be, no doubt, as common in the neighbourhood as is Chickweed. As it is grown in private gardens close by, there can be no doubt as to its origin where it is now growing." In the *Gardeners' Chronicle*, vol. xv., p. 466, there is a figure of Azolla pinnata in company with a set of other miniature aquatics. As the genus Azolla is by no means well understood, perhaps the Pinner plant is identical with the one figured in our columns.

—— "Kind," "Variety," "Sorts."—These terms are often met with in schedules of prizes, but are they to be taken as actually synonymous? The word "kind" is often used in a different sense to "variety" or "sort." In some schedules of prizes may be seen classes reading much as the following:—"Six dishes of fruit, distinct kinds." By this was intended, say, one Grape, one Peach, one Nectarine, one Strawberry, one Melon, one Pine. This was the obvious intention of the framers of the schedule, but whether the term would bear such a restrictive meaning is doubtful. "Kind" is often used in the same sense as "variety," thus gardeners are heard stating this is a good kind of Cabbage, or that a good kind of Lettuce, meaning thereby a certain variety of Cabbage or Lettuce. Variety and sort are really synonymous terms, but it occasionally happens that the term "sort" is used in the same sense as "kind" in the illustration above given. The term "varieties" has a wide interpretation given to it at many country shows. Thus there may be a class for vegetables, twelve varieties. Exhibitors are found reading the schedule to the effect that variety means simply Cabbage as one, Potatos as another, and so on; but they put up two or three or even more varieties of each. Thus a collection of twelve varieties of vegetables grows into one of twice that number. Judges award prizes to such collections, and so a kind of sanctity is given to the custom by so doing. If a judge were to interpret the schedule literally, he would throw out from the competition two-thirds at least of the competing collections, and the horror of secretary and committee can be well imagined. At the same time, if an exhibitor keep within the strict rendering of the class, it is a little hard if his contribution should be overborne by mere quantity, and country judges especially are apt to attach undue importance to mere bulk. What is wanted, as we have often pointed out, is something like a federation of horticultural societies, with a kind of representative council, so that there may be brought about something like a general understanding as to the use of terms and their signification. But it is doubtful, from the inaction of the mother society, the Royal Horticultural, if this is feasible; yet something needs to be done both in the interests of judges and exhibitors; for arbitrary interpretations are as indefensible as those which are made in ignorance.

—— Hoplophytum calyculatum is a Bromeliad with most charming, though solid looking and dense conical spikes of pure yellow flowers, which are supported on stout polished brown stalks, relieved by splashings of white tomentum. There are about 180 flowers in each head, the lower ones, now open, are three quarters of an inch long, and shaped like little Abutilons, but not so much bulged. The habit of the plant is like that of a Billbergia, and it is characterised among the fifty or so of the Bromeliaceæ in the Cambridge Botanic Garden by inky patches, as if by the finger and thumb, at the end of the leaf.

—— Hybrid Bromeliad.—Mr. F. Moore, the Curator of the Botanic Garden, Glasnevin, has been so obliging as to send us a flower of the first hybrid Bromeliad we have seen in flower. Bilbergia Windii × was raised at Liège, in the establishment of MM. Jacob Makoy, between Bilbergia baraquiniana and B. nutans. Mr. Moore expresses regret that these gorgeously coloured plants are not more freely grown in this country, and trusts that the large and representative collection of well grown plants at Kew will serve to attract popular attention to them The following is a technical description of the specimen sent:—Peduncle a foot long, pendulous, cylindrical, glabrous. Bracts broadly lanceolate, acuminate, boat-shaped, of a rich bright rosy-crimson, like the flowers of Lapageria rosea. Cyme racemose, few-flowered, each flower about 3 inches in length from the base to the lip of the protruding styles, slender, cylindric. Calyx inseparate at the base from the ovary. Sepals half-an inch long, oblong obtuse, iridescent, reddish at the base, blue at the tips. Corolla protruding beyond the calyx, greenish-yellow, its strap-shaped lobes 2 inches long, rolled up circinately like the fronds of a Fern. Stamens six, filaments slender, yellow. Anthers very narrow, attached just above their base to the filaments. Style elongated. Stigmas flattened, twisted, blue.

—— Acanthus montanus.—It is rather unusual that in this, the typical representative of an extensive order, which is almost entirely tropical in its distribution, we should have the most northerly genus exhibiting the boldest type of vegetation, perhaps, of any. Most of the species to be seen in collections are herbaceous in their character, but the present plant is of a sub-shrubby habit, and if the foliage is more moderate in dimensions, at the same time it exhibits a type by no means common under glass. It is a native of West Tropical Africa, and having spiny, pinnatifid, Thistle-like leaves, well represents the habit of those few species that have been introduced from southern and warm latitudes. The inflorescence is borne on a terminal cone-like spike, with the flowers and bracts arranged in four rows, that are serially continuous with the decussating leaves. The curious broadly one-lipped corolla is of a delicate rosy colour. The plant was first flowered in cultivation in 1865, at the Glasnevin Botanic Garden, and was figured in the *Botanical Magazine* for June of that year. It flowers occasionally in the Palm-house at Kew, and may be seen flowering there now.

—— Salvia lantanifolia. — The value of Salvias for conservatory decoration during the autumn and early winter months cannot be over-estimated considering the varied and rich colouring, with the free-flowering properties that many of them possess. The subject of this note, which may be seen in the greenhouse at Kew, amongst a number of other species equally well grown, merits something more than a passing notice. The flowers cannot compare in size with that of such bold and highly-coloured sorts as S. splendens and S. patens, but they are produced in greater abundance, and last in excellent condition for a much longer period, and that, too, in a temperature that would cause the others to drop their flowers almost as soon as opened. The flowers are of a rosy-purple colour, with lively white lines on the lower lip, and form long racemes terminating the principal shoots, while laterals freely produced and of shorter growth prolong the flowering season indefinitely.

—— Sudbourne Hall, Suffolk. — It is reported that Sir Richard Wallace, M.P., has sold this fine estate to Arthur Heywood, Esq., a retired banker of Liverpool. The purchase-money is about a quarter of a million.

—— The Weather.—General remarks on the temperature, rainfall, and duration of bright sunshine, for agricultural and sanitary purposes, during the week ending Dec. 17, issued by the Meteorological Office, London:—The weather has been cloudy or dull and very unsettled, with frequent falls of rain during the first part of the period, and showers of hail, sleet, or snow at its close. The temperature has been above the mean in all districts, the excess in the "Midland Counties" being 4°. The maxima were generally registered on the 13th and 14th, and were rather high, varying from 54° in Scotland to 57° in "England, S.W." The minima, which were recorded on the 16th and 17th, ranged from 29° in Ireland to 33° in the south-west of England. The rainfall was rather more than the mean in Scotland, "Ireland, N.," "England, N.E.," and "England, N.W.," and about equal to its normal value in "England, E.;" but in all other districts a slight deficit is shown. Bright sunshine has been less general than during last week, the percentage of possible duration ranging from 28 in "Scotland, E.," to 8 in "England, N.W.," and to 2 in "Ireland, N." Depressions observed:—The barometric pressure during this period has been subject to very considerable and rapid oscillations. Several depressions have travelled—generally in an easterly or south-easterly direction—across our islands and the North Sea, causing the wind to blow very strongly from between W. and N.W. The most serious of these disturbances appeared suddenly off the north-west of Scotland late on the 11th, and, travelling with unusual rapidity during the night, occasioned exceptionally violent westerly to north-westerly gales in all our north and north-west districts, and strong squally gales in other parts of the kingdom. Towards the close of the period the barometer had risen quickly along our western coasts, and fresh or strong northerly winds or gales had become general.

—— Gardening Appointments.—Mr. Geo. Oliver, lately Gardener at Hanbury Hall, Droitwich, as Gardener to C. E. Everett, Esq., Tinstall Park, Bromsgrove.—Mr. T. Hovell, late of Battlesden Park, as Gardener to W. F. Gore Langton, Esq., Padbury Lodge, near Buckingham.

GAME COVERTS.

The Formation and Management.—Game coverts may be divided into two kinds, natural and artificial—natural, when the woods are kept sufficiently thin to admit of the free growth of Bramble, bracken, rough grasses, or other woodland vegetation; and artificial, when the planting of such shrubs as are suitable for underwood is resorted to. Natural game coverts, which by most gamekeepers are considered superior to those artificially formed, can only exist where the plantations are kept well and regularly thinned, so as to admit abundance of both light and air—the two principal requisites for the successful growth of natural underwood. In the formation of artificial game coverts, when not only shelter and protection for game are required but ornamental effect as well, the judicious grouping of the different shrubs is a point which should never be lost sight of, more especially when the coverts are within the park, and visible from drives and roads. Formality and insipidity are so often the characteristics of the present style of shrub planting, that in many cases our woodlands seem utterly destitute of that variety of outline and contrast of light and shade so essential to picturesque beauty.

In planting evergreen shrubs for the twofold purpose of covert and ornament, the best method is to plant each variety in separate groups or clumps. No hard and fast lines can be laid down as to the distribution or number of plants to be used in the clumps, which, to a great extent, must depend on the size and shape of the ground, as well as taste of the operator. They should, however, be placed at irregular distances apart, be irregular in size and outline, and with from a dozen to forty or fifty plants in each. In selecting sites for the various groups be careful to choose the most open positions, and if possible arrange so that in viewing the wood from any point, the eye may not pass directly through, or along a bare unplanted line, but become arrested by the various clumps before passing to the opposite side.

Having arranged the positions of the various clumps, the pits should be opened, of a size and at a distance apart suitable for the plants intended to be used, at the same time taking care that they are sufficiently large to avoid cramping or bending of the roots, which in all cases should be spread out to their full extent. In making the pits it is well to thoroughly loosen the soil in the bottom and sides with a pick, so as to give the tender rootlets an uninterrupted course when starting growth in spring.

What to Plant.—In endeavouring to give a list of the best evergreen shrubs for covert purposes, I would call attention particularly to the merits of Privet, Box, Laurel, Holly, and Yew, as these have been very extensively used on this estate for underwood, and with the best possible results. As to which of the above shrubs should receive pre-eminence as an ornamental covert plant I cannot decide, each having some peculiar merit rendering it valuable in its own particular place. We will for the present, however, consider all alike in this respect, and briefly describe the value of each separately, beginning with the Box.

The green Tree Box (Buxus sempervirens) forms a very pretty underwood, and thrives well beneath the densest shade of our deciduous trees. It is also of slow, dense growth, and well adapted for planting in various soils and situations, although preferring a light, dry loam and shady position. Another recommendation is its immunity from the attacks of game, hares and rabbits having such an aversion to this plant that even during the most severe weather I cannot remember having seen it injured. Few plants suffer more from overcrowding than the Box, and for this reason it should be planted at wide distances apart, the plants soon getting top-heavy and falling over of their own accord.

Where the plants are not of large size, and immediate effect or covert is required, they may, however, be planted pretty close, and in a few years, when encroaching on each other, every alternate one may be removed. It is well adapted for transplanting, the almost solid mass of matted roots holding the ball of earth firmly together, thus rendering the plant one of our easiest as well as safest to remove.

The wood of the Box is highly prized by the turner and wood-engraver—indeed, such has been the demand for it in these departments, that at present grave fears are entertained of it being entirely used up. This plant would seem at one time to have been more general and abundant in our own land than it now is; thus, Boxley in Kent, Boxwell in Gloucestershire, and Boxhill in Surrey were all named from the quantity of this plant which was formerly found in the neighbourhoods.

The common and Colchic Laurels are amongst our best shrubs for underwood, and should be planted extensively; they are of free growth, bear cutting well, and thrive under the shade and drip of other trees. For covert planting we prefer the Colchic, as it is of a more dense and procumbent habit, as well as equally hardy with the common form; it is also less liable to injury from hares and rabbits. The common Laurel requires frequent and heavy pruning to keep it in bounds, as if allowed to ramble at will it soon becomes bare near the ground, and useless either as game cover or ornament.

Last spring we layered a great number of this plant that had, through neglect, become useless for the purpose intended, many being from 12 feet to over 20 feet in height, and with simply a tuft of foliage near the top. In layering we sawed the stems half through near to the ground, to assist in bending, and laid the plants flat on their sides, a couple of stout pegs being driven alongside, the crooked heads of which served to keep the plants in their procumbent position.

A spadeful or two of soil was then placed on the top of each peg, to assist the layer in rooting. The result at the present time is everything that could be desired, each stem having thrown up quantities of young shoots, and thus formed a jungle of underwood, which year by year will increase in value.

Aucuba japonica and the Laurustinus are two of our handsomest evergreen shrubs, but, unlike those already described, they will not succeed in the densest shade. In open places or alongside woodland drives they thrive well, and are excellent for variety and contrast. The Laurustinus cannot, however, be considered as perfectly hardy in this country, for even in our maritime situation here, where the air is to some extent ameliorated, it suffers severely from frost, and is even, during severe winters, killed completely to the ground. It, however, springs very freely from the root, and in a few years quite regains its original size and luxuriance. A beautiful hedge of Laurustinus in our home nursery was, during the severe winter of 1881-82, completely killed to the ground. It was cut over in the following spring, and is now a dense, compact fence of nearly a couple of feet in height.

Privet as a covert plant has its advantages and disadvantages. On the one hand it is moderately cheap, easily grown, and not at all fastidious about soil. When planted amongst trees it, however, generally assumes a loose straggling habit, and as the shade increases it usually dies out altogether. Where the plantations are well thinned, and kept regularly so, Privet, if a little care and trouble be expended on its cultivation, will succeed and form capital underwood.

In planting Privet the greatest care is necessary to prevent its being overdone. Close planting is always productive of the most unsatisfactory results, not only as regards the health of the plants, but management of the woods as well. Instead of filling up the whole ground, plant in small clumps, and these at wide distances apart, which will not only allow the Privet to grow more healthy and compact, but also admit of space for pruning and layering—two necessaries for the successful cultivation of Privet as underwood.

Mahonia aquifolia and Berberis Darwinii are frequently recommended as covert plants and for using in similar situations with the Laurel and Box. Along the margins of plantations or in very open places they may and do succeed, but from practical experience of these plants we find them next to useless as underwood in shady positions. Here, where many thousands of covert plants are used annually, we have entirely discarded them from use, unless in the most open situations.

Rhododendron ponticum, although useful in an ornamental point of view, cannot be considered as a first-class plant for game shelter. It has, however, several good qualities which recommend it for underwood, such as ease of culture, dwarf spreading habit, and immunity from the attacks of game. It is seldom resorted to by pheasants, the bottom being not only damp, but such a tangled mass of branches that it is anything but pleasant quarters for game.

Several other plants, such as the Periwinkles, St. John's Wort, Gaultherias, and our native Ivy are all invaluable for planting under the shade and drip of trees; but as these are usually of a low, procumbent growth, and hardly suited for game cover, they come more under the heading of "carpet plants," which subject I intend dealing with in a future paper. *A. D. Webster, Penrhyn Castle, North Wales.*

A SUBURBAN GARDEN.

In small gardens at this dull season one does not usually find anything very interesting or worthy of note, be it out-of-doors or under glass. But there are exceptions even to this rule, and such an one I found in looking over the charming little suburban garden of A. English, Esq., Seymour Cottage, Blackheath Park. Although but a small garden it is a model of neatness and general good order. Well grown and trained specimens of choice shrubs adorn the front portion of the flower garden, and a very fine plant of Wistaria chinensis is growing vigorously against the front of the house. The other and larger portion of the flower garden, which lies behind the house, is tastefully laid out with appropriate beds, and the borders planted with fine specimens of Chamæcyparis sphæroidea, Cupressus Lawsoniana, and other choice flowering and ornamental shrubs.

A great feature here in the summer months are two beds of Clematis Jackmanni. These are not trained to a wire trellis, as is usually done, but as soon as growth commences ordinary branching pea-sticks are placed perpendicularly in the beds, and the plants allowed to climb at will in as natural a manner as possible. Grown in this way, as we saw them in the summer, clothed in a mass of purple blossom, they look charmingly effective. A large quantity, too, of Lilium auratum are grown in pots, and when in bloom are plunged amongst the shrubs during the summer months, making an effective display. Some fine old trees of Apples, such as Colonel Vaughan, Beauty of Kent, Quarrenden, &c., are dotted here and there about the trim little kitchen garden, the walks of which are edged with the finest and healthiest Box edging I have seen for some time.

The houses are span-roofed, built in the form of a T-range, and were designed and built by Messrs. Weeks & Co., of Chelsea, some years ago. One house is devoted to the cultivation of stove-plants such as Stephanotis and other choice subjects, including a very fine collection of Caladiums, with which Mr. Martin, the energetic gardener, secures the leading prizes at the local shows. Another house is devoted to the display of a remarkably well grown and flowered collection of Messrs. Pearson's varieties of zonal Pelargoniums. The whole of the plants were in the best possible condition, the growth being well ripened, and bristling with trusses of variously coloured blooms in their different stages of development. The following are a few of the most noticeable:—Lizard, a beautiful salmon shade; Hébé and Burns, bright scarlet; Mrs. Strutt and Constance, pink; Eve, cerise; and a good pure free-flowering white in Miss Hamilton. The varieties just noted are only a very small quota of this fine collection—a picture of dazzling brightness.

An adjoining house contains well grown and trained specimens of leading varieties of zonals which had secured leading prizes at the local shows, and were still in perfection. Mr. Martin is a thorough advocate for giving an abundance of air night and day in both growing and flowering conditions of growth, and for supplying only a limited amount of water to the roots in winter; the result being good firm and well-ripened growth and an abundance of bloom. A large house contains healthy specimens of Camellias and Azaleas; and ranges of span-roof pits, built by Messrs. Foster and Pearson, are full of exhibition Fuchsias, bronze zonal Pelargoniums, and other useful and equally well-grown plants. *T. W. Sanders.*

Davallia platyphylla.—The genus Davallia embraces a considerable number of species widely differing in size and general aspect. A goodly number of them are first-class garden plants; the subject of the present note is perhaps the noblest of the genus, from the size of the fronds and the large broad pinnules on long glossy petioles. Planted out in a cool conservatory, or in any structure free from frost, it makes a noble object: fronds in the Winter Garden at Kew measure about 6 feet in length. The pale green of the young fronds, the deeper sea-green of the older ones, the graceful curves of the arching fronds and the stout blackish stipes combine to form a very attractive picture.

Home Correspondence.

New Vegetables.—Please note that the list published at p. 751, of new vegetables receiving certificates from the Royal Horticultural Society in 1883 is not complete, inasmuch as no mention is made of a Vegetable Marrow of mine which was awarded a First-class Certificate at South Kensington in October last. I may say that the Marrow in question is the result of a cross between my Hybrid Prolific and the Custard Marrow, and it forms a multitude of fruits about 2 lb. in weight each. I have been repeatedly informed by my employer that this is the finest flavoured Vegetable Marrow he has ever had on his table, and I value this testimony above everything. It will be offered to the public in 1885 under the appropriate appellation of "Pen-y-byd." *J. Muir, Margam Park, Taibach.*

Mock Ginger (see p. 694).—The following is a good recipe for making the above :—Take the stalks of Lettuce cut into lengths of 2 or 3 inches, put into a pan of spring water with two handfuls of salt ; let it remain three days, then thoroughly drain on a sieve ; half fill the preserving pan with spring water and boil it ; then put the Lettuce in, and boil for ten minutes, after which take it out and drain ; then at once put it in another pan of cold water, with another handful of salt, and drain again. Make a syrup with 2 or 3 lb. of loaf sugar ; boil it and put in the Lettuce, with an ounce of whole ginger to each pound of sugar ; then boil five minutes, repeating the boiling every other day for three or four times, until the Lettuce assumes a nice green colour, thoroughly draining each time. The syrup should be boiled each time previous to putting in the Lettuce. When the boiling is completed and quite cold it may be put into the preserving jars, where it will keep for any reasonable length of time, and will be found an excellent substitute for preserved ginger. *E. Morgan, The Butts, Harrow-on-the-Hill.*

Plants in Flower at Dunrobin.—I send you a list of flowers gathered here in the open air on December 14, which says much for the mildness of the season up to this date on the east coast of Sutherland. I send you, per same post, a sample of same. Flowering on walls :—Escallonia macrantha, Fuchsia gracilis, Veronica Andersoni, Jasminum nudiflorum, Clematis Jackmanni, and C. lanuginosa nivea. In the open borders :—Monthly and China Roses in quantity, Antirrhinums, yellow Calceolaria, Mignonette, Picotees, Carnations, Stocks, yellow Chrysanthemum tricolor, white Anemone, white Phlox, Pentstemons, Michaelmas Daisies, Wallflower, blue Larkspur, Dianthus Heddewigii, Phlox Drummondii, blue Cornflower, and several sorts of scented Pelargoniums. *D. Melville, Dunrobin Castle Gardens.*

Propagating Bouvardias by Root Cuttings.—My aim in sending the following note is not so much to say anything as regards its general cultivation, that subject having many times been well handled by others, but to give particulars of a very simple method of propagating the plant, the merits of which I am sure Bouvardia growers will not fail to appreciate. The ordinary method of increasing the stock of this plant is by cuttings in spring, a process that entails some anxiety, as the cuttings, with all our care, will sometimes damp off, and they seldom make an even rate of root-growth, some emitting roots much sooner than others. The plan which I beg to recommend is as follows :—Take pot-bound plants of any varieties it is desirable to raise a young stock of in the early spring, and shake away every particle of soil therefrom ; then with a sharp knife cut the roots into half inch lengths, and place them thinly in pans or boxes, covering them slightly with a suitably light compost. Place them then into a stove temperature with bottom-heat, and every cutting will, with proper treatment, produce a short, robust plant in a short time. I have thoroughly proved this method, which may not be new, but which is not known to all. *S. Slack, Falmouth House Gardens, Newmarket.*

What is "Habit?"—Gardeners use the word constantly with reference to plants, and the sense in which they use it is generally obvious. The general public, however, do not understand the word at all as so used, and even the gardener does not often stay to realise its full significance. We take it that "habit" is the result of a compromise between that hereditary tendency which causes seedlings, like children, to resemble their parents, and that tendency to vary which is inborn in all creatures, be they plants or animals, and which causes them to differ more or less widely from their ancestry. External circumstances, such as variations of climate, soil, situation,

Fig. 144.—Euonymus radicans, produced on shoots of E. japonicus

and the like, set in operation this tendency to vary, and as it were, direct its course. Now for an illustration :—Euonymus japonicus is an erect bush with large leaves, E. radicans is a trailing shrub with small leaves and Ivy-like roots, by means of which it clings to rocks. The two plants are so different in "habit" that very naturally, but also very unscientifically, any one seeing the two separately would class them as dis-

Fig. 145.—Euonymus japonicus variegatus.

tinct species, indeed they are so classed in books. The habit of the one is an adaptation for one mode of growth ; that of the other fulfils other requirements. But what if the two forms occur on the same plant? Obviously then we must conclude that the two forms are but modifications of one species. The Euonymus of which we give illustrations (figs. 144, 145), taken from a plant growing at Kew, has been obliging enough to produce illustrations of both modifications of "habit." There is, then, no question that the one is a "sport" from the other. But what has brought about the sport? If the plant had been growing near a wall the explanation would be easy ; we should see the effect, and we should trace its cause. But when, as in this case, we see the effect but cannot realise the immediate cause, the case is more difficult. It is easy to say that the sport represents some former condition of the species, and which has reappeared in this sudden manner. That may be so—but why? What has caused the reversion in one, or at most in a few buds only? Why in those particular buds and not in others? All we can say is that we don't know. At any rate it is certain that these variations in "habit," which are of such extreme importance to practical gardeners, and so interesting to physiologists, are relatively of no value for descriptive botanists in their attempts at classification. It is often a matter of surprise to the uninitiated that descriptive botanists should pay so little heed to such apparently very striking and (in some senses) important points as are produced by differences of "habit." The case of the Euonymus now figured shows the reason why ; and if a further illustration be required, there is no more striking one than that afforded by the variations in Cupressus Lawsoniana. The varieties of this species to be picked out of one seed-bed are often much more striking than are the differences between two species, and yet there is proof that they are all forms of one. Clearly, then, "habit" is of next to no value for purposes of classification ; it sets apart things that ought to be put together, and it puts together things that have no real kinship. *M. T. M.*

Ampelopsis Veitchii.—I can affirm Mr. Tallack's statement regarding Ampelopsis Veitchii and paint. We have a small plant here that was taken from the wall last summer, and the wall received two coats of stone-coloured paint. This year the plant has made good growth, and is clinging tighter than before. It would be impossible to get it off now without injury. *W. H., Binfield.*

Aspidistra lurida variegata.—This old-fashioned greenhouse plant seems not to be so much grown as its merits deserve. In these days, when room decoration is so fashionable, the gardener is sometimes puzzled to keep up a supply of plants for this purpose, if his means and appliances are at all limited. The adaptability of this plant renders it particularly useful for this purpose, even in rooms lighted with gas, the injurious effects of which it withstands longer and better than any plant with which I am acquainted. *E. Morgan, The Butts, Harrow-on-the-Hill.*

Rhododendron ponticum and Poisonous Honey.—A question is asked on p. 763 concerning the poisonous properties of the Rhododendron. The question is not new to me, having often presented itself in connection with the poisonous honey mentioned in Xenophon's *Anabasis*, which the commentators generally say was gathered from Rhododendron ponticum. Xenophon, however, says nothing of the sort. That accurate observer and truthful historian only tells us what he knew for certain—that the Greeks, on their march home through Pontus, at a place about 24 miles south-east of Trebizonde, found abundance of honey. Some, who ate much of it, died with symptoms of poisoning ; others were seized with raving delirium, which lasted twenty-four hours ; but none died who survived the first night—they were unable to stand, however, for three or four days. In those who partook of it sparingly it produced the symptoms of ordinary drunkenness. This happened 400 years before Christ, and I recollect no other mention of poisonous honey until the time of Pliny, who wrote seventy years after the Christian era. Pliny speaks of two kinds of poisonous honey produced in different parts of Pontus. One, he says, which causes raving, and is therefore called "mad honey," is thought to be due to the flower of the Rhododendron which abounds there. In another passage he tells that the leaves of the Rhododendron are poisonous to cattle, goats, and sheep, but not to man. The other kind of poisonous honey is found, he says, near Heraclea, in Pontus, and is produced by a plant called Ægolethon, or Goat's-bane, of which the leaves, too, are poisonous to cattle, especially goats. It may here be remarked that Pliny is the earliest writer who mentions the Rhododendron by name, and that he also calls it Nerium. Dioscorides, who wrote after Pliny, describes it as a Greek shrub, and he, too, makes it the same as the Nerium. As no Rhododendron is indigenous to Greece, Sibthorp (who is our best authority on the subject) has identified this Rhododendron with Nerium Oleander, the poisonous properties of which are well known. Having looked through many botanical works I can find no direct evidence that any part of Rhododendron ponticum is poisonous ; Professor Daubeny, in his *Lectures on the Trees and Shrubs of the Ancients* (Lecture IV., p. 105), says positively that it is an "entirely harmless" plant. Its character, however, has suffered from being confused with Azalea pontica, of the poisonous properties of which I will now

speak. The headquarters of this plant seem to be the northern and eastern shores of the Black Sea, including the western slopes of the Caucasus, and the north of Pontus. It is said to occur in great profusion near Trebizonde about 10 miles from the coast (see *Botanical Magazine* for 1799, vol. xiii., tab. 433, "Azalea pontica"). Tournefort, who investigated the botany of this district in the reign of Queen Anne, named the plant Chamærhododendros, which name Pallas, on exploring the district seventy years afterwards, changed to Azalea pontica. Other interesting notes on the poisonous properties of this Azalea and of the honey derived from it will be found in the volume of Curtis' *Botanical Magazine* above referred to. I will add one more passage, which does not occur there, but is copied from a note in Schneider's edition of Xenophon's *Anabasis*, and is an interesting supplement to what has been said by Xenophon and Pliny about the poisonous honey of Pontus. The extract is taken from a work published in Paris in 1787 in two 8vo volumes, called *Treatise on the Commerce of the Black Sea*. The author, M. Peyssonel the younger, collected materials for this book during several years of laborious travel round the Black Sea coasts. Amongst annual exports he mentions that from Taman, at the eastern side of the entrance to the Sea of Azov, come 500 quintals (equal to 25 tons) of honey collected in Abaza, or Abassia, a region on the north-east coast of the Black Sea, extending up the western slope of the Caucasus. The honey is cheap and bad, and produces in those who eat it "frightful intoxication." It is called mad-honey (*miel-fol*), and its commercial value is for mixing with intoxicating drinks to increase their effects. Perhaps it may be imported for the same purpose still. It is fair to conjecture that Azalea pontica, which is abundant in the district, is the source of the poisonous properties of this honey. In an article on Kirby and Spence's *Entomology*, published in the *Edinburgh Review* for June, 1822, I find on p. 123 a warning to suspect all honey made from Rhododendrons, Andromedas, and Kalmias. The writer justifies this advice by reference to the story in Xenophon—the honey there mentioned being made, he says, from some species of Rhododendron—and by some "recent observations of Dr. Bartram," who had traced many deaths from poison near Philadelphia, in America, to eating honey collected from Kalmia latifolia, but no direct evidence is anywhere given against the Rhododendron. On the other hand, besides the assurance of the Oxford Professor of Botany, mentioned above, I have several times made particular enquiries about honey in neighbourhoods where the Rhododendron grows in abundance. I may mention that on the eastern side of Windsor Park, between Virginia Water and Englefield Green, large enclosures are filled with Rhododendron ponticum, on which myriads of bees are busy every fine day from the middle of May to the middle of June, but I have never been able to find that any suspicion has ever been thrown upon the honey of that district. As regards the leaves of the Rhododendron, they are no doubt nauseous to most animals, though I never heard that they are poisonous. The Rhododendron, the Box, and the Yew are the only common evergreens which I have never seen eaten, in any weather, by rabbits and hares. *C. Wolley Dod, Edge Hall, Malpas, Dec.* 17.

Epiphyllum truncatum.—Your correspondent, "J. S.," did not mention, at p. 653, one mode of growing the Epiphyllum—*i.e.*, as a rafter plant in the stove. So treated, however, it forms one of the most useful plants in dull seasons for cutting. The plan is very simple: run up a Pereskia to one straight rod, and then graft it about every foot, and in twelve months you will have a plant with flowers from top to bottom of your house. It is more admired here than anything else during winter. *S. J.*

Melons in December.—I enclose a Melon (Hero of Lockinge) cut to-day, December 13. It is the second fruit cut from a house containing forty. Last year I had a house as late as I thought desirable, the last fruit of which was sent in on December 10, and it was pronounced as good as the summer Melon. This induced me to try a house this year much later, and the result you can judge from the fruit sent. I anticipate this house of Melons will hold out at least until the middle of January. *George Stanton, Park Place Gardens, Henley-on-Thames.* [Somewhat past its best, but very good for December. ED.]

Silo and Ensilage.—In reply to the query of "Argus" in last Saturday's *Gardeners' Chronicle*, the word "silo" is Spanish, taken directly from the Greek "silos." [We cannot find the word. ED.] The practice of storing up food and fodder in a silo is one of some standing in France, from which fact we have the origin of "ensilage"—thus *en silo* = in silo. From *en silo* we get "ensilage," an abstract noun implying the act or practice of putting something into a silo. The Greeks gave the name silos to a recess or cavity, artificial or natural as the circumstances might determine, in which was placed threshed grain. But it is well known that in troublous times, both in Greece and other Eastern countries, these silos were the receptacles of the lares and penates of many a household. I may say, *en passant*, that I have been a good bit amused at the highfalutin' indulged in by some persons in this country, anent the priority of the establishment of silos—"the first silo;" "opening of the first silo," and so on. Why, I know that silos have been made and used in some of the districts of Derbyshire, which are a long way from railways, long before I was born, which is not at all a recent event. The mode of procedure in all its principles was almost precisely that which has recently been announced in such formal tones, the only difference being in the material preserved in the silo, which was brewer's grains, and not green fodder. *G. Paul, F.R.H.S., Moortown, Leeds.*

Glazing.—I would advise "Hortus" to use no top putty. Bed the glass in putty, brad in the panes and paint well, and he will save putty and time, and have a dryer house. In painting old houses I never re-putty, but scrape it off and paint, and one coat a year is the cheapest and best for the wood and for keeping out the wet. *D. Buchanan, Sherwood Park.*

Fruit and Plant Naming.—It is to be hoped that the suggestion of Mr. John Downie (p. 760) will meet with more general adoption than is the case in a great many gardens. In my opinion, the correct naming of all things under cultivation, under glass or outdoor, is a great benefit both to visitors and *employés*. How often we find plants and trees received from nurseries allowed to remain in their new quarters with their paper tally attached, which, if exposed to the wind and rain, is soon destroyed or the name obliterated. There are several kinds of labels in use, but those I consider preferable for wall trees are strips of lead with the name punched in by means of an iron set of the alphabet; these, nailed on the wall near the main stem of the trees, will last a lifetime. It is often amusing to witness the nomenclature of subjects at flower shows, thus laying the exhibitors open to ridicule. *George Potts, Gr. to Lord Teynham.*

Double Zonal Pelargoniums.—How rarely do we see these in flower in private gardens during the dull winter months, though I know of nothing easier to grow. We propagate our plants in spring, and grow them on through the summer in a sunny place. The soil we grow them in is made up by adding to two barrowfuls of good loam, one of leaf-mould, and one of rotton cow manure. I have to grow the plants in winter in vineries, where they only get a little heat turned on at night, none in the day, and they have been full of flowers ever since I housed them in September, and will furnish us with a plentiful supply of flowers all through the winter. They are as full of flowers and buds now as one generally sees them in the summer. Why should not these have a class at Chrysanthemum shows? I showed over 100 varieties, one truss of each, at Taunton on November 22 last, though there was no class for them there, and I believe there would be plenty of competition were such classes introduced. *J. R. Thornton, The Gardens, Dunster Castle, Somerset.*

Early Peas.—To be thinking of spring Peas as soon as we have done gathering from the late-sown ones seems rather anomalous, and yet we are already beyond the time when early sorts should be in, that is, in cases where they are sown in the open, and as the weather is now mild, and the ground in good order, a few remarks respecting their cultivation and the best sorts to grow may not come amiss. The most suitable situation for early Peas is a warm border sloping to the south, and, if protected by a wall or tall dead fence, so much the better, as the shelter will then be more perfect, and cold cutting winds kept off, which latter to Peas in leaf are more fatal than frost, as the lashing they get bruises the foliage and bends and twists the bine to such an extent as to check and often spoil their growth after. In close wet soils early sown Peas are liable to rot, to obviate which it is a good plan to strew along the drills a mixture of silted leaf-mould and sharp sand, which, from lying hollow, admits air, and drains away the water rapidly when rain falls in quantity. Coal ashes answer the same purpose, but I am adverse to having these mixed in the land, and also tan, although both are in favour with some. The distance at which to sow the rows depends on the sorts, and the height they grow, but it should be borne in mind that there is nothing gained by crowding, as the more sunlight and air they get between the better will they flower and bear. The right depth to draw the drills is about 3 inches, and for Peas 3 feet high they should be 4 feet apart; and as the seed has to be long in the ground, it is advisable to sow with a somewhat liberal hand to allow for losses and rotting. Mice are the worst enemies for the first two months, and much watching is necessary to see when they find them out, and to trap them immediately, or they soon spoil and destroy the whole of the rows. No sooner are the Peas out of the way of the mice than sparrows attack them, feasting on the young leaves, of which they are exceedingly fond. The best way of dealing with these feathered depredators is to strain three strands of black cotton a little way apart over each row, and just clear of the tops, and when the sparrows attempt to alight they are sure to come in contact with one or the other, which unseen danger so alarms them that they quickly take themselves off, and are very chary in venturing on the same ground again. In regard to kinds most have their favourites, but after trying many varieties I have found none better than Kentish Invicta and William I., which, if sown at the same time, will succeed each other within a week or ten days, and Sunrise and Advancer follow on quickly after. These two last-named are of the Marrow class, and excellent prolific Peas they are, besides being melting and delicious in flavour. *J. S.*

Serving up Potatos.—To do real justice to the Potato when serving it up for table, a wooden bowl should be used instead of an earthenware dish, as it aids greatly in absorbing the moisture. I quite agree with Mr. Hibberd, that the use of a cloth is essential for this purpose, without which a really good dish of Potatos cannot be served up; but if a wooden bowl be substituted for an eathenware dish in conjunction with a hot dry cloth, the Potato must go to table in perfect condition; otherwise failure must be sought in some other direction. *E. Morgan, The Butts, Harrow-on-the-Hill.*

THE JENSENIAN METHOD OF POTATO CULTURE.

IN your issue of the 8th inst. Mr. W. G. Smith has stated a series of objections against some experiments made by me respecting the Potato disease. I therefore hope you will kindly allow me the necessary space for the following remarks. As a foreigner I am, of course, unable to write your language as it ought to be written; this, however, I hope will be pardoned by your readers. I have always been told, and I am quite sure that I have not been misled, that in matters of natural history Englishmen prefer facts to mere speculations; but Mr. Smith, in his article above alluded to attacks, and treats as impossible and ridiculous, things that, in reality, are facts—facts, moreover, that are so rooted in reality, that they cannot be controverted by the most learned man in the world.

If Mr. Smith had taken the trouble to read the little treatise I have written on the Potato disease ("How to Overcome the Potato Disease"), some of the many "wonderings" in his article would have been avoided; and if he had tried to repeat the experiments spoken of by Mr. Plowright, he would, at least, have learned to be a little more cautious in his expressions when speaking of my experiments on the Potato disease. I acknowledge, however, that this would have entailed a certain amount of inconvenience; it would have demanded work, time, and even some money [Few can have expended more of all these than Mr. Smith. ED.]; but in my opinion a conscientious man, who takes upon himself the responsibility of rejecting important scientific views and results, ought to submit to those inconveniences before attempting to teach the public. He owes it to science, if he be a scientist; he owes it to the author if, like Mr. Smith and Mr. Murray, he treats him as a "know nothing;" he owes it to agriculture if, as in this case, the question be of great practical importance to agriculture. Mr. Smith, however, has not chosen to meet me on this ground; he has measured the surface of some grains of Croydon sand; he tells the reader a little about the magnitude of a drop of water and the minuteness of the spores; he characterises as giants some quite innocent flower-pots which were not "gigantic" at all; he makes some evidently erroneous remarks; he is very anxious to know things that have nothing to do with the question; and, lastly, he argues from an old prejudice (also adhered to by Mr. Carruthers and Mr. Murray) the impossibility of the germ-tubes of these spores penetrating the uninjured skin of Potatos. *Voilà tout.*

I made experiments by which it has been demonstrated:—

1. That earth has the power of retaining to a very large extent the spores of the Potato fungus.

2. That earth slightly compressed, to imitate the natural settling of the soil, retains more spores than loose soil does.

3. That a layer of earth from 1 to 2 inches in thickness (the usual covering of the uppermost tubers

in "ordinary moulding") permits a considerable number of spores to pass through it; whereas a layer of 5 inches, which consolidates to about 4 inches, placed on the uppermost tubers by "protective moulding," is sufficient to retain nearly all the spores.

4. That sandy soil, generally speaking, retains the spores better than good [stiffer] soil.

I have varied and repeated these experiments by making use of a cylindrical tube, open at one end; but [partially] closed at the other with a perforated bottom. Here the difficulty begins. Mr. Smith is very anxious to know what material this tube was made of. To be sure: this is no secret—it was made of a very thin tinned iron plate—tinned sheet-iron I think is the technical name of this material. A tube made of silver, copper, burned clay, or the like, would, I am sure, have answered quite as well; therefore, I consider this question of Mr. Smith's uncalled for. As to the size of the tube it was about 5½ inches in height, with a diameter of about 1 inch. But this information, desired by Mr. Smith, is of no essential importance, for as it had been stated that 5 inches of earth were placed in the tube, it is clear that the tube must have been long enough to contain this thickness of earth, and as to the width this is only a question concerning the quantity of material employed in the experiment. The holes at the bottom of the tube were made so small that the water in running through the earth contained in the tube came out as clear drops. Sometimes the first drops were not perfectly clear, these turbid drops were thrown away; this, however, it will be seen did not at all interfere with the experiment or disturb its results.

I will now proceed to state how I operated. I had a number of Potato slices bearing a great quantity of conidia of Peronospora (Phytophthora) infestans. Some of these slices were put in a glass containing a sufficient quantity of water; they were then stirred round many times with a view to make them shed the spores in the water, which they do very easily. The tube had previously been filled with the requisite quantity of earth. By the means of a small funnel a portion of the spore-charged water was poured into the tube upon the earth; the clear drops which ran out of the small holes in the bottom were collected in a small clean glass vessel. The water had been well agitated, so as to ensure spores being equally suspended in it just before being poured upon the earth in the tube. Thus I had two glasses, the contents of which were to be examined, one containing the remainder of the original spore-charged water; the other the filtered water which came out at the bottom of the tube after having percolated through the earth contained in it. Next I had a number of common microscopic slides, small rectangular plates of glass, upon the surface of which small drops of the spore-charged water were deposited by means of a thin glass rod dipped in the fluid. I took care to dip to the bottom of the glasses, agitating the water by means of the glass rod. On each plate were placed five drops. After having examined one plate with the drops of the original spore-charged water, I examined two plates of the percolated water, then one plate with the first kind, and two plates with the second. In some cases, however, I only examined one of the original to every sixth plate of the percolated water.

But here again I encounter more of Mr. Smith's objections. He tells us that a drop of water enlarged 400 diameters would appear as a body of water more than 8 feet in diameter; next, that zoospores are as transparent as the water itself, and that the slightest touch of the screw of the microscope would send them out of focus. But I have not been so unpractical as to work with a magnifying power of 400 diameters! I only used a power of 120 diameters; with this the drops had upon an average only four times the diameter of the field of the microscope. I only took account of the portion of the drop thus measured out by the microscope, for in this way I was always sure to examine only the same area in each drop. Mr. Smith is of course wrong in asserting that the zoospores are as transparent as clear water; if they were, they would be invisible, which they are not. Mr. Smith says that spores generally divide in smaller spores (zoospores) when placed in water. This division varies very much. In general this division does not take place till half an hour after the spores have been placed in water; sometimes it takes an hour or more; sometimes there seems to be no division at all. In all the cases that I have observed (and they are many) by far the greater part of the spores remained undivided. The zoospores, as long as they are moving about—which they generally do for half an hour—are so easily observed, that they cannot be overlooked. When lying still, however, it must be owned that they are rather difficult to see. But although some quiet zoospores may have been overlooked, it is evident that this cannot interfere seriously with the results, as the purpose of the experiment was only to find the proportion of spores present in the original and in the percolated water. On this account the two fluids were alternately examined, in order that the stage of development which the spores had attained might be compared. To distinguish between "empty" and "filled" spores (conidia) is about as easy as to distinguish between white glass bottles filled or not filled with red wine. By the assistance of a person to deposit the drops on the plates, and to note down the number of spores found in each drop, more than 100 drops can be examined in the course of one hour. Three samples of water charged with spores were employed. Ten zoospores were counted as being equal to one conidium. The results were the following:—

Observations.	Spores observed.
In 50 drops of original spore-charged water ..	334.7
In 100 drops of the same water, run through 1 inch of earth	42.1
In 25 drops of original spore-charged water ..	187.3
In 150 drops of the same water, run through 4 inches of earth	0.2
In 25 drops of original spore-charged water ..	200.0
In 150 drops of the same water, run through 5 inches of earth	0.0

Calculations.—Counting the number of the drops and the spores observed in each drop, it will be seen that about one-fifteenth to one-sixteenth of the spores ran through 1 inch of earth, but that only about one five-thousandth or one six-thousandth of the spores ran through 4 inches of earth.

Taking these data, it is probable that only about one out of 100,000 spores could be expected to run through 5 inches of earth, although I found none in the 150 drops I examined; but not wishing to overstate the case, I assumed the proportion which run through to be somewhat higher. Thus for every 30,000 spores contained in the original spore-charged water about 2000 spores ran through 1 inch of earth compressed to ¾ inch: about six spores ran through 4 inches of earth compressed to 3 inches; about one or two spores ran through 5 inches of earth compressed to 4 inches.

Whatever may be said for the exactness of the above figures (exactness in the full sense of the word is both impossible and without any practical value), they are the results of carefully executed experiments, and, like many other similar experiments made by me, they fully prove that the soil retains the spores to a very large extent, that this spore-retaining power is not, however, sufficient to prevent a large number of spores being carried from 1 to 3 inches into the ground, while only comparatively a very few will go to a depth of 5 inches. Many experiments, like those made with the flower-pots, or with the boxes divided into three compartments (see *Gardeners' Chronicle*, July 28, 1883), as well as a very large number of field experiments on protective moulding as compared with common moulding, have proved this to demonstration. Every one who can and will see, must admit this.

I am not quite sure as to what Mr. Smith means by saying Croydon sand is at variance with me. I do not see that this sand has anything to do with my experiments. At all events I can assure Mr. Smith that I have not been inconvenienced in my experiments by sand. Even if a large grain of sand was lying in a drop of water to be examined, a slight movement of the object-plate would bring it out of sight, and there would be plenty of space for selecting the small portion of the drop necessary for examination; besides, large grains of sand cannot be taken out of water by means of a glass rod. Small grains, on the contrary, are very often found in such drops, but, strange to say, nearly all of these are some thousand times smaller than those measured by Mr. Smith. Mr. Smith says that Peronospora spores are lighter than water. If he means the conidia of the Potato fungus I must beg to differ from him, for the great majority of these are really heavier than water, only a small proportion, being lighter, swim upon the surface.

Mr. Smith is of opinion that "wireworms, snails, insects, birds, rats, ants, mice, rabbits, and many other animals," by injuring the skin of the Potatos, make it possible for the spores to attack the tubers. Let me, therefore, to test this theory, cite a field experiment made this year in Svensbjerg, Callundborg, Denmark, by Mr. Petersen. The Potato rows, 25 feet long, were high-moulded at different periods as under:—

	Early variety diseased.	Late variety diseased.	Thickness of the earth-covering (medium of three plants in each row).
	Per cent.	Per cent.	Inches.
Four rows high-moulded July 1	1.9	1.5	4.2
Two rows high-moulded July 15	0.0	0.4	4.9
Two rows high-moulded July 23	0.3	0.9	5.0
Two rows high-moulded Aug. 16	0.2	0.2	5.0
Two rows high-moulded Sept. 1	6.9	22.3	4.6
Two common moulded June 20; high-moulded Sept. 1..	12.7	27.2	2.9
Two flat-moulded June 20 ..	29.5	49.6	0.5

Now, according to the theory of Mr. Smith, "wireworms, snails, insects, birds, and many other animals," have bitten holes in the Potatos of the rows moulded in the common way, and also in the rows high-moulded on September 1; but all the other rows have hardly been touched by these pernicious animals. Mr. Smith will say that in the common moulded rows the Potatos were more exposed to the bites of the animals because the Potatos were less protected by earth. Very well. By this answer he turns out to be an advocate of high-moulding, for which I thank him. But why did the animals not hurt the Potatos that had been left flat-moulded until August 16, while they attacked only the Potatos in the rows that up to September 1 were left in flat-moulding? The tubers, it should be added, were well developed before August 16. My experimenter does not speak a word about these animals, nor of holes bitten in the Potatos; but he tells me that the disease commenced spreading widely on the leaves from August 20. I leave it to the judgment of your readers whether the phenomenon is to be interpreted by the theory of Mr. Smith, hitherto unknown to me, or by the well-established fact, unknown to Mr. Carruthers and Mr. Murray, that the spores of the Potato fungus are able, by means of their germ-tubes, to perforate the uninjured skin of the tubers, and that high-moulding, done high enough and early enough, protects the tubers by retaining the spores. *J. L. Jensen*, 141, *Rue Perronet, Neuilly-sur-Seine, France, Dec.* 13.

POTATO DISEASE.

I AM now too old, and have seen too much of criticism, just and unjust, to care how any statements of mine are received; my only desire is for correctness and truth. When, therefore, Mr. George Murray flutters the red flag and tries to draw me away from my subject by adverting to Professor De Bary's "treatment of the oospore question" I can afford to disregard the invitation. I have always been prepared for the "oospore question" up to now, and am ready to discard my published views when any one can show them to be unreasonable or wrong. I have no wish to say anything rude to Mr. Murray, as he knows; I have only mildly pointed out a very serious discrepancy in his printed statement and another printed statement in reference to "his master," with whom he says he "cordially agrees." I have the subject of the Potato disease indexed, and in this index I have references to all the generous, spiteful, true, and erroneous statements and misprints belonging to the subject. When, therefore, Mr. George Murray stated last week (*Gardeners' Chronicle*, p. 752) that he had the support of Mr. Dyer in his idea of the stem of the Potato being the "channel through which the disease reached the tubers," I turned to "Dyer" in my index, believing Mr. Murray to be only partly right. If Mr. Murray will now turn to answer No. 56 in Mr. Dyer's evidence, he will find the support he gets from this quarter, in reference to the descent of the fungus by the stem, of a delusive character, for Mr. Dyer says:—"The view I take, rightly or wrongly, is that it begins with the diseased set, that it then makes its way up; it probably in some

cases grows with the shoots: as the shoots grow up they are always diseased from their infancy onward." Every person who has practically studied the Potato disease (as far as my index goes) admits that the disease may either ascend the stem from the tuber, or descend it from the foliage.

Mr. Murray's statement, that the germ-tubes from fungus spores could not penetrate the skin of a Potato, and rarely, if ever, penetrated "even the epidermis" of the foliage, surprised me most. Mr. Plowright has shown that this statement is in direct opposition to the views of the "master," with whom Mr. Murray says he "cordially agrees," and Mr. Murray cannot produce any evidence to support the mistake.

It is not easy to trace mistakes to their source, but under "Misprints" I have in my Potato index, "Dr. Cooke, *Microscopic Fungi*," p. 143. In this excellent little book it is said:—"In the case of the Potato mould the germ-tubes enter by the stomata." The context shows that this is really a misprint, and it is the only reference I have in my index which points to the probable source of Mr. Murray's error. All who have practically studied the Potato disease admit that the germ-tubes can pierce the epidermis. Mr. Murray tells us to refer to Mr. Carruthers. We will do so. In the *Journal of the Royal Agricultural Society*, vol. ix., Mr. Carruthers' paper on the Potato disease will be found. In fig. 2 he illustrates a spore "which has penetrated the epidermis of the stem of a Potato," and he gives no illustration of the entrance of a germ-tube through a stomate. In the text Mr. Carruthers says:—"This tube penetrates the epidermis on the spot where germination takes place, or finds its way to one of the innumerable openings or stomates." If we refer to the original English edition of Sach's *Handbook*, translated by Bennett and Dyer, p. 243, we find another illustration of a spore of "Peronospora infestans piercing through the epidermis of a Potato stem;" no entry of a tube through a stomate is given; and this illustration is different from the one given by Mr. Carruthers, and different from the one reproduced by Mr. Plowright. Mr. Murray's "cordial agreement" with his "master" is really most perplexing. What does the word Peronospora mean? Is it not the piercing spore, from περονάω, to pierce, or περόνη, anything pointed for piercing, and σπορα, "a seed-spore"?—the spore with the power of piercing.

One more remark, which I should like to be the last. When I was examined at the House of Commons I was cross-questioned about the Potato-fungus taking a totally different form on some totally different plant; one gentleman thought the Larch disease was a second form of the Potato disease. Mr. Dyer was similarly questioned, and he replied (24) "It was thought a crop like Clover might carry on the disease, but I am inclined to think that the evidence is rather against that being the case." Mr. Carruthers cautiously said (149), "Does it come from other plants upon which this Peronospora lives in some forms not as yet detected as belonging to it?" When these answers are taken with Mr. Carruthers' statement before the British Association (at the very time when Professor De Bary was investigating the subject for the Royal Agricultural Society), that "Professor De Bary's recent researches seem to point to the possibility that we have in the Peronospora an instance of 'alternation of generations,' one generation only being at present known, the other generation possibly presenting an altogether different appearance and germinating upon some totally different plant," it must be clear enough to all unprejudiced minds that not long since the idea was seriously entertained by Professor De Bary that there was a possibility of "alternation of generations" in Peronospora, like the alternation which has been described as existing between the mildew of corn and the blight of Barberry bushes. Mr. Carruthers is always so exact that he would not be likely to venture on a statement like the above without good grounds. *W. G. Smith.*

Florists' Flowers.

GOLD-LACED POLYANTHUSES, PEARSON'S ALEXANDER AND ECKERSLEY'S BLACK AND GOLD.—Pearson's Alexander was grown and catalogued previous to the year 1822. The earliest information I can obtain of this variety is in the following terms:—"The rules by which the Polyanthus is generally tested are six in number, the last of which—namely, 'dying well'—is perfectly contemptible, since all flowers are mostly found to die alike, or to have their certain defoliation conducted by regular and undeviating laws, if uninjured and undisturbed. The notorious and much applauded 'Alexander,' raised by Pearson, and the best that has been shown, is entitled to the same objections. In it the eye, instead of being raised bold and fluted, is sunken, irregular, and plain; the petals more pointed than round, and the gold or yellow colour in a very preponderating disproportion to the other parts of the corolla; and I question much that one ever was produced which agreed entirely with the required standard."

In the year 1840-41 I find the following recorded:—"This (Pearson's Alexander) has long been the leading favourite in the north of England; but I think it will now have great difficulty in always carrying off the 1st prize as it has hitherto done. It certainly is a beautiful flower, but far from faultless; the eye is a beautiful yellow, the ground colour exceedingly dark, and the lacing perfectly regular and correct, which, from the fine contrast in the colours, produce a very showy and attractive appearance. On looking at it closely, however, its warmest admirers must admit that the divisions in the corolla extend half way down through the eye, which makes the outsides of the heart-shaped segments very apt to droop, and thus spoil the flatness of the pips; and the pretty elevation of the mouth of the tube, which is so great a decoration to the pips of Lord Crewe, Fletcher's Defiance, and others, is also wanting in this variety, the mouth of the tube being quite plain and flattened with the eye. Eckersley's Black and Gold is another very excellent variety; the tube is neatly elevated, the eye is a very fine yellow, although it comes occasionally tinged with orange, or 'foxy' as the florists term it, the ground colour a very dark velvet, almost black, and the lacing very correct and neat; it is a good trusser and well worthy of cultivation by competing florists: this is a North Country flower."

"R. D." says "unfortunately the descriptive notes give no information as to the origin of this flower" (Pearson's Alexander). There was a Pearson upwards of sixty years ago who raised seedling Auriculas, Carnations, and Polyanthuses; some of those named by him are descriptive or suggestive of the period, viz., Badajoz, Blucher, &c., and one of them he named Chilwell Hero, which I think is indicative of locality. *North Norfolk.* [Can the present Messrs. Pearson throw any light on this subject? ED.]

AURICULAS.—It may seem like repetition for anything to appear in the pages of the *Gardeners' Chronicle* respecting these favourite flowers; and, indeed, these notes would not have been written had I not recently visited a most successful exhibitor in the North, not many miles as the crow flies from Manchester, and the few jottings made on the spot may be of service to many readers, as they were instructive to myself.

Firstly, all the plants are grown in small lean-to houses, just high enough to walk in without inconvenience, and with stages about 3 feet wide, and front ventilators; and certainly the advantages of this kind of structure over frames are very great; the plants are constantly directly under the eye, so that all the ills to which they are subject are more likely to receive immediate attention. The position considered most suitable during the winter months is one in which the plants can enjoy what sunshine is likely to fall to their share, especially in some of the smoke-begrimed towns of the North; and I am strongly of opinion that Auriculas are subjected to far too much shade during the period preceding flowering and after it is past; but more on this point upon another occasion.

Watering is very judiciously accomplished, the plants being kept moderately dry—in fact, as dry as is compatible with the healthy condition of the roots, and no moisture is allowed to fall upon the leaves or crown of the plants, it being carefully applied next the rim of the pot. All dead or dying leaves are removed as soon as they show signs of decay; for if left they are very liable to be covered with fungi, and cause decay to other leaves, or even the neck of the plant, especially if the atmosphere is very damp. The pots used are nearly all of the same size—about 5 inches in diameter, with the upper portion well glazed, including the inside of the rim, such pots being very easily kept clean, and are more likely to retain moisture. Insect pests are most keenly watched, and when their presence is detected prompt action is taken to secure their speedy destruction. This is especially desirable at this season, when they are in a resting state for the winter. Greenfly should be removed with a small brush, and the plants be afterwards dipped in a solution of soft-soap, with a little Fir-tree oil added. As to the Auricula-louse, which is so great a nuisance in many collections, very active measures are taken to ensure its complete eradication, and happily it is now in this collection almost a thing of the past. Yet still it shows itself occasionally, mostly near the inside of the pots, at the extremities of healthy roots, and the following plan is adopted:—The pot is removed, and a brush charged with pure paraffin is applied to them, which kills them immediately. It is not advisable if they should be found at the neck of the plant to adopt this method, as the paraffin would undoubtedly injure the plant; but applied to the root in this way I am assured it has no apparent prejudicial effect upon the plants, while it quickly puts an end to the Trama.

Questioned as to the effect of this insect upon the health of the plant, this cultivator entertained the same views which I had formed in my own mind after observing a large number of infested plants, viz., that if they do not attack the collar, but confine themselves to the roots, the plant may indeed benefit, for a time at least, by their society; for although they may injure certain rootlets, the very fact of stopping these causes an increased emission of other rootlets; hence you often find that plants badly infested have a large number of roots, and are large and very healthy-looking; but in the long run such plants do not hold their own as well as those free from the pest, but are very liable to go off suddenly. But so soon as they get a foothold at the collar the plant sickens rapidly, and ultimately falls a victim; therefore the best advice is to get rid of it as speedily as possible by any and all means without deleterious effect upon the plants.

The collection, although not one of the largest, included all of the best and rarest in cultivation, and, indeed, several which have not yet found their way into anything like general cultivation. A simple enumeration of the best would occupy far too much space, and for the present I must close my remarks upon one of the healthiest collections in the kingdom, and which, judging from present appearances, is likely to occupy a position of honour in the exhibitions of 1884. *R.*

NOTES FROM THE CHRYSANTHEMUM SHOWS.—The busy fortnight of the Chrysanthemum shows is over, and for another year growers and exhibitors must be content with what fame and fortune the past season has brought them. The exhibition season of the favourite autumn flower is short and busy; it crowds far too many events into a space of time that is too limited, and delicious as are the sweets whilst they last, they are all too evanescent and fugitive. If any enterprising body, the coming National society for instance, could give us a show of Chrysanthemums in December, good service would be done, but the present system of growing only huge flowers for show compels the compression of all shows into one short fortnight in November, and then, for the public, all is over. Yet experience shows that beautiful private displays of the Chrysanthemum may be had even up to Christmas, but, of course, not of trained plants, or of monster blooms. After all, it is not certain whether the grower who could put up a fine bank of plants, full of good bloom, in the middle of December, does not deserve better of his country than does he who turns out scores of the biggest flowers or trained plants in November. It can hardly be doubted but that there is a decline in the number of big trained plants grown, and also in their size. So far that is well. Big trained plants are at the best hideous deformities, such as it is hardly possible to look upon without feeling pain, if not something stronger. Of all exhibition plants they are the stiffest and most formal, and are utterly devoid of all elegance and beauty. Broadly, yet naturally grown, good clumps, 3 feet through, may be meritorious, but still are needlessly large. There is such wondrous variety in the Chrysanthemum that it is foolish to fill up space with one plant, producing, perhaps, 100 blooms, all duplicates of each other, when in the same space might be grown good plants of a dozen varied and beautiful kinds. It is moreover an undoubted fact that only the most forward and least beautiful kinds lend themselves to formal training with ease, and such is the plethora of the Rundle family that we are tempted to wish the progenitor of the race had never come into existence. Standards, alas! are not free from

this defect, and the way in which otherwise well-grown plants are fearfully and wonderfully tied and tortured to bring each bloom into exact mathematical precision of place, is painful to behold. If the new National society wishes to merit its high-sounding appellation, it will do its best henceforth to discourage hard training, and to encourage natural growth.

Groups of plants arranged for effect are without doubt the chief plant decorative feature of shows, and committees may well consider whether it is not more desirable to invite these in preference to trained plants. But these, beautiful as they are, are sadly wanting in elegance, and suffer from that strong preference shown by judges for incurved blooms over others, and also for size, or, as they prefer to say, quality in the flowers. Such size in all cases can only be obtained by hard disbudding, and as a result the majority of the plants in these groups are but long gawky skeletons carrying three or four big blooms. Large heads of bloom naturally produced would stand no chance in the competitions. As it is too much just yet to hope that hard disbudding will be discouraged in such groups, it is at least worthy of consideration whether other groups of plants having flowers naturally produced in clusters should not be invited, and be judged solely by their decorative effects, altogether apart from quality. As it is great improvement would be presented in the present form of group if exhibitors were encouraged to grow some dwarf pompon or other kinds for facing them. If that cannot be then the sooner a breadth of green baize cloth is hung round the fronts of many of them the better. The introduction of other decorative winter plants at Chrysanthemum shows is further a feature that cannot be too warmly supported. Attractive as Chrysanthemums may be, continuity of similar kinds, however fine and beautiful, soon satisfies. In Cyclamens, Chinese Primroses, table plants, berried plants, zonal Pelargoniums, and collections of miscellaneous plants, we find decorative material that adds immensely to the beauty and variety of any exhibition. The beautiful show at Kingston is in this respect a case in point, for there the arrangements not only admit of but produce one of the most charming *coup d'œils* in the kingdom—an opinion evidently held by the public of that locality, for on its first day the takings at the doors exceeded that of any previous year by some £30. On the other hand, what splendid displays of fruit and vegetables the judicious expenditure of a few pounds may produce in November was well seen at the Royal Aquarium, where these products were grandly shown though in that building, so unfit in its present state for a fine show, the effect was poor though the materials were splendid.

The National society, if it is to become worthy its high-sounding appellation, will sadly need a more fitting place in which to hold its exhibitions, if these exhibitions are no longer to be local but national. It is to be hoped that the term national will be applied to the society only in its very broadest sense, both in composition and in work. If it be not, then the pretentiousness of the title may but provoke amusement. There is nothing more certain in connection with cut blooms at exhibitions than, whilst the incurved, lumpy blooms are the most favoured of the technical grower, the beautifully varied and singularly formed Japanese kinds are the most favoured of the general public. Without doubt, these exhibit far more variety in form and colour, and, withal, are so beautiful that it is not to be wondered at if they presently take a much higher place at shows than so far has been accorded to them. We hear complaints on the part of some growers that the regulation size show box is not large enough for the full display of the biggest flowers, but as size in these is almost always allied to thinness and looseness it will be no misfortune if such sprawling kinds as Baron de Prailly, Meg Merrilies, and Fair Maid of Guernsey, be weeded out altogether, and kinds that have more substance, though not so big, be substituted for them. Generally, too, the incurved flowers are not pleasing amongst the Japanese, and such kinds as Chang, Comte de Germiny, and Boule d'Or, with their broad, curled petals, are not desirable, indeed, either in a stand rather mars than aids. Magnum Bonum, with its pretty serrated petals, has an undoubted tendency to incurve, but that is a very distinctive and pleasing flower none the less; and the finest and most attractive of the section is Madame Andiguier, which Mr. Molyneux grows so splendidly, and exhibited such grand blooms of at Kingston both this year and last. No doubt much of its attractiveness is due to the fact that its petals are fully coloured on both sides.

Among new kinds of Japanese that are meritorious, specially fitted to displace the sprawling white ones, is Mdlle. Lacroix, which becomes pure with age, and is very full and handsome. Of really good kinds that make first-class show blooms, having solidity, quality, and beauty, are F. A. Davis, so rich and dark; Père Delaux, deep bronzy-chestnut; Red Gauntlet, deep reddish-chestnut; Triomphe du Nord, bronzy-red; Mons. Ardene, lilac; Balmoreanum, rosy-lilac; L'Incomparable, orange-buff, very striking and beautiful; Soleil Levant, yellow; Alba plena, white, very fine and full; Harlequin, pale flesh; Criterion, bronzy-buff, a superb flower; Mrs. J. Mahood, new, narrow twisted petals, French-white, and lilac centre, a good full kind; The Sultan, Triomphe de la Rue de Châtelets, reddish-buff, very distinct; Striatum, flaked; Parasol, rosy-buff; and Tendresse, rosy-lilac, with buff centre, very pleasing and distinct, are but a few that may be taken to indicate what are the best forms of beauty found in the Japanese section.

Some dissatisfaction seems to exist because such big incurved kinds as Sœur Melanie and other allied forms are admitted in the pompon classes. It is evident that a line which includes such as the one named and excludes the beautiful crimson Julia Lagravère is too arbitrary to be just. The fact is, by the admission of large flowers as pompons, the pretty button-flowered section, such as Bijou d'Horticulture, Model of Perfection, and Bob, are in danger of extermination as show flowers. Pompons may well be divided into two classes, large and small; the first being shown, as now, in bunches of three blooms, and the others in bunches of three natural clusters. The small pompons are so charming that they specially merit encouragement. It is to be hoped that whilst another year will not see the prizes in the champion classes at the Aquarium so very unnaturally allotted as at present, the last has been seen of the so-called champion cups at Kingston. It is very doubtful whether it is wise to include Japanese and incurved flowers in one class, but, if adhered to, four prizes of £6, £4, £3, and £2 would be productive of far more competition than is the present arrangement.

FORESTRY.

The International Forestry Exhibition.—At a meeting of the Executive Committee this week some further contributions to the Guarantee Fund were announced, including a grant of £100 from the Commissioners of Her Majesty's Woods and Forests, and a like sum from the Surveyors' Institution. The fund is still, however, below what is expected, and as the magnitude of the project has been largely increased, the expenses will be correspondingly greater; but the committee have derived much encouragement from numerous promises of support which have lately been received from official as well as private sources, and it is hoped that these will be sufficiently liberal to place the success of the exhibition beyond doubt. Many officials have expressed their readiness to endorse in a practical manner the recommendation of the Science and Art Department, and show the attention that has been paid to the practice of scientific forestry; while naturalists, sportsmen, and other private individuals have welcomed with pleasure the idea of bringing under one roof trophies of the chase and other products of the forest. The subjects to be dealt with in the essays that have been invited will point in the direction of the utilisation of lands now waste by planting; the sources whence our supply of timber for shipbuilding purposes will be derived; and generally the use of all sorts of forest produce. The Exhibition is being most heartily supported in America as well as other parts of the globe. At the meeting of the Forestry Association of the Province of Quebec a sub-committee was formed to ensure a representative collection of specimens of timber, &c., being sent from Canada, and to assist in obtaining private contributions from the Dominion. The Hon. W. W. Lynch, Commissioner of Crown Lands for the Province of Quebec, has added his name to the list of patrons; and among those from a distance who have applied for space for exhibits is the Hon. James Mitchell, Surveyor-General in New Brunswick, who has control of the forests and woodlands of that State, and who may be expected to make a noteworthy contribution to the Exhibition. A model of a farm in Manitoba will be exhibited by the Agent-General for Canada, with a view of showing what emigrants have to expect.

Records of the Size of Trees.—One who has measured many noted trees must needs feel an interest in the experience of others in the same department. Gleaning wherever good material is found, we have read lately the measurements by Professor Bell of trees planted by Gilbert White, of Selborne, and by a relative of the famous naturalist. The Rev. Yalden White planted an Abele in 1790 which measured in 1876 8 feet 8 inches in girth and 90 feet in height. The Professor probably measured the girth at 3 or 4 feet from the ground. His accurate predecessor perceived the importance of stating the height at which the girth was taken, in some trees especially, and he did so in every case. An Oak planted by him in 1730 measured in 1790, at 3 feet from the ground, 4 feet 6 inches; an Ash 4 feet 6 inches; a Spruce Fir planted in 1751 measured in 1790 5 feet; a Beech planted at the same time measured in 1790 4 feet; an Elm planted in 1750 measured 5 feet 3 inches after the lapse of forty years; a Lime planted in 1756 measured in 1790 5 feet 5 inches. In 1876 the same trees measured at the same height from the ground—the Oak 8 feet 5 inches, the Ash 8 feet 8 inches, the Fir 8 feet 2 inches, the Beech 11 feet 9 inches, the Elm 10 feet 9 inches. The Lime was not measured. The trees measured in height in 1876—the Oak 54 feet, the Ash 85 feet, the Fir 92 feet, the Beech 90 feet. All these measurements are very moderate when compared with others which will follow.

Mr. Hunter's recent work, *The Woods and Forests of Perthshire*, contains a large amount of information, which all who are interested in the crop-yielding capacity of different kinds of trees may consult with advantage, and from the very ample records of *maxima* in Perthshire they may hope to deduce the possible average of their own land, when planted properly with the most suitable kind of tree. Few Oaks can compare with those planted by Lord Mansfield at Scone. Mr. McCorquodale, who has managed the famous woods of Scone forty-five years, says that few of the Oaks exceed seventy years of age, and some of them already contain 100 cubic feet of timber. One, the measurement of which was given in the *Gardeners' Chronicle* in 1877, contained then 120 cubic feet at sixty-eight years old, the tapering bole being 70 feet in height, and 7 feet 11 inches at 5 feet from the ground. A Scotch Fir tree in Moreward Wood, a famous tree known as the "King of the Forest," measures 80 feet in height with a trunk 16 feet at 3 feet, and 15 feet 4 inches at 5 feet, and contains 400 cubic feet of timber. This is the largest Scotch Fir south of Braemar. Can it be matched for size even there? Fifteen acres of Scotch Fir in this great wood of 400 acres were cut six years since, and sold at £132 per acre, or £1980, the trees being eighty years old, and having yielded a round sum for thinnings. Burnside Wood, of 20 acres, planted thirty years ago after the removal of a similar crop (two Scotch Fir plantations in succession on moorish soil), has yielded £73 for thinnings. The Oaks of Drumshogle, where some of Mr. McCorquodale's men remember the cutting of corn before the planting of the Oaks sixty years ago, now measure an average height of 70 feet and 5 feet in girth. A few Spruce Firs among these Oaks measure 80 and 90 feet and 6 and 7 feet in girth, soft wood growing fastest. A weeping Beech measures 45 feet at thirty-seven years old, a black Poplar 95 or 100 feet, and contains 150 cubic feet of timber. The age is not given, but this is a Poplar of a very rapid growth when it stands near water. Three other Oaks at Scone, growing on the rich alluvial gravel, planted in 1808 and 1809, measure 76, 95, and 114 cubic feet of timber respectively. Some of the plantations here are most appropriately fenced with the Abies Douglasii, introduced by Mr. Douglas, who served his apprenticeship at Scone.

No trees on the property are so tall for their age as the Douglas Firs. The height of a plantation twenty-five years old is from 35 to 40 feet, and many of the trees are making 3 feet of growth per annum. It is a capital tree for filling up vacancies in old plantations, for, if there be headway, light, and air, it will push its way. They are planted 9 feet apart, with Larches as nurses, and are left 18 feet apart. At Highfield, on this same famous property, thirty-two varieties of the newer Coniferæ have been planted, 36 feet apart, with

the Larch as nurses; the site is 300 feet above the sea-level and is well drained, and well sheltered from the north by an old Scotch Fir wood. It is interesting to note that Picea Menziesii has excelled all the other kinds in rapidity of growth; the Corsican Pine comes next, and after it the austriaca. Abies nobilis, unfortunately, was disabled from competition by the loss of its top twelve years ago, when somebody passing by fancied it for a walking-stick. Pinus excelsa bears the palm in this race as the slowest grower. The Douglas Firs do not compete, not having been planted here. Scotch Fir and Larch are each doing well after Scotch Fir cut down seven or eight years ago. There are some noble Oaks on the river-side, where the soil is as favourable for trees as the same water-worn sandy deposit at Dunkeld. Some of the Earl of Mansfield's finest specimens of trees are at Lynedoch, including a Silver Fir, 150 years old, containing 425 cubic feet of timber, and measuring 110 feet high, and 13 feet 3 inches at 5 feet from the ground; two Douglas Firs, each planted in 1834, each 85 feet high, and measuring respectively at 5 feet 9 feet 7 inches and 9 feet 3 inches in girth. The cubical contents are 132 and 121 feet. The Beech, Walnut, and Sycamore are all remarkable, and one of the latter contains 350 cubic feet of good timber.

Invermay, the property of Lord Clinton, where the family of Belshes resided for centuries, is one of the many places in Scotland where timber has been cherished. The Silver Firs girth 12 and 14 feet at 5 feet, the Oaks are as large, Sycamores reach 16 feet, Beeches 14 feet 6 inches, a Walnut as much, and a Spruce Fir 13 feet 6 inches. This tree is 200 years old, and 80 feet high. A Yew hedge and a Holly hedge planted in continuation in the grounds of "the Tower" about the year 1633 measure, the first-named 50 feet high, with a spread of 40 feet, while the second-named measures 10 feet more in height.

The byegone member of the Belshes family who planted this hedge has left to posterity a noble legacy, and his memory will still be kept green by the Yews and Hollies for centuries to come. One of the same race of tree planting proprietors found a soldier one day in a plantation which he had entered for the purpose of converting a young tree into a walking-stick. The laird met him trimming his tree, and, seizing the soldier's musket, which stood against the dyke, he ordered him to take the sapling back to the spot where he had cut it, or, he added, "I'll blow your brains out." The soldier obeyed, and getting back his weapon, he fired off a volley of oaths similar to the laird's, and ordered him to fetch the stick and present it to him as a gift; or, said he, "I'll blow your brains out!" The stick was brought, and the disputants departed and went their ways.

Foreign Correspondence.

NOTES FROM WILHELMSHÖHE.—*Dimorphanthus mandschuricus.*—I fully endorse all that is said about the beauty of Dimorphanthus mandschuricus at p. 630. It is a noble looking plant, and by reason of its vigorous growth and bold foliage well deserves a place in the so-called sub-tropical garden. But I would not plant it in the shrubbery, as there it would be half hidden by other shrubs. It must stand quite free to show its beauty to full advantage. Here it stands on the lawn, and nobody objects to its being there. If you do not like to see its naked stems in winter, place a few Thuias or Cupressus in pots, or something else, round the Dimorphanthus, and the naked stems will no longer offend the eye. As to its identity with Aralia chinensis, I think there exists some difference of opinion. We have here Dimorphanthus mandschuricus and Aralia chinensis, but they are not identical; on the contrary, they are quite different plants. There is a description of Aralia chioensis, L., in Koch's *Dendrologie*, vol. i., p. 673. When comparing our plant with this description, we found the plant quite true to name. Dimorphanthus mandschuricus—of this I have not seen a description, but I think Maximowicz described it—is altogether different. It grows very bold and vigorously, its growths, leaves, in fact the whole plant, assuming much larger dimensions than Aralia chinensis, which in general habit resembles more the well-known A. spinosa, L. (= A. japonica), but differs from Aralia spinosa principally in the colour of the young soft shoots being greyish-white, while the young shoots of Aralia spinosa are green, and the flowers, which are but seldom seen here, being smaller. Aralia chinensis is very tender, while Dimorphanthus mandschuricus is never injured by the cold, even escaping unhurt by the terrible winters of 1879-80 and 1880-81. We have very often obtained ripe seeds of Dimorphanthus, but never had any seeds of Aralia chinensis.

Impatiens Jerdoniæ, an old favourite, is flowering here. Its flowers are very attractive, red, yellow, and green, and of a peculiar shape. This plant is sometimes somewhat difficult to cultivate, and this may be the reason of its being almost entirely lost in gardens. Formerly we had plants here 1 to 2 feet high, splendid bushes; last year and the year before the plants did not grow at all, and we were always trembling to see them dying off altogether. This year they improved greatly, though they are not yet as fine as formerly. We grow them in peat and Beech leaf-mould in an airy stove, and keep them rather moist in summer, but rather dry and cooler in winter. I read the other day that this plant did better in leaf-mould and sphagnum. I shall try that next year.

Impatiens Sultani flowered profusely during November, and is still flowering freely. Lately the flowers are somewhat smaller than they used to be; the soil may be exhausted, as the plants are grown in comparatively small pots. Impatiens Sultani is without doubt one of the very best novelties of last season, and a capital plant for market purposes. Towards Christmas, or the New Year, Impatiens Hookeri will be flowering. The colour of the flowers is scarlet and white, and remarkably tender and pure. The plant grows vigorously 3 to 4 feet high, and nearly as broad in one year, but by no means flowers freely. What can be the reason? Has any reader of this paper gained experience about this point? *C. Wissenbach, Royal Gardens, Wilhelmshöhe, near Cassel, Germany.*

Reports of Societies.

Edinburgh Botanical: *Dec.* 13.—The Society met in 5, St. Andrew Square; Robert Gray, Esq., F.R.S.E., in the chair. The following office-bearers were elected for the current session:—President: William B. Boyd, Esq., of Faldonside. Vice-Presidents: Professor Douglas Maclagan, M.D., F.R.S.E.; Professor Bayley Balfour, Sc.D., M.D.; Robert Gray, F.R.S.E.; William Craig, M.D., C.M., F.R.C.S.E., F.R.S.E. Councillors: Malcolm Dunn, Thomas Alexander Goldie Balfour, M.D., F.R.C.P.E., F.R.S.E.; James Buchanan, Charles Jenner, F.R.S.E.; Alexander Buchan, A.M., F.R.S.E.; Hugh Cleghorn, M.D., F.R.S.E.; Isaac Anderson Henry, F.L.S., F.R.S.E.; Rev. John MacMurtrie, M.A.; Robert Lindsay. Honorary Secretary: Emeritus Professor Balfour, M.D., F.R.SS. L and E. Honorary Curator: The Professor of Botany. Foreign Secretary: Professor Dickson, M.D., F.R.S.E. Treasurer: Patrick Neill Fraser, F.R. Cal. Hort. Soc. Assistant-Secretary: Andrew Taylor, F.C.S., 37, South Clerk Street.

The following communications were read:—

I. "The Development of the Organs of Reproduction in the Jungermanniæ." Part I. By John Macmillan, Sc.B., F.R.S.E., Perth.

II. "Obituary Notice of the late T. H. Corry. F.L.S." Communicated by the Assistant-Secretary.

III. "On the Progress of Open-air Vegetation at the Royal Botanic Garden." By Robert Lindsay, Curator.

During November the thermometer was at or below the freezing point on fourteen occasions, indicating collectively 37° of frost for the month, as against 48° for the corresponding month of last year. The lowest readings were—on the 7th, 28°; 8th, 29°; 11th, 28°; 12th, 22°; 13th, 27°; 14th, 29°. The highest morning readings were—on the 1st, 47°; 2d, 45°; 3d, 46°; 25th, 46°; 29th, 51°.

The month began with eight days of mild spring-like weather. On the 9th and 10th a severe storm of wind, rain, and snow occurred, which swept off (with few exceptions) what leaves were remaining on deciduous trees. The latter portion of the month was remarkable for an extraordinary series of most brilliant sunrise and sunset effects, which attracted general attention. On the evening of the 28th, when the sunset was perhaps most striking, the thermometer registered 50° as the minimum.

On the rock garden the following plants came into flower during the month:—Aster Reevesii, Crocus sp. (from Asia Minor); Erica herbacea alba, Hepatica triloba alba, Iberis stylosa, Helleborus var. purpurascens, Geum aureum.

A number of herbaceous and alpine plants which came into flower during previous months are still in fine flower, the finest of all being Helleborus niger var. altifolius, which began to flower this year about the beginning of September, and will continue flowering for a month yet. When well established this is one of the best of all our hardy plants. Amongst others, most of which are still in flower, are Arabis procurrens, Veronica rupestris, Schizostylis coccinea, Lithospermum prostratum, Aubrietias, Erica vagans, &c., specimens of which were laid before the meeting. In other parts of the garden plants were in flower of Jasminum nudiflorum, Hamamelis virginica, Erica ciliaris, China Roses, Wallflowers, Stocks, Primroses (double and single), Pansies, &c.

Attention was drawn to an excellent plant for rock gardens, viz., Gaultheria carnea, which when covered with its pretty flesh-coloured berries, as it is this season, is one of the most charming of rock plants. The berries remain for several months in good condition.

Royal Caledonian Horticultural.—The annual meeting of the members was held on the 6th inst., in the Music Hall, Edinburgh, Professor Dickson presiding. An abstract of accounts for the year ending November 30, 1883, was submitted, and showed receipts amounting to £1568 14*s.* 3*d.*, and expenditure amounting to £1409 17*s.* 6*d.*, leaving a balance of £158 16*s.* 9*d.* The drawings at the three shows held during the year amounted to £1029 12*s.* 2*d.*, and the expenditure to £582 1*s.* 9*d.* The total amount of the funds in the hands of the Treasurer at present amounted to £1205 16*s.* 2½*d.* The Earl of Hopetoun was elected Vice-President, in place of the Earl of Stair, who retires by rotation; and Mr. James Buchanan and Mr. David Thomson (of Ireland & Thomson) were elected members of Council in the place of Mr. John Clapperton, who retires by rotation; and Mr. Mackintosh, nurseryman, whose death was recently announced. Messrs. Stewart, Neill Fraser, and Turnbull Smith were respectively re-elected Secretary, Treasurer, and auditor. In replying to a vote of thanks Mr. Fraser said that the financial condition of the Society was very satisfactory, as the members' subscriptions and the drawings at the shows had amounted to a larger sum than they had ever done previously on ordinary occasions. He also stated that upwards of 40,000 persons had visited the shows during the five days they were open, or about 8000 per day, showing the appreciation by which they were held by the public in and around Edinburgh. The Secretary was instructed to communicate with the Market Committee of Edinburgh Town Council, asking if steps could not be taken to provide better means of entrance and exit at the principal door of the Waverley Market, which, it was stated, was much too narrow.

Variorum.

"SALTING UN IN."—The following "true tale" was recently told by the Mayor of Stratford-on-Avon, when delivering a lecture on "Forest and Historic Trees" (see p. 785) and will serve as a Christmas yarn:—Some years ago a gentleman mounted on a horse set out in order to cross the Dartmoor. Though the thaw had commenced, yet it had not melted the snow-heaps, and our traveller got on but slowly, and towards evening it froze again. The shades of evening came on with vapour and mist. To reach Tavistock that night he knew would be impossible, as a fresh snowstorm began to fall. To stay out all night would be certain death. It was, therefore, with no small satisfaction that he saw at a distance a cottage, partially covered with snow, and it was not long before he reached it. He dismounted, and the door was answered by an old woman. He entered, and saw a sturdy peasant, the woman's son, who sat smoking his pipe beside a blazing peat fire. The stranger's wants were soon made known; an old outhouse accommodated his horse, and the son gave up his bed, adding that he would sleep in the old settle by the chimney-corner. After supper he was shown to his room, where there was a large Oak chest, very old and curious, so much so as to cause him to remark upon it to the old woman, who had lighted him upstairs, and he could not help observing something shy and odd about her manner. After she had gone he felt inclined to peep into the chest, but he forbare, and went to bed. He felt cold and miserable, and could not sleep. The old chest haunted him; a hollow sound, as if behind his bed's head, suddenly started him; and as he raised himself in his bed, the first thing he saw was the chest. There it lay in the silvery silence of the moonlight; his fears gave action to the inanimate thing, and at length he fancied the lid of the chest began to move. Starting from his bed, he grasped the lid and raised it up. Imagine his feelings of horror when he beheld a human corpse, stiff and cold. One thought during the rest of the night possessed him—that he was in the house of murderers! There was no escape. He thanked God when morning came. On coming down stairs he found the old woman and her son preparing breakfast. They hoped "his honour" had passed a good night, and bade him eat his breakfast, consisting of broiled bacon, the son chiming in "that mother was reckoned a good-un at salting un in." He enjoyed his breakfast, and recovered his fright, and just as the old woman was broiling him another rasher he summoned up courage to disclose the secret of the Oak chest, and asked for an explanation.

"Bless your heart, your honour, its nothing at all," said the young man; "it's only faythe r!" "Father, your father!" cried the traveller; "what do you mean?" "Why, you see, your honour, the snow being so thick, and the roads so cledgey like, when old faythe r died two weeks agone, we couldn't carry un to Tavistock to bury un, so mother put un in the old box, and salted un in." The traveller's breakfast was spoiled. He got up from the table, paid for his lodging, saddled his horse, and has never been known to touch a rasher of bacon since, as it always recalled the feelings of disgust connected with the adventure of "salting un in!"

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, DECEMBER 19, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 30 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Dec.	In.	In.	°	°	°	°	°	°	°		In.
13	29.72	−0.08	53.5	39.0	14.5	48.7	+ 8.1	43.0	81	W.; W. NW	0.00
14	29.56	−0.25	53.0	40.8	12.2	47.2	+ 6.5	43.6	88	S.W.; W. S.W	0.00
15	29.53	−0.28	45.8	36.0	9.5	40.6	− 0.1	36.5	83	W. S W	0.00
16	29.70	−0.12	40.0	35.0	5.0	37.3	− 3.4	32.0	82	N.W.	0.09
17	30.20	+0.38	38.5	33.5	5.0	36.0	− 4.5	33.5	91	N.W.	0.00
18	30.17	+0.35	40.0	33.0	7.0	37.2	− 3.0	33.4	87	S.W.; N.W.	0.00
19	30.02	+0.19	43.5	37.0	6.5	40.6	+ 0.6	36.3	86	N.W.	0.00
Mean	29.84	+0.03	44.8	36.3	8.5	41.1	+ 0.6	36.9	85	N.W.	0.09

Dec. 13.—Fine and bright at times during the day. Fine night; warm and mild.
— 14.—Fine dull day. Fine night; partially cloudy.
— 15.—Fine day; very slight rain at 1.30 P.M. Fine night; moon shining brightly.
— 16.—Fine day; sun shining at times; slight fall of snow between 1 P.M. and 2 P.M. Rough windy night; rain.
— 17.—Fine day; gusty and cold. Dark cloudy night; snow about 1 A.M.
— 18.—Dull day; thick fog all morning. Fine night; overcast.
— 19.—Fine, dull day and night.

LONDON: *Atmospheric Pressure.*—During the week ending December 15, the reading of the barometer at the level of the sea decreased from 30.41 inches at the beginning of the week to 29.63 inches by 9 A.M. on the 10th, increased to 29.90 inches by 3 P.M. on the 10th, decreased to 29.62 inches by midnight on the same day, increased to 29.81 inches by 3 P.M., and decreased to 29.66 inches by midnight on the 11th, increased to 30.10 inches by midnight on the 12th, decreased to 29 67 inches by 3 P.M. on the 14th, increased to 29.87 inches by 9 A.M. on the 15th, and was 29.52 inches by the end of the week.

The mean reading for the week at the level of the sea was 29.84 inches, being 0.33 inch lower than last week, and 0.13 inch below the average of the week.

Temperature. — The highest temperature in the shade in the week was 53°.5, on the 13th; and the highest on the 9th was 39°.5. The mean of the seven high day temperatures was 47°.9.

The lowest temperature was 33°.3, on the 9th; on the 11th the lowest temperature was 41°. The mean of the seven low night temperatures was 38°.1.

The greatest range of temperature in one day was 14°.5 on the 13th; and the smallest was 6°.2, on the 9th. The mean of the seven daily ranges was 9°.8.

The mean temperatures were—on December 9, 37°; on the 10th, 42°.8; on the 11th, 44°.6; on the 12th, 43°.7; on the 13th, 48°.7; on the 14th, 47°.2; and on the 15th, 40°.6; of these the 9th and 15th were below their averages by 4°.2 and 0°.1 respectively, and the rest were above by 1°.8, 3°,8 3°, 8°.1, and 6°.5 respectively.

The mean temperature was 43°.5, being 5°.8 higher than last week, and 2°.7 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 72°, on the 13th. The mean of the seven readings was 59°.6.

The lowest reading of a thermometer with its bulb placed on grass was 27°, on the 9th. The mean of the seven readings was 31°.2.

Rain.—Rain fell on the 10th and 12th to the amount of 0.44 inch, of which 0.36 fell on the 10th.

ENGLAND: *Temperature.*—During the week ending December 15 the highest temperatures were 56° at Cambridge, and 55° at Truro, Sheffield, Liverpool and Leeds; the highest at Bolton was 51°.1, at Brighton 51°.2, and at Bristol and Hull 53°. The general mean was 53°.8.

The lowest temperatures in the week were 28°.8 at Wolverhampton, 31°.2 at Plymouth, and, 31°.3 at Brighton; the lowest at Liverpool was 37°.5, at Truro 36°, and at Leeds 35°. The general mean was 32°.9.

The greatest ranges in the week were 25°.2 at Wolverhampton, 23° at Cambridge, and 22°.8 at Plymouth; the smallest ranges were 17°.5 at Liverpool, 19° at Truro, and 19°.5 at Bristol. The general mean was 20°.9.

The mean of the seven high day temperatures was highest at Truro, 52°.6, at Plymouth 50°, at Leeds 49°.6; and was lowest at Bolton, 46°, at Hull 46°.1, and at Bradford 46°.9. The general mean was 48°.2.

The mean of the seven low night temperatures was highest at Truro, 42°.6, at Liverpool 41°.2, Plymouth 41°.1; and was lowest at Wolverhampton, 35°.4, Hull 35°.6, and at Bolton 35°.9. The general mean was 38°.6.

The mean daily range of temperature was greatest at Wolverhampton, 12°.1, at Brighton and Hull 10°.5; and was least at Liverpool, 7°.7, at Bradford 8°.5, and at Bristol and Leicester 8°.7. The general mean was 9°.6.

The mean temperature was highest at Truro, 47°.6, at Plymouth 45°.6, at Liverpool 45°.1; and was lowest at Hull, 40°.9, at Bolton 41°, and at Wolverhampton 41°.4. The general mean was 43°.4.

Rain.—The largest falls were—3.30 inches at Bolton, 1.51 inch at Sheffield, and 1.12 inch at Bradford; the smallest falls were—0.44 inch at Blackheath, 0.46 inch at Plymouth, and 0.50 inch at Nottingham. The general mean fall was 0.96 inch.

SCOTLAND: *Temperature.*—During the week ending December 15 the highest temperature was 54°.4, at Aberdeen; at Perth the highest in the week was 49°. The general mean was 52°.8.

The lowest temperature in the week was 31°.1, at Dundee; at Glasgow the lowest temperature was 34°. The general mean was 33°.

The mean temperature was highest at Glasgow, 42°.1; and lowest at Aberdeen, 39°.5. The general mean was 41°.2.

Rain.—The largest fall was 4.68 inches at Greenock; and the smallest was 0.50 inch at Dundee. The general mean fall was 1.61 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

BOXES: *W. S., Preston.* Every grower has his own favourite method of packing, and has his boxes made according to his own ideas.

CAROLINA STRAWBERRY: *A. C. B., Glasgow.* Carolina is a synonymous name for the old Pine Strawberry, a deep red-coloured variety. The white Strawberry you tasted at Brighton, and which was erroneously called Carolina, was doubtless the Bicton Pine, sometimes also called Barnes' White (after its raiser, the late Mr. James Barnes, of Bicton), and also Virgin Queen.

CARPET BEDDING: *Arley.* Write to Mr. Graham, Hampton Court Palace, for a copy of his *Guide to Hampton Court Gardens*, which contains plans such as you require.

CHRYSANTHEMUM MISS MARECHAUX: *R. Featherstone.* The flower received we do not consider any improvement on Empress of India, but as it is later than that variety it is of some value.

INSECTS: *A. W.* The insects which have eaten off the leaves of your Cyclamens as fast as they appear, and which you state have also been found very destructive to Chrysanthemums (eating off the tops of the shoots), are a small species of beetle belonging to the genus Anthicus (A. floralis, Fab., fuscus, Stephens). We believe they are also occasionally injurious to young Melon and Cucumber plants. It is very common on dunghills, hotbeds, and under *rejectamenta.* Wash the plants and surrounding earth with gas-tar water or lime-water and soft-soapsuds. *I. O. W.*

MARKET GARDENING: *A. P. Burry.* Shaw's *Market Gardening Round London*, published at the *Garden* office, Southampton Street, W.C., for practical information. If you want theoretical knowledge of principles, Dr. Masters' *Plant Life* (Bradbury, Agnew, & Co.) would suit you.

NAMES OF FRUIT: *J. T. B.* We do not know your Apple, which comes nearest to Cox's Pomona.—*L. P.* 1, Chaumontelle; 2, Bergamotte Cadette; 3, Golden Noble; 4, Beauty of Kent.—*T. H. A.* 1, Pattiswick Seedling; 2, Atkins' Seedling; 3, Winter Codlin.—*Apple Core.* Brabant Bellefleur. — *Two Apples* (no letter). One named Brown's Pippin is Claygate Pearmain; the other is Duck's-bill of Sussex. — *Ben Rise.* King of the Pippins.—*T. M., Morpeth.* 1 and 2 may probably be Jersey Gratioli; 3 and 4, Glou Morçeau; but all so very much rubbed and bruised that we cannot be certain.

NAMES OF PLANTS: *P. F.* 2, Abies Pindrow; 3, Pinus Taeda. — *A. D. W.* 1, Thuia gigantea (true), often called T. Lobbi; 2, Libocedrus decurrens, often miscalled Thuia gigantea. — *G. Webb.* Sophronitis grandiflora.—*J. Dovey.* Probably Coryanthes speciosa, but we cannot be certain from such withered flowers without leaves. — *C. W. Strickland.* Alyxia ruscifolia.—*A. T. T.* 1, Ephedra vulgaris; 2, Muhlenbeckia complexa; 3, Fuchsia procumbens; 4, Pellæa ternifolia; 5, Adiantum rhizophorum.—*E. V. B.* Specimen insufficient for identification.—*H. B.* 1, Asplenium lucidum; 2, Blechnum cognatum; 3, Campyloneurum Phyllitidis; 4, Lastrea decomposita.

ORCHIDS: *C. W.* The last edition of Mr. Williams' *Orchid Growers' Manual* was the fifth. We cannot suggest anything better.

*** All communications intended for publication should be addressed to the "*Editor*," and not to the Publisher or to any member of the staff personally. The Editor would also be obliged by such communications being *written on one side only of the paper* and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

CATALOGUES RECEIVED.

JAMES CARTER & Co., High Holborn, W.C. — *Vade Mecum* for 1884.
SUTTON & SONS, Reading—Special List of Novelties.
M. SAUNDERS & SONS, Cork—Roses, Conifers, Fruit Trees, Stove, Greenhouse, and Hardy Plants.
HIPPOLYTE DUVAL, Montmorency, France—General Catalogue of Roses.
VEITCH & M'NOE, Castle Douglas—Vegetable and Flower Seeds.
ELLWANGER & BARRY, Rochester, N.Y. — New American Seedling Roses.
W. ETHERINGTON, Manor House Gardens, Swanscombe, Kent—Chrysanthemums.
THOMAS LAXTON, Bedford — Novelties in Seeds for 1884.
JAMES DICKSON & SONS, 32, South Hanover Street, Edinburgh—Roses and Fruit Trees.
JOHN WATERER & SONS, Bagshot — Rhododendrons, and other Ornamental Trees and Shrubs.
WAITE, NASH, HUGGINS & Co., 79, Southwark Street, S.E.—Wholesale Price Current of Seeds, &c.

COMMUNICATIONS RECEIVED.—H. Clark.—H. E.—W. L.—B. S. W.—G. N.—H. Low & Co.—W. L.—G. G.—F. W. B.—H. B.—T. B.—A. D.—C. V. M.—J. T. R.—J. P. L.—G. Burt.—D. T. F.—W. G.—G. N. (specimen with thanks).—J. A. Demar.—W. B.—G. P.—Professor Dickson.—W. J. M.—J, P.—C. B. P.—J. D. D.

Markets.

COVENT GARDEN, December 20.

THE approach of Christmas has given a little more life to our market, and prices of best goods have improved all round. Best Apples are short, samples generally being inferior, while importations from Canada and the States are light, and realising long prices. No improvement in Kent Cobs. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 0– 4 0	Lemons, per case ..	15 0–25 0
Cobs, per 100 lb.	140 0– ..	Pears, French, doz.	1 6– 9 0
Figs, per dozen ..	1 0– ..	Pine-apples, Eng., lb.	1 6– 2 0
Grapes, per lb. ..	1 0– 4 0	— St. Michael's, each	5 0– 8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz. ..	3 0– 5 0	Horse Radish, bund.	3 0– 4 0
— Jerusalem, bush.	4 0– ..	Lettuces, Cabbage, per dozen ..	1 0– ..
Beans, French, lb. ..	1 0– ..	Mint, green, bunch ..	1 0– ..
Beet, per doz. ..	1 0– ..	Mushrooms, p. baskt.	1 0– 2 0
Cabbages, per doz. ..	1 0– 2 0	Onions, per bushel ..	4 0– ..
Carrots, per bun. ..	0 4– 0 6	— Spring, per bun.	0 6– ..
Cauliflowers, English, dozen ..	2 0– 3 0	Parsley, per bunch ..	0 4– ..
Celeriac, per root ..	0 4– 0 6	Radishes, per doz. ..	1 6– ..
Celery, per bundle ..	1 6– 2 6	Rhubarb, per bund.	0 9– ..
Cucumbers, each ..	0 6– 1 0	Salsafy, per bundle ..	0 8– ..
Endive, English, per dozen ..	1 0– ..	Seakale, per punnet	2 6– ..
Garlic, per lb. ..	0 6– ..	Small salading, pun.	0 4– ..
Herbs, per bunch ..	0 2– 0 4	Spinach, per bushel	4 0– ..
		Tomatos, per lb. ..	0 9– 1 0
		Turnips, new, bun.	0 4– ..

POTATOS.—Kent Kidneys, £4 to £4 10s. per ton; do., Regents, £3 15s. to £4 15s.; Champions, £3 15s. to £3 15s. per ton.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutiloo, 12 bunches	2 0– 4 0	Marguerites, 12 bun.	4 0– 6 0
Arum Lilies, 12 blms.	6 0–12 0	Mignonette, 12 bun.	3 0– 9 0
Azalea, white, 12 spr.	1 0– 2 0	Narcissus (Paper-white) ..	2 0– 4 0
Bouvardias, per bun.	1 0– 1 6	Pelargoniums, 12 spr.	1 6– 3 0
Camellias, per doz. ..	3 0– 6 0	— zonal, 12 sprays	0 9– 1 0
Carnations, 12 blms.	1 0– 3 0	Poinsettia, 12 blooms	6 0–12 0
Chrysanth., 12 blms.	2 0– 4 0	Primula, double, bun.	1 0– 1 6
— 12 bunches ..	9 0–24 0	— single, 12 bun ..	6 0– 9 0
Cyclamen, 12 blooms	0 3– 0 6	Roses (indoor), doz.	2 0– 6 0
Epiphyllum, 12 blms.	0 6– 1 0	— coloured, doz. ..	3 0– 8 6
Eucharis, per doz. ..	6 0–12 0	Tropæolum, 12 bun.	1 0– 2 0
Gardenias, 12 blms.	9 0–18 0	Tuberoses, per doz.	4 0– 6 0
Heliotropes, 12 sp. ..	0 6– 1 0	Tulips, 12 blooms ..	1 0– 2 0
Hyacinths (Roman), 12 sprays ..	1 6– 2 0	Violets, 12 bunches ..	1 0– 1 6
Lapageria, white, 12 blooms ..	3 0– 6 0	— French, per bun.	2 0– 2 6
— red, 12 blooms ..	1 0– 3 0	— Parme, per bun.	4 0– 5 0
Lilac, white Fr., bun.	8 0–10 0	Wallflower, 12 bun.	4 0– 6 0
Lily-of-Valley, 12 spr.	4 0– 6 0	White Jasmine, per bunch ..	0 6– 1 0

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	12 0–24 0	Ficus elastica, each	1 6– 7 0
Arbor-vitæ (golden), per dozen ..	.. 6 0–18 0	Foliage Plants, various, each ..	.. 2 0–10 0
— (common), dozen	6 0–12 0	Hyacinths, per doz.	9 0 12 0
Azaleas each	.. 2 6– 5 0	— Roman, per doz.	18 0–24 0
Begonias, per doz.	.. 6 0–12 0	Lily of the Val., pot	4 0– 6 0
Bouvardias, doz.	..12 0 18 0	Marguerite Daisy, per dozen ..	..12 0–18 0
Chrysanth., per doz.	6 0–18 0	Myrtles, per doz.	.. 6 0–12 0
Cyclamen, per dozen	9 0 24 0	Palms in variety, each.. ..	.. 2 6–21 0
Dracæna term. doz.	..30 0–60 0	Pelargoniums, scarlet, per dozen	.. 6 0 12 0
— viridis, per doz.	..12 0–24 0	Poinsettias, per doz.	12 0–24 0
Epiphyllum, per doz.	18 0–30 0	Primula, single, doz.	4 0– 6 0
Erica, various, doz.	.. 9 0–24 0	Solanums, per dozen	8 0–15 0
Euonymus, various, per dozen ..	.. 9 0–18 0	Tulips, per dozen	.. 6 0–12 0
Evergreens, in var., per dozen ..	.. 6 0–24 0		
Ferns, in var., dozen	4 0–18 0		

SEEDS.

LONDON: *Dec.* 19.—Messrs. John Shaw & Sons, of 37, Mark Lane, report that the seed market to-day was very poorly attended, with but few transactions passing; indeed, business in seeds seems generally postponed until the approaching holidays are over. Clover seeds all round keep firm, but some of the new English shows poor condition. White Clover fully maintains late rates. Alsike is again dearer. There is no variation in bird seeds. Blue boiling Peas and Haricot Beans move off slowly on former terms.

CORN.

At Mark Lane on Monday trade was exceedingly dull and English Wheat, the condition of which has not been improved by the damp weather, was cheaper by 1*s.* per quarter to sell. Foreign Wheat was unsaleable, and the market without improvement. Flour met a slow sale without change in value. Malting Barley engaged little attention, and grinding sorts ruled 3*d.* lower. Beans and Peas were unaltered in value. Flat Maize 6*d.* lower, at 27*s.* 6*d.*, and round corn tending in the same direction. Oats were not quotably altered, but dull of sale.—On Wednesday the tendency of Wheat was not favourable for holders. Some small sales of flour were made at about late rates. All spring corn was nominally unaltered.—Average prices of corn for the week ending Dec. 15:—Wheat, 39*s.* 5*d.*; Barley, 31*s.* 7*d.*; Oats, 19*s.* 4*d.* For the corresponding period last year:—Wheat, 41*s.* 6*d.*; Barley, 33*s.* 8*d.*; Oats, 20*s.* 9*d.*

CATTLE.

The Metropolitan Christmas Cattle Market was held on Monday at Islington. The number of beasts on sale was 5940 (against 7370 last year); of sheep, 9570 (against 7490 in 1882); calves, 150; and of pigs, 20. The assortment of cattle comprised 2500 Scotch, 500 Norfolk, 1650 Midland Counties, and 570 west country. Nearly all were brought forward in first-class condition, and though the entries were fewer in number than in recent years, there was a great weight of prime meat. In sheep the selection was good as to quality, though consisting for the most part of heavy weights. The trade in both beasts and sheep opened dull and disappointing to the sellers. In the former sales made very slow progress, and at a well advanced hour but little impression had been made on the supply. For beasts of the Christmas type, 6*s.* to 6*s.* 4*d.* were the top rates of Scots, Devons, and Herefords; 5*s.* 8*d.* to 6*s.* for Shorthorns. The few middling cattle were hardly quotable. The sheep pens also cleared very slowly; prime Downs of the heavier weights, 6*s.* 10*d.* to 7*s.* 2*d.*; small sheep, 7*s.* 4*d.* to 7*s.* 6*d.* Calves sold at 5*s.* 4*d.* to 6*s.* 8*d.*; pigs at 4*s.* to 4*s.* 6*d.*—Thursday's trade was dull and weak. The beasts remaining unsold from Monday were difficult to move, and were rather easier. Sheep were dull, and calves and pigs quiet.

HAY.

Tuesday's Whitechapel Market report states that supplies were large and trade dull, especially for Clover. Quotations:—Prime old Clover, 95*s.* to 108*s.*; inferior, 60*s.* to 75*s.*; prime second cut, 90*s.* to 105*s.*; best meadow hay, 80*s.* to 86*s.*; inferior, 40*s.* to 65*s.*; and straw, 30*s.* to 38*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 78*s.* to 90*s.*; inferior, 60*s.* to 72*s.*; superior Clover, 105*s.* to 112*s.*; inferior, 70*s.* to 86*s.*; and straw, 34*s.* to 38*s.* per load.

POTATOS.

The Borough and Spitalfields Markets reports state that good supplies are on offer, and meet a steady demand. Quotations:—Magnum Bonums, 100*s.* to 110*s.*; Regents, 100*s.* to 110*s.*; and Champions, 80*s.* to 90*s.* per ton.—The imports into London last week were 6159 bags from Hamburgh, 5 Ostend, 511 Harlingen, 4 Rotterdam, 2600 Bremen, 65 bags 15 sacks Boulogne, 500 sacks Rouen, 12 barrels New York, 31 tons St. Brieux, 800 sacks Stettin, and 5 barrels from Amsterdam.

COALS.

The following are the prices current at market during the week:—East Wylam, 17*s.*; Walls End—Original, 17*s.*; Hetton, 19*s.*; Hetton Lyons, 17*s.* 6*d.*; Lambton, 18*s.* 6*d.*; Wear, 17*s.* 6*d.*; Tunstall, 17*s.* 6*d.*; Hulam, 17*s.* 9*d.*; East Hartlepool, 18*s.* 3*d.*; Tees, 19*s.*; Tyne, unscreened, 11*s.* 6*d.*

Government Stock.—Consols closed on Monday and Tuesday at $100\frac{5}{8}$ to $100\frac{1}{4}$ for delivery, and $100\frac{5}{16}$ to $100\frac{7}{8}$ for the account. Wednesday's final quotations were $100\frac{3}{16}$ to $100\frac{5}{16}$ for delivery, and as on the previous day for the account. Thursday's closing figures were $100\frac{1}{8}$ to $100\frac{1}{4}$ for delivery, and $100\frac{3}{8}$ to $100\frac{1}{2}$ for the account. These quotations are ex div.

GARDEN REQUISITES.

PEAT, LOAM, SILVER SAND, PREPARED COMPOST, RAFFIA FIBRE, TOBACCO CLOTH, &c.

Quality the **Best** in the Market.

(All Sacks included.)

PEAT, best brown fibrous .. 4*s.* 6*d.* per sack; 5 sacks for 20*s.*
" best black fibrous .. 3*s.* 6*d.* per sack; 5 sacks for 15*s.*
" extra selected Orchid .. .. 5*s.* 0*d.* "
LOAM, best yellow fibrous .. ..
PREPARED COMPOST, best .. } 1*s.* per bushel (sacks
LEAF MOULD .. .. .. included).
PEAT MOULD .. .. ..
SILVER SAND (coarse) . .. 1*s.* 3*d.* per bushel.
RAFFIA FIBRE, best only .. .. 10*d.* per lb.
TOBACCO CLOTH, finest imported .. 8*d.* per lb., 28 lb. 18*s.*
" PAPER, finest imported speciality 8*d.* per lb., 28 lb. 18*s.*
SPHAGNUM MOSS, all selected, 2*s.* per bushel, 6*s.* per sack.
COCOA-NUT FIBRE REFUSE (see special advertisement).
Terms, strictly Cash with order.

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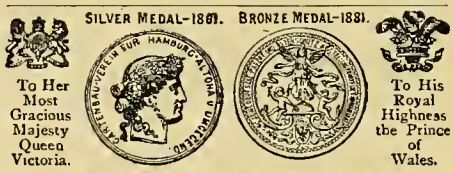
LONDON, E.

SILVER MEDAL-1867. BRONZE MEDAL-1881.



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For Beautiful Flowers and Fruits
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COCOA-NUT FIBRE REFUSE

By CHUBB'S PATENT PROCESS,

As supplied to all the Royal Gardens and Principal Nurseries of Europe.

GUARANTEED ABSOLUTELY PURE. FREE FROM ANY FOREIGN INTERMIXTURE. Manufactured on the premises from the famous "Laguna" Cocoa-Nut Husks, and can only be obtained from us direct. This article is not to be confused with so-called Cocoa-Nut Fibre Refuse, sold by dealers and others at ridiculously low prices, and dear in the end. Amongst numerous Testimonials and extracts from scientific writers, to be seen at our works, we hold the following:—From Mr. CHARLES PENNY, Head Gardener to H.R.H. the Prince of Wales: "The Gardens, Sandringham, February 28, 1883.—I must say your Cocoa-Nut Fibre Refuse is far superior to any I have ever tried; in fact, it is simply perfection; and the use of your Fibre for so many purposes in Horticulture is a thorough boon. Make what use you like of this letter." Useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bulbs, Mushrooms, Bedding-out Plants, &c.

DESTROYS ALL SLUGS AND INSECTS.

An elegant Bordering to Flower Beds. Combines warmth and cleanliness with valuable antiseptic and deodorising properties.

MOISTENS IN HEAT. HOLDS HEAT IN COLD WEATHER.

Terms, strictly cash with order. Prices as follows:—Sacks, 1*s.* 6*d.* each; 10 sacks, 13*s.*; 15 sacks, 18*s.*; 20 sacks, 23*s.*; 30 sacks, 30*s.* (all sacks included). Truck-load, free on rail, £2. Limited quantities of SPECIAL QUALITY, Granulated, in sacks only, 2*s.* 6*d.* each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from the Manufacturers, **CHUBB, ROUND & CO.,**
Fibre Works, West Ferry Road, Millwall, London, E.

EUREKA!!! INSECTICIDE, prepared by WILLIAM SMITH, Chemist, Edinburgh. In Bottles, 1*s.*, 2*s.*, and 3*s.* 6*d.* each. 7*s.* 6*d.* per Gallon. Special quotations for large quantities.

TESTIMONIAL.

"*Clovenfords, by Galashiels, N.B., July* 25, 1883.—Mr. Smith: Dear Sir, we have now tried your Insecticide on all the Insects we can find on any of our Plants, including Orchids, and used as directed by you we find it instant destruction to them all, while it neither stains nor injures the tenderest leaf. We shall in future use no Fir Tree Oil or other Insecticide but yours.—We are, yours truly, WM. THOMSON AND SONS."
Wholesale Agents—IRELAND AND THOMSON,
Waterloo Place, Edinburgh

12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6*s.* per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15*s.* per ton per Truck. Sample Bag, 5*s.*; 5 Bags, 22*s.* 6*d.*; 10 Bags, 45*s.* Bags included. Fresh SPHAGNUM, 10*s.* 6*d.* per Bag. SILVER SAND, Coarse or Fine, 52*s.* per Truck of 4 tons. Red Sandstone ROCKWORK, £5 per Truck of 4 tons. GRAVEL, good colour, 25*s.* per Truck of 6 tons.
WALKER AND CO., Farnborough Station, Hants.

Thomson's Vine and Plant Manure.

Manufactured by the

LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), LIMITED,

The Vineyard and Nurseries, Garston, near Liverpool,

and Sold by them and all Nurserymen and Seedsmen.

This is the Manure used to produce the splendid Grapes grown by Messrs. WM. THOMSON & SON, Clovenfords.

For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

Meredith's Vine and General Plant Manure.

JOSEPH MEREDITH (late of The Vineyard, Garston, near Liverpool) will shortly be able to Execute Orders for this celebrated Manure, which can now be booked.

JAMES MEREDITH, Seedsman, 126, Bridge Street, Warrington, Sole Agent.

SOLUBLE **FIR TREE OIL** INSECTICIDE. For destroying ALL INSECTS and PARASITES that infest Trees and Plants, whether at the Roots or on the Foliage. Kills all Vegetable Grubs, Turnip Fly, &c. Cures Mildew and Blight. Cleans Grapes from Mealy Bug, &c., and makes a good Winter Dressing. Of all Seedsmen and Chemists, 1*s.* 6*d.*, 2*s.* 6*d.*, 4*s.* 6*d.* a bottle. Per gallon 12*s.* 6*d.*, or less in larger quantities. Maker, E. GRIFFITHS HUGHES, Manchester. Wholesale from HOOPER & CO., CORRY, SOPER, FOWLER & CO., C. E. OSMAN & CO., and from all the London Seed Merchants and Wholesale Patent Medicine Houses. New York: RÖLKER & SONS.

PURE WOOD CHARCOAL
FOR
VINE BORDERS, FRUIT TREES, STRAWBERRIES, ROSES, FLOWER BEDS, POTTING PURPOSES,
AND GENERAL HORTICULTURAL PURPOSES.
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GISHURST COMPOUND.—Used by many of the leading Gardeners, since 1859, against Red-spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 20 oz. to the gallon of soft water, and of from 4 to 16 oz. as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. In Boxes, 1*s.*, 3*s.*, & 10*s.* 6*d.*

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

GISHURSTINE, for dry feet and boot comfort, is much used by Gardeners, Farmers, Ladies, Sportsmen, and Shore-waders; is sold by Nurserymen and Oilmen, with testimonials and directions for use, in boxes, 6*d.* and 1*s.* each. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited), London.

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WATERPROOF ROSE TREE
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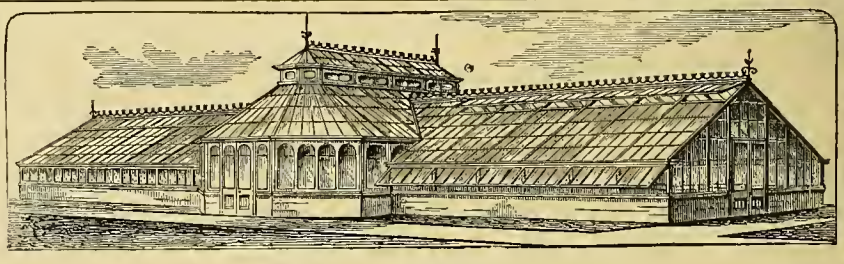

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Vineries, Stoves, Greenhouses, Peach Houses, Forcing Houses, &c., constructed on our improved plan, are the perfection of growing houses, and for practical utility, economy, and durability cannot be equalled. We only do one class of work, and that THE VERY BEST.

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Plans, Estimates and Catalogues free. Customers waited on in any part of the Kingdom.

Our Maxim is and always has been—

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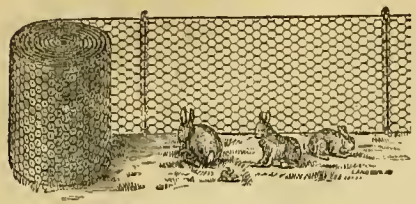

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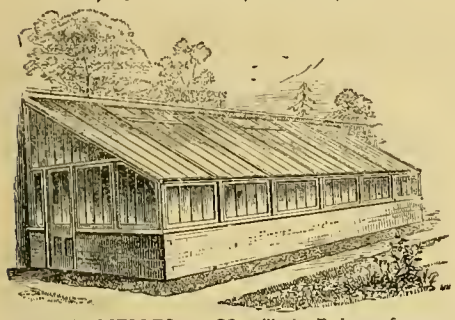
HORTICULTURAL BUILDERS,
121, BUNHILL ROW, LONDON, E.C.



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LASCELLES' NEW ROCKWORK material in various colours.

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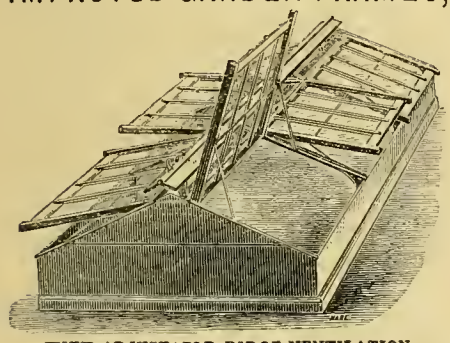

WITH ADJUSTABLE RIDGE VENTILATION.

Lights can be instantly removed or fixed open at any angle without interfering with the plants.

Carriage paid to any station.

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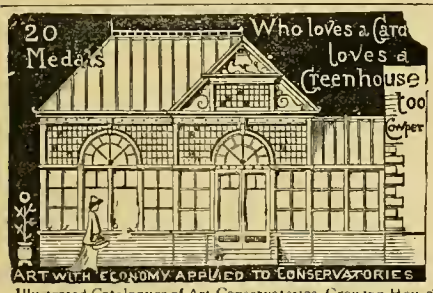

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Plans and Estimates on application for every description of Horticultural Buildings in Wood or Iron.

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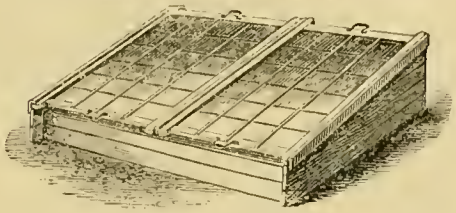

Cucumber Frames.

R. HALLIDAY AND CO. desire to draw special attention to their Cucumber Frames, of which they always have a large stock, ready glazed and painted. They are made of the best materials, and can be put together and taken apart in a few minutes by any one.

Prices, delivered to any station in England :—		£	s.	d.
2-light frame, 8 feet by 6 feet	Packing Cases free	3	10	0
3-light frame, 12 feet by 6 feet		5	5	0
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The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.

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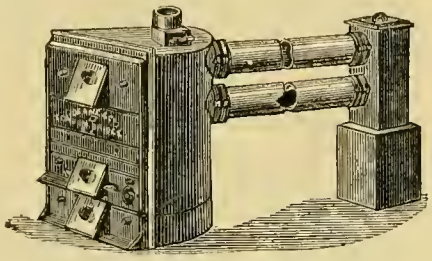

THE LOUGHBOROUGH GREENHOUSE HOT-WATER APPARATUS.

Price, as engraving, with boiler, open feed syphon, 12 feet of 4-inch hot-water pipe, and patent joints complete, £4 4s. Delivered free to any station. Discount for cash.

Cost of apparatus for houses of any size on application.

This is the simplest, cheapest, and most powerful apparatus made. It requires no brick setting, no stokehole, and no hot-water fitter for fixing. The boiler stands in the greenhouse, the front only being outside and flush with the outer wall, so that the whole of the heat from the boiler itself is utilised. It burns over twelve hours without attention, at a nominal cost.

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Terra-Cotta! Portable! For Coal!

ROBERTS'S PATENT.

Pure and ample Heat 24 hours or longer for about 1*d*., without attention. For Greenhouses, Bedrooms, or almost any purpose. Pamphlet and authenticated Testimonials sent. In use daily at Patentee's—THOMAS ROBERTS.

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DENNIS PARK IRONWORKS, STOURBRIDGE.

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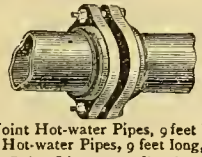

The Best and Quickest Made.

4-in. Expansion Joint Hot-water Pipes, 9 feet long, 4*s*. 3*d*. each.
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Packing Cases free and not returnable.
100 Squares, good Glass, at the following prices, in Leeds :—

15 oz.	21 oz.
13½ by 8 for 9*s*. 6*d*.	13½ by 8 for 12*s* 6*d*.
12 by 9 for 9*s* 6*d*.	12 by 9 for 12*s*. 6*d*.
14 by 10 for 13*s*. 6*d*.	14 by 10 for 18*s*. 0*d*.
15 by 9 for 13*s*. 6*d*.	15 by 9 for 18*s*. 0*d*.

HENRY WAINWRIGHT, Glass and Lead Merchant, 8 and 10, Alfred Street, Boar Lane, Leeds.

BELGIAN GLASS for GREENHOUSES, &c.

Can be obtained in all sizes and qualities of
BETHAM & SON,
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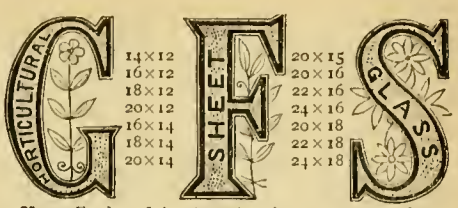
B. & Son have always a large stock in London of 20 in. by 12 in., 20 in. by 14 in., 20 in. by 16 in., 20 in. by 18 in., in 16-oz. and 21-oz.; and also large sizes in all qualities for cutting-up purposes, in 200-ft. and 300-ft. cases.



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34, St. John's Street, West Smithfield, London, E.C.

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Inventors and Sole Proprietors of the "ORIGINAL"

STOCK-BREEDERS' MEDICINE CHESTS,

For all Disorders in Horses, Cattle, Calves, Sheep and Lambs,

And Inventors of the First Animal Medicines ever known as "Day's."

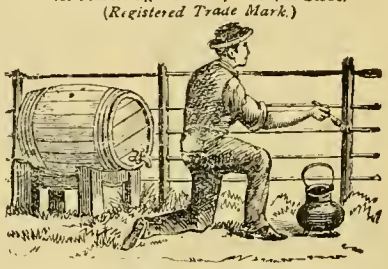
Price of Chest complete, including "Key to Farriery," £2 16*s*. 6*d*., sent carriage paid throughout Great Britain.

CAUTION.—Beware of imitations, and see that the name, DAY, SON & HEWITT, is on all Bottles and Packets.

DAY, SON & HEWITT,
22, DORSET ST., BAKER ST., LONDON;
AND WANTAGE, BERKS.

Oil Paint No Longer Necessary.

HILL AND SMITH'S BLACK VARNISH,
for Preserving Ironwork, Wood, or Stone.
(*Registered Trade Mark.*)



This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the Advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in Casks of about 30 gallons each, at 1*s*. 6*d*. per gallon at the Manufactory, or 1*s*. 8*d*. per gallon carriage paid to any Station in the Kingdom.

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H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

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PULHAM of BROXBOURNE, HERTS;

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10	"	..	..	0	6	0	21 "	..	..	0	11	6
11	"	..	..	0	6	6	22 "	..	..	0	12	0
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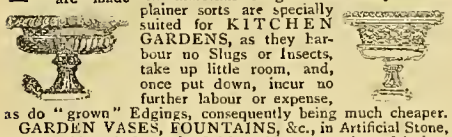

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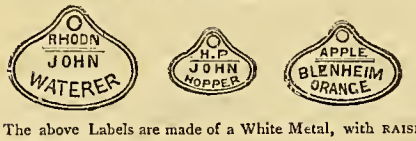

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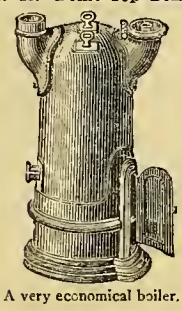

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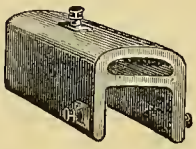

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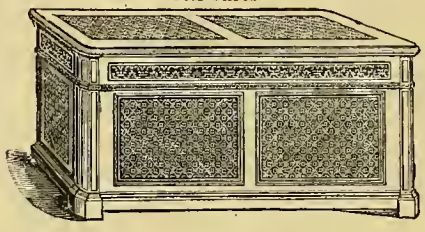

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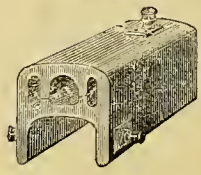

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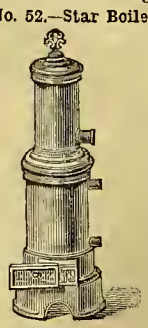

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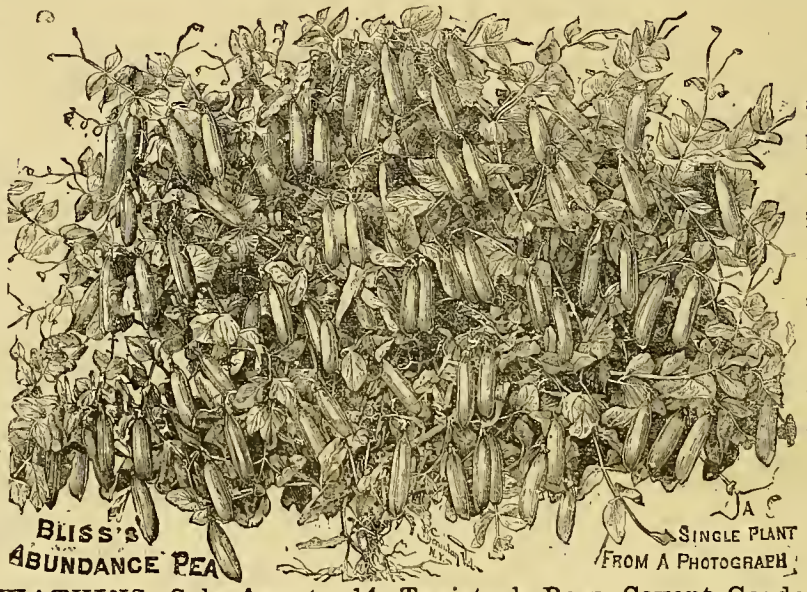

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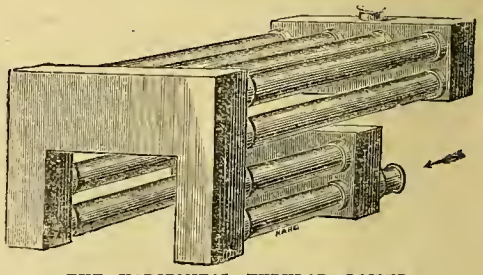

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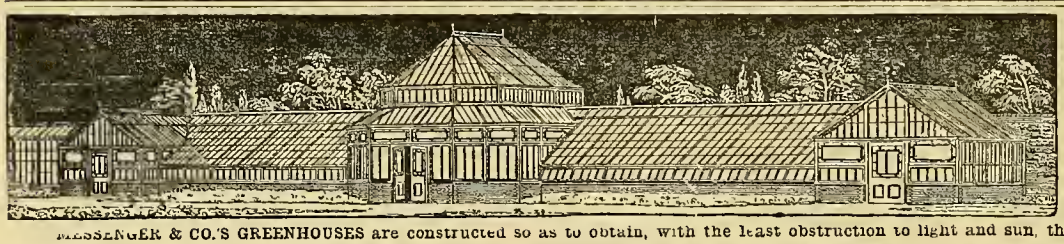

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The GARDENERS' CHRONICLE for Saturday next, Jan. 5, 1884, will contain a COLOURED ALMANAC.

NOTICE to SUBSCRIBERS and OTHERS.
Post-office Orders and Postal Orders should now be made payable at DRURY LANE.

THE GARDENERS' CHRONICLE IN AMERICA.
The Subscription to America, including Postage, is $6.35 for Twelve Months.
Agent for America:—C. H. MAROT, 814, Chestnut Street, Philadelphia, U.S.A., to whom American Orders may be sent.

In cloth, 16s.,
THE GARDENERS' CHRONICLE, Volume XIX., JANUARY to JUNE, 1883.
W. RICHARDS, 41, Wellington Street, Strand, W.C.

DUNDEE HORTICULTURAL SOCIETY.—Grand INTERNATIONAL EXHIBITION will be held in Dundee on SEPTEMBER 11, 12 and 13, 1884. Over £1000 Sterling in Prizes. Schedules will be ready early in January. D. P. SCOTT, Secretary.

FLOWERING SHRUBS.—Lilac, Mock Orange, Weigela, Almond, Althæa, Berberis, Cherry, Cytisus, Hydrangea, Hypericum, Mezereum, Ribes, Spiræa, Rhus, Viburnum, &c., 8s. per dozen. Descriptive LIST free.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

To Market Gardeners, Gentlemen's Gardeners, and OTHERS ABOUT to COMMENCE BUSINESS.
JAMES FARRAR AND CO. have to announce the Publication of their TRADE SEED CATALOGUE, which will be forwarded, post-free, on application.
Seed Warehouse, 36, Primrose St., Bishopsgate, London, E.C.

To the Trade.
WAITE, NASH, HUGGINS AND CO. have Posted their General CATALOGUE to all their Customers. If not received another Copy will be sent on application.
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Special Culture of
FRUIT TREES and ROSES.—A large and select stock is now offered for sale. The Illustrated and Descriptive CATALOGUE of Fruits, post-free for threepence. The Descriptive CATALOGUE of Roses post-free.
THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

Firms in the Nursery and Seed Trade
wishing to publish their announcements in Ireland, will find THE IRISH FARM, FOREST, and GARDEN, an excellent medium. Specimen Copies, Scale of Charges, &c., on application to
Mr. THOS. MOORE, Sole Proprietor, 39, Lower Ormond Quay, Dublin.

Now Ready.
THE GARDEN ANNUAL, ALMANAC, and ADDRESS BOOK for 1884. Price 1s., post-free 1s. 3d. The most complete and accurate Yearly Reference Book for the use of all interested in Gardens yet published.
Office:—37, Southampton Street, Covent Garden, London, W.C.

Sharpe's Seeds.
CHARLES SHARPE AND CO.'S Wholesale LIST is now ready, and will be forwarded on application. Sleaford.

LILIUM AURATUM.—Good, plump, sound bulbs, 4s., 6s., 9s., 12s., 18s., and 24s. per dozen; extra strong, 30s. and 42s. per dozen. All other good LILIES at equally low prices.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

Tea Roses—Tea Roses.
THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this year a splendid stock of Tea and other Roses in pots. Prices and full particulars on application to
The MANAGER, The Vineyard, Garston, Liverpool.

CREEPERS for Walls, Trellises, &c., in great variety. By planting what is suitable an unsightly object may easily be made beautiful. Descriptive LIST and advice on application.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Daffodil, Daffodilly, Daffodowndillies.
A DESCRIPTIVE CATALOGUE of more than 200 sorts of DAFFODILS free on application.
BARR AND SON, 12, King Street, Covent Garden, W.C.

Forest and Ornamental Trees and Shrubs.
THE LAWSON SEED AND NURSERY COMPANY (Limited), Edinburgh, have an immense Stock of the leading kinds of Seedling and Transplanted FOREST TREES and SHRUBS, &c.—all in healthy condition and prices moderate. Special offers on application.

R. GILBERT begs to inform the Public he is now prepared to send post-free CHOU DE BURGHLEY, at 2s. 6d. per ¼ ounce Packet. BURGHLEY PET MELON, 2s. 6d. per Six Seeds.
R. G. regrets through a printer's error to be made say Chou de Burghley is sold in ½ ounce Packets, which should be in QUARTER-OUNCE PACKETS. See CIRCULAR.
High Park Gardens, Stamford.

EIGHTY THOUSAND CLEMATIS, in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants. Descriptive LIST on application.
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To Nurserymen, Private Growers, &c.
A. CATTANEO, COMMISSION SALESMAN, 44, Hart Street, and New Flower Market, Covent Garden, W.C., is open to RECEIVE CONSIGNMENTS of CHOICE CUT FLOWERS in any quantities. Terms on application.

Notice to Senders.
WE HAVE NOW a good DEMAND for the undermentioned:—
GARDENIAS, STEPHANOTIS,
CHRYSANTHEMUMS of all kinds (in quantity),
TUBEROSES, White AZALEA, White CAMELLIAS,
EUCHARIS, Roman HYACINTHS, ROSES,
ODONTOGLOSSUM and other ORCHIDS, &c.
Also GRAPES, TOMATOS, CUCUMBERS, &c.
WISE AND RIDES, Fruit and Flower Salesmen, Covent Garden, W.C.

WANTED, EUCHARIS, GARDENIAS, ROSES, CAMELLIAS, ORCHIDS, STEPHANOTIS, and other choice CUT FLOWERS; also strong flowering bulbs of EUCHARIS AMAZONICA.
W. DENMAN, Salesman and Horticultural Agent, Covent Garden, W.C.

To Flower Growers.
CONSIGNMENTS RECEIVED for DISPOSAL at Market Prices.
WANTED, GARDENIAS, EUCHARIS, ARUMS, White AZALEAS, CAMELLIAS, ROSES, &c., in any quantity. Boxes supplied. Terms upon application.
HOOPER AND CO., Covent Garden, London, W.C.
Address—Flower Commission Department.

To Gardeners and Others.
WANTED, 6 Old Crowns of CHRISTMAS ROSES, and 24 EUCHARIS.
W. ADAMS, Southampton Road, Fareham, Hants.

WANTED, 5000 EUONYMUS, AUCUBAS, LAURUSTINUS, Oval and Japanese PRIVET. Delivered free at West Brighton. Price and Samples,
W. WILLETT, Eaton Road, West Brighton.

WANTED, about 2000 Seedling BRIER STOCKS, extra strong; those that have missed in budding would do. Send sample and price immediately to
BECKWITH AND SON, Tottenham Nursery, London, N.

WANTED, a large PALM, either a Seaforthia elegans, Areca lutescens, or a Kentia, about 6 to 9 feet. Quote low cash price, with full particulars, to
FRANCIS R. KINGHORN, Nurseryman, Richmond.

WANTED, FIGS in Pots, in large Fruiting Trees.—Send names, size, and price to
R. B. LAIRD AND SONS, Royal Winter Garden, Edinburgh.

To the Trade.
JAMES CARTER, DUNNETT, AND BEALE'S Wholesale CATALOGUE of SEEDS, &c., has been Posted to their Customers; should it have miscarried another Copy will be sent on application to
237 and 238, High Holborn, London, W.C.

Orchids, Bulbs, Lilies.
THE NEW PLANT AND BULB COMPANY, Lion Walk, Colchester, have just published their AUTUMN LIST, No. 64, containing more novelties and rarities than ever.

SURPLUS STOCK.—Handsome and Choice Evergreen and Deciduous TREES for Avenues, Parks, Gardens, Streets, &c. Very good and cheap. LIST free by post.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

R. B. LAIRD AND SONS (successors to Downie & Laird) have to intimate that their SEED CATALOGUE for 1884 is now published, and can be had on application. Also CATALOGUE of Forest Trees and Shrubs.
R. B. LAIRD AND SONS, 17, Frederick Street, and Royal Winter Garden, Haymarket, Edinburgh.

LARCH, 1,500,000 well-grown, to offer, as below:—1 to 2 feet, 10s.; 1½ to 2½ feet, 12s.; 2 to 3 feet, 13s.; 3 to 4 feet, 16s.; 4 to 5 feet, 18s.; 5 feet, 25s. per 1000.
All well rooted. Apply,
FRANCIS BELL, Nurseries, Easingwold.

PLANTS for GREENHOUSES, &c.—The best kinds of Camellia, Azalea, Bouvardia, Croton, Epiphyllum, Gardenia, Ixora, Primula, Rhododendron, Erica, Epacris, Climbers, Ferns, &c., fully described in LIST, free to all applicants.
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CHESTNUT (Spanish), Larch, Hazel, Ash, Scotch, Birch, Alder, Willow, Seedling Oak, and Thorn Quick. Stout, well-rooted, transplanted. A large quantity to be sold.—GEO. CHORLEY, Coaster's Nursery, Midhurst.

Hyacinths, Tulips, Narcissus, Lilies, &c.
BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland.
Wholesale CATALOGUE now ready, and will be sent post-free on application.

KELWAY AND SON'S CATALOGUE of GLADIOLI, describing all the varieties worth growing, and at prices as low as those of any other house, will be forwarded on application.
Langport, Somerset.

TWENTY-FIVE POUNDS in PRIZES for
LAXTON'S EVOLUTION PEA,
LAXTON'S John Harrison LONGPOD BEAN,
LAXTON'S Girtford Giant SCARLET RUNNER,
LAXTON'S SANDY PRIZE ONION.
Order at once, as stocks are short. Particulars post-free from
THOMAS LAXTON, Seed Grower, Bedford.

JAMES SMITH AND SONS, Darley Dale Nurseries, near Matlock, beg to offer the following in nice plants:—
AZALEA PONTICA, 1 to 1½ foot, 20s. per 100, or 190s. per 1000; 1½ to 2 feet, 30s. per 100, or 280s. per 1000.
BERBERIS DARWINII, 1 to 1½ foot, 18s. per 100, or 160s. per 1000; 1½ to 2 feet, 25s. per 100, or 220s. per 1000.

PICEA PUNGENS.—The Blue Spruce of Colorado: see *Gardeners' Chronicle*, Dec. 8, page 725. Fine plants of the true glaucus variety, with bluish tint, 12 to 18 inches, 5s. each. Fine plants of the green variety, 12 to 18 inches, 1s. 6d. each. Priced LISTS of California Conifers sent free on application.
MORRISON BROTHERS, Aberdeen.

ORNAMENTAL HEDGES.—Golden Yews, 2 to 3 feet, 18s. per dozen; Green HOLLIES, grown in 4 and 5-inch pots, to secure certainty of growth and unchecked progress, bushy, 2 to 3 feet, 50s. per 100, nett cash.
WM. MAULE AND SONS, The Nurseries, Bristol.

GRAPE VINES.—A fine stock in leading varieties, Planting and Fruiting Canes. Apply to
FRANCIS R. KINGHORN, Nurseryman, Richmond.

RASPBERRY CANES for SALE.—The celebrated Carter's Prolific RASPBERRY CANES
Apply to A. AND E. BATH, Colgates Farm, Sevenoaks.

CURRANTS, ROSES, LIGUSTRUM, &c.; prime stuff. See Advertisement with prices, December 22.
WM. POTTEN, Camden Nursery, Sissinghurst, Kent.

WHITE SPANISH ONION SEED, 2s. per pound; BEDFORDSHIRE CHAMPION and INTERMEDIATE, 2s. 6d. per pound.; all new and genuine. Cash with orders.
RICHARD WALKER, Market Gardens, Biggleswade, Beds.

HAMMOND'S IMPERIAL BROCCOLI.—The best and hardiest late kind. About 14 lb. SEED saved by Mr. Hammond this year. Price on application.
G. E. ELLIOTT, Seedsman, Huddersfield.

100 Tons of Seed Potatos.
MYATT'S KIDNEY.—Fine pure hand-picked sample. Price on application.
LITTLE AND BALLANTYNE, Carlisle.

SALES BY AUCTION.

Monday Next.—(Sale No. 6550.)
Importation of LILIES from Japan.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY NEXT, December 31, at half-past 12 o'Clock precisely, an importation of 3000 LILIUM AURATUM in fine condition; 500 LILIUM KRAMERI, L. SPECIOSUM ROSEUM, L. THUNBERGIANUM, and L. LONGIFLORUM, received direct from Japan; great variety of home-grown LILIES, including extra fine Bulbs of all the choicest sorts in cultivation; fine imported Roots of the lovely MILLA BIFLORA, with large pure white flowers; rare Californian BULBS, Tuberous BEGONIAS, GLOXINIAS, TIGRIDIAS, GLADIOLI, Dutch BULBS, &c.
On view morning of Sale, and Catalogues had.

Tuesday Next.—(Sale No. 6551.)
PERIODICAL SALE of POULTRY and PIGEONS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY NEXT, January 1, at half-past 12 o'Clock precisely, Fancy POULTRY and PIGEONS, comprising Light and Dark Brahmas, Silver-grey Dorkings, Buff Cochins, Black Spanish, Houdans, &c.; also prize-bred Black and Dun Carriers, Blue and Silver Owls, Short-faced Tumblers, Dragons, Pekin Ducks, and other prize Birds, from the yards and lofts of well-known breeders and exhibitors.
On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6552.)
HARDY PLANTS and BULBS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, January 2, at half-past 12 o'Clock precisely, first-class Standard and Dwarf ROSES in all the leading varieties, Pyramid and Dwarf-trained FRUIT TREES, Hardy Ornamental CONIFERS, HOLLIES, Standard Flowering TREES and SHRUBS, Hardy Herbaceous BORDER PLANTS, BULBS from Holland, &c.; also a consignment of choice plants from Ghent including Indian AZALEAS, Hybrid RHODODENDRONS, PALMS, &c.
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6553.)
CATTLEYA PERCIVALIANA.
CATTLEYA AMETHYSTOGLOSSA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on THURSDAY NEXT, January 3, at half-past 12 o'Clock precisely, a very grand importation of CATTLEYA PERCIVALIANA, consisting of very extra described varieties; a very fine lot of CATTLEYA AMETHYSTOGLOSSA; a rare and magnificent new white CATTLEYA; a grand new SACCOLABIUM in flower, and many other ORCHIDS.
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6553.)
CYRTOPERA SQUALIDA, Lindl.

MR. J. C. STEVENS will include in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 3, at half-past 12 o'Clock precisely, about 200 Bulbs of the above curious ORCHID, fully described in the *Gardeners' Chronicle* of Saturday, December 8, by Professor Reichenbach.
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6553.)
3000 LILIUM AURATUM, just received from Japan in fine condition.

MR. J. C. STEVENS will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 3.
On view morning of Sale, and Catalogues had.

Monday Next.
6000 LILIUM AURATUM.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on MONDAY NEXT, at half-past 12 o'Clock precisely, 6000 LILIUM AURATUM, just arrived in fine condition; a superb collection of English-grown LILIES, including extraordinarily fine roots of many varieties; 1000 crowns of LILY of the VALLEY, a consignment of PANCRATIUMS and AMARYLLIS from the West Indies, Single DAHLIAS, MILLA BIFLORA, 300 choice Standard ROSES, and other PLANTS and BULBS.
On view morning of Sale. Catalogues at the Rooms, and 8, New Broad Street, E.C.

Friday Next.
IMPORTED AND ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, by order of Messrs. Shuttleworth, Carder & Co., on FRIDAY NEXT, January 4, at half-past 12 o'Clock precisely, splendid importations of ODONTOGLOSSUM CRISPUM (Alexandræ), O. PESCATOREI, O. SPECIES, CATTLEYA TRIANÆ SPECIES, from districts beyond Popayan; MASDEVALLIA CROSSI, M. TROCHILUS, M. CUCULLATA, M. SHUTTLEWORTHI, M. HARRYANA, ONCIDIUM PAPILIO MAJUS, TRICHOPILIA SUAVIS, &c.; and 100 lots of Established ORCHIDS, including some rare and valuable species.
On view morning of Sale. Catalogues had at the Rooms, and 8, New Broad Street, E.C.

To Florists.

TO BE SOLD, an Old-Established BUSINESS, with large Gardens, 12 Hot, Green, and Show Houses, Forcing Pits, &c.; also Showhouse and Vinery in a leading thoroughfare. Held on leases at moderate rentals. Together with the extensive and well assorted Stock, and good Jobbing Connection.
FENNER AND HILTON, 37, Ship Street, Brighton.

THE EXOTIC NURSERY COMPANY, LOWER TOOTING,
are now prepared to undertake every description of Landscape Work, and call the attention of the Public to the excellent variety of FOREST TREES, CONIFERA, DECIDUOUS and other SHRUBS; also the Collection of HERBACEOUS and AQUATIC PLANTS,
Catalogue and Special Prices on application.
Address, The MANAGER, as above.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.
NOTICE IS HEREBY GIVEN that the ANNUAL GENERAL MEETING of the Members of this Society will be held at the Bedford Hotel, Covent Garden, on THURSDAY, January 10, next, for the purpose of receiving the Report of the Committee and the Accounts of the Institution for the present year, and Electing Officers for the ensuing year, and for the ELECTION of TEN PENSIONERS. The Chair will be taken at 4 o'Clock. The Ballot will Close at 7 o'Clock precisely. By order, E. R. CUTLER, Sec.
14, Tavistock Row, London, W.C., Dec. 19, 1883.
The Voting Papers have all been issued. Any Subscriber not having received one is requested to make immediate application.

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

Now Ready.

CARTERS' ILLUSTRATED VADE MECUM for 1884. The best Seed Catalogue of the year. Full particulars and prices of Carters' Sterling Vegetable and Floral Novelties. Price 1s., post-free; Gratis to Customers.
The Queen's Seedsmen, and Seedsmen by Royal Warrant to His Royal Highness the Prince of Wales,
237 and 238, High Holborn, London, W.C.

Very Fine Transplanted Trees.

AUSTRIAN PINE, 2 to 2½ feet, 30s. per 1000; SCOTCH FIR, 2 to 3 feet, 20s. per 1000; PINUS LARICIO, 2 to 2½ feet, 30s. per 1000. Fine Standard ROSES, good heads and stems, £4 per 100; LAURELS, bushy, 2 to 2½ feet, £5 per 1000; PYRAMIDAL YEWS, 3 to 3½ feet, 50s. per 100.
W. JACKSON, Blakedown, near Kidderminster.

CHOICE SEEDS for 1884.
ELLIOTT'S PRIZE COCKSCOMB, 1s. 6d. per packet.
ELLIOTT'S selected FRENCH MARIGOLD, 6d. per packet.
ELLIOTT'S YORKSHIREMAN CUCUMBER, 1s. 6d. per packet.
ELLIOTT'S SPADE ACE CABBAGE, 6d. per packet.
Trade price on application.
G. E. ELLIOTT, Seedsman, Huddersfield.

JOHN LAMONT AND SON, SEEDSMEN, 2, Hope Street, Edinburgh, have a quantity of the following first-class POTATOS to offer; they are free of disease, and warranted true to name:—
SUTTON'S EARLY REGENT, raised by Fenn, the finest early Potato out, 15s. per cwt.
" FIFTYFOLD, Round, an immense cropper, of high quality, 12s. 6d. per cwt.
" EARLY BORDER, fit to lift in June, round white, and of fine quality, 15s. per cwt.
Terms cash with order.

To the Trade.

NUTTING AND SONS' Wholesale CATALOGUE of Garden, Flower, and Agricultural Seeds, containing complete LISTS of NOVELTIES for 1884, has been Posted to all their Friends; if not duly received, please inform them, and another Copy shall be sent.
Seed Warehouses, 60, Barbican, London, E.C.

SPECIAL OFFER.—ASH, 2 to 3 feet, 16s. per 1000; 3 to 4 feet, 20s. per 1000; Spanish CHESTNUTS, 2 to 3 feet, 20s. per 1000; ELMS, 2 to 3 feet, 18s. per 1000; LARCH, 1½ to 2 feet, 15s. per 1000; 2 to 3 feet, 20s. per 1000; 3 to 5 feet, 24s. per 1000; SPRUCE FIR, 1 to 1½ foot, 10s. per 1000; 1½ to 2½ feet, 12s. 6d. per 1000; SCOTCH FIR, 1½ to 2 feet, 12s. per 1000; 2 to 3 feet, 14s. per 1000; 3 to 4 feet, 16s. per 1000; SILVER FIR, 4-yr. transplanted, 20s. per 1000; HAZELS, 2½ to 3½ feet, 20s. per 1000; LARICIO, 10 to 15 inches, 20s. per 1000; PRIVETS, 2 to 2½ feet, 13s. per 1000; Oval do., 2 to 2½ feet, 40s. per 1000; BEECH, 1½ to 2½ feet, 17s. per 1000; THORNS, 1½ to 2 feet, 12s. per 1000; 2 to 3 feet, 14s. per 1000.
GARLIES MITCHELL, Nurseries, Stranraer.

FOREST TREES.
SCOTCH FIR, true native, 2 to 3 feet, twice transplanted, 18s. per 1000; 2-yr., 1-yr., fine, 5s. per 1000, £20 per 100,000.
PINUS LARICIO (Corsican Pine), 2 to 3 feet, twice transplanted, 4s. per 100, 35s. per 1000.
Prices of other TREES and PLANTS on application.
MUNRO BROTHERS, Nurseries, Inverness, N.B.

To the Trade.
SEED POTATOS.

H. AND F. SHARPE are prepared to make special offers of their fine selected stocks of SEED POTATOS, grown under their own superintendence expressly for seed purposes. Their LIST includes all the varieties worthy of cultivation, and the prices will be found very reasonable.
Seed Growing Establishment, Wisbech.

LAXTON'S EARLIEST OF ALL PEA.
For the First Dish of Peas this is essentially the finest variety extant. Overwhelming testimonials about its superior qualities, splendid colour and great productiveness.
Price, per sealed quart, 3s. 6d.; per sealed pint, 2s.
To be had of all Seedsmen and
HOOPER AND CO., Covent Garden, London, W.C.

A Double First-class Certificate has only been awarded to one Rose in existence—that one Rose, an ENGLISH SEEDLING, raised at Bagshot, H.P. DUCHESS of CONNAUGHT (Noble). Fine healthy plants, 2s. 6d. each.
CHARLES NOBLE, Bagshot.
A large and important section of the Nursery (about 7 acres) is being cleared on expiration of lease. Rhododendron growers should visit this Nursery, which is only ten minutes' walk from Sunningdale Station, South-Western Railway.

DWARF ROSES, splendidly rooted, the best sorts, 6s. per dozen, from ground; fifty for 21s.
TEA ROSES, in pots, 15s. per dozen, fifty for 50s.
FINE CLIMBING PLANTS, Hardy, for Walls, Trellises, Arbours, Rockeries, &c., in twelve varieties, 6s. and 9s.
FINE HARDY HEATHS and other Dwarf American Plants, in variety, 4s. and 6s. per dozen.
PRETTY DWARF SHRUBS of various kinds, for Pots, Boxes, Winter Bedding, &c., in variety, 4s. and 6s. per doz.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

ROSES IN POTS.—All the best New and Old English and Foreign sorts, from 18s. to 36s. per dozen. These world-famed Roses cannot fail to give the greatest satisfaction. Descriptive LISTS on application.
RICHARD SMITH AND CO., Worcester.

ABIES DOUGLASII.—Undoubtedly the finest CONIFER that can be planted as a substitute for Larch. (See the article be Viscount Powerscourt in *Woods and Forests* of December 12, p. 18.) Fine 2-yr. Seedling Plants at 20s. per 1000; if 25,000 or upwards are taken, 15s. per 1000; if 100,000 are taken, 12s. per 1000.
Price LISTS of Californian Conifers sent free on application.
MORRISON BROTHERS, Aberdeen.

HERBACEOUS and ALPINE PLANTS.—CATALOGUE, of fifty pages, containing full information as to colour, height, situation, time of flowering, &c., free on application. A capital Collection for Rocks, Stumps, and Borders, from 25s. per 100, or 4s. per dozen. Most of the plants being in pots may be despatched at any time, or by Parcels Post when fit.
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

CHOICEST CONIFERÆ.—Abies Douglasii, 1 to 1½ foot, 24s. per 100; 1½ to 2½ feet, 30s. per 100; 6 to 8 feet, 36s. per dozen. Abies taxifolius, 2 to 2½ feet, 20s. per dozen. Araucaria imbricata, 2 to 2½ feet, 40s. per dozen. Cedrus Deodara, 4 to 5 feet, 18s. per dozen; 6 to 7 feet, 36s.; 8 to 9 feet, 60s. per dozen. Cryptomeria elegans, 1½ foot, 30s. per 100; 4 feet, fine, 12s. per dozen. Cupressus Lawsoniana, 2 to 2½ feet, fine, 25s. per 100. Cupressus Lawsoniana striata, the finest of all, 2 to 2½ feet, 75s. per 100; 3 to 4 feet, 15s. per dozen; C. L. erecta viridis, 2 to 2½ feet, 50s. per 100; C. L. elegans, 1½ to 2 feet, 6s. per dozen. Cupressus macrocarpa, 1½ to 2 feet, 50s. per 100. Picea Nordmanniana, 8 to 9 inches, 16s. per 100; 12 to 18 inches, 30s. per 100; 4 to 5 feet, 36s. per dozen; 5 to 6 feet, 60s. per dozen. Picea lasiocarpa, 4 to 4½ feet, 60s. per dozen. Pinus excelsa, 2 feet, 50s.; 5 feet, 18s. per dozen. Thuia Lobbii, 3 feet, 50s. per 100; 4 feet, 75s. per 100; 5 feet, 100s. per 100. Thuiopsis dolobrata, 2 feet, 15s. per dozen; 3 to 4 feet, 36s. per dozen; Thuiopsis borealis, 2 feet, 50s. per 100.
GARLIES MITCHELL, Nurseryman, Stranraer.

To the Trade.
HOME GROWN VEGETABLE and FIELD SEEDS.

H. AND F. SHARPE are prepared to make special offers of all the varieties of VEGETABLE and AGRICULTURAL SEEDS they have grown this season from choice selected stocks. The quality of the seeds is excellent, and the prices are very low.
Seed Growing Establishment, Wisbech.

NEW CHRYSANTHEMUM, "G. STEVENS."
First-class Certificate Royal Horticultural Society, South Kensington, November 13, 1883. A charming reflexed variety, compact blooms, flat florets, crimson-chocolate, slightly incurved in centre, showing the gold under-surface; quite distinct from any other variety. A limited quantity to send out in March next, at 1s. each, post-free 1s. 3d. Cash with order. See report in *Journal of Horticulture* of November 15. Orders now being booked, which will be sent out in strict rotation.
Chrysanthemum CATALOGUES on application.
G. STEVENS, F.R.H.S., St. John's Nursery, Putney, S.W.

Beautiful Flowers for Gardens.

POTENTILLAS, PYRETHRUMS, DELPHINIUMS, lovely hardy flowers for Cutting or Garden Bloom. Named, 5s. per dozen.
SPLENDID PHLOXES, Pentstemons, Pinks, Pansies, in the finest varieties, 3s. 6d. per dozen.
HARDY HERBACEOUS PLANTS, the most showy sorts, 3s. per dozen, 21s. per 100.
CARNATIONS and PICOTEES, good exhibition sorts, 6s. per dozen plants. Fine Clove and Border Self varieties, 4s. per dozen—all from layers.
LILIES, candidum, Orange, and Tiger Lilies, 3s. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

FRUIT TREES (74 acres).—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, APRICOTS, &c., as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety. VINES, excellent canes, 3s. 6d. to 10s. 6d. ORCHARD HOUSE TREES in pots, from 5s. FIGS, from 3s. 6d. Descriptive LIST, containing a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also information as to Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., free by post.
RICHARD SMITH AND CO., Worcester.

Mitchell's Gooseberry.

WM. MITCHELL having obtained a Stock of this extraordinary variety of GOOSEBERRY, is now prepared to offer, for the first time, Trees and prepared Cuttings for present planting. To all Growers, Salesmen, and Buyers of Fruit attending Covent Garden Market, this fine variety is too well known to need description, but to others it may be described as the largest, greatest cropper, and earliest for picking when green. 1-yr. Trees, 25s. per 100; Cuttings, £5 per 1000.
Broadlands, Enfield Highway, Middlesex.

A Gay Conservatory.

PRIMULAS, CINERARIAS, 4s. and 6s. per dozen, according to size.
HERBACEOUS CALCEOLARIAS, 1s. 6d. per dozen, from stores.
CYCLAMEN, BOUVARDIAS, TREE CARNATIONS, DEUTZIA GRACILIS, in pots for early blooming, 6s., 9s., and 12s. per dozen. Three at same rates.
Fine clumps SPIRÆA JAPONICA, DIELYTRA SPECTABILIS, 5s. per dozen.
AZALEAS, Ghent, mollis, pontica, or indica, all with buds, for Forcing, 18s., 24s., and 30s. per dozen.
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WHOLESALE SEED CATALOGUE.

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

WATKINS & SIMPSON,
EXETER STREET,
STRAND, W.C.
Seed and Trial Grounds, Feltham and Twickenham, Middlesex

FERNS A SPECIALITY.

EXOTIC and BRITISH FERNS and SELAGINELLAS,

suitable for STOVE and GREENHOUSE Cultivation, for OUTDOOR FERNERIES, and other purposes, in immense number and variety. SPECIAL LISTS, issued at intervals during the year, giving extremely low quotations, may be had FREE on application.

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FERN NURSERY, SALE, MANCHESTER.

AMERICAN SEEDS.

2½*d.* Postage on a Letter of Inquiry will secure you by return Mail our PRICES—Wholesale or Retail.

SEEDS of MAIZE for Field or Garden, PEAS, BEANS, CUCUMBERS, PUMPKINS, SQUASH, CANTALOUPES, WATER MELONS, TOMATOS, OKRA or GUMBO, COTTON SEED, TOBACCO, OSAGE ORANGE or MACLURA, TREE SEEDS, AMERICAN GARDEN TOOLS, BOOKS, &c.

All offered by the *oldest and ever the most extensive* Seed Farmers in America.

Founded in 1784.

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LANDRETH & SONS,
PHILADELPHIA.

APPLE TREES with MISTLETO growing on them, from 7*s.* 6*d.* to 21*s.* each.
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WE OFFER

PINUS DOUGLASII,

First quality, 16*s.* per pound.

ERNST & VON SPRECKELSEN,
SEEDSMEN, HAMBURG, GERMANY.

Old Established.

Forest Trees,
ORNAMENTAL TREES,
Fruit Trees,
EVERGREENS & COVER PLANTS,
Roses,
AND ALL OTHER TREES & PLANTS

SPLENDID QUALITY.

Pronounced by everyone "Unequalled."
NURSERIES 200 ACRES.
Write for Catalogues.

Reliable always. *Address in full—*

F. & A. Dickson & Sons
THE QUEEN'S SEEDSMEN,
Chester.

PRIZE COB FILBERT TREES.—Gentlemen desirous of obtaining the true WEBB'S PRIZE COB FILBERT TREES for present planting, should send their orders to

Mr. COOPER, F.R.H.S., Calcot Gardens, Reading, of whom alone the various sorts can be obtained.

Price LISTS on application.

THE RUIN OF NURSERYMEN

May be understood when circumstances lead to such Prices as the following:—

STANDARD RHODODENDRONS worth 5, 4, 3, and 2 guineas, are being sold at 21*s.*, 15*s.*, 10*s.* 6*d.* and 5*s.*
BUSH RHODODENDRONS, 7, 6, 5, 4, 3 and 2 guineas, sold at from 7*s.* 6*d.* to 1*s.*
ANDROMEDA FLORIBUNDA, and other kinds, 3*s.* 6*d.* to 1*s.*
SPIRÆA PALMATA, fine forcing clumps.
SPIRÆA JAPONICA, fine forcing clumps.
The largest stock in Europe.
HODGIN'S and other HOLLIES, perfect specimens, 7, 6, 5, 4, 3 and 2 feet, from 15*s.*, 10*s.* 6*d.*, to 1*s.*
AVENUE TREES, perfect specimens, 12 to 15 feet, at 5*s.*, 3*s.* 6*d.* and 2*s.* 6*d.*
COLLECTION of SHRUBS and TREES for general planting, 25*s.* to 75*s.* per 100.
Extra large FRUITING TREES of APPLES, PEARS, CHERRIES, &c., from 3*s.* 6*d.* to 1*s.*
Other Trees, Shrubs, &c., not enumerated in this Advertisement will be supplied on the same liberal terms.
CHARLES NOBLE, Bagshot.

DAHLIA TUBERS,

Including all the SPLENDID VARIETIES which constitute my PREMIER COLLECTION of SINGLES, the leading SHOW, FANCY and POMPON VARIETIES; also the CACTUS VARIETIES, including Juarezi, the beautiful scarlet form, and many others, the whole of which are fully described in my NEW SPECIAL OFFER, which may be had on application.

THOMAS S. WARE,
Hale Farm Nurseries, Tottenham, London.

NEW PEA, "ABUNDANCE."

We have much pleasure in introducing to your notice Messrs. BLISS & SON'S, of New York, NEW PEA, which bids fair to rival in popularity the "AMERICAN WONDER" introduced by the same firm.

Height, 15 to 18 inches; large dark green foliage. Pods 3½ in. long, containing six to eight large Peas of excellent quality. Second early, ripening one week after the earliest kinds. The most striking feature is its remarkable tendency for branching directly from the roots, forming a veritable bush. Many plants throw out six and more branches, each of which becomes literally covered with blossoms and pods in such abundance that the quantity produced by each would be considered a bountiful yield for an entire plant of many of the older varieties. Owing to this habit it should not stand closer than 6 inches apart in the rows, requiring *only one-third the seed usually sown to produce the same result.*

HALF-PINTS, SEALED, 2s. 6d. each.

This sketch may appear exaggerated, but Messrs. Bliss have forwarded us a sample Vine, which, although damaged in transit, even now shows 67 pods, and they assure us that some have borne over 100.

They thought so highly of this Pea, that they paid at the rate of £200, or One Thousand Dollars, per Bushel for the Stock Seed.

HOWCROFT & WATKINS, Sole Agents, 14, Tavistock Row, Covent Garden, London, W.C.

SHARPE'S GIANT MARROW.—DRAWN TO SCALE.

The Editor of the "JOURNAL of HORTICULTURE," in the Number for July 20, 1882, says:—

"Mr. MUIR has sent us a sample of GIANT MARROW PEA which he regards as the finest variety in cultivation. We have never seen finer Peas. The pods are of great size, 7 inches long and 1¼ inch wide, curved, dark green in colour, and crowded with fine Peas. Mr. Muir states it is a great cropper, and of the first quality when cooked. It is thus one of the most useful Peas as well as one of the best for exhibition purposes."

1 Pint Packets, 2s. 6d. each. ½ Pint Packets, 1s. 6d. each.

TRADE PRICE and GENERAL CATALOGUE of SPECIALITIES POST FREE.

CHARLES SHARPE & CO., Seed Merchants, SLEAFORD.

NEW POTATO, "THE MAYFLOWER."—The remarkable new American sort. Per bushel, £1; per barrel, £2 10s., f.o.b. at New York.
J. C. VAUGHAN, Potato Grower, Chicago, U.S.A.

SPECIAL OFFER, for want of room, common LAURELS, 3 to 4 feet, 4 to 5 feet, Colchic LAURELS, 4 feet; LAURUSTINUS, 1 to 2 feet; THUIA LOBBII, 3 to 4 feet, 4 to 5 feet; AUCUBA JAPONICA, 1 to 2 feet, bushy; SHRUBS, for pots, from 6 to 18 inches; standard and dwarf ROSES, in all the leading varieties, by the dozen, 100, or 1000.
J. LEWIS, Newtown Nursery, Malvern.

Vines—Vines—Vines.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have this season, as usual, a splendid stock of VINES, suitable for Fruiting in Pots and Planting Vineries. Also a fine stock of Maréchal Niel, Gloire de Dijon, and other TEA ROSES.
Descriptive Priced LIST on application.
The Vineyard, Garston, Liverpool.

LAUREL, Common, 1-yr., 18s.; 2-yr., 22s.; Colchic, 1-yr., 25s. per 1000; 2 feet, fine, 16s. per 100; 4 to 5 feet, extra bushy, 9s. per dozen; rotundifolia, 2 to 2½ feet, 25s. per 100.
EVERGREEN OAKS, 4 to 6 inches, 80s. per 1000.
SWEET BAY, 4 to 6 inches, 70s. per 1000.
ESCALLONIA MACRANTHA, 12 to 15 inches, 20s. per 100.
COTONEASTER MACROPHYLLA, 2 feet, 12s. per 100; SIMONSII, 2 to 2½ feet, 10s. per 100.
IVY, Irish, 2 to 2½ feet, 20s. per 100; maculata grandifolia, 1½ foot, 20s.
MANETTI STOCKS, strong, 26s. per 1000.
GARLIES MITCHELL, Nurseryman, Stranraer.

Gold Medal Begonias.

LAING'S CHOICE HYBRIDISED SEED, all new and of unequalled quality. Sealed packets, free by post—single, 1s., 2s 6d. and 5s.; double, 2s. 6d., 3s. 6d. and 5s. TUBERS, mixed seedlings, by Parcels Post, 4s., 6s., 9s. and upwards per dozen. The Trade supplied.
JOHN LAING AND CO., Seedsmen, Forest Hill, S.E.

The Planting Season.

R. AND A. MORRISON, The Nurseries, Elgin, beg to draw the attention of intending Planters to their extensive and well-grown stock of SCOTCH FIR and LARCH, of all sizes, from 1-yr. seedlings to 2 to 3 feet, all the produce of seed collected for them in the Forests in the North of Scotland, and taken out of cone on kilns within their Nursery Grounds. This is the best guarantee of their Stock being "True Native."
R. AND A. M. also grow largely PINUS AUSTRIACA, LARICIO and MONTANA, NORWAY SPRUCE, ASH, ELM (Wych), OAK, SYCAMORE, and other FOREST TREES, as also a large Stock of TREES and PLANTS suitable for Hedges, Underwood, and Game cover.
CATALOGUES and Prices on application.
R. AND A. MORRISON, The Nurseries, Elgin.

AQUILEGIA GLANDULOSA (GRIGOR'S, guaranteed true).
Twelve Plants of this beautiful Columbine, to bloom next season, free to any part of the United Kingdom, at 6s. per dozen. Cash with order.
JOHN GRIGOR AND CO., The Nurseries, Forres, N.B.

ANDRÉ LEROY'S Nurseries, at Angers, France, the largest and richest in Europe in Collections of FRUIT and ORNAMENTAL TREES, SHRUBS, CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT TREES, &c. CATALOGUES sent on application. Freight from Angers to London, *viâ* Honfleur, about 2s. 6d. per 100 lb. Medal of Honour at the Universal Exhibition at Paris in 1878.
Orders must be addressed to Messrs. WATSON AND SCULL, 90, Lower Thames Street, London, E.C.

ROSES (20 acres).—Well-rooted, many shooted, truly named, of matured vigorous growth, and of the best kinds. Bushes, R. S. & Co.'s selection, 8s. per dozen, 60s. per 100; packing and carriage free for cash with order. Standards, 15s. per dozen, or 100 free for 120s. These world-famed Roses cannot fail to give the greatest satisfaction. Descriptive LIST free on application.
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HERBACEOUS, ALPINE, and ROCK PLANTS.

Collections of 100 choice varieties	..	30s.
,, 50 ,, ,,	..	17s. 6d.
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Packing free and extra plants sent to compensate for carriage.
R. H. VERTEGANS, Chad Valley Nurseries, Edgbaston, Birmingham.

Outdoor Flowers in Spring.

DAISIES, Red, White, Rose, &c.; POLYANTHUS, Single PRIMSOSES in variety of colours, WALLFLOWERS, CANTERBURY BELLS, 9d. per dozen, 4s. and 5s. per 100. PANSIES and VIOLAS (colours separate), ARABIS, ALYSSUM, SILENE COMPACTA, AUBRIETIAS, MYOSOTIS, 1s. 6d. per dozen, 8s. per 100. Or 500 assorted Spring-flowering Plants for 17s. 6d.; 1000 for 31s. 6d.
HEPATICAS, Blue and Red, Double PRIMROSES, White, Lilac, or Sulphur, 3s. 6d. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

ASPARAGUS for Forcing.—Strong crowns, which will produce a quantity of capital heads, 2s. per dozen, 12s. 6d. per 100.
SEAKALE, famous forcing roots, 2s. 6d. per dozen, 16s. per 100.
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E. G. HENDERSON & SON,

PINE-APPLE NURSERY,

MAIDA VALE, LONDON, N.W.

ORCHIDS.

	s.	d.
12 choice free flowering sorts for	21	0
12 ,, ,, extra size	30	0
12 ,, ,, very choice selected ..	42	0
100 in 50 sorts for	200	0
100 in 100 sorts for	400	0

Special Cheap Price LIST of NEW and other PLANTS on application.

Wholesale Seed Warehouse, 152, Houndsditch, E.

OUR TRADE CATALOGUE has now been Posted to all Customers; but if, in any case, it has not been received, we shall be glad to be informed, in order that we may send another copy.
HURST AND SON.

TRAINED FRUIT TREES.
MORELLO CHERRIES, APRICOTS, PEARS, &c. Price per dozen or 100 on application to
WILLIAM FLETCHER, Ottershaw Nursery, Chertsey, Surrey.

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WILLIAM FLETCHER has to offer:—LARCH, twice transplanted, 2 to 4 feet; HAZEL, 2 to 4 feet; CHESTNUT, Spanish, 2 to 4 feet.
MANETTI STOCKS; WOOD'S GARLAND STOCKS; GENERAL JACQUEMINOT (Dwarfs). Prices on application. The Nurseries, Ottershaw, Chertsey.

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NEW EARLY RHUBARB, "PARAGON,"

May be had of the following Firms:—

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Mr. ALFRED LEGERTON, 5, Aldgate, London, E.C.
Messrs. JAS. FARRAR AND CO., 36, Primrose Street, Bishopsgate, E.C.
Messrs. TOOLE AND CO., Dublin.
Messrs. HOOPER AND CO., Covent Garden, W.C.
Messrs. NUTTING AND SONS, 60, Barbican, London, E.C.
Messrs. RCHD. SMITH AND CO., Worcester.
Messrs. JAS. BACKHOUSE AND SON, York.
THE LIVERPOOL HORTICULTURAL COMPANY.
THE LAWSON SEED COMPANY, Edinburgh.
Messrs. DANIELS BROS., Norwich.
Mr. SAMUEL YATES, 16 and 18, Old Millgate, Manchester.
Messrs. WAITE, NASH, HUGGINS AND CO, 79, Southwark Street, S.E.
Messrs. JAS. DICKSON AND SONS, Newton Nurseries, Chester.
Messrs. FISHER, SON AND SIBRAY, Sheffield.
Messrs. HARRISON AND SONS, Leicester.
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Trade Price on application.

Or, direct from—CHARLES KERSHAW,
The Slead Syke Nurseries, Brighouse.

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

HOLLIES, Common Green, 3, 4, 5, 6, 7, 8 to 10 feet high.
,, laurifolia, ditto.
,, Hodgins', 3, 4, 5 to 8 feet.
,, myrtifolia, ditto.
,, Saw-leaved, ditto.
,, Scottica, 3 to 8 feet.
,, Yellow-berried, altaclarense and others.
,, Variegated, of sorts, 3, 4, 5, 6, 8 to 10 ft.
} many thousands.
,, Waterer's, splendid plants, 3, 4, 5 and 6 feet, 8 to 15 feet in circumference.
,, Golden Queen, 3, 4, 5, 6, 7, 8 to 10 feet, hundreds of beautiful specimens.
,, Perry's Weeping Holly, on straight stems, with beautiful heads, ten to fifteen years' growth, hundreds.
,, new Golden Weeping, a large number of very beautiful plants.
BOX, Green and Variegated, 3, 4, 5, 6, to 7 feet, many thousands.
YEWS, Common, 3, 4, 5, 6, to 10 feet, thousands.
,, Golden, of all sizes up to 10 feet. We have many thousands as Pyramids, Globes, Standards, in point of variety and size unequalled.
CUPRESSUS ERECTA VIRIDIS, 3, 4, 5, 6, to 8 feet, thousands.
,, Lawsoniana lutea, 3, 4, and 5 feet, hundreds of beautiful specimens.
THUIOPSIS DOLABRATA, 3, 4, and 5 feet, hundreds.
RHODODENDRONS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet. The plants are covered with buds.
AZALEAS, Hardy, the finest varieties known, 2, 3, 4, and 5 feet high, thousands.
JUNIPERS, Chinese, 7, 8, and 10 feet high.
PICEA PINSAPO, 6 to 8 feet.
,, NORDMANNIANA, 6, 7, and 8 feet.

Knap Hill Nursery, Woking Station, Surrey.

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COCOA-NUT FIBRE REFUSE.

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.
LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; sacks, 4d. each.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; sacks, 4d. each.
COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton, 26s. per ton; in 2 bushel bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.
SPHAGNUM MOSS, 8s. 6d. per sack.
MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Free Price LIST.—**H. G. SMYTH**, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

EUREKA!!! INSECTICIDE, prepared by WILLIAM SMITH, Chemist, Edinburgh.
In Bottles, 1s., 2s., and 3s. 6d. each. 7s. 6d. per Gallon. Special quotations for large quantities.

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"*Clovenfords, by Galashiels, N.B., July* 25, 1883.—Mr. Smith: Dear Sir, we have now tried your Insecticide on all the Insects we can find on any of our Plants, including Orchids, and used as directed by you we find it instant destruction to them all, while it neither stains nor injures the tenderest leaf. We shall in future use no Fir Tree Oil or other Insecticide but yours.—We are, yours truly, WM. THOMSON AND SONS."
Wholesale Agents—IRELAND AND THOMSON, Waterloo Place, Edinburgh.

12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT for ORCHIDS, &c.—BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per Truck. Sample Bag, 5s.; 5 Bags, 22s. 6d.; 10 Bags, 45s. Bags included. Fresh SPHAGNUM, 10s. 6d. per Bag. SILVER SAND, Coarse or Fine, 52s. per Truck of 4 tons. Red Sandstone ROCKWORK, £5 per Truck of 4 tons. GRAVEL, good colour, 25s. per Truck of 6 tons.
WALKER AND CO., Farnborough Station, Hants.

Meredith's Vine and General Plant Manure.

JOSEPH MEREDITH (late of The Vineyard, Garston, near Liverpool) will shortly be able to Execute Orders for this celebrated Manure, which can now be booked.
JAMES MEREDITH, Seedsman, 126, Bridge Street, Warrington, Sole Agent.

Thomson's Vine and Plant Manure.

Manufactured by the

LIVERPOOL HORTICULTURAL COMPANY

(JOHN COWAN), LIMITED,
The Vineyard and Nurseries, Garston, near Liverpool,
and Sold by them and all Nurserymen and Seedsmen.

This is the Manure used to produce the splendid Grapes grown by Messrs. WM. THOMSON & SON, Clovenfords.
For full particulars, see New Circular, sent post-free on application; giving extracts from Horticultural Press and from letters received by the Company from those who have used the manure.

SILVER MEDAL—1861. BRONZE MEDAL—1881.

To Her Most Gracious Majesty Queen Victoria. To His Royal Highness the Prince of Wales.

For Beautiful Flowers and Fruits
USE CHUBB, ROUND AND CO.'S PATENT

COCOA-NUT FIBRE REFUSE

By CHUBB'S PATENT PROCESS,

As supplied to all the Royal Gardens and Principal Nurseries of Europe.

GUARANTEED ABSOLUTELY PURE. FREE FROM ANY FOREIGN INTERMIXTURE. Manufactured on the premises from the famous "Laguna" Cocoa-Nut Husks, and can only be obtained from us direct. This article is not to be confused with so-called Cocoa-Nut Fibre Refuse, sold by dealers and others at ridiculously low prices, and dear in the end. Amongst numerous Testimonials and extracts from scientific writers, to be seen at our works, we hold the following:—From Mr. CHARLES PENNY, Head Gardener to H.R.H. the Prince of Wales: "The Gardens, Sandringham, February 28, 1883.—I must say your Cocoa-Nut Fibre Refuse is far superior to any I have ever tried; in fact, it is simply perfection; and the use of your Fibre for so many purposes in Horticulture is a thorough boon. Make what use you like of this letter." Useful at all seasons. Invaluable for Potting, Plunging, Forcing, Ferneries, Strawberries, Bulbs, Mushrooms, Bedding-out Plants, &c.

DESTROYS ALL SLUGS AND INSECTS.

An elegant Bordering to Flower Beds. Combines warmth and cleanliness with valuable antiseptic and deodorising properties.

MOISTENS IN HEAT. HOLDS HEAT IN COLD WEATHER.

Terms, strictly cash with order. Prices as follows:—Sacks, 1s. 6d. each; 10 sacks, 13s.; 15 sacks, 18s.; 20 sacks, 23s.; 30 sacks, 30s. (all sacks included). Truck-load, free on rail, £2. Limited quantities of SPECIAL QUALITY, Granulated, in sacks only, 2s. 6d. each (two Prize Medals). Valuable for Potting and use in Conservatory.—Only orders accompanied by remittance will receive attention (in rotation). We also find it necessary to caution Purchasers to beware of spurious imitations; and, to obtain the genuine article, buy direct from Manufacturers, **CHUBB, ROUND & CO.,**
Fibre Works, West Ferry Road, Millwall, London, E.

GARDEN REQUISITES.

PEAT, LOAM, SILVER SAND, PREPARED COMPOST, RAFFIA FIBRE, TOBACCO CLOTH, &c.

Quality **the Best** in the Market.
(All Sacks included.)

PEAT, best brown fibrous ..	4s. 6d. per sack; 5 sacks for 20s.	
,, best black fibrous ..	3s. 6d. per sack; 5 sacks for 15s.	
,, extra selected Orchid	5s. 0d. ,,	
LOAM, best yellow fibrous	1s. per bushel sacks included).	
PREPARED COMPOST, best ..		
LEAF MOULD		
PEAT MOULD		
SILVER SAND (coarse)	1s. 3d. per bushel.	
RAFFIA FIBRE, best only	10d. per lb.	
TOBACCO CLOTH, finest imported ..	8d. per lb., 28 lb. 18s.	
,, PAPER, finest imported speciality	8d. per lb., 28 lb. 18s.	
SPHAGNUM MOSS, all selected, 2s. per bushel, 6s. per sack.		
COCOA-NUT FIBRE REFUSE (see special advertisement).		

Terms, strictly Cash with order.

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

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FOR
VINE BORDERS, FRUIT TREES, STRAWBERRIES, ROSES, FLOWER BEDS, POTTING PURPOSES, AND GENERAL HORTICULTURAL PURPOSES.
HIRST, BROOKE, AND HIRST, Manufacturers, Leeds, Yorkshire.

SEEDS of SUPERIOR QUALITY.

MESSRS. DICKSON & ROBINSON

Have the pleasure to announce that their

ILLUSTRATED CATALOGUE OF

VEGETABLE and FLOWER SEEDS, &c.,

Is now ready, and can be had, post-free, on application.

THE OLD ESTABLISHED SEED WAREHOUSE,

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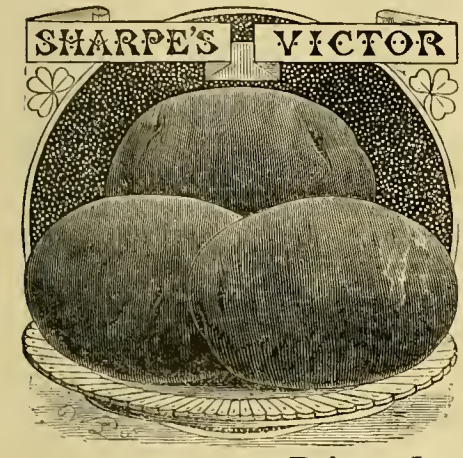

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The earliest Blue Wrinkled Marrow Pea in cultivation.

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A splendid variety, unequalled for exhibition purposes.

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New Bean. The largest podded Bean ever introduced, and unequalled for exhibition. The pods often reach the enormous length of 14 to 16 inches. Of excellent flavour.

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Lettuce. A great novelty. Heads large and firm, outer leaves of golden-yellow colour. Tender and delicately flavoured.

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New Melon. First-class Certificate R.H.S., June 26, 1883. A splendid Melon, globular in form, skin orange-red, finely and evenly netted. Flesh thick, bright scarlet, and of exquisite flavour.

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Onion. Handsome, oval shaped, white flesh, good quality. Keeps sound for a long time.

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New Potato. Really distinct and first-class. Haulm moderate in height and robust for an early variety. Flesh white and delicious in flavour.

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Radish. Very early. Bright purple colour tipped with white. Handsome, quick, and of good flavour.

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New Savoy. From ten to fifteen days earlier than any other. Heads conical in shape, close and compact, particularly tender and sweet. Strongly recommended.

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Turnip. Awarded First-class Certificate by the R.H.S. Flesh white and flavour excellent. The best Turnip for early work.

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New Aster. The most brilliant scarlet Aster yet introduced. Not more than 12 inches in height, with large beautifully incurved flowers.

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Mignonette. Perfectly distinct, and specially suited for pot culture. Very strongly recommended.

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New Primula. The deepest blue Primula yet introduced, and is distinct alike in origin and character from other blue varieties. The stock of seed is very limited, and early orders are recommended.

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New Primula A very attractive variety, with delicate rosy-pink flowers tinted with violet; yellow eyes bordered with white.

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New Primula. A valuable, new and distinct variety, with pure white flowers.

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New Ten-week Stock. Valuable for bedding, as the plants do not attain a height of more than 10 or 12 inches, and freely produce large, double, pure white flowers.

SUTTON'S SPECIAL LIST of NOVELTIES, containing PRICES and FULL PARTICULARS of the foregoing and other Choice Varieties of

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Gratis and Post-free on application.

SUTTON & SONS, The Queen's Seedsmen,
READING, BERKS.

THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 29, 1883.

METHVEN.

FEW estates described by Mr. Hunter in his *Perthshire* can boast a greater interest than Methven. The Castle is nobly placed, commanding scenes which must please the ordinary spectator, and entrance the Scotchman who loves to be reminded of the heroic deeds of his ancestors. The "treeless Ochils," Ben Vorlich, and the Fife Lomonds, are all included in the distant landscape, while near at hand the Almond, on whose banks we stand, winds through the vale, joining the Tay a few miles below. In that direction Perth is about 8 miles distant, the Hill of Kinnoull, above the town, coming prominently into view. The Castle of Dupplin lies on the south, and near it the Battle of Dupplin was fought in the time of Edward III., between Baliol and Mar, when Baliol and his allies left their enemies lying on the ground a spears' length in depth. The country hereabouts is associated with some of the most stirring incidents of Scottish history. The Thane of Methven was an important person before the time of the Norman, and a castle has stood here on the same site on the classic banks of the Almond, where Ossian found his last rest, for the long period of 1000 years. Methven Wood has been several times the lurking-place of famous refugees. The great patriot, Wallace, sought safety in its fastnesses, and Bruce was encamped in the same wood with his little army of 1500 tired men when the English burst upon them, and the newly made king, with a few of his best men, escaped with difficulty into the inaccessible domain of Athole.

Since 1672 this historic property has been owned by the Smythes, who built the baronial residence which the present laird, Mr. William Smythe, has much improved.

We may now speak of the timber. Most of the plantations were formed towards the close of the last century, when so many improvers in the North were engaged in the same work. Like several other estates near Perth, such as Scone and Lynedoch, the property of Earl Mansfield, and Dupplin, the seat of the Earl of Kinnoull, Methven possesses a soil capable of bringing to perfection the largest specimens of several sorts of timber trees. The timber of the ancient woods is principally Beech, mixed with Larch, Oak, and Scotch Fir, and one at least of these kinds is not of ancient introduction, and must have been added during the improvements of the present family. The trees in this division are large, but not pre-eminently so, and we must pass to the "policies," where a fine old Ash in the garden measures 13 feet 8 inches at 5 feet from the ground, with a bole of 20 feet without branches, and a total height of 80 feet. Trees, both young and old, native and imported, including the exotic Conifers and our own native and deciduous specimens, stand around the castle, proofs of good taste and progress. Specimens of Abies Douglasii of 1858 reached a height of 50 feet; the Cedrus Deodara avenue, raised from seed in 1868, flourishes; a Holly of 200 years is cherished as it deserves, and so is a fine Cedar of Lebanon of 100 years, and the

Spanish Chestnuts, and many other good sorts. Among so many sorts of trees that are excellent for beauty or intrinsic value, the sight of the Sequoia Wellingtonia recalls the injunction, "Try all things"—try even such useless things as the Wellingtonia, worthless for timber, rigid and ungraceful though it be. Fortunately, the friend in California who sent some seeds fourteen years ago, kindly sent but nine seeds, and of these only seven unkindly grow.

The text above quoted continues, "Hold fast that which is good," and while we must anticipate the ultimate removal of failures planted from complacency or for the sake of experiment, we are glad to notice a "brave old Oak," the Pepperwell Oak, described in the *New Statistical Account* of 1837 as a tree containing 700 cubic feet of timber, whose trunk then measured 17½ feet in girth at 3 feet from the ground, and now measures 19 feet 5 inches at 5 feet from the ground. The bole is 10 feet, and the tree 80 feet in height, and its branches cover a space 98 feet in diameter. Its age is known to be more than 400 years. The old Ash in the village churchyard is a noble tree in its dotage, with "Ichabod" plainly written on its venerable trunk. It is believed to have been planted in 1433, when the church was built, and when Walter Stewart, Earl of Athole owned the barony of Methven. It is known as the "Bell tree," from the hanging of the church bell in its branches in the old time. The tree contains 380 cubic feet of timber, and measures 20 feet at 3½ feet from the ground, according to the account already quoted.

By right of his royal descent, as a son of Robert II., the Earl was entitled to place the emblems of royalty upon a church of his building, and accordingly he caused the royal lion of Scotland to be sculptured on a stone in the aisle, and this part of the church still remains with the lion and crown on the stone in the aisle.

One more of the many interesting trees at Methven must be noticed—the Black Poplar, planted in 1776, measured in 1836, when it contained 300 cubic feet, having a girth of 11½ feet at 3 feet from the ground; and measured again the other day, when its girth was 17 feet 2 inches at 2 feet, and 15 feet 9 inches at 5 feet. At 117 years old it is in its dotage; so here we have the whole story in brief of what a Black Poplar can do in 117 years. *H. E.*

New Garden Plants.

ONCIDIUM EURYCLINE, *n. sp.**

IT was after long consideration that I finally decided to name this anew. It is near Oncidium uniflorum, Booth, but it is much stronger, has broader bulbs, broader, nearly blunt leaves, much broader flowers, of a thicker texture. The sepals and petals are light reddish-ochre, with a few dark bars at their base. Lateral sepals a little longer than lip. This organ is very peculiar. Its rounded basilar auriculæ are retrorse, and this basilar part is narrower than the anterior. The whole the lip is very fine yellow, with numerous brown spots on the isthmus. The tumour at the base is arranged as in Oncidium uniflorum, but the prominences being blunt and abrupt it comes nearer that part of Oncidium Crossii, Rchb. f. The column has a very singular rhombic tabula.

* *Oncidium eurycline*, n. sp.—(Tetrasepala barbata): affine Oncidio uniflorio, Booth. Pseudobulbo ligulato obtuso costato monophyllo; folio cuneato ligulato obtuse acuto; pedunculo bifloro; sepalo impari unguiculato ovato acuto; sepalis lateralibus bene unguiculatis basi coalitis ceterum bifidis oblongis acutis labellum superantibus; tepalis cuneato ovatis apiculatis; labelli latiusculi auriculis basilaribus semi-ellipticis retrorsis, ungue antrorsum angustiori fimbriato, lacinia antica cordato-reniformi bilobulo; calli systemate prope ad normam illius Oncidii uniflori, sed omnibus prominentibus obtusatis abruptis; columna brevi latiuscula, tabula utrinque extrorsum angulata, dis angustis lobulatis. *H. G. Rchb. f.*

I received this first from Mr. B. S. Williams, then from Mr. S. Low, both received it from Mr. Brymer, M.P., Ilsington House, Dorchester. From both I had rich and satisfactory materials—a very unusual experience. *H. G. Rchb. f.*

PHALÆNOPSIS SANDERIANA (*Rchb. f.*) VAR. MARMORATA, *nov. var.*

"A most distinct, strong plant, with fine broad leaves, resembling those of a good Phalænopsis Sanderiana, very distinctly veined. Roots of Phalænopsis amabilis, but larger and rounder." Those are the remarks of Mr. Stuart Low, who of course could only send me flowers. The flower is as large as that of a good Phalænopsis Sanderiana, sepals and petals tinged outside yellowish-white, with a certain green hue, no doubt in consequence of fog. The lateral sepals have numerous rows of small purple spots at the base. The side laciniæ show three broad basilar purple bars, nearly parallel, and some purple spots. The mid-lacinia is neatly marbled with fine purple stains on the side, purple dots in the mid-line, and a very light purple wash between those three areas. Callus of Phalænopsis Sanderiana, yellowish, with red spots. *H. G. Rchb. f.*

MILTONIA WARSCEWICZII (*Rchb. f.*) VAR. XANTHINA, *nov. var.*

A delightful new variety, near var. ætherea, but with much deeper yellow sepals and petals, a light yellow lip, with narrow white border and no purple at all. The column is pure white. It was kindly sent by Mr. William Lee, Leatherhead. The collection of this gentleman must be a glorious one, to judge both from the exquisite rarities which flower there, and from the healthy strong tissue of the vigorous flowers. *H. G. Rchb. f.*

PEAR GROWING IN KENT.

AN obliging correspondent has kindly sent us a photograph (fig. 146) of a Pear-wall in the Orchard Lane Nursery gardens, Sittingbourne, belonging to Mr. A. J. Thomas, a well-known Kentish nurseryman and fruit grower. The site of the Orchard Lane Nursery garden was formerly a Cherry orchard—one of the oldest plantations known in Kent, and which ceased to exist twenty years ago, when the soil was excavated to a great depth for brick earth. Since then, by good management, the ground has again been brought under cultivation, and it is indeed a fruitful spot, every year seeing crops on the trees of the finest quality. The situation is low and well-sheltered, and the soil a good well drained loam, resting on a subsoil varying from chalk to a good deep loam—principally the latter. The greater portion of the ground is enclosed by a substantial brick wall, from 8 to 12 feet high, against which are trained some 165 Pear trees, principally trained as oblique cordons, the remainder trained vertically. On the south-western and a portion of the south-eastern aspects Peach trees are grown in quantity, to the number of about thirty sorts, and they grow with remarkable vigour, each ear producing large crops of handsome fruits of first-rate quality.

In the open garden are planted some 2000 Apple and Pear trees, but mainly the latter, which are worked on the Quince, while the Apples are grafted on the Paradise stock, and both trained as pyramids or bushes. They make a short jointed-growth, and are in a most fruitful condition. The Pears include about 100 varieties, the leading sorts being Windsor, Beurré d'Amanlis, Beurré Hardy, Beurré Clairgeau, Beurré Bachelier, Beurré Diel, Beurré Giffard, Beurré Goubalt, Beurré Capiaumont, Beurré Berckmans, Louise Bonne of Jersey, Doyenné Boussoch, Doyenné du Comice, Durandeau, Gansel's Bergamotte, Bergamotte d'Esperen, Baron de Mello, Josephine de Malines, St. Michel Archange, Knight's Monarch, Duchesse d'Angoulême, and Pitmaston Duchess.

The Orchard Lane gardens are under the able management of Mr. James Butler. Mr. Thomas has nearly 100 acres of land on his farm in the adjoining parishes of Bapchild Tong and Rodmersham planted with fruit trees, principally Cherries, of which, in favourable seasons, large quantities are sent to London and the Northern markets, also to Scotland. The principal sorts of Cherries grown are the Black Heart, Governor Wood, Elton Heart, Waterloo Bigarreau, Turkey Heart, Bigarreau Napoleon, English Preserve, and Cluster; of this last sort there are some very fine trees growing at Rodmersham, from which, in a good Cherry year, one ton weight of fruit has been picked from a single tree, the branches extending on either side of the stem 10 yards, and being 50 feet in height; but in the last few years the spring frosts have been very unfavourable to this sort especially, it being the first to blossom. A few acres are also devoted to the growth of nursery stock, principally fruit trees, of which some hundreds are wanted every year for planting up the orchards and gardens, and a large quantity are sold in the neighbourhood, there having been a very large acreage of fruit planted during the last twenty years.

NEPENTHES PITCHERS.

AT the meeting of the Royal Society of Edinburgh on the 17th inst., Professor Alexander Dickson made a preliminary communication "On the Structure of the Pitcher in the Seedling of Nepenthes, as compared with that in the Adult Plant," as follows:—

The only observations, so far as I am aware, that have been made on the pitchers of Nepenthes seedlings are those by Sir J. D. Hooker, who in 1859 described their external configuration in his paper "On the Origin and Development of the Pitchers of Nepenthes," &c., in vol. xxii. of the Linnean Society's *Transactions*, and afterwards added a few details of anatomical structure in his admirable address on "Insectivorous Plants," delivered at the Belfast meeting of the British Association in 1874.

This year, I have had an opportunity of examining Nepenthes seedlings from a large crop, which our Botanic Garden Curator, Mr. Lindsay, has raised from seeds of a female plant of N. Rafflesiana, fertilised by pollen from N. Chelsoni (itself a hybrid).

In these seedlings, the small lanceolate cotyledons are immediately succeeded by pitcher-leaves, which in form, as pointed out by Hooker, on the whole more closely resemble the pitchers of Sarracenia than they do those of the adult Nepenthes. We have the entire leaf hollowed out into a funnel-shaped pitcher, with two largely developed wing-like expansions, and with a remarkably ciliated lid, whose base extends round fully one half of the orifice of the pitcher, very much as in Sarracenia, and not at all as in the adult Nepenthes, where the "annulus" occupies almost the whole of the pitcher-orifice, the base of the lid being narrowed into a very small space.

Our seedlings also exhibit, what Hooker has described, the convergence of the lateral wings towards each other above, and their union in the middle line, forming a transverse ciliated membrane below the orifice of the pitcher.

As regards further details, our seedlings differ somewhat from those described by Hooker.

In the first place, Hooker describes (Belfast Address) the inner surface of the pitcher as wholly glandular, while in our plants its upper half, or so, is eglandular, and forms a conducting surface thickly studded with the characteristic downwardly directed crescentic ledges. This difference, however, between the two seedlings may easily be accounted for, inasmuch as there are some species of Nepenthes in which the entire inner surface of the pitcher is glandular (*e.g.*, N. ampullaria and N. Hookeri), and his seedlings may have belonged to some such species. The occurrence, indeed, of such a large conducting surface in the pitchers of our hybrid is somewhat surprising, when its origin is considered. In the female parent, N. Rafflesiana, the conducting surface is limited to an inconsiderable area below the hinge of the lid, this area, when traced round the upper part of the pitcher, being seen to be reduced to a very narrow stripe just below the line of inflexion of the annulus; while in the male parent, N. Chelsoni ×, there is practically no conducting surface at all, there being nothing left of it but the merest trace running along below the said line of inflexion. The only suggestion I can make on the subject is that there may here be a reversion to some ancestor of the crossbred N. Chelsoni.

The following table represents the rather complicated genealogy of our seedling, so far as ascertained:—

Nepenthes Rafflesiana × Nepenthes sp.
N. Dominii × N. Hookeri
N. Rafflesiana × N. Chelsoni
Our hybrid.

It will be observed that the male parent of N.

Dominii has not been recorded. In examining this form (which closely resembles N. Rafflesiana in the limitation of its conducting surface) I have been struck with the great breadth and almost horizontal expansion of the reflexed portion of the annulus; and I would suggest that perhaps N. Veitchii, which seems (I know of this plant only by figure) to exhibit this character to a still more marked degree, may have been the parent in question.

In the second place, Hooker describes the first-developed pitchers of his seedlings as destitute of annulus (*Linn. Soc. Trans.*, xxii., p. 418, foot note), while in ours this structure is very readily recognised, even in the leaf immediately succeeding the cotyledons, by its epidermis of imbricately-disposed glassy cells, both its parents; and in connection with this it is interesting to note the absence of lid-glands in the adult pitcher of N. ampullaria, which may thus be considered as exhibiting the undifferentiated or embryonic character.

B. *The Annulus.*—This is quite distinctly marked, and may be traced, by its characteristically imbricate epidermis, from just above the transverse membrane joining the wings up to the pitcher-orifice, where it is inflected as a slightly crenated margin. The most interesting feature of the annulus, however, is the presence, just within the inflexed margin, of small cushion- or button-like glands, resembling in general character the glands of the secreting surface in the lower part of the pitcher cavity. In the first leaf, from my assistant, Dr. J. M. Macfarlane. The result has almost surpassed my expectations. In all the species examined, there is to be seen immediately above the edge of the inflexed margin a single line of small orifices, alternating with the ridges of the corrugated annulus, and with their tooth-like prolongations when these are present. These orifices are the openings of canal-like fossæ, from the bottom of each of which a cellular nipple-like process, or mammillæ, projects. These mammillæ are the apices of what may be termed the marginal glands. The glands are of very large size; the smallest I have seen—those of N. ampullaria—being $\frac{1}{50}$th of an inch in length, while in some other forms—*e.g.*, N. distillatoria, N. phyllamphora, and an undetermined form

FIG. 146.—A PEAR WALL IN THE ORCHARD LANE FRUIT GARDEN, SITTINGBOURNE. (FROM A PHOTOGRAPH.) (SEE P. 812.)

and its inflexion within the pitcher-orifice. As to this, I should almost be inclined to believe that the supposed absence of annulus was the result of an oversight; so distinctly developed is it in my specimens,—not to speak of its universal occurrence in the adult Nepenthes plant.

Regarding the anatomical structure of these pitchers, there are several interesting points to note.

A. *The Pitcher-lid.*—This exhibits ciliary processes, each tipped with a cell-group, resembling that of a glandular hair. These processes, however, seem to be somewhat more than mere epidermal appendages, since they at least contain ground-tissue, as evidenced by the occurrence of the curious spiral cells so extensively developed in the ground-tissue of these plants; and possibly they may represent prolongations of the entire leaf-substance, like the tentacles of Drosera. Furthermore, there is no trace of the honey-glands which are to be seen on the lid of the adult form in and those immediately succeeding it, these glands are usually three in number (in one specimen, I have seen only two). In the subsequently developed leaves, they become more numerous; and in our seedlings—now about a year old—as many as twenty of these glands may be counted along the margin of a pitcher about an inch long. They form a very pretty circlet, or, rather, semi-circlet; reminding one of the row of ocelli in an Actinia. The presence of these glands in the annulus, coupled with the absence of lid-glands, at once arrested my attention; and led me to suppose that here we probably had structures of greater morphological significance, and of more universal occurrence than the glands of the lid, since the lid-glands—physiologically important, as they undoubtedly are—are not necessarily present in the adult plant. I have accordingly examined the annulus of a number of adult forms; and in this I have to acknowledge much valuable co-operation (apparently allied to the hybrid N. Dominii), for which our garden was indebted to the late Miss Hope, of Wardie—they may reach the enormous length of $\frac{1}{12}$th of an inch. The nipple-like apex just mentioned is never more than about $\frac{1}{200}$th of an inch in length; and is the only portion of the gland which is free, all the rest being immersed in the parenchymatous substance of the annulus. The cells composing these glands are of small size, and are very numerous. Those in the immersed portion are in a general way disposed in lines, which pass obliquely inwards and towards the apex; the peripheral cells having a more or less transverse direction, while the central ones are longitudinally disposed. The superficial cells of the mammilla exhibit a beautiful columnar arrangement, being elongated at right angles to the surface. In some cases, especially in the larger forms, there seems to be a tendency to the formation of a central cavity, from disruption of

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the longitudinally disposed cells in the axis; but I should not be disposed to attach any physiological significance to this circumstance. In shape, the marginal glands vary somewhat. In N. ampullaria, the shape is ampullate; the nipple-like apex representing the neck, while the immersed portion, somewhat pointed at the base and broadening upwards, represents the body of the ampulla. In the more elongated forms the shape is more or less cylindrical or sausage-like. The marginal glands, it will be seen, are remarkable, not only for their large size, but still more for their immersed condition; the other glands of Nepenthes (lid-glands as well as peptic ones) projecting entirely free from the surface, covered in though they may be by a pocket-like flap, or sunk at the bottom of a surface depression. In their immersed character, the marginal glands are perfectly comparable to the immersed glands of the secreting surface of the pitcher of Cephalotus. As to the function of these marginal glands, I cannot as yet speak definitely. Sir J. D. Hooker says (Belfast Address) that the pitcher-rim always secretes honey; but, from his making no allusion to these very remarkable glands, I am doubtful whether he refers to them or not. Probably, however, they are honey-secreting, and afford to the insect the last drops, just as it is on the brink of destruction!

C. *The Conducting Surface.*—This agrees essentially with that in the adult forms. I have here to note that each crescentic ledge consists of a single semilunar cell, which overlaps a lower and smaller cell. Occasionally these two cells somewhat puzzlingly resemble deformed stomata, but I have not as yet been able to trace a more definite relation in this direction.

D. *The Secreting or Digestive Surface.*—The epidermal cells here are remarkable for their wavy outlines, differing from the more angular ones exhibited in the adult plants of the parent forms. The glands, moreover, are in the first-formed leaves entirely exposed, although in the later ones the rudiment of the protective pocket-like flap may be seen. In this connection, Dr. Macfarlane has pointed out to me that in N. phyllamphora the peptic glands are only to a very slight extent covered by flaps; so that in this plant we have, so far, the persistence of an embryonic character. In the first pitchers of the seedling, the peptic glands are few in number—about ten; but in the later developed ones they become very numerous.

Orchid Notes and Gleanings.

WORK IN THE HOUSES.—It will now be necessary to cast a look forward and to make preparations for the future, as the potting and "mossing up" season will soon be here. With this work in view a stock of the best fibrous peat should be got under cover to undergo a thorough aëration to sweeten it for future use. All black-looking peat should be avoided, giving preference to that of a light-brown colour, and of somewhat the nature of a sponge when pressed in the hand. A fresh supply of sphagnum moss should also be secured, and this can be cleaned and selected as time admits of the work being done. There is a quantity of rubbish sold as sphagnum moss, so that it is advisable to have a sample of it before purchasing. Next to the above nothing is more important than a good supply of charcoal, as the roots of Orchids seem more partial to this than any other material, and some kinds appear as though they would exist and flourish in it without the addition of any other material. In country districts, where it may be difficult to procure, a supply must be obtained by burning it at home. One of the best kinds of wood for making charcoal is the Elm, and by selecting pieces of this from 3 to 6 inches in diameter some good porous charcoal will be secured. In burning the charcoal the wood should not be allowed to get into a flame, but should be burned in a smouldering fire covered with turves, with just sufficient air admitted at the base to keep up a slow combustion. In the East Indian-house any plants of Angræcum eburneum that have carried their spikes of flower for any length of time should now have them removed, as they will come in useful at this season of the year, when choice white flowers are so much valued for indoor decoration. Some of the most tender Aërides, such as A. roseum and A. affine, will require careful treatment at the root during the next month or more, as too much moisture at the root quickly tells on the foliage, and any leaves that are not well ripened soon get diseased. All the large fleshy-rooted Saccolabiums are easily injured at this season by an excess of moisture, so that more than ordinary care should be exercised when using the water-pot. In the Cattleya-house several species, such as C. Warneri, will be commencing growth, and should be placed along with Lælia purpurata and others that are growing at the warmest end of the house. Any that require more root-room should be seen to early, but the plants should be disturbed as little as possible in the operation. We prefer knocking the bottom out of the pot in which the plants are growing and transferring them entire into pots a size larger, filling up the space between the two pots to within an inch of the rim with broken potsherds and charcoal; and on this we place an inch or so of fibrous peat with all the smaller particles sifted out. This forms a fresh bed for the rhizomes to travel over, and the plants never feel the shift. *J. Roberts.*

ODONTOGLOSSUM SANDERIANUM.—The genus Odontoglossum continues to present to our notice many striking novelties in the form of natural hybrids. O. crispum has ever been remarkable for great variation, and we have seen in O. hebraicum something that would seem to indicate the probability of a cross between O. gloriosum and O. crispum, and the result, if so, appears to be a very pleasing change. In O. Sanderianum we seem to have a more striking result from an interchange between two important species, *i.e.*, O. gloriosum and O. constrictum. From such a cross O. Sanderianum must undoubtedly have sprung, the character of the former being seen in a dense, branched spike of flowers, while the latter is clearly apparent in the dense chocolate markings on a yellow ground, a white labellum, with one large crimson blotch, so that it might be said of O. Sanderianum that we have O. constrictum's flowers borne on the spike of O. gloriosum—which is a very great improvement, as we get the latter more highly coloured, and the former a great deal more vigorous. For constitution O. Sanderianum seems to be unequalled, though growing with the rest of the Odontoglossums and, therefore, receiving no special attention. When O. Sanderianum can be grown in quantity, as it is by Mr. Peacock, of Hammersmith, O. constrictum and O. gloriosum might with profit be weeded out of every collection. *W. Gostling, Sudbury House.*

SOPHRONITIS GRANDIFLORA is producing its brilliant scarlet flowers to brighten the Orchid-houses through Christmas everywhere where it is properly grown in the cold Odontoglossum-house. Until quite recently this little beauty used to be killed in quantities by growing it in hot, close houses, but now that it is treated as a cold-house plant it requires no skilful treatment, but takes care of itself, increasing in strength each year, and producing its pretty flowers even on the smallest plants. It does best in those shallow pans now so commonly in use for suspending dwarf Orchids in, or on blocks, and it likes plenty of water at all seasons, provided there is not much soil about its roots to retain the moisture too long.

ONCIDIUM CUCULLATUM, with its pretty spikes of flowers, in which the rose-coloured labellum, variously spotted with crimson, is the prominent feature, is another neat thing which helps out the display in the cold Odontoglossum-house for many weeks in winter. It, too, may thank our better knowledge of the requirements of these highland plants for its cool quarters, instead of being roasted to death, as of yore. Now that the different importations of this plant are in flowering condition, we find the most surprising variety among them. One lot of the "nubigenum" section has very tiny white-lipped blooms, and then other importations show us various forms and colours running towards and culminating in that grand form of O. Phalænopsis, with the large snow-white labellum blotched at the base with vivid mauve, which was acquired by Messrs. Jas. Veitch & Sons at Messrs. Protheroe & Morris' sale on December 21. Other forms of O. cucullatum now flowering are O. c. Chestertoni and O. c. macrochilum, both of which have branched spikes when strong, and one of a peculiar blackish-brown on the inside of the small hood-like petals.

MASDEVALLIA TOVARENSIS is now covered with snow-white flowers, and a few plants of it arranged with a few of each of its two companions before-mentioned, and three or four slender-stemmed Orchids with Maidenhair Ferns, make a lovely arrangement which leaves no desire to add to it. Often the indiscriminate mixing of the plants in bloom, one and one, spoils the effect of the whole, while yet there are plants enough and to spare to make a telling display. Orchids having a natural grace about the arrangement of their flowers are not so easily spoilt in arranging as stiffer growing plants, such as Cineraria, &c., but with them it is better to make small groups of three or four together of the dwarf kinds, and let those with long arching flower-spikes droop over them from the back rather than scatter the small growing kinds about, only to be overlooked among the large ones, unless indeed they be strong specimens. Most Orchid growers agree that M. tovarensis is better wintered in a little warmer place than the cold Odontoglossum-house, unless in cases where that house is not allowed to go below 50° Fahr. in winter.

Notices of Books.

Every Day in the Country. By Harrison Weir. London: Frederick Warne.

This is a delightful little book, just the thing to give to your boys—just the thing to take up to dispel the spleen of adult life. It is open to all sorts of criticism, except that which is ill-natured or untrue. For such there is no room. But according to the mood of the reader at the time of consultation so will be his verdict as to this book. Supposing the critic to be shut up in a village inn on an uncompromising wet day, with this book in his pocket, he will haply depreciate the coloured plates; if the ground be hard frozen on February 17, he will wonder where he is to get a Daffodil in flower, or be puzzled to know whether about the same time a Snowflake is not figured instead of a Snowdrop; if his balance at the banker's is overdrawn, and creditors are obtrusive in their attentions, he will be severely critical, and condemn the author for not having added an introductory chapter, showing when and where the observations were made, and for not indicating whether the dates given were the "average" for a long series of years in the same place, and so forth. When the bailiffs are at the door, the exasperated critic will rail at the author for the information that earwigs are about, or for not giving a scale of proportion, so that a butterfly appears as big, or bigger, than the plant whose flowers furnish it with food. But for refreshing the weary spirit or diverting the distracted mind, what is there to surpass commune with Nature? It is an act of worship, and brings with it the same rewards. All honour to those who help in this good work. We read somewhere lately of a calculation that had been made of the number of pictures drawn for the gratification and instruction of his fellows, especially the younger among them, by the author of the present volume. It was vast. True count, however, in such matters deals not solely with numbers, but with value and suitability for their purpose. In this case the number and the value alike were so great that it might be thought impossible to add to them. The present little book testifies to the contrary. It is unpretending, but it is full of matter, and it is full of pleasant reminiscence and suggestion of "many happy hours," such as the two good little boys in old-fashioned pantaloons depicted on the dedication page enjoyed together. But it is time to say a little more definitely what the book is like. Open the pages of Gilbert White's *Naturalist's Calendar*, and you will find that the redbreast (Sylvia rubecula) sings on January 1. Open Mr. Harrison Weir's *Every Day in the Country*, and there you will find the fact confirmed; and there is a tiny woodcut showing our friend as caught in the act. In fine, for each day in the year you will find a choice of fish or fowl, flower or fly, put before you to stimulate your observation in the present or recall the pleasures of the past. Small but faithful illustrations, drawn from Nature, line the margin of each page, and on the opposite side are blank spaces left for additions and observations. The illustrations of birds are particularly happy. One is apt to be hungry after a long ramble, and as an evidence of the sympathetic feelings of the author we may add that he is careful to give us a monthly bill of are of things in season—in the kitchen—as well at he daily list of *dramatis personæ* from January to December, till, as White has it, "*In sese vertitur annus.*"

FORESTRY.

The Corsican Pine.—In my article on the above Pine (p. 764) I omitted to mention the different altitudes at which it has been planted. This may, however, be comprehended in a few words, viz, at all elevations from sea-level up to 500 feet. It will thus be seen that none of the plantations here are nearly so high as the one mentioned by Mr. Michie, and, judging from his description, hardly so exposed either. I am sorry that Mr. Michie is so unfavourably impressed with this Pine, which we value so highly. In other places, however, as well as amongst our Welsh hills, it seems to do well, for Lord Powerscourt, in his letter to the *Times* of July 21 on the "Reafforesting of Ireland," thus speaks of Pinus Laricio :—"There is also a considerable sprinkling of Pinus Laricio, which latter I consider to be perhaps the most valuable of the recently imported foreign Conifers." Another correspondent to the same paper writes as follows regarding Pinus Laricio :—"This is one of the best Conifers for planting on poor land in exposed situations with a view to a permanent crop of timber. We have a quantity of it here, planted out on a bleak plain in a thin, poor, brashy soil on the Greensand, growing away at a rapid rate, quite overtopping the Larch and Scotch Fir; and it appears to shape itself so well for a timber-producing tree that I believe it will prove to be the best of all the Pine family yet introduced. It has other good qualities too, for hares, rabbits, and boring beetles rarely injure it. It has, however, one drawback—it transplants badly; but this may be overcome by growing it on in a nursery, and carefully shifting it every autumn until it is ready to plant out." *A. D. Webster, Penrhyn Castle, North Wales.*

The Flower Garden.

With the close of the year extra work, such as turf-laying, walk or road-making, transplanting and all general alterations in this department, should as far as possible terminate, not because they cannot, in favourable weather, still be carried on, but because the commencement of the new year always brings with it such a large amount of important routine work that cannot be put off, and the neglect of which at the proper time would be only too plainly visible through the succeeding summer.

The spring flower garden is now comparatively at rest, the recent frosts having given a temporary and wholesome check to those plants which had through the mildness of the autumn grown rather too freely to be fully prepared for the severe weather which we may now reasonably expect and which we frequently experience about this time. In consequence of this free growth it will be necessary to use extra precautions by the timely application of the most suitable and convenient protection immediately a sign of the approach of such weather is visible.

Already a few of the first harbingers of spring, such as the Winter Aconite and the Snowdrop, are beginning to show their welcome tops through the earth, and will, if mild weather continue, soon be in flower.

Where the flower beds are allowed to remain vacant till the summer they should be dug deeply or trenched. The surface should remain as rough as possible, and where necessary the soil should be enriched either with fresh loam, well decayed leaf-soil, or manure. It is not desirable, however, to give much stimulant, otherwise exuberant growth and few flowers will be the result. The beds which are intended for subtropical plants, fine foliage being the object desired, can scarcely be made too rich or too deep. The shrubbery and herbaceous borders should also now receive attention. The dead flower-stems should be cut and cleared off, taking care to mark the position of any delicate subject with a label, and where necessary by a covering of a few inches of half-decomposed leaf-soil, sand, or ashes. The surface-soil should then be pricked over with a steel digging-fork, and a good mulching of leaf-soil be placed on the surface. In the shrubbery borders care should be taken to secure by proper stakes and ties any plants liable to be blown about and broken by the wind, and in forking the surface it should be done as lightly as possible, merely sufficient to permit the fallen leaves or top-dressing to be washed in by rain. All leaves and sticks on the lawn or walks should be frequently brushed up and cleared off; the walks should be edged and well rolled when sufficiently dry, so as to give the whole a neat and clean appearace.

The general stock of summer bedding plants should at this time undergo thorough inspection, in order to see if any are deficient of the number required. Pelargoniums should first receive attention, and a few plants of the varieties it is wished to increase should be placed in an intermediate temperature. A vinery or Peach-house being forced will afford the most suitable atmosphere. The oldest plants should be chosen, and as soon as an inch of new growth is made the cuttings should be taken off, and placed in a brisk bottom-heat, where they will root freely, and if potted immediately they are rooted and grown on, they will soon make plants equal to those propagated in the autumn. Afterwards the quick-growing kinds should receive precisely the same treatment. By adopting this method there is no necessity for keeping such a large stock of plants through the winter, and much valuable space may be appropriated to other subjects. By commencing sufficiently early, the various kinds of plants may be dealt with in rotation, so as not to crowd the propagating-pit or the other houses unduly at any time. The Gladiolus having just been taken up should be laid out thinly on the shelves in the bulb store for a few days, they should then be well cleaned from all dirt and placed either in bags or boxes in small quantities. Dahlia roots should be placed in a cool, rather dry shed, and be covered with dry sand or leaf-soil. Anemones, Begonias, Ranunculus, and all similar bulbs and tubers should be kept from damp on the one hand, and from shrivelling on the other. In severe weather the stores of labels, stakes, pegs, and other such appliances should be examined and sorted, and a sufficient quantity of each be prepared for future use. *T. S. C.*

Grapes and Vineries.

The earliest vinery can still be kept at a night temperature of 55°, with a rise of 10° by day, and a few degrees warmer if the weather outside is mild and bright; but in severe weather it will be quite sufficient. Tie up the Vines before the growths get too long. It is a good plan to tie them very loosely at first, as they will then have more freedom, and when they are in flower on being gently shaken the pollen will be dispersed better. Young strong growths that do not break regularly had better be tied down over the fermenting material until they do so. Give a little air on the back ventilators on all favourable occasions, but be careful to avoid cold draughts; close the house early in the afternoon with plenty of atmospheric moisture, keeping the evaporating pans filled with weak manure-water. Syringe the Vines overhead until the bunches can be seen, when it must be discontinued; water the inside border when dry with clear tepid water, and add fresh fermenting material to the outside border as the heat declines. After the Vines have grown a few inches long disbud them when the best bunches can be seen, increasing the temperature steadily as growth proceeds, a few degrees weekly, until the night temperature reaches 63°, with a temperature of 10° higher by day. If a succession vinery was started a few weeks later, keep it as advised in my last Calendar. The latest Muscats will now be better if taken off the Vines, and the house be thrown open for a few days before pruning. If the Vines are in a good healthy state prune back the spurs to one eye, and in newly planted vineries shorten the leaders so that they will reach the top of a large house in three years, and in a small low house in two years. A few hours after pruning apply styptic to the cuts, to prevent bleeding; and give the inside border a good soaking of clear cold water. An early house can be started now, keeping the night temperature at 50°, with a rise of 10° by day, at the same time protecting the outside border with either fermenting material or shutters, and if fermenting material can be placed on the inside border the Vines will break better. Keep the evaporating pans filled, and water the border with water at 85°, syringing the rods several times daily with tepid water. It would be better for the Vines if all thick-skinned Grapes intended for keeping through the winter were cut and placed in the Grape-room, a few days previously filling the bottles with soft-water, and putting a few pieces of charcoal in each. Choose a day for bottling when the outside atmosphere is dry. Keep the temperature in the Grape-room as near as possible at 45°. Open the house a few days before pruning. In cleaning the Vines do not scrape them, but take off only the loose bark with the thumb and finger, and if the Vines are clean no painting will be necessary; but if mealy-bug is present, paint them as recommended in previous Calendars. Thoroughly wash all the glass and woodwork, and tie the Vines down in a horizontal position in readiness for starting, and give the inside border a good soaking of clear cold water. The earliest pot Vines will now be breaking fast, and can be kept at a night temperature of 58°, with a rise of 10° by day. Tie the shoots before they get too strong, and give them plenty of tepid water at the roots. Give a little air early in the day, and close betimes in the afternoon, with plenty of moisture. *Joshua Atkins.*

The Hardy Fruit Garden.

Planting and root-pruning fruit trees should, if possible, be brought to an end simultaneously with the closing of the year. For carrying out these operations the past season has been one of the most favourable that we have had for many years. With the exception only of a few days' frost nurserymen have experienced no check in despatching their orders for fruit trees all over the country, and will heartily join with planters in congratulating themselves upon the amount of work a favourable season has enabled them to accomplish. Rarely can heavy clayey soils be had in a fit state for planting, if this is not done in October, but the absence of excessive rainfall and freedom from frost has enabled the planting of trees to be carried on satisfactorily up to the present time. As the planting is completed secure the heads of the trees if in the open borders to stakes, those on walls should have the main stem and branches securely, but temporarily, tied. Mulch well over the roots of all. Defer the pruning of newly planted trees until the buds begin to push in spring.

Trees intended for grafting should now be headed back to within a few inches of the point where it is intended to place the grafts. Select shoots of varieties intended for scions, label each bundle correctly, and heel them in carefully in some shady and sheltered border, protecting in severe weather with Fern or litter.

Peaches and Nectarines should be all unnailed from the walls, and the branches tied together in bundles, and firmly secured at a short distance from the wall, so that the opening of the bloom may be retarded as much as possible. They may be pruned and made ready for training at once, but as this to a certain extent accelerates the early development of the bloom it would be better put off for a time.

Apricots must be taken in hand, and the pruning and nailing be brought to a finish, as it is the earliest of our fruit trees to develope its flowers. The protection for the flowers, such as copings, canvas, &c., should have attention just now, so that everything may be in readiness for immediate use when required. This can be done during wet days.

Pruning and training of all trees must be followed up as occasion offers, and of bushes in the open borders. Top-dress unhealthy subjects with fresh turfy loam and manure. Autumn-bearing Raspberries, which fruit on canes of the current year's growth, should be cut down close to the ground, mulching them as heavily as the summer-bearing varieties. If the Gooseberries are pruned and the birds attack the buds, a lime-wash, darkened by using soot, should be syringed over the bushes, which will save the buds in a great degree from their ravages. Except for the sake of tidiness and finishing up the work of pruning, the pruning of Gooseberries is better left till the end of February if bullfinches are apt to be troublesome. *D. C. Powell.*

Grevillea macrostyla. — This is a comparatively recent introduction to British gardens, and one well worthy of general cultivation for greenhouse or conservatory decoration. Well grown plants are now flowering in the Temperate-house at Kew. It makes a neat bush, and produces its clusters of rather large flowers freely at the end of nearly every twig in late winter or early spring. The leaves are dark green, trifid, and unlike those of any other cultivated species known to us. The Kew plants were raised from seed sent from East Mount Barren, in Western Australia, by Baron von Mueller, and a figure appeared in the *Botanical Magazine*, tab. 5915.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Dec. 31	Sale of Imported Lily Bulbs, at Stevens' Rooms. Sale of Lily and other Bulbs, at Protheroe & Morris' Rooms.
WEDNESDAY,	Jan. 2	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.
THURSDAY,	Jan. 3	Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY,	Jan. 4	Sale of Imported and Established Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	Jan. 5	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

THE mixed good and evil of another year come once more under review, and gratefully we may say that in the horticultural world the good has predominated. The winter and early spring were wet and mild, and then came a blast of icy wind which played havoc with the green vegetables, and made us dread the effects on the fruit and other crops. Fortunately, however, the reality belied anticipation, and, on the whole, we have had to congratulate ourselves on a productive season, and, in the case of the Potato, on a crop, not only abundant, but unusually free from disease.

The depressed condition of agriculture, arising in no small degree from the unpropitious seasons of former years, has had the effect of calling increased attention to market gardening, fruit culture, and tree-planting, all practical matters in which our readers are very greatly concerned, and we can entertain no doubt that the advantages which will accrue in the future from the development of the departments we have named, will, in their degree, speedily outweigh the effect of the depressing influences which served to originate them. The late Apple Show at Chiswick, and the forthcoming International Forestry Exhibition in Edinburgh, show very clearly what is the state of public feeling in these matters.

The stupid and vexatious Phylloxera laws affect a considerable number of our readers, and came under discussion, more especially at the Congress of horticulturists at Ghent. British exporters, however, do not seem to have made up their minds whether it is better to "grin and bear it," or to bring their influence to bear on the Government, with a view of inducing them to enter into the Berne Convention. Our American friends, who are suffering from the same cause, are, or some of them are, disposed to advocate a retaliatory policy; but we do not think this would find favour with British statesmen.

Among the exhibitions of the year, the Ghent quinquennial naturally takes the first place. Though no very startling novelty was produced, yet the exhibition did not in the least disappoint the visitors, and, as usual, it afforded an excellent opportunity for "taking stock of horticultural progress." As a matter of course, the hospitality of our Belgian friends was as warm as ever.

Of home exhibitions, to say nothing of the "Fisheries," which covered the ground once occupied by the lawn-tennis players of South Kensington, the most remarkable was the Apple show at Chiswick, to which we have already referred. The notion seemed to originate quite suddenly in the minds of a few enthusiasts, it was taken up with spirit—exhibitors flocked in from John o'Groats to the Scilly Isles, and, what was also satisfactory, the public flocked in also. It was curious and most gratifying to note the eager interest taken in the display, not only by gardeners and professional fruit-growers, but by amateurs. It was a new experience, and a very delightful one, to see, for instance, the country rector and his wife bringing their baskets of Apples, and comparing them with the specimens exhibited. The labour for a time was enormous, but the results as a whole were so satisfactory that Mr. BARRON, upon whom the bulk of the work fell, may well feel the complacency begotten of a successful effort thoroughly appreciated. Those, too, who have a soft place in their hearts for Chiswick—as most of those have who have followed the fortunes of the Royal Horticultural Society—were delighted at the opportunity that was afforded of turning the old garden to such excellent account, and of making it and the work done there better known.

As to the exhibitions at South Kensington they have been much of the usual character in spite of the Society being hustled up into a corner by the encroaching fish and their devotees. As if to show that the Society was not to be stamped out in that way two evening meetings were held in the Linnean Society's Rooms at Burlington House—meetings combining the attributes of a flower show, a *conversazione* and a scientific meeting. These meetings were thoroughly successful, and served to demonstrate what a fund of interest is to be got out of gardening quite apart from its commercial importance, and quite apart from the sometimes injurious effect of the exhibition table and the prize competitions.

Very great practical interest attaches to the experiments of Mr. JENSEN with reference to the Potato disease, and opinion is greatly divided upon the point. It appears to us one particularly for the practical man to settle for himself, and to leave the microscopists to adjust their differences by further comparative study. It is quite certain that the time has not come, if it ever will, when any statement can be considered absolute. The cultivator, however, cannot wait till the mycologists have settled all the points in dispute as to the life history of the fungus, but they must act, and it is sufficiently clear that they must act on the lines of prevention, and abandon useless attempts at cure.

Mr. PLOWRIGHT'S experiments on "heteræcism" in fungi, which need the confirmation afforded by additional experiments under different circumstances, are highly important. It is proved beyond doubt that some of these fungi live part of their lives on one plant, and another part on a second plant of quite a different nature, and the appearance of the fungus in the two or more stages of its career is totally different. It is quite possible that a similar two-homedness may occur in the case of the Potato fungus, but there is no evidence to this effect at present.

Mr. GARDINER'S researches on protoplasm promise to be of great importance in the future, not only from a purely scientific point of view, but from the standpoint of practice also. Up till recently it has been supposed that (with a few exceptions) any passage of fluid from cell to cell of plants took place by an oozing through the membranous coat of the cell by a process of "osmosis," by virtue of which the water or thinner fluid outside made its way into the thicker fluid inside the cell, till the balance was restored. But Mr. GARDINER has shown, as TRÉCUL did before him, in the case of the vessels of plants, that the protoplasm—that viscid content of the cell in and by which all the more important life-processes are manifested—may, and does actually pass, in many cases at least, from cell to cell through minute apertures that exist for the purpose. It is obvious here that many of the phenomena, more or less vaguely spoken of under the head of turgescence, sensibility, storing up of sap, transfer of food material from one part to another, will find a simpler and more reasonable explanation than has been given heretofore.

By far the most complete account of experiments made with a view of determining the effect of manures on various plants, and on various points of their life-history, that has yet been published is that contained in the record that has been published this year of the botanical and other results of the experiments on the plants of pasture-land carried out for so many years at Rothamsted by Sir JOHN LAWES and Dr. GILBERT.

In another department of botany the year has been signalised by the completion of the *Genera Plantarum*, by Mr. BENTHAM and Sir JOSEPH HOOKER. It is impossible to overestimate the value to descriptive botany of this work, the product of a quarter of a century—not of compilation or editing other people's work, but of direct personal observation and comparison. The time that has elapsed during its production has been so great that, naturally enough, the book does not represent, nor was it ever intended to, the actual state of philosophical and physiological botany; but as a record of descriptive botany adapted for practical purposes, it will endure long after the more theoretical portions of the science have given place to newer developments. As a standard for generic nomenclature it is indeed likely to retain its value for many years, and it is to be hoped that where adequate cause is not shown for an opposite proceeding, it will be adopted by horticulturists as the one authority on the nomenclature of genera.

The requirements, however, of the botanist and of the practical cultivator are sometimes at variance. A trifling variety, in a botanist's sense, is, or may be, one of the greatest moment to the practical man. The quality of the fruit, the degree of excellence in timber, the amount of quinine or other valuable product in a given variety are often associated either with no difference of form and appearance perceptible to the unaided vision, or with differences so slight as to be passed over by the botanist. The educated culturist here holds the middle place between the scientific botanist and the ordinary rule of thumb practitioner. He can see better than the one what is the practical value of any particular variation, he can judge better than the other what is the real significance of the variation in the life history and genetic relationships of the plant.

From this point of view the appointment of a skilled botanist as superintendent of the Neilgherry Cinchona plantations and the modifications recently adopted with reference to the future duties of the Sibthorpian Professor of Rural Economy at Oxford are matters of great importance. The establishment of agricultural colleges, like those of Cirencester, Downton, and the Institute of Agriculture, may also be alluded to as likely to be of eminent service in bringing about that closer alliance between abstract science and practical cultivation on which the welfare of the nation so greatly depends.

The year has, as usual, been marked by the loss of many who in various ways have done much to promote the development of horticulture. In Sir WILLIAM SIEMENS we have lost one, the success of whose experiments in the electro-culture of plants, so far as they went, led us to hope that he might be induced to devote a larger share of his peculiar talent to the furtherance of the principles of horticulture, and the consequent improvement of its practice. In HARPUR CREWE, we have lost one whose zeal in the cultivation of hardy plants was only equalled by his knowledge of them. Major-General SCOTT will be regretted by many who came in contact with him at the Royal Horticultural Society, while the Gardeners' Royal Benevolent Institution lost a valued friend in its late Treasurer, Mr. WRENCH. The death of Mr. HOWARD has removed from us one whose knowledge on all points connected with Cinchonas was unrivalled, and whose efforts in promoting their cultivation were second to those of no other person. Among practical gardeners we have had to record the loss of many friends and contributors, not the least lamented of whom was JOHN FLEMING. But we need not continue the list—*Le roi est mort—vive le roi.* Those who have gone before, only make us look with the more confidence on those who are called to succeed.

FIG. 147.—IPOMÆA THOMSONIANA: FLOWERS WHITE: POLLEN GRAIN MAGN. (SEE P. 818.)

—— IPOMÆA THOMSONIANA (*Mast.*), sp. n.*—Once or twice during the last season we have had occasion to mention a very beautiful free-flowering Ipomœa, under the name of I. Horsfalliæ alba, introduced by Messrs. IRELAND & THOMSON, of Edinburgh. Those gentlemen have since been good enough to furnish us with a specimen, from which our illustration (fig. 147) has been taken. It is not only very beautiful, but we believe it to be new, having been unable to match it in the herbarium or in books. It is reported to have been introduced by seed from the East Indies. It differs from I. Horsfalliæ, of which it has the general habit, in its thick fleshy leaves, the leaflets of which are stalked, not sessile, rounded, not tapering at the base, entire, not wavy at the margins, and with the acumen at the apex considerably shorter. The flowers, moreover, are nearly double the size, and pure white. The stigmas are represented as linear, probably from the lobes not being expanded. It is curious that the native country of I. Horsfalliæ is not known with certainty—India and Africa vaguely being mentioned as the locality. Whatever be the scientific status of the new introduction, it is evidently of first-class value as a stove climber. *M. T. M.*

—— THE COMMITTEES OF THE ROYAL HORTICULTURAL SOCIETY.—Considerable dissatisfaction continues to be felt in some quarters at the limited and one-sided view which the Floral Committee takes of its duties. A florist's flower, a market plant, or a decorative plant is pretty sure to get adequate notice, but the case is quite different with certain subjects, such as hardy plants, trees, shrubs, or with new plants whose value for decorative purposes is unknown, and which are thought only "good enough for the Scientific Committee." That body, however, is no more fitted, as a body, to determine questions of horticultural value than is the Floral Committee, as a body, to pronounce judgment on botanical questions. It seems to us that a Plant Committee, such as exists in the great Paris and Boston Societies, is urgently needed to deal with the classes of plants often more or less contemptuously passed over by the Floral Committee. The publication of the names of those present at these meetings has, we believe, tended to inspire greater confidence in the country. But not only the names should be recorded, but also the numbers voting *pro et con.* It has often happened that a certificate has been obtained by the award of a very small number of voters out of a full committee; or the certificate in another case has been granted by a majority of one or two only. Were these circumstances known the value to be attached to any certificate or expression of opinion could easily be gauged. As it is, all certificates necessarily pass as of equal value, which is very far indeed from being a true representation of the case. As we are now in a state of interregnum—the old committees dissolved, while the new committees, even if appointed, have not begun to exercise their office—there is still time for the Council, if they see fit, to legislate in the direction we have indicated, and thus to obviate a state of things which, as we know, sometimes inspires ridicule, and considerably lowers the reputation of the Society and its certificates.

—— CYTISUS ADAMI.—M. CASIMIR DE CANDOLLE, from an investigation of the leaf anatomy, concludes that this is not a graft hybrid, as usually supposed, but a degenerate form of C. Laburnum. We have at present only seen a brief record of M. DE CANDOLLE's paper, but it would seem difficult to accept his conclusion, unless we consider C. purpureus to be only a form of C. Laburnum.

—— A CORRESPONDENT points out that much of the information on forest trees, &c., extracted in our last number from a recent lecture by the Mayor of STRATFORD-ON-AVON must have been taken from *English Forests and Forest Trees*—a book published in 1853. This may have been the case, as lecturers are not always careful to acknowledge the sources of their information, especially in the case of a "popular" lecture, not designed for publication. Besides, it is possible that acknowledgment was made.

—— SPORTS OF EUONYMUS.—Mr. NICHOLSON tells us that the plant from which the two specimens figured at p. 793 were taken grew against a wall. Mr. NICHOLSON has observed flowers to be produced on the large-leaved form in Ireland as well as at Richmond, but never saw flowers on the small-leaved form.

—— THE VEITCH MEMORIAL PRIZES.—We understand that the trustees of the Veitch Memorial Fund have granted three Bronze Medals and £5 with each for award at two of the Royal Botanic Society's Shows next year, viz., on May 21, for the best specimen Orchid in flower, and for the best stove or greenhouse plant in flower; and on June 18, for the best dish of three bunches of Grapes, any variety. A similar number of prizes will be awarded at the great show to be held in Dundee next autumn.

—— THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY'S SHOWS IN 1884 will be held on April 2 and 3, July 9 and 10, and September 17 and 18.

—— A MURAL TABLET has just been erected in the Free Christian Church, Shrewsbury, by the pastor and members of the congregation, upon which is the following inscription:—"To the memory of CHARLES ROBERT DARWIN, author of *The Origin of Species.* Born in Shrewsbury, February 12, 1809. In early life a member of, and a constant worshipper in this church. Died April 19, 1882."

—— CYPERUS ALTERNIFOLIUS.—To what purposes are devoted the ten thousand plants of this which Mr. JOHN REEVES grows at Acton? This number, and probably more, can be seen at his nursery at the present time, from plants 1 inch in height to splendid specimens of 6 feet or more of healthy growth. It is interesting to note that the plants are largely raised from the flower tufts which are taken off and laid on the surface of pans of sand and gently pressed into it. Here they soon root and make a quick upward growth, and are then potted on as required. Mr. REEVES has plants of all sizes and stages of growth, and so rapidly are the specimens developed that in twelve months fine specimens are had well established in 32-sized pots; quite large and well-furnished specimens are in 24-sized pots; and in what are known as 16-sized pots are truly regal examples, 6 feet in height and grandly furnished. It is a plant that stands well in rooms, &c., and if dust gathers on the leaves, immersion in clear water soon cleanses them. There is a great demand for it for various decorative and furnishing purposes, and also for its variegated variety.

—— AZARA INTEGRIFOLIA.—On one of the walls at Kew this pretty Chilian shrub is now in flower. It has dark green leathery leaves, with large leaf-like stipules and short spikes of orange-yellow scented flowers. The genus Azara is a member of the order Bixaceæ, which is represented amongst the trees and shrubs in cultivation in British gardens by three or four species of Azaras and Idesia polycarpa, undoubtedly the hardiest member of the family. The Azaras are apt to succumb during very severe winters, except under especially favourable conditions as regards shelter; the Idesia, however, without any shelter or protection whatever, has flourished without check or injury from frost, for the last six or eight years or more. The pretty variegated form of Azara integrifolia, the foliage of which—on plants in the open air—is now flecked with scarlet, originated as a branch sport on the plant cultivated in the Temperate-house nearly a score years ago.

—— CARNIVOROUS PLANTS.—Mr. WALTER GARDINER has been experimenting on the Fly Trap, Dionæa Muscipula, the leaves of which he fed with wood-lice from which the shelly coat had been removed. Shortly after the application of animal matter the leaves close, and may remain shut for a period varying from ten to twelve days, when they open spontaneously. When, however, the leaf is not vigorous, or when the amount of animal matter is somewhat large, the leaf may not open at all but remain closed until its death. There appear to be four periods which attend the phenomenon of digestion in such a leaf, viz., the resting, the secretory, the absorptive periods, and the period of recovery. In the resting state the gland cells exhibit the following structure:—In each cell the protoplasm closely surrounds the cell-wall, leaving one large central vacuole, which is filled with the usual pink cell-sap. The protoplasm is extremely granular, especially around the nucleus, which is, in consequence, almost entirely obscured from view. The nucleus is situated at the base of the cell, and is shown by reagents to be large and well-defined. At the end of the secreting period, which appears to be about twenty-four hours after stimulation, the following changes have occurred:—Movements of the protoplasm have taken place, in consequence of which the nucleus now occupies the centre of the cell; numerous strands of protoplasm radiate from the nucleus to the parietal protoplasm of the cell, in consequence of which several vacuoles, instead of one large one, are present. The protoplasm now exhibits but little granularity, and may be described as clear and hyaline. The nucleus is clearly brought into view, and appears to have undergone a very considerable diminution in size. Passing to the phenomena of the ordinary leaf-tissue, it may be said definite special cell-contents make their appearance in them after the absorption of the digested food. Sections of leaves which were placed in alcohol thirty-six hours after feeding show that the cells contain a very large number of tufts of crystals, which are present in the cell-vacuole and adhere to the inner surface of the cell-protoplasm. After forty-eight hours the cell-contents are of a different nature. The cells now contain numerous bodies, which present the appearance of flat sphæro-crystals. They are usually perfectly circular in outline, and are clear and colourless. They are insoluble in alcohol, but extremely soluble in water. In Drosera the changes take place much more rapidly, the phenomenon of digestion extending over a period of from three to five days. The gland-cells in the resting state were seen to be much more granular before than after secretion. In consequence of absorption, the cells contain a large quantity of a substance which is precipitated in dense granules by alcohol, but is readily soluble in water.

—— THE SEED TRADE OF ABERDEEN.—A *conversazione* and assembly, under the auspices of the seed trade, was held recently in St. Katherine's Hall. There was a large attendance, about 300 being present. The chair was occupied by Mr. ALEXANDER HAY (of Messrs. BENJAMIN REID & Co.) The hall was beautifully decorated, and the nurserymen of the city, all of whom took part in the decorations, certainly deserve credit for the manner in which they performed the work. The Chairman expressed the pleasure it afforded him to preside, and then proceeded to say that this was the first time that they, as seedsmen, had met together, and certainly in looking around the hall any one could see that, between employer and employed, they were no mean body. Time was—and he supposed it was fresh in the memory of many—when they could not have mustered in such force. Even in his recollection—and he did not consider himself very old yet—a great change had taken place in that respect. When he came to Aberdeen—it was now twenty-seven years ago—there were only four firms in connection with the trade. These firms still lived, but all the partners, with one exception, were gone. Mr. DARLING was the only one who remained. At the time to which he had just referred all the seed firms in Aberdeen could not have mustered one-third of the practical force they now did. The large increase of trade necessarily forced upon them many improvements in the method of executing orders, and there had also been a great change in that respect; and every year was witnessing still greater developments. In this northern city they did a larger business in connection with their trade than was done in any other town of the same size in either England or Scotland. Adverting to the gathering, he remarked that he approved of the idea of meeting together from time to time as on that occasion, forgetting for awhile the keen rivalries of trade. A programme of vocal and instrumental music was then gone through, and the proceedings terminated with a ball.

—— FAIRY FLOWERS.—Among the novelties for Christmas decorations are some fluffy white balls mounted on wire, and reminding one of the "clocks" of the Dandelion, by which children tell the time, or pretend to do so. The balls are indeed made of the silky pappus of some Composite, perhaps a Thistle. Each little tuft of hairs is reversed, and tied to its neighbour by its free ends, a small portion of the seed-vessel at the other extremity being left attached. These fragments being bleached, look like spangles of silver scattered over balls of swan's-down. We suppose they are made by plucking off the pappus from some Thistle-like plant, fastening the feathery ends together by wire, slicing off the seed-vessel, and bleaching. At Christmas-time such perverted ingenuity may pass muster even with the botanists, and the effect is certainly very pretty. Our specimens were kindly furnished by Messrs. HOOPER of Covent Garden.

* *Ipomœa Thomsoniana*, Mast., sp. n.—I. habitu I. Horsfalliæ; foliis ternatis, foliolis petiolulatis coriaceis glabris supra nitide virentibus subtus pallidioribus obovato oblongis acuminatis basi sub rotundis, centrali longiori, 4½ poll. long. 3½ poll. lat.; inflorescentia, calyceque fere ut in I. Horsfalliæ, corolla autem 3-pollicari alba, tubo subinfundibuliformi, fauce parum constricto, limbo sub 3-pollicari patente obscure 5-lobo, lobis apiculatis; staminibus stylo que exserto; stigmate haud observato, in icone lineari, lobis forte haud expansis. Ex India orientali, importaverunt, dom. Ireland et Thomson.

RAISING FERNS FROM SPORES.

How much prettier are sporeling Ferns than those obtained by division—at least, this is so in the majority of varieties; besides, how easy it is to raise a large stock quickly by this means; whereas by division it is quite another matter with a great many Ferns. What a host of young Ferns find their way into Covent Garden alone — charming little plants, well furnished from the top of the tiny pots they occupy. After visiting many provincial nurseries and large establishments, I am bound to say the London growers are far ahead of the provincial ones in the matter of Fern raising. No plants are more easily raised than are the majority of Ferns; this is especially the case with the more useful, or, one might say, the kinds in greatest demand, such as some of the Pterises, Adiantums, Nephrodiums, &c.; some of these are so anxious to make headway in life that wherever there is the slightest chance of existence they secure a foothold. I have been in many first-class private establishments where Ferns forms a prominent feature, but no attempt is made in raising young stock, the old ones being split up; and the result is very frequently badly furnished plants, especially in a young state. One frequently hears the expression, "Well, when I require young plants I can find plenty about the house." Just so. Happily Nature is very bountiful, especially in the Fern world. Did you ever take into consideration the myriads of spores produced by a solitary Fern during the years of its existence—most of which are capable of producing ultimately individuals like itself, the self-same parent having been fertilised but once in its existence? The perpetuity of effect in Fern life will astonish you, if the matter is fully investigated. No wonder they have held their own through the epoch of the past while many races of flowering plants may have passed away, perhaps through the loss of external agencies, of which Ferns were independent. But I am passing into matters perhaps wide of the practical bearing of the question, but to me it is absorbingly interesting; and I will now give a few general hints as to the successful management of Fern spores.

First, the soil. In this matter be particular, and you will be rewarded. Get some good yellow fibrous loam, two parts, and one part good peat, with which mix a liberal supply of finely broken potsherds, bricks, or sandstone, and sand; mix well, and place the same in pots, and subject it to great heat—bake it in the domestic oven if no more convenient method offer. Simple and unnecessary advice, some may say; never mind, it is decidedly advantageous. One very enthusiastic Fern grower and raiser informed me not long since that he boils his soil in the copper previous to using it—a plan which is undoubtedly equally advantageous. Fill the pots or pans in which the spores are to be sown half or two-thirds full of potsherds, thoroughly cleansed before being used. Upon these place some of the rougher material, and fill to within half an inch of the rim with the soil, after which give it a thorough soaking previous to sowing the spores. But are the spores ready to sow? Have the fronds been collected a few days and kept in a dry place between sheets of paper? This is of some importance, for they should not be sown before they are mature, neither should they be kept for any length of time. Of course we have known of instances where spores have developed after lying a considerable time in a dry position, and we wondered at the amount of vitality in such a tiny simple germ. As a guide to collecting examine the back of the fronds, and if the spore-cases are mostly turning brown, although the fronds may be quite fresh and green, you may safely collect them. Place each species carefully between separate sheets of paper; mind you, nothing is more easily mixed—a puff of wind will carry a myriad—you may inhale them yourself. Let them lie in a dry place for a few days, when a large number of the spore-cases will be dislodged, and you can easily remove the rest.

Presuming the pots are all ready, proceed to sow: scatter the spores thinly over the surface, and do it very carefully, unless you require several other species to occur in the same pot, but however particularly you accomplish the work rogues will show themselves in nearly, if not quite, all the pots. When the sowing is completed, cover each pot with a slip of clean glass, and place each one in a small pan to be filled with water when arranged in a permanent position, the latter depending entirely upon what species you are desirous to increase: if stove or greenhouse kinds they should be placed in the propagagating case, or in a shady shelf in the stove, where they need not be often disturbed. Never apply water upon the spores, but keep the pan well filled. Hardy kinds under treatment may either be placed in heat, or in a cold frame. Keep them always shady and occasionally remove the glasses and wipe them, and in due course the prothallia will appear, the child, or issue of the spore—totally unlike the parent producing the latter, and herein is one difference between a spore of a Fern and the seed of a flowering plant—the former a simple vegetable cell, developing by ordinary cellular growth into a prothallium, on which are produced the sexual reproductive organs, while the latter contains an embryo and developes directly into an individual like the plant producing the seed, unless cross-breeding has been effected. Pardon me for stating these simple facts in the pages of the *Gardeners' Chronicle*, but as a gardener I meet with so many in the fraternity who are utterly ignorant, that perhaps these remarks may be an incentive to some young gardeners to further research.

The time occupied in the development of the prothallium varies greatly in different species, as well as the time between the appearance of the prothallium and the bud of the true Fern, during which time the work of fecundation has been accomplished and bud-formation set up, and the young Fern makes its appearance, shortly to require pricking off in nicely prepared soil, and the life of the Fern begins in real earnest. Patience, of course, is requisite in this, as in all matters dealing with living objects, but if the work is done with a true regard to the marvellous operations Nature is accomplishing, vastly aided by your assistance, there will always be something to interest in the growth as it advances; and if fancy leads you to use the microscope, you will have ample material to study fully the truly astonishing life-history of a Fern—history, by the way, not understood by Linnæus himself; but how sagacious was he to name them Cryptogams, which literally means "hidden marriage." Well he knew there must be some union of sexes, or their analogues, in order to reproduce a similar series of individuals.

As regards the cross-breeding of Ferns I have little to say, for it is impossible to accomplish it in the same way that it is done in flowering plants, and yet you may assist in bringing a hybrid into existence. How vast is the name of hybrid variations in Ferns under natural conditions? I may cite as examples the Lady and Hart's-tongue Ferns—protean species, indeed. How has it been effected? Should you wish to encourage hybridism in Ferns, sow the spores of different species, or varieties, or rub them well together between the fingers and sow thickly, and it is quite likely the spermatozoids of it, which correspond to the pollen grains, may pass into the archegonia of B, and thus ensure cross fecundation. Such combinations actually occur, as I have on more than one occasion proved. A pan was sown of the spores of Pteris serrulata cristata and P. cretica well mixed, and in the batch of sporelings were several small plants of cretica variously crested and tasselled. It is probable that hybrid Ferns are not nearly so numerous as they will be in our collections of the future. *Pteris.*

Insecticides. — The three most important and valuable materials now in common use as insecticides in the United States are—(1), arsenical compounds; (2), emulsions of petroleum; (3), Pyrethrum. 1. *Arsenical Compounds:* Paris green and London purple may be used in suspension in water in the proportion of from half a pound to 1 lb. of the powder to 40 gal. of water. When mixed with flour or other diluent the proportion should be one part of the poison to twenty-five or more of the diluent. 2. *Petroleum Emulsions:* A satisfactory emulsion may be made in the following proportions:—Kerosine, 1 quart; condensed milk, 12 fluid oz.; diluted with water, 36 oz. This is emulsified by violent churning, and before use it may be diluted with water from twelve to twenty times. Equal parts of kerosine and condensed milk may also be thoroughly mixed or churned together, and then diluted *ad libitum* with water. 3. *Pyrethrum:* Pyrethrum can be applied, (1), as dry powder; (2), as a fume; (3), as an alcoholic extract, diluted; (4), by simply stirring the powder in water; (5), as a tea or decoction. As a powder it may be mixed with from ten to twenty times its bulk of wood-ashes or flour, but before use should remain for twenty-four hours with the diluent in an air-tight vessel. *Riley, in "Encyclopædia Americana."*

HOME CORRESPONDENCE.

Is the Rhododendron Poisonous?—I have proved that Rhododendrons are poisonous, from the following occurrence, which took place when I was at Syndale Park, Faversham. In the beginning of the year 1880, in very severe weather, upwards of forty stock ewes belonging to Mr. T. Kingsnorth, who rented some portions of the park for grazing, obtained admittance, through a gate negligently left unfastened, to a green drive parting the kitchen garden from the home wood—the outskirts being planted with Rhododendrons, chiefly ponticum, which the sheep ate with avidity. On the following morning eight of them were found dead, and in the course of a short time nearly one-half of them perished. Their stomachs were searched, and the cause of death ascertained without doubt to be the Rhododendrons. In general, cattle and sheep do not interfere with them, but they will eat them in very severe weather [When their owners should provide proper food for them. Ed.]. I deem it far from prudent to plant Rhododendrons in open pastures. *Henry Clarke, Blenheim Gardens, Woodstock.*

Anemones as Summer Flowers.—I think every lover of hardy flowers should know that it is as easy—and on some soils and in some seasons even easier—to have Anemones in bloom from July till October as it is to have them in bloom at their natural time, from February till May. If required to bloom in the spring they are planted in October, and to have them in bloom in the late summer all that is necessary is to keep the bulbs in a dry place until the following May, when they will grow as well as if they had not been exposed to the drying process. If an effective display is required I would advise that no heed be paid to the advice given in old books on the subject; but that a wide drill be made as deep as for maincrop Peas, and that the bulbs be placed nearly as thickly together as you would sow Peas, if you expect a good crop—say 2 inches only between each bulb. If the weather is dry a good soaking of water now and then will be beneficial to them, and if it has imbibed the essence of the manure heap it will be none the worse; but the watering is not a necessity, for I have cut several blooms during the present month from a clump that was planted last May, and which have been entirely dependent on Nature's showers for their supply of water. Any one wishing to try the above plan of late planting need have no fear of the bulbs dying from being retarded so long. I have some growing vigorously in a cold house (at the present time) that were kept in bags in a dry cupboard from October, 1882, until October, 1883—just twelve months, and I believe every bulb must have grown. *G. Burt.*

Ridge Ventilators.—If the following hint is of any value, any one is welcome to it. In Mr. Baines' article on glazing at 652 he says:—"But some of these new contrivances for ridge ventilation have the disadvantage of not being sufficiently tight when closed, thereby letting out the heat to an extent that is a serious drawback." My experience with ridge ventilators is, that when they open the full length of the house in long houses, the house itself is sure to lag a little somewhere, or the ventilators will warp a bit, so that they rarely fit down close after they have been up for a time. My suggestion is to fix a length of gutta-percha piping for the ventilators to shut down upon. I have not tried it, but I have an idea that it would give way to pressure where necessary, and so form a close-fitting joint. *J. R. M.*

Grape Growing: the Extension System.—I had long been promised a real treat in Grape growing by my friend, Mr. Larking, formerly gardener to R. Mangles, Esq., of Sunninghill, Sunningdale, and Lady Gage, Firle Place, Lewes; and as I had been requested to do duty as a judge at the Eastbourne Chrysanthemum Show, I took the opportunity of exploring this lovely sea-side resort and of paying a visit to Mr. J. Hownson, Furnis Road, Eastbourne, in whose garden I saw something that surprised me much. On entering the first house, a lean-to, about 30 or 40 feet long, and from 16 to 18 feet wide, I noticed that the Vines, one to each rafter, have a rise before coming to the fruiting branches of 7 or 8 feet, and as the rafters are 18 feet long, and the house is rather steep and high, the canes must be nearly 30 feet in length. This house was full of ordinary bedding plants, the leaves all off the Vines and the wood well hardened and to all appearance in November ready to be pruned. At the far corner I was requested to walk upstairs, and here, to my surprise, was a similar span-roofed structure with the same Vines extending over its roof, and here the fruit was about half cut and the foliage beginning to wither and fall. The fruit was of a good average quality, and after expressing surprise and astonishment at such a peculiar example of

the extension system, I was passed into another (third) structure on the same level, and even broader than the other two. Here the fruit was just ripe and being preserved until Christmas, and I could not refrain from again expressing my astonishment, so strongly did the facts before me illustrate what an extraordinary plant the Vine is, to yield fruit under what must be termed an extraordinary system. However, it may be seen by any one going to Eastbourne, if they will step into the house; it is close against the road, and certainly the roots cannot have a border of more than 8 or 9 feet—beyond that is only the hard pathway and road to root into; yet how well they seem to do. These Vines are a surprise to all. *H. Cannell, Swanley.*

Peas, Early and Late.—Allow me to corroborate the testimony of Mr. Sheppard as to the superior merits of Ne Plus Ultra as a late Pea. Its good qualities, adaptability to nearly all soils, prolificacy, drought and mildew-resisting powers, and richness of flavour and colour, are highly commendable points in its favour, which certainly should not be overlooked. I grew the latter in company with British Queen, King of the Marrows, and Sutton's Latest of All during this last season, and although the seed was sown at the same time and grown under the same conditions, Ne Plus Ultra surpassed the others not only in prolificacy but also in the longer duration of supply by nearly a fortnight—extending into the second week in October. British Queen ranks next to the latter, especially if generously treated and allowed plenty of room. Veitch's Perfection is a fairly good Pea, and does well on loamy soils. It will not succeed with us, our soil being too light in texture. I may mention two other maincrop Peas that have done well with me this season—Frederick Roach and Duchess of Edinburgh—the former being a good cropper and of good flavour. As regards early Peas much difference of opinion exists as to the best varieties. I find Sutton's Ringleader to come in the earliest for use of the tall section. Next in order come Dickson's First and Best and Sangster's No. 1. I had a few rows of American Wonder, a new dwarf variety, on trial. This sown on a warm border came in for use some days earlier than Ringleader. My experience of this variety, and the satisfaction it gave my employers, has induced me to decide on growing it on a larger scale next season. *T. W. Sanders, Gr., The Firs, Lee.*

Glazing.—I think "Hortus" has not read Mr. Baines' letter correctly, as dry glazing is not recommended at all, but only bedding in the old-fashioned putty *minus* the top putty. This latter system of cutting the glass so as to fit tight, and bedding it well on putty with a few sprigs outside, and a coat of paint over the outside edge, has been extensively used for some years by horticultural builders, where the gardeners will allow it to be done. Any horticultural builder of standing can tell "Hortus" the advantages and disadvantages of the various systems, which Mr. Baines fairly sums up by saying plainly,—"There are few, if any, of them that do not possess more objections than the putty they supplant." Zinc bars with caps to slide on or to screw down are most common, and I have lately used one method (by special request), and broken 10 per cent. of my glass in fixing, owing to slight dents or inequalities in the hard unyielding zinc, which, when pressed close, causes the glass to snap. Iron bars, also wood, are used with beds of felt or rubber under and above glass, and screws or caps of metal above, but all decay in less time than good putty does. Then if an accident breaks a bar, or if two or three of the special screws get lost, how are you to replace them quickly? The man who supplied them years before has disappeared. Wood, putty, and glass are to everybody's hand for repairs. The coldness of metal bars, and consequent condensation with its drip, and the fact that such houses require more heat (the reason why of which I have not seen explained clearly) are disadvantages enough, if alone. With ordinary wood framing and putty glazing every part is accessible to the paint brush for keeping in order, but the supposed durability from covering all wood with glass or metal is fictitious and delusive, as the parts that are so covered cannot be got at for repainting, and rotting soon commences if the wood (as very often happens in these constructions) is not of the best. *B. W. Warhurst.*

Cherries on Walls looking North.—The directions in older works on the fruit garden, on Cherry planting, favour the idea of planting only the Morello on the colder or northerly aspects, and the practice became very general all through the colder parts of this country. It was done chiefly with the object of putting to some useful purpose walls on which choicer fruits fail to reach any standard of excellence. The results attained could have scarcely been those aimed at, for the sourest variety of Cherries, good only after a large admixture of sugar in compotes or in cognac, cannot be called a first-class fruit, so that the production missed its aim almost entirely. It has long been known that many of our sweet-fleshed Cherries, especially the Bigarreau and May Duke section, grow very well, and produce capital crops of luscious fruits on these northern aspects, so that instead of the gardener having an overabundance of Morellos he can insure a lengthened season of different varieties of these favourites fruits, as those on the later aspects will succeed those on warmer ones in coming into bearing. In planting Cherries on north walls, it will be found of advantage to see that the drainage is placed deep, and that it is quite efficient, or otherwise the ground will get waterlogged, with the results of the tree breaking late, making gross shoots that will be imperfectly ripened, and getting into an unhealthy state, gumming being one of the common forms of ill-health. Next to the drainage, the main thing to observe is comparatively shallow planting in good loamy soil, and keeping, if possible, the roots in a border to themselves, allowing no cropping over them, or any needless trampling of the soil, or it will inevitably get into a pasty sour condition. *M.*

Chrysanthemum Golden Dragon.—This will be found a most useful addition to the list of late blooming Chrysanthemums. Its large tasselled blooms associate well with Meg Merrilies, another excellent late blooming variety, which it somewhat resembles in the structure of its bloom, but it has longer and broader petals, of a rich golden-yellow colour. *E. Morgan, The Butts, Harrow-on-the Hill.*

A Good Garden Label.—Mr. Tyerman has sent us from Cornwall a specimen of a label which he has been using for some months, and of which he thinks very highly. The label (fig. 148) is made of

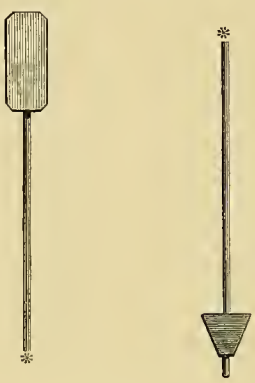

Fig. 148—plant label.

galvanised wire and zinc, and the triangular piece at the bottom is so placed to prevent the label turning round too freely, and also that it may not too easily be drawn out of the ground. The cost of these labels is about 6*s.* 6*d.* per 100. Ed.

Rubbish.—Rubbish is said to be matter in the wrong place, and there really is much truth in the remark, for when we see weeds, leaves, sweepings, rakings, or gatherings lying about, we consider them offensive and untidy; but where wheeled or carted away to a corner, or other private spot, the *débris* is no longer rubbish, as then it may be regarded as valuable vegetable material undergoing a state of decay, and when it has gone through that stage, it is equal—and superior for some crops—to almost any manure. This being so, every care should be taken of all trimmings from walks, sweepings from lawns, fallen leaves, and everything of the kind in a garden, together with Cabbage and Broccoli stumps, clippings, and prunings from hedges, trees, and bushes, as though these woody particles are slow in rotting, they may be turned to excellent account by charring or burning. The way to carry out the former is to set fire to the mass, and then, or before, cover it with earth or rubbish that the sticks and trimmings may only smoulder and become charred through; but if it is intended to convert them to ashes, the fire should be kept fed till the whole mass is consumed. By having a large body of stuff together, and firing it when dry, it is surprising what weeds and rubbish may be burned, and the ashes, if taken care of and preserved in a shed, are of great use for sowing on seed-beds or Vine borders, or over the ground, for digging in for a crop, as they contain much potash, and are very fertilising and beneficial to most plants, which can assimilate the food they contain and turn it to account at once when rain sets it free. Next to ashes leaves are of the most value, but in collecting them they should be kept free from sticks or Beech mast, especially if the soil, when they are rotten, is required for potting or borders, as with decomposing wood in it, it is apt to generate fungi, which parasites are most pernicious to the roots of all plants. The *débris* forming the rubbish heap may, as stated above, constitute all gatherings, like the cottager's "mixen," where all refuse is cast; and to hasten decay and kill crude weed seeds it is a good plan to give the heap a good heavy dressing of salt and lime and immediately turn it over, so as to thoroughly incorporate the whole, when, after lying a few days for the salt to dissolve, the mass will be in readiness for carting or wheeling on to the ground. This should, if possible, be done during frost, and the stuff may either be left as a surface-dressing to Asparagus and Seakale beds or dug in, for, applied in whichever way, it is sure to do a great deal of good. *J. S.*

High-Moulding of Potatos.—Mr. Jensen is right in considering me an advocate for high-moulding, and if the results were more uniformly good this mode of culture ought to be invariably practised. I only doubted the reality of the spore and zoospore counting in water, and the deductions made from the experiments, and chiefly that the sand retained the fungus spores and so prevented them from reaching and piercing the tubers. I was reminded of Mr. Jensen's mode of culture last year, when a gentleman from Melksham, in Wilts, told me that his Potatos were seldom or never diseased in any season. I asked him if he grew them on a calcareous soil, as in such situations Potatos are often free from disease. He replied, "No, my soil is a stiffish clay." Clay, which is impervious to water, one might think, could retain spores, but Mr. Jensen says (p. 795) that "sandy soil, generally speaking, retains the spores better than good (stiffer) soil." I should like to see confirmation of the statement made by "A. D." (p. 763), that nothing is rarer over thousands of acres of Potatos than to see injuries to Potatos from insects and rodents. "Thousands of acres" make a wide field for examination. I certainly have frequently seen Potatos suffering from animal attacks, the tubers scratched off from the haulm, and gnawed all round, chiefly, I believe, by rabbits. An exposed or bruised place on a Potato tuber is more liable to be attacked by the Peronospora than a sound place. "A. D." says that in bad seasons "myriads" of Potatos show the disease, and even to the naked eye it is most obvious "that the fungus has pierced the tender skins." My "naked eye" is, I expect a bad one, for I have not at present seen with it any piercing by the spore of a microscopic fungus. "A. D." must remember that the fungus can either pierce the tuber from within outwards, as pointed out by Mr. Berkeley in connection with perennial mycelium (which he was the first to see) in 1846, or from outside to in, as observed by De Bary seventeen years afterwards. I have never doubted or written against either view; if anything, I have advocated this piercing to too great an extent, although I should less frequently expect to see the piercing in the tuber than elsewhere on the Potato plant. What is a Potato?—a sort of dilated underground stem. As we know the fungus spores can easily pierce the above-ground stem, what insuperable difficulty need we expect in the piercing of the underground dilatations? At a recent address delivered by me on the Potato fungus, where questions were allowed to be asked, some one asked me (in reference to the spore piercing) if the spore went into the leaf "like a drop of acid." I hardly knew how to reply, but at length said, "Yes, something in that style." Another gentleman (who must have been a wag) asked "if any one had seen the spore go right through a Potato and drop out on the other side?" This made every one laugh, which was very annoying! *W. G. S.*

Impatiens Sultani.—The ordinary common Balsam is one of the greatest favourites in the plant way gardeners possess, but it is a question if it is destined to occupy that position long, as, just lately, a new kind has been discovered, and is now being sent out under the name of Impatiens Sultani, and a very valuable thing it is, as it is not only exceedingly showy and brilliant, but it has the additional merits of being easily grown, and is more or less almost continuously in bloom. Although strictly a stove subject, it is sufficiently hardy to live and do well in a greenhouse or conservatory during the summer and autumn, and it is said even to succeed bedded out, but of that I have as yet had no experience, although I mean to give it a trial during the forthcoming summer. In habit the plant is very neat and compact, and has short jointed, succulent stems, which branch freely, and flower from the axils of every leaf as they form. The blossoms are not like the well-known Balsam, but flat, having a long spur, and in colour they are of a bright rosy-scarlet, most pleasing to look on. As proof that this Impatiens Sultani has not been overrated in the above remarks, I may add that it received a First-class Certificate at the Royal Horticultural Society's meeting last spring, and the same kind of award from the Royal Botanic, so that it is being sent out with the highest credentials. Those who buy a plant now will be able to pro-

pagate from it and get a good stock, as cuttings strike remarkably easy, for all that is necessary is to take them off at a joint, and insert them in sandy soil, and then stand them on a shelf in the stove up near the glass, where they will soon root, if they are watched to prevent them from damping. Later on, any cuttings put in may need the aid of a propagating glass over them, as the sun will then be stronger and the air more dry, and if left exposed they would most likely flag and shrivel, and fail to make root. Besides being of such ready increase by means of cuttings, Impatiens Sultani seeds freely, and plants may be raised in that way. The best time to sow the seed, to obtain the first batch, is about the middle of March, but as the seeds are very fine, they require careful sowing. The proper mode of procedure is to fill a pan or pot, after draining, with finely sifted soil, the top of which should be made perfectly level and smooth, and the seed then scattered on regularly, and as soon as this is done covered thinly with soil, when the pot or pan should be stood in moist heat, and have a pane of glass laid over it till the seeds germinate. As soon as the plants are up, it will be necessary to place them in a brisk temperature where they can get plenty of light, and when large enough to handle; they should be potted singly in small pots, and again stood in a warm pit or house, where, as the days lengthen, their growth will be rapid and strong, and the more exposure they get to the sun the better and finer they bloom. As to the soil, Impatiens Sultani is less particular than most plants, as any light rich mixture suits it; neither do the plants need much root-room, as fine specimens may be grown in 7-inch pots, in which size they come in most handy for furnishing. *J. S.*

Is the Rhododendron Poisonous?—I send the following reply to the question at p. 763. Having resided at Trebizond, the scene of the poisoning by honey of Xenophon's soldiers, I can say that the chief undergrowth and copse of that part of the southern shore of the Euxine, or Black Sea, consists now of Rhododendron ponticum and Azalea pontica, whereas no Oleander grows on any part of that coast. The Rhododendron has little or no scent, whereas the Azalea has a very powerful and sweet odour. The flowers precede the leaves, and in spring whole hillsides present sheets of golden-yellow, and the country is perfumed for miles around. The opinion of the natives is that the poisonous honey called in Turkish *Delli Bal*, or mad honey, is derived from these highly scented flowers of the Azalea. The honey has a very peculiar, and to most people disagreeable taste in its crude state, and when eaten produces vertigo, sickness, purging, and great prostration; after many hours the effects pass off, and the sufferers gradually recover. The honey nevertheless is much used in cookery, confectionary, and for preserving fruits, being much cheaper than sugar; but previous to use it is cooked on the fire, and the heat volatilises the poisonous principle, when it can be eaten in safety. Whether the Rhododendron is also poisonous I do not know; many think it is, and such was evidently the opinion of Xenophon. *H. J. Ross, Castagnolo, Lastra a Signa.*

The American Summering Apple.—I should like to know if any of your correspondents have met with an old Apple named American Summering, which I have not seen for years. I have a very lively recollection of it, though, as it was growing in the garden of my boyhood's home at Chaddesden, near Derby, and of all the Apples that I have tasted since then this stands without a rival. Although the old trees are gone, in form and shape the Apple much resembled Hawthornden, but it was much sweeter and ripened earlier. Then there was the old Eve Apple, a small dessert sort; that, too, is gone. They were planted on a newly enclosed common some time between 1780 or 1790, by Charles Murdoch, who was for fifty-two years gardener to Sir Robert Wilmot, Bart. It is somewhat remarkable that he also at about the same time planted a house of Black Hamburgh Vines which are still under my father's management, bearing every year heavy crops of Grapes for market. Is it not rather singular that the Vine should outlive the Apple? We have a local Apple in this part of Hants which is an enormous bearer, and the tree attains a great size. It is a good culinary variety and a good keeper, and is called by the country people "Ducin," as near as I can make out. Have any of your correspondents met with it? *Joseph Murdoch, Gr. to H. Welch Thornton, Esq., Beaurepaire Park, Basingstoke.* [This is no doubt the Hambledon Deux Ans. ED.]

The "Unique" Folding Box.—Mr. Thomas P. Bethell, Cable Street, Liverpool, has recently introduced a new folding box, intended for the Parcels Post and other purposes, of which the accompanying are illustrations. Fig. 149 shows the box opened out, and every part flat, or nearly so. To put it together bring the front, with the flap at A in contact with the back piece at B; the flap at C is to be afterwards slipped into the slit at D: this forms a box without ends. Now slide the side flaps at E E into sockets at F F, and the side flaps at G G into the sockets at H H. To form the lid turn the ends of side pieces at J J at right angles, and fold the flap at K over same. Now pass the flap C (which is really an adhesive label) into the slit at D, damp it, and turn the end marked under the bottom edge of lid, and the box is ready for transit. Fig. 150 shows the parts almost brought into position; L is the flap (with the adhesive side now towards the spectator); it has to be pushed through the slit at M, and then folded away from the box. Fig. 151 shows the box completely ready, with direction label

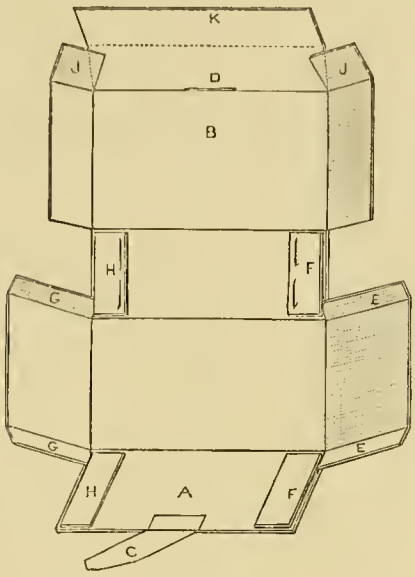

FIG 149.

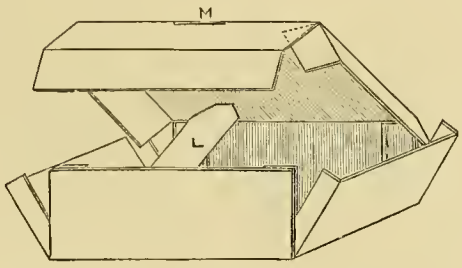

FIG. 150.

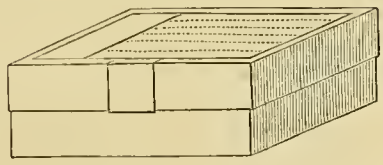

FIG. 151.—THE "UNIQUE" FOLDING BOX.

on the top. The illustrations are engraved to scale, one-fifth the size of the example forwarded to us.

Plants Flowering at Christmas.—In evidence of the mildness of the season, the Pelargoniums among the shrubs in the boxes outside my windows are still perfect in foliage, and are yet in bloom on this Christmas-eve. In my small garden also the Escallonia macrantha has plenty of its fresh pink blossoms on it, and the buds of the hybrid perpetual Roses are sound and bright. On Mr. John Chapman's house on Byron Hill a fine perfect flower is open on the Magnolia grandiflora; and further on there is a bed of double Daisies covered with bloom. Jasminum nudiflorum is beautifully in bloom in many places about here, and patches of Marigolds, Wallflowers, Stocks, and other summer flowers are as bright as ever. This is not the most genial spot in the world, so I daresay some interesting short notes of outdoor flowers in bloom this Christmas could be sent by your correspondents in more favoured districts. *James O'Brien, Harrow-on-the-Hill.*

—— I have just returned from a hasty visit to Nant-y-Glyn (Colwyn Bay), and send you a list of the plants in flower to-day, as illustrating the extreme mildness of the season. I do not remember ever to have seen such a quantity of bloom at this time of year. Especially noteworthy is Cytisus racemosus, of which two large bushes are in their third winter out-of-doors and unprotected. They are now, and have been for the last two months, literally covered with bloom in spikes, often more than 6 inches long, which make greenhouse specimens look puny indeed, having previously bloomed freely in spring. The perfume scents the air for many yards round. The plants are in the finest health and vigour, and appear to have got exactly into the conditions that suit them best. Why is this plant not more grown out-of-doors in the South and West? I know no more exquisite perfume than it possesses, even Czar Violets and Wallflowers, of which there are abundance now in flower near it, are insipid in comparison! Skimmia oblata is again very gay, with its scarlet berries which the birds do not touch. Whatever it may be botanically it is very distinct horticulturally from S. japonica and very much more desirable. Pears are showing some curious freaks in the way of ripening. Both Josephine de Malines and Doyenné d'Alençon (*alias* Easter Beurré) are ripe now! They were both from pyramid trees.

List of Plants in Flower.

* Pentstemons, garden hybrids	Aubrietia Eyrei
* Chrysanthemum indicum	Veronica Traversi
* Fuchsias, of sorts	„ ligustrifolia
* Wallflowers	Sisyrinchium californicum
* Stocks	Polyanthus, gold-laced
* Violets	Convolvulus Cneorum
Doronicum plantagineum var. excelsum	* Zonal Pelargoniums
Campanula muralis	Lobelia erinus
* Schizostylis coccinea	* Mignonette
Cistus sylvæfolius (?)	Celsia cretica
Roses, (Tea and hybrid perpetual)	Verbascum phœnicum, fine spikes
	*Cytisus racemosus
	Erigeron mucronatum

The plants marked * are flowering abundantly. The lowest temperature recorded this winter was 30°.3, here at Chester 22°.3—both on November 13. *Alfred O. Walker, Chester.*

Centropogon Lucyanus.—I can fully endorse (p. 760) what is said of this most useful winter flowering plant, and would strongly recommend it to all who have a stove, as it is one of the brightest and freest blooming subjects we have, and bears cutting better than any other I know, for no sooner are the flowers removed at the terminal ends of the shoots, where they first show, than the parts left break again and form others below, and as they are so bright in colour they quite light up a house. I like the old plants best, as by resting them a short time in the spring by keeping them dry, they start freely from the crowns and send up many shoots, which become strong during the summer, and afterwards yield a great deal of bloom. For baskets to suspend from the roof this Centropogon is quite unrivalled, as its habit just fits it for the purpose, the plants being naturally drooping, after the manner and character of the old Æschynanthus, which it greatly resembles. Cuttings root freely put in any time in the spring, and in summer we grow our plants in frames along with Thyrsacanthus, Eranthemums, and other soft-wooded stuff of that class, which do well together. *J. S.*

Pruning Apple Orchards.—The late Apple harvest will long be remembered, and growers are now asking the question, "Shall we have as good a one next year?" I hope we may have a repetition of the same wealth of Apples, but I doubt it, for before we can be successful in regulating our Apple crops we must pay a great deal more attention to the management of our Apple trees. They must, in fact, not be allowed to degenerate into the ugly-looking stumps covered with moss and lichen, such as the most superficial observer cannot fail to see while travelling through the principal Apple-growing localities. A great improvement could be made in the quality of the fruit, the regularity of the crops, and the health of the trees by bestowing proper attention upon the pruning of them—an operation which I am sorry to see is sadly neglected. I think that the lopping and cutting out of large limbs should, as far as possible, be avoided, being modes of pruning which are not at all commendable. What I would advocate is the thinning out of overcrowded parts of the trees, so that light and air, which are so conducive to proper development, should be able to penetrate through all parts when fully clad with leaves. I have observed that when Apple trees are left to themselves after they come into a bearing state they crop very irregularly—one year very heavy and the next very light, if any. There are certainly some reasons for this over which we have no control, such as the weather; but I think want of careful pruning has a great deal to do with it. When a tree is but a thicket of branchlets, bearing innumerable fruit-buds, and it goes on all right, and passes favourably over that critical stage when so many fruits drop, and brings a heavy crop to maturity, is it not reasonable to suppose that the tree had as much to do as it was able in maturing the crop, and was wholly unable to make the necessary preparation within itself for another years' crop? It

is also clear that such over-cropping will hasten the decay of the trees, and degeneracy in the quality of the fruit. This is particularly the case with good late keeping sorts, for most of them are heavy Apples, compared with the early varieties, and are a longer time perfecting their fruit, therefore taxing the energy of the trees to a greater extent than the early ones, which are, in the majority of cases, late-flowering ones, so that the trees have a looger period of rest; hence it is that the early sorts are the surest croppers. There is also another practice which is injurious, and that is, the leaving the fruit on the trees as long as it will hang, sometimes to the end of November; all should be picked just before they are ripe. When we consider the amount of money that is paid away annually by this country for fruits that it is quite possible for us to cultivate, the Apple becomes of more importance, and no pains should be spared in advocating the better management of the existing plantations, and also the extension of them, so as to be adequate for the increasing wants of the nation. *Roderick Fraser, The Upper Hall Gardens, Ledbury, Herefordshire.*

Florists' Flowers.

THE YELLOW PICOTEE.—From the accounts published in old florists' hooks it seems that the yellow type of the Picotee was always a difficult flower to grow well in this country. Hogg, writing about it more than fifty years ago, seemed to be "in a fog" as to the best method of cultivating it, although he was aware of many fine varieties in cultivation, and possessed a small collection of his own, which he invited any one interested to visit in the following quaint lines:—"Any person desirous of viewing some of these new and curious varieties may have their desires gratified by visiting my small garden in July next (God granting, for the tenure of human life is very uncertain in the most robust and healthful)."

A coloured plate is given of a variety with a bright yellow ground and crimson edge, with a few flakes of maroon. Hogg tells us it was grown in many parts of Italy, Germany, Prussia, Lausanne in Switzerland, Grenoble and Lyons, in the province of Dauphiny, and other parts of France. The Empress Josephine, we are also told, had an admirable collection of yellow Picotees at Malmaison, at the time when her gardens were under the superintendence of the celebrated botanist, Bonpland.

It seems that they were also cultivated in the Royal Gardens at that time. Hogg says:—"The late Queen Charlotte and the princesses, a few years ago, had a very superb collection of yellow Picotees at Frogmore, which were obtained principally from Germany. They were the delight of all who saw them." Further we are informed "that Picotees with yellow grounds, grew in great profusion in most of the gardens in the island of Madeira, and that the varieties were very beautiful." A great many names are given, but probably most of them are out of cultivation. There is one named Prince of Orange. The colours are described as yellow and purple of two shades; yellow and dark red, or claret colour; yellow and scarlet; yellow and pink; also various shades of yellow selfs. After the year 1830 the English florists seem to have taken them in hand. The petals, which at that time were of good form, had serrated edges. Their ambition, therefore, was to obtain the smooth edge; and this they did after a few years' selection of seedlings, while the outline of the flowers was improved. The irregular markings on the petals gave place to a well-defined edge, as in the best forms of the white ground Picotees at present in cultivation. Until twenty-five years later a good selection of them was in cultivation.

Unfortunately, if the flowers themselves had attained the standard of excellence, little or no heed was given to the constitution of the plants, with the result that many of them died in the hands of the raisers, and they went out of cultivation. Mr. Simonite, of Sheffield, told me that some of the flowers were of a golden-yellow colour, with a fine wire-edge of scarlet. When the growers could not manage to maintain the plants in health they blamed the climate. Even Hogg, who had as much knowledge of the subject as any of his compeers, said the climate was "too harsh and moist for this delicate exotic." The present race of yellow Picotees, which we owe to Mr. Charles Turner, of Slough, who raised a large selection some few years ago, are of quite a robust habit of growth, and produce a large quantity of handsome flowers on each plant. Although these varieties are not such as would satisfy the critical florist, they are a step in the right direction. I have found that it is not easy to save seeds from them, as there is scarcely any pollen to be obtained. I crossed nearly a hundred flowers this year, and did not obtain more than a score of seeds from them. It will be seen from this that the difficulties in the way of the raiser of new varieties are not few. But I would advise any one who may have a small collection of yellow Picotees to make the attempt.

A good time to sow the seeds is about the middle of April; and, as they are very valuable, it is just as well to make sure that every sound seed will vegetate. This they will do if they are sown in fine sandy soil, and the pots or pans plunged in a gentle hotbed; the seeds vegetate very soon, and they can then be pricked out in boxes.

Although the yellow ground Picotees, of which Perkins' Prince of Orange is the type, are all of vigorous growth, they do not seem to be quite so hardy as the others, and require frame culture in the winter. They grow freely enough out-of-doors during the spring and summer months, and it is best to place them out-of-doors, as they are naturally of a very tall habit, which is not modified, but rather increased, by culture under glass. If the plants are placed in the greenhouse when in flower, where they can be kept cool and shaded from bright sunshine, they last a very long time in beauty, and no class of flowers are more admired in our garden than these yellow ground Picotees. Some of the yellow selfs are also of great beauty, especially the charming variety King of Yellows, which never bursts its pods. Lady Rosebery is a flower of more substantial build; and Chromatella is a neat flower of a different type than either of them. *J. Douglas, Great Gearies.*

NEW ZONAL PELARGONIUMS.—Many who attended the last exhibition of the Pelargonium Society at South Kensington will remember that Messrs. J. R. Pearson & Sons, of the Chilwell Nurseries, Nottingham, exhibited a batch of new zonal Pelargoniums under numbers, and that many of them attracted attention because of their fine properties of size, stoutness, smoothness, and decided as well as delicate colours. Time was when a pretty certain line of difference could be drawn between what were once denominated "hybrid nosegays" and "zonal" types; but Messrs. J. R. Pearson & Sons, in the case of some, at least, of the new varieties they will send out next spring, and in what they have previously distributed, have almost, if not quite, blotted out any such distinction as that above mentioned by producing varieties of compact yet free growth, great profusion of bloom, size, stoutness, and rotundity of pip, and immense trusses of flower. At this season of the year Mr. Cannell is in the habit of exhibiting at the meetings of the Royal Horticultural Society, and elsewhere, stands of cut flowers of zonal Pelargoniums of wonderful beauty and finish, and among these are sometimes seen illustrations of varieties classed as "hybrid nosegays" that are as fine in form and perfect in development as the best of the zonal type. We have, therefore, come very near, if not quite up to the time, when any artificial divisions, which are at best only arbitrary and misleading, may be swept away, and "single zonals" form one broadly inclusive and comprehensive class.

Messrs. Pearson's new varieties are as follows:—Aline, white, large bold pip, fine form, handsome truss, and good habit; James Douglas, dark crimson, extra fine quality; Lord Chesterfield, magenta, very pleasing shade, bold and striking; Mrs. Norris, scarlet, large white eye, glowing in colour, extra fine; Lady Chesterfield, salmon suffused with orange—one of those pleasing new shades these well-known raisers have produced of late; Plutarch, bright scarlet, white eye, fine and striking; Caroline, crimson-scarlet, white eye, rich in colour; Tristan, vermilion-scarlet, very stout and bold; Ajax, rich vermilion, extra fine quality; Mrs. Johoson, rosy-pink deepening to rose, a fine addition to this class; and Norah, salmon suffused with pink, very pleasing, and a decided acquisition. The foregoing are all well worthy attention. *R. D.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, DECEMBER 26, 1883.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 50 years.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 6th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Dec.	In.	In.	°	°	°	°	°	°	°		In.
20	29.83	−0.01	47.0	35.0	12.0	42.5	+ 2.8	40.5	93	W.	0.00
21	29.74	−0.10	48.5	41.0	7.5	44.9	+ 5.6	40.8	86	S.W.; W.S.W	0.00
22	29.76	−0.09	50.2	41.5	8.7	46.3	+ 7.5	41.9	87	W.	0.00
23	30.19	+0.34	48.0	34.0	14.0	40.0	+ 1.6	34.0	79	W. NW	0.00
24	30.35	+0.49	48.5	32.0	16.5	42.7	+ 4.5	39.4	88	S.W.; W.S.W	0.00
25	30.40	+0.52	45.5	39.4	6.1	41.8	+ 3.8	35.1	77	Fog	0.00
26	30.35	+0.47	42.0	37.8	4.2	39.8	+ 2.0	35.2	89	Fog	0.02
Mean	30.09	+0.23	47.1	37.2	9.9	42.6	+ 4.0	38.1	86	W.	0.02

Dec. 20.—Fine, dull day and night.
— 21.—Fine, gleams of sunshine at times; overcast mostly.
— 22.—Fine and bright occasionally. Fine night, clear sky from 11 P.M.
— 23.—Fine; sun's place visible all day. Cold night fog.
— 24.—Fine, dull day and night.
— 25.—Thick fog all day and night. Clear at 11 P.M.
— 26.—Thick fog all day and night. Drizzling rain at midnight.

LONDON: *Atmospheric Pressure.*—During the week ending December 22, the reading of the barometer at the level of the sea increased from 29.52 inches at the beginning of the week to 30.45 inches by midnight on the 17th, decreased to 30.27 inches by midnight on the 18th, increased to 30.37 inches by 9 A.M. on the 19th, decreased to 29.90 inches by 9 A.M. on the 21st, increased to 29.96 inches by 9 A.M. on the 22d, and was 29.91 inches by the end of the week.

The mean reading of the barometer for the week at the level of the sea was 30.10 inches, being 0.26 inch higher than last week, and 0.03 inch higher than the average of the week.

Temperature. — The highest temperature in the shade in the week was 50°.2, on the 22d; the highest reached on the 17th was 38°.5. The mean of the seven high day temperatures was 44°.

The lowest temperature was 33°, on the 18th; on the 22d the lowest temperature was 41°.5 The mean of the seven low night temperatures was 36°.6.

The greatest range of temperature in one day was 12°, on the 20th; and the smallest was 5°, on the 16th and 17th. The mean of the seven daily ranges was 7°.4.

The mean temperatures were—on December 16, 37°.3; on the 17th, 36°; on the 18th, 37°.2; on the 19th, 40°.6; on the 20th, 42°.5; on the 21st, 44°.9; and on the 22d, 46°.3; of these the first three were below their averages by 3°.4, 4°.5, and 3° respectively, and the rest were above by 0°.6, 2°.8, 5°.6, and 7°.5 respectively.

The mean temperature was 40°.7, being 2°.8 lower than last week, and 0°.8 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 74°, on the 22d. The mean of the seven readings was 54°.7.

The lowest reading of a thermometer with its bulb placed on short grass was 26°.5, on the 17th. The mean of the seven readings was 29°.7.

Rain.—Rain fell on the 16th to the amount of 0.09 inch.

ENGLAND: *Temperature.*—During the week ending December 22 the highest temperatures were 51°.2 at Liverpool, 50°.2 at Blackheath, 50° at Truro, Sheffield, Hull, and Leeds; the highest at Bristol was 48°, at Bradford 48°.4, and at Bolton 48°.7. The general mean was 49°.4.

The lowest temperatures in the week were 27°.7 at Wolverhampton, 29° at Truro, and 30° at Hull; the lowest at Sheffield, Blackheah, and Leeds was 33°. The general mean was 31°.6.

The greatest ranges in the week were 21°.1 at Wolverhampton, 21° at Truro, 20° at Hull; the smallest ranges were 15°.2 at Liverpool, 16°.3 at Brighton, and 17° at Plymouth. The general mean was 17°.8.

The mean of the seven high day temperatures was highest at Truro, 48°, at Plymouth 46°.4, at Sheffield and Liverpool 46°; and was lowest at Wolverhamp-

ton, 43°, at Bolton 43°.2, and at Brighton 43°.7. The general mean was 44°.8.

The mean of the seven low night temperatures was highest at Liverpool, 40°, at Truro 39°.9, at Plymouth 37°.8; and was lowest at Wolverhampton, 33°.4, at Hull 34°.4, and at Nottingham 35°.2. The general mean was 36°.6.

The mean daily range of temperature was greatest at Hull, 10°.1, at Wolverhampton 9°.6, at Sheffield 8°.9; and was least at Liverpool, 6°, at Blackheath and Bradford 7°.4. The general mean was 8°.2.

The mean temperature was highest at Truro, 43°.9, at Liverpool 43°, at Plymouth 42°.1; and was lowest at Wolverhampton, 38°.2, and at Nottingham and Hull, 39°.5. The general mean was 40°.7.

Rain.—The largest fall was—1.15 inch at Bolton, 0.48 inch at Cambridge, 0.46 inch at Leeds; the smallest fall 0.09 inch at Brighton and Blackheath, and 0.11 inch at Plymouth. The general mean fall was 0.30 inch. No rain fell at Wolverhampton. Rain fell on every day in the week at Nottingham and Sheffield.

SCOTLAND: *Temperature.*—During the week ending December 22 the highest temperature was 52°, at Glasgow; at Aberdeen the highest in the week was 48°.7. The general mean was 50°.1.

The lowest temperature in the week was 31°, at Paisley; at Leith the lowest temperature was 36°.3. The general mean was 32°.4.

The mean temperature was highest at Leith, 42°.7; and lowest at Perth, 38°.4. The general mean was 40°.4.

Rain.—The largest fall was 2.08 inches, at Greenock; and the smallest fall was 0.22 inch, at Perth. The general mean fall was 0.74 inch.

JAMES GLAISHER, F.R.S.

Variorum.

VEGETABLE PRODUCTS OF SIENA, ITALY.—Mulberry trees, it is stated by Consul Colnaghi in a recent report, are found in nearly all parts of the province — in the plains as well as on the hills — sometimes planted irregularly near the farmhouses, but generally standing in rows in the fields. The principal variety cultivated is the Araucina; to which most of the old trees belong. In recent plantations the Morettina, the leaves of which are not lobed, and more rarely the Philippine large-leaved variety, are met with. The trees are grown entirely for their leaves. The Araucina is pruned by simply cutting off the dry and exuberant branches. The "Nurettina," on the contrary, is polled all round, generally in the autumn, when the second leaves have been gathered for the cattle. Mulberry trees are generally propagated from cuttings, but they are also raised from seed, and the hardiest plants are said to be thus obtained. The seeds are sown at the end of summer in a bed of mould which is watered and kept free from weeds. In the second year the young plants are transferred to the nursery, and in the fourth year or later are grafted. The graft is inserted about 2 metres or more above the root joint, so that the trunk remaining wild the plant is more vigorous. The cultivation of Saffron was formerly very important in the southern region of the province, but now, with few exceptions, it has become a garden product and appears to be disappearing. Oak woods, which are said to be generally of small extent, are still met with in the Montagnola Senese, in the Val di Chiana, where they are gradually disappearing, and in the valley of the "Cute." In the mountain region Quercus sessiliflora and Q. pedunculata are found on rocky soils; lower down Q. Ilex is met with, either alone or in company with deciduous Oaks. Here and there large isolated trees are found in the cultivated fields, the last relics of old forests that have long since been cut down. Where the trees are grown for timber they are felled at stated seasons, and if grown for Acorns only the oldest trees alone are cut down on showing signs of decay. In both cases the vacant spaces are, or should be, filled up with saplings or seedlings. Chestnut woods, Consul Colnaghi says, are met with in the southern mountains of the district of Montepulciano, on the Montagnola, and on the hills near Montalcino, Monticiano, and Chiusdino, in the district of Siena. Chestnuts form the chief food of the agricultural labourer in the districts where they grow; various qualities are cultivated, but for size and flavour the "Marrone" obtains the preference. The Chestnut trees are pruned annually or biennially, all the dried and rotten branches being lopped off; fresh earth is also placed over any roots that may be uncovered. The trees are renewed by shoots, which spring up when an old tree has been cut down, or by grafts. Nearly all the fruit is dried and ground into flour. In the district of Montepulciano the Chestnuts are husked by being placed in tubs after they are dried, and trodden by men wearing clogs, to which iron points are affixed. At Monticiano the fruit is spread on the ground and beaten with an implement called *mazzeranga*. Women are employed to take off the inner skins of the Chestnuts.

Obituary.

WE much regret to learn, as we go to press, that Mr. SPEED, gardener to the Duke of Devonshire at Chatsworth, committed suicide on Wednesday afternoon by shooting himself in the bedroom of his residence in Chatsworth Gardens.

Answers to Correspondents.

GARDENIA-HOUSE: *S. B.* If the span-roofed house is a dwarf one the bed in the middle will suit the Gardenias very well; but if it has side lights, the beds for these might be placed at the sides. Care should be taken that the bottom-heat supplied is very moderate in quantity. Pipes under a stone or slate platform would be enough. The planted-out Stephanotis would endure more bottom-heat, and the Dipladenias would enjoy it whilst growing, but would require none whatever during the resting period, so that provision would have to be made to shut off the circulation from their branch. Loam, peat, and but little manure in the solid form, with plenty of silver-sand, would suit them all, but giving rather more peat to the Dipladenias and Gardenias. The drainage must be good, the soil somewhat rough, lumpy, and fibrous, and the plants should be planted on slight mounds, with a rim of earth to retain water at first. Top-dressings of decayed cow and horse droppings, or some good artificial manure like Clay's, would suit them when growing. Plant at the end of March.

ERRATA.—At p. 782, second line from top, read "west and east" instead of "north and east" aspects; and in the list of Apples read "Forfarshire or Thorle" instead of "short Pippin."

NAMES OF PLANTS: *H. J. Ross.* Cheilanthes elegans. —*T. M.* must send better specimens.—*Alpha.* Stanhopea occulata—a poor variety.—*G. E. f*, Abies balsamea var. Hudsonica (?); *b*, Pinus pyrenaica (?); *c*, Abies Douglasii; *d*, specimen too poor to name; *e*, Abies pectinata variety (?).—*F. P.* 1, Abies pectinata variety (?); 2, Cupressus Lawsoniana var. lutea; 3, Retinospora pisifera var. aurea; 4, Retinospora obtusa var. aurea.

NAMES OF FRUITS: *A. S.* Apple not known: a fine handsome fruit; No. 2, Sussex Duck's-bill.—*G. G.* 1, Mère de Ménage; 2, Blenheim Orange; 3, King of the Pippins probably, fruit much bruised; 4, Warrior King; 5, Fearn's Pippin; 7, Glou Morçeau. Pear: 8, Rymer.—*J. M.* Apple not recognised.

SILO (See Enquiry p. 767): It is pointed out by more than one correspondent that this word comes from the Spanish *silo*, and this from σιρός, a pit, the *r* being changed into an *l* as is so commonly the case. We have letters on the subject whose publication must be deferred.

*** All communications intended for publication should be addressed to the "*Editor*," and not to the Publisher or to any member of the staff personally. The Editor would also be obliged by such communications being *written on one side only of the paper* and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

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INTELLIGENT READERS, PLEASE NOTE: — *Letters relating to* ADVERTISEMENTS, *or to the supply of the Paper, should be addressed to the Publisher, and* NOT *to the Editor.*

CATALOGUES RECEIVED.

FREDERICK ROEMER, Quedlinburg, Germany—Flower, Vegetable, and Agricultural Seeds.

EDWARD WEBB & SONS, Wordsley, Stourbridge—Spring Seed Catalogue for 1884.

JOHN DOWNIE, 144, Princes Street, Edinburgh—Vegetable and Flower Seeds, &c.

W. B. SMALE, Torquay—Seed Catalogue.

R. B. LAIRD & SONS, 17, Frederick Street, Edinburgh—Vegetable, Flower, and Agricultural Seeds.

COMMUNICATIONS RECEIVED.—O. O. W.—C. W. S.—R. D.—G. G.—H. W. W.—H. E.—H. C.—H. P.—J. A.—A. J. S.—Kingfisher.—H. Brockbank—J. J. W.—W. G. S.—A. E.—J. B. D.—W. G.—J. Ashton.—J. F.—O. O.—A. D.—E. W. J.—P. N. F.—R. I. L.—C. & R. (send another specimen.)—H. A. H.—I. & T.—E. C.—R. B. D.—P. B.—Vallardi.—W. B.—A. W.

Markets.

COVENT GARDEN, December 20.

LITTLE or no business has taken place here since Saturday last. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 0– 4 0	Lemons, per case ..	15 0–25 0
Cobs, per 100 lb...	140 0– ..	Pears, French, doz.	1 6– 9 0
Figs, per dozen ..	1 0– ..	Pine-apples, Eng., lb.	1 6– 2 0
Grapes, per lb. ..	1 0– 4 0	— St. Michael's, each	5 0– 8 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz. ..	3 0– 5 0	Horse Radish, bund.	3 0– 4 0
— Jerusalem, bush.	4 0– ..	Lettuces, Cabbage, per dozen ..	1 0– ..
Beans, French, lb. ..	1 0– ..	Mint, green, bunch..	1 0– ..
Beet, per doz. ..	1 0– ..	Mushrooms, p. baskt.	1 0– 2 0
Cabbages, per doz...	1 0– 2 0	Onions, per bushel..	4 0– ..
Carrots, per bun. ..	0 4– 0 6	— Spring, per bun.	0 6– ..
Cauliflowers, English, dozen.. ..	2 0– 3 0	Parsley, per bunch..	0 4– ..
Celeriac, per root ..	0 4– 0 6	Radishes, per doz. ..	1 6– ..
Celery, per bundle..	1 6– 2 6	Rhubarb, per bund.	0 9– ..
Cucumbers, each ..	0 6– 1 0	Salsafy, per bundle..	0 8– ..
Endive, English, per dozen	1 0– ..	Seakale, per punnet	2 6– ..
Garlic, per lb. ..	0 6– ..	Small salading, pun.	0 4– ..
Herbs, per bunch ..	0 2– 0 4	Spinach, per bushel	4 0– ..
		Tomatos, per lb. ..	0 9– 1 0
		Turnips, new, bun.	0 4– ..

POTATOS.—Kent Kidneys, £4 to £4 10s. per ton; do., Regents, £3 10s. to £4 10s.; Champions, £3 10s. to £3 15s. per ton.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0– 4 0	Marguerites, 12 bun.	4 0– 6 0
Arum Lilies, 12 blms.	6 0–12 0	Mignonette, 12 bun.	3 0– 9 0
Azalea, white, 12 spr.	1 0– 2 0	Narcissus (Paper-white)	2 0– 4 0
Bouvardias, per bun.	1 0– 1 6	Pelargoniums, 12 spr.	1 6– 3 0
Camellias, per doz...	3 0– 6 0	— zonal, 12 sprays	0 9– 1 0
Carnations, 12 blms.	1 0– 3 0	Poinsettia, 12 blooms	6 0–12 0
Chrysanth., 12 blms.	2 0– 4 0	Primula, double, bun.	1 0– 1 6
— 12 bunches ..	9 0–24 0	— single, 12 bun...	6 0– 9 0
Cyclamen, 12 blooms	0 3– 0 6	Roses (indoor), doz.	2 0– 6 0
Epiphyllum, 12 blms.	0 6– 1 0	— coloured, doz. ..	3 0– 8 6
Eucharis, per doz. ..	6 0–12 0	Tropæolum, 12 bun.	1 0– 2 0
Gardenias, 12 blms..	12 0–24 0	Tuberoses, per doz..	4 0– 6 0
Heliotropes, 12 sp. ..	0 6– 1 0	Tulips, 12 blooms ..	1 0– 2 0
Hyacinths (Roman), 12 sprays	1 6– 2 0	Violets, 12 bunches..	1 0– 1 6
Lapageria, white, 12 blooms	3 0– 6 0	— French, per bun.	2 0– 2 6
— red, 12 blooms..	1 0– 3 0	— Parme, per bun.	4 0– 5 0
Lilac, white Fr., bun.	8 0–10 0	Wallflower, 12 bun..	4 0– 6 0
Lily-of-Valley, 12 spr.	4 0– 6 0	White Jasmine, per bunch	0 6– 1 0

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	12 0–24 0	Ficus elastica, each	1 6– 7 0
Arbor-vitæ (golden), per dozen	6 0–18 0	Foliage Plants, various, each	2 0–10 0
— (common), dozen	6 0–12 0	Hyacinths, per doz.	9 0–12 0
Azaleas each ..	2 6– 5 0	— Roman, per doz.	18 0–24 0
Begonias, per doz. ..	6 0–12 0	Lily of the Val., pot	4 0– 6 0
Bouvardias, doz. ..	12 0 18 0	Marguerite Daisy, per dozen	12 0–18 0
Chrysanth., per doz.	6 0–18 0	Myrtles, per doz. ..	6 0–12 0
Cyclamen, per dozen	9 0–24 0	Palms in variety, each..	2 6–21 0
Dracæna term. doz...	30 0–60 0	Pelargoniums, scarlet, per dozen ..	6 0 12 0
— viridis, per doz..	12 0–24 0	Poinsettias, per doz.	12 0–24 0
Epiphyllum, per doz.	18 0–30 0	Primula, single, doz.	4 0– 6 0
Erica, various, doz...	9 0–24 0	Solanums, per dozen	8 0–15 0
Euonymus, various, per dozen	9 0–18 0	Tulips, per dozen ..	6 0–12 0
Evergreens, in var., per dozen	6 0–24 0		
Ferns, in var., dozen	4 0–18 0		

SEEDS.

LONDON: *Dec.* 24.—Messrs. John Shaw & Sons, of 37, Mark Lane, report that as usual towards the close of the year the business passing in farm seeds is now as nearly *nil* as possible. As regards values there is no change to note, all descriptions being held with firmness. Italian Rye-grass has been meeting with rather more attention. The prices asked for spring Tares are above buyers' views. Some new Hemp seed has just come to hand. For Canary seed the inquiry is small. Blue Peas and Haricot Beans move off slowly at last week's currencies. Feeding Linseed is firm and scarce.

CATTLE.

At the Metropolitan Market on Monday the scanty supplies of stock met a quiet demand, but mostly sold at about previous rates. Quotations:—Beasts, 4*s.* 4*d.* to 5*s.* 6*d.*, and 5*s.* 8*d.* to 6*s.*; calves, 5*s.* to 6*s.* 2*d.*; sheep, 5*s.* 6*d.* to 6*s.*, and 6*s.* 4*d.* to 7*s.* 2*d.*—On Thursday the market was without fresh feature. Fine beasts were in fair demand at steady prices, otherwise the tone was weak. Sheep and calves remained about the same, and pigs were firm.

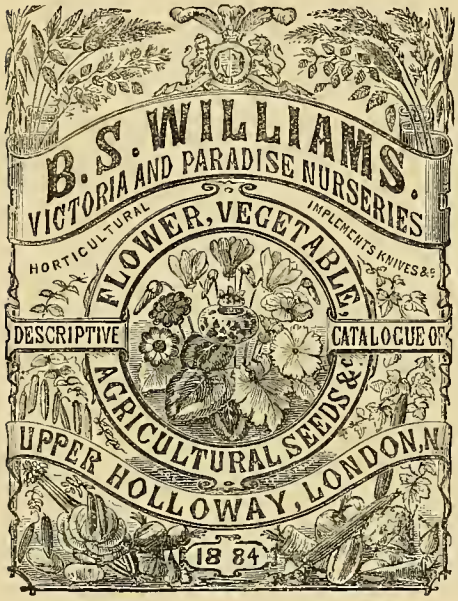
HAY.

At Whitechapel Market on Thursday there was scarcely anything on offer. There was no trade, and prices altogether nominal. — Cumberland Market quotations:—Superior meadow hay, 84*s.* to 92*s.*; inferior, 63*s.* to 72*s.*; superior Clover, 100*s.* to 112*s.*; inferior, 70*s.* to 90*s.*; and straw, 34*s.* to 38*s.* per load.

COALS.

The following are the prices current at market during the week:—Walls End—Hetton, 18*s.*; Hetton Lyons, 16*s.* 6*d.*; Lambton, 17*s.* 6*d.*; Wear, 16*s.* 6*d.*; Thornley, 17*s.*

Government Stock.—Consols closed on Monday at 100⅝ to 100¾ for delivery, and 100 13/16 to 100 15/16 for the account. The Exchange was closed on Tuesday and Wednesday. Thursday's closing figures were those of Monday—all ex div.



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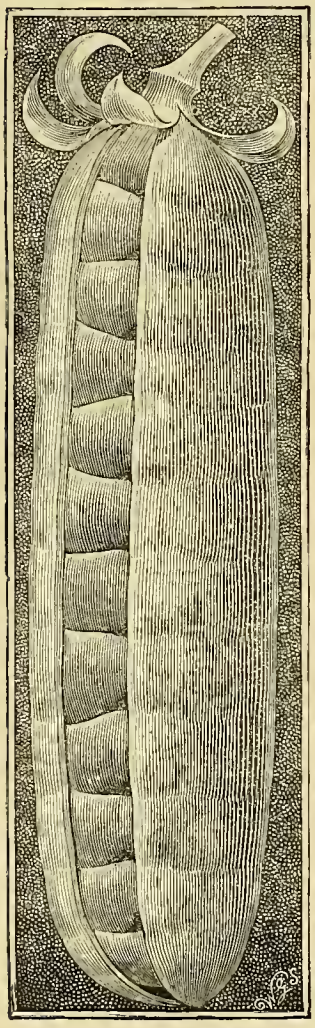

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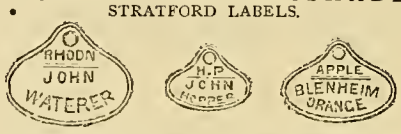

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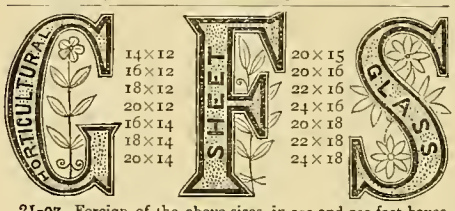

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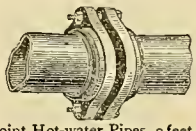

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Sold in Casks of about 30 gallons each, at 1*s.* 6*d.* per gallon at the Manufactory, or 1*s.* 8*d.* per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"*Piercefield Park, June* 21, 1876.—Sirs.—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Piercefield Park, Chepstow.—I am, Sirs, yours respectfully, WM. COX."

CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.
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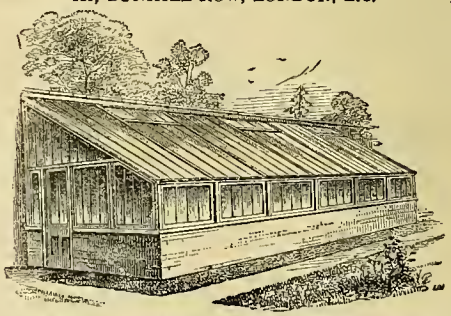

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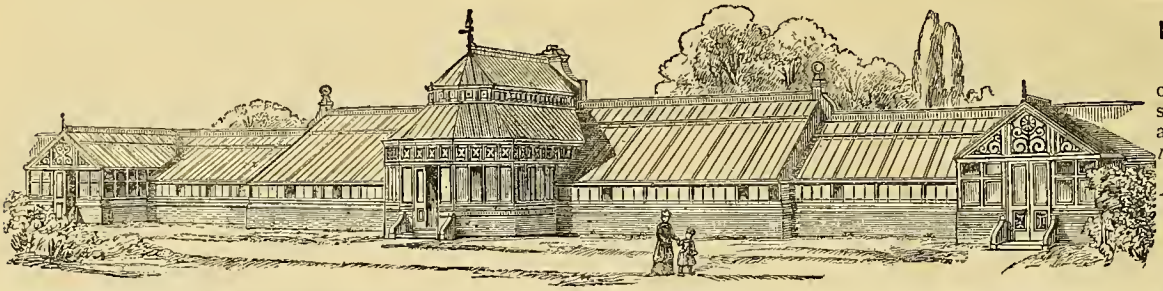

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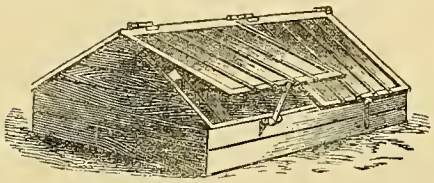

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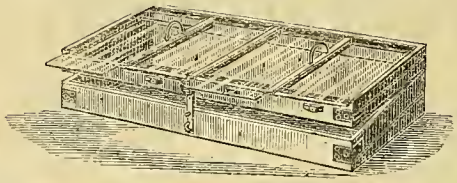

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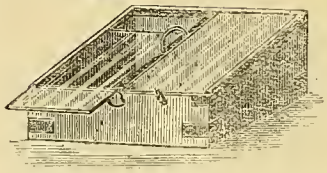

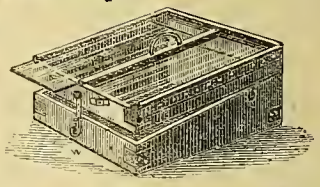

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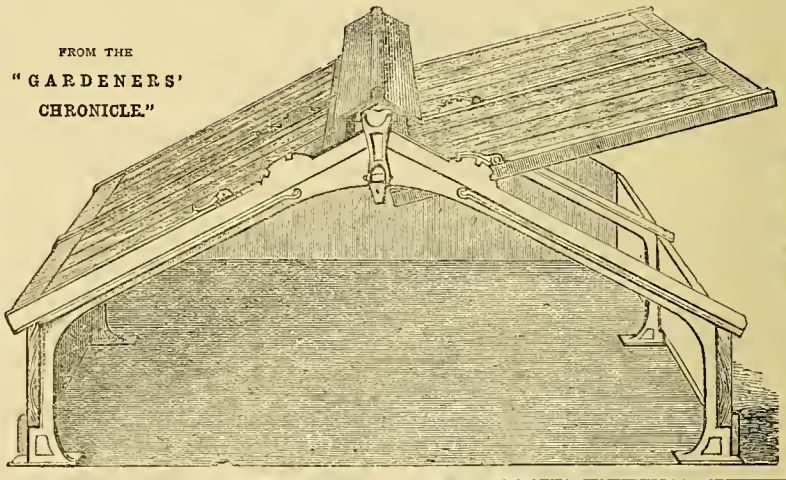

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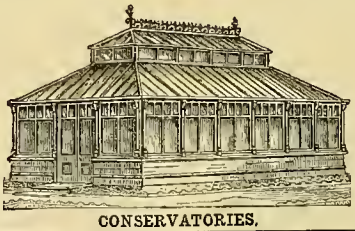

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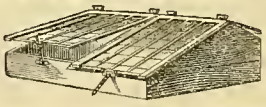

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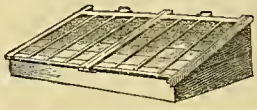

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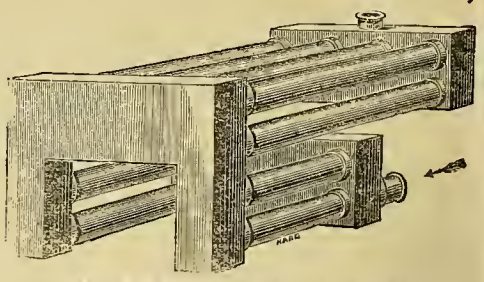

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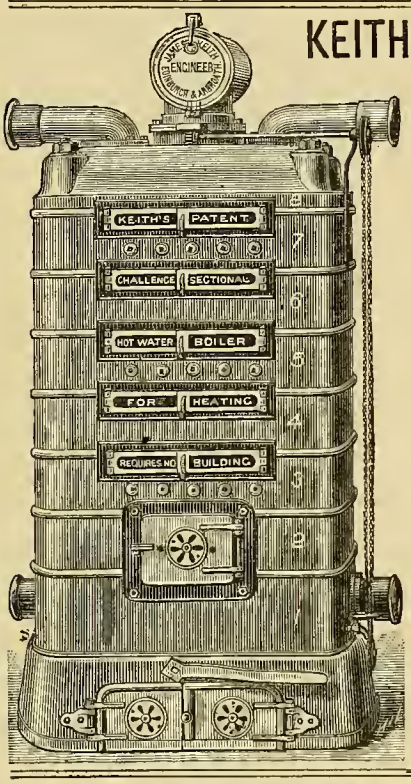

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Specimen Extracts from Testimonials:—

From W. MORGAN ROBBINS, Esq., *Architect, Ilfracombe, September* 9, 1880.

"I am delighted with your Boiler; it answers admirably, and the directors are satisfied that it is one of the best £25 worth ever put in the hotel."

From Q. C. CHALMERS, *Gardens of* James Mudie, Esq., *Broughty Ferry, September* 15, 1880.

"Your Boiler heats all my expectations; at present one fire serves for twelve hours, and keeps up a good, steady heat."

From ISAAC HOLDEN, Esq., *Oakworth House, Keighley, Yorkshire, June* 19, 1881.

"Your Boilers are the best we have tried." (Note: One of these Boilers heats nearly 8000 feet of 4-inch pipe.)

From WM. FRASER, *Kippen Gardens, Dunning, Perthshire, December* 6, 1881.

"I consider your Boiler most efficient; as for economy, it is the acme of perfection."

From Rev. JAMES CARDWELL, *Military Academy, Highlands, Jersey, December* 31, 1881.

"Nothing could be better than the Boiler you sent me; it burns all sorts of rubbish, and gives an excellent heat."

From ARTHUR BOOTY, Esq., *Rose Villa Nurseries, High Harrogate, March* 22, 1882.

'Your Boiler has exceeded all my expectations; it will pay for itself as a fuel saver in a short time. It heats 2000 feet of 4-inch pipe."

Keith's Treatise on "Heating by Artificial Means," post-free, for twelve stamps.

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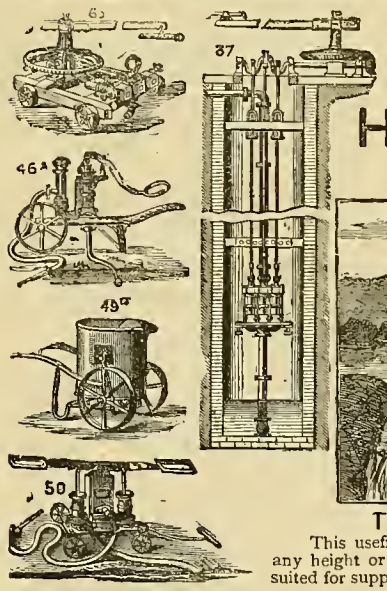

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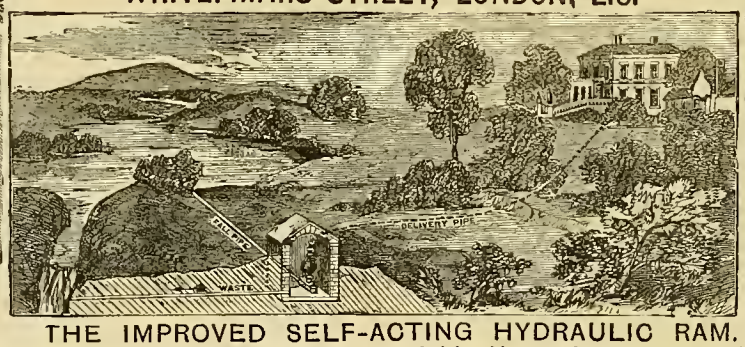

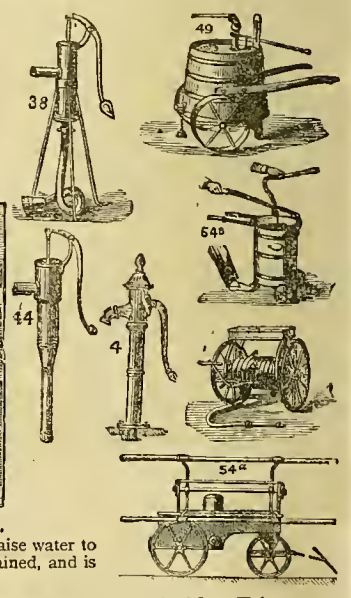

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